



fair

forum for anti-doping
in recreational sport

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FINAL REPORT

An introduction by Professor Michael McNamee, Chairperson of the FAIR



The objectives of FAIR were to review existing doping prevention interventions (Technical Expert Group [TEG]1), and for food and food supplements (Technical Expert Group [TEG]2) across the EU 28 (plus Norway), and report on good practices. The FAIR also set out to update the EU 28 2014 factsheet of the Study on Doping Prevention in Recreational Sport. The study followed the European Commission definition of recreational sport as “sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities”.

TEG1 reports that this population, in contrast to elite level athletes, are more heterogeneous and are additionally motivated by image enhancement. Existing interventions lack theorised bases and rigorous evolution, though preventative approaches seem most promising. Interventions employing a range of methods (e.g. higher number of behavioural change techniques combined with educational components), were generally associated with better outcomes. Furthermore, promising interventions involve inter-institutional collaboration, seeking commitment to anti-doping, active learning, and a focus on positive values related to sport, exercise and body image, rather than the use of ‘scare tactics’. Generally, National Anti Doping Organisations (NADOs) lead interventions, followed by schools and sports associations/clubs.

TEG 2 reports inconsistencies in nomenclature – “food”, “food supplements” and “food intended for sportspeople”, alongside multiple laws relating potentially to their use. This represents a very significant regulatory challenge. The majority of the definitions reviewed recognise nutritional supplements to be dietary ingredients taken to supplement an individual’s diet. Several different certification systems for these supplements exist. All 28 EU NADOs provide guidance to athletes and Athlete Support Persons to reduce the risk of inadvertent doping from sports food and sports supplements. Almost all NADOs and most International Federations surveyed alert individuals to the latest supplement contamination and/or adulteration risks using multiple channels, e.g. website, education programs, social media and newsletters. None of the organisations, however, reported on intervention effectiveness. A co-ordinated approach to improving the messages and regulatory frameworks surrounding these dietary supplements is recommended to enhance stakeholders’ decision-making processes, help reduce inadvertent doping in sport, and protect against unnecessary harm to consumers.

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The Forum for Anti-Doping in Recreational Sport (FAIR)

Report on doping prevention interventions in Europe and on the future harmonisation of the testing and labelling of sports food and food supplements aimed at sportspeople in the context of recreational sport

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Chapter 1 - The FAIR Project

In recent years EuropeActive and the project partners have been integrally involved with the European debate on doping in recreational sport. Some of the recent work included the Fitness Against Doping project, attendance at the Expert Group on Anti-Doping and the lead in the Study on Doping Prevention (SoDP) as well as other Erasmus+ funded actions. At the EU Sport Directors meeting in Riga in February 2015, the seven recommendations made in the SoDP were accepted, but without any specific mandate for future action upon them.

The FAIR project proposed specifically to address three of the SoDP recommendations, and also within the context of the 2011 Communication on Sport, which emphasised that doping remains an important threat to recreational sport. The FAIR project was co-funded by the European Commission under the Erasmus+ programme and was programmed over three years, starting in January 2016.

It proposed original research and evidence-gathering that would be examined and discussed in three annual forums to include a systematic review of active interventions, policies and campaigns. Specifically, the FAIR project addressed three Study on Doping Prevention recommendations:

- (2) Develop a robust international, research-driven evidence base to inform future policy, practice, and interventions into the problem of doping in recreational sport (and specifically to include dietary and food supplements used by sportspeople);
- (6) Support and develop initiatives aimed at raising awareness within each MS public health sector in order to make an active contribution to the prevention of doping in recreational sport;
- (7) Develop a platform to share and disseminate a consistent and agreed understanding of legislation, regulations and good practice in relation to the prevention of doping in recreational sport and to facilitate effective networks for the exchange of actions, campaigns, data and policies.

For the purposes of this report, and during the work of the FAIR project the following definition of recreational sport was accepted by the European Commission and the project partners:

Definition of Recreation Sport

Recreational sport is defined as sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.

The following sections of this report describe the detailed actions undertaken within the project and which now make available proven good practices and makes recommendations at the EU/national level which apply to sport federations, clubs, centres, and associations and also for individual sport and fitness coaches, trainers and instructors.

The project objectives were divided into different areas of action but based on the framework of the Study on Doping Prevention to provide a focus for developing a Europe-wide network to review and evaluate existing approaches through its annual forums. Principally, the project partners divided into two main technical experts groups (TEGS) which considered:

TEG 1 as the review and recording of interventions in anti-doping activities; and

TEG 2 as the overview of current practice in the area of food/supplements for sport people.

The work of the two TEGS was underpinned by systematic and directed research by PhD and Masters level students.

In more detail, TEG1 looked at existing interventions to assess their effectiveness and how they can be replicated and/or amended for effective use in other Member States who wish to introduce their own campaigns. From a policy development perspective this included the need to define the responsibilities of different stakeholders (both governmental and non-governmental) and examine the levels of engagement of sectoral ministries such as health, justice, education, and internal affairs. Although different forms of collaboration exist in the elite and competitive sport domain, a consistent solution across Member States has been difficult to establish in the context of recreational sport that is often due to a shortage of clearly defined roles and responsibilities.

In respect of the work of TEG 2 the lack of co-operation between key stakeholders in the area of sports food and dietary supplements for sportspeople is perceived by number of Member States to be a key barrier. Whether this barrier could be overcome by better sharing of information and good practice, or whether it is culturally or structurally established, and therefore more intransigent, remains unclear. During the lifetime of the project some new development work of European standards (CEN/TC 453 “Doping prevention in sport – Good development and manufacturing practices aimed at preventing the presence of prohibited substances in food intended for sports people and food supplements”) has begun.

The overarching aim of TEG 2 was to assess the burden of responsibility placed upon sportspeople in relation to the use of sports foods and supplements and this has included:

- Examining industry practice and national initiatives across the EU 28 to reduce the risk of inadvertent doping via risk minimisation processes;
- Mapping supplement certification interventions;
- Assessing Professional Body Codes of Conduct 2.
- To examine industry practice of sports food and supplement labelling (to enable sportspeople to make informed choices); and
- Examining NADO messaging on nutritional supplement use in education and information campaigns for athletes and athlete support personnel.

A third main action of the FAIR project was the organisation of an annual forum for open discussion and objective thinking about reducing the prevalence of doping for performance- and image-enhancing purposes. The three forums have been highly successful in raising awareness of many doping issues and in providing a platform for doping stakeholders and policy makers to discuss and promote the project findings and outcomes.

The FAIR project set out to inform key stakeholders and policy makers on evidence-based planning and to encourage them to adopt the good practices and to use the information material/tools to raise awareness of doping issues to their users. Specifically, the project wishes to address future policy towards the EU Institutions, national policy-makers and Anti-Doping Organisations, recreational sporting clubs, associations and federations and also individual instructors, trainers and coaches.

The Forum for Anti-doping in Recreational Sport 2 (FAIR) project was co-financed by the European Union under Agreement Number 2016 – 3637 / 001 – 001. It started on 1st January 2017 and completed on 31st December 2019.

The partners for the FAIR project were:

- EuropeActive – EU/BE
- Leeds Beckett University, Institute of Sport, Physical Activity and Leisure - UK
- Anti-Doping Authority of the Netherlands - NL
- Cyprus Anti-Doping Authority - CY
- University of Aarhus, Faculty of Science and Technology, Department of Sport Science - DK
- Sapienza University of Rome, Department of Developmental and Social Psychology – IT
- The Enterprise Federation of Norway (Virke) and NO Anti-doping Authority - NO
- The Association for International Sport for All (TAFISA) - DE

The success of the project relied upon the professionalism to deliver the tasks established in the different partner agreements and the ability of the partners to cooperate together and within other networks of stakeholders and experts. Each partner had a different emphasis within their roles and in their contributions made which helped achieve the expected project outcomes.

January 2017 – Brussels: Kick-Off Meeting

April 2017 – Brussels: TEG1 Meeting

October 2017 – Brussels: 2nd Partner Meeting and 1st Annual Forum

April 2018 – London: TEG1 Meeting

November 2018 – Brussels: 3rd Partner Meeting and 2nd Annual Forum

June 2019 – Rome: 4th Partner Meeting

November 2019 – Brussels: Final Partner Meeting and 3rd Annual Forum

The project was divided into 6 main work packages:

WP	Work package title	Leader	Active Partners
WP 1	Project management and quality assurance	EuropeActive	Project Quality Team
WP 2	Communication, dissemination and project website	EuropeActive TAFISA	All Partners
WP 3	Research, evaluation and reporting of existing interventions on doping prevention	Aarhus University	Sapienza University Cyprus Anti-Dop. Authority Anti-Doping Norway
WP 4	Review of sport food and food supplements for sportspeople	Leeds Beckett Uni AntiDoping Authority Netherlands	All Partners
WP 5	The annual forum and reporting to the European Commission and stakeholders	EuropeActive	All Partners
WP 6	The specific recommendations and “tool kits” for future action at national, federation/club, and individual trainer levels	All Partners	

This structure ensured a detailed plan for delivery through coordinated actions and within a realistic timeframe to maximise the resources and support available. Because of the extent of the field work necessary, and the fact that interventions should be reviewed over time, the project was based on the maximum allowable in the Erasmus+ Programme for three years.

The project started with an agreed work plan, detailed administration procedures, timeframes and expected outcomes. By focusing on the effectiveness of existing prevention strategy actions, the scope of the project was kept highly focused and deliverable, and included three open forums for stakeholders to be able raise questions, offer competing and complementary points of view, present new research and findings, and to contribute to the development of effective, proven interventions in anti-doping. In the knowledge that examples of materials, field practice and EU-wide recommendations already exist (such as in the Netherlands, Norway or Ireland), these were systematically reviewed in a timely way to measure their individual effectiveness and performance. The actions of the partners were supported by incisive research undertaken by 4 different PhD/Master students from Aarhus, Leeds Beckett, and Swansea Universities

The overall findings of the Study on Doping Prevention provided an overview of activities in all 28 Member States, and in the FAIR project all 29 NADOs supplied additional information for inclusion in the updated SoDP fact sheets. This important work of updating their position has identified changes that have occurred since their publication in early 2015, and will keep the SoDP up to date as the most relevant source of EU-wide information on anti-doping in recreational sport.

The updated fact sheets are contained in **Chapter 5 of this report.**

The project positioned itself to continue the impetus of the work of the EU Expert Group on Doping in Recreational Sport and the outcome of the Study on Doping Prevention. It has provided a “conduit” to gather information and research on campaigns, policies and actions to help develop on an EU-wide basis the most effective anti-doping preventative actions. The partners were selected on their basis of influence and expert knowledge in this area and the work plan had been developed to deliver the main outcomes in a reasonable and open way.

The overall management was the responsibility of EuropeActive who prepared separate agreements for each partner that included their obligations, an outline of the grant available, their tasks and responsibilities through the project collaborative partnership arrangement. To support the project delivery there was administration and operational handbooks, a quality plan, and a dissemination strategy to measure its delivery and ultimately its effectiveness. John Stringer of Berkeley Associates was appointed as the independent external evaluator.

The FAIR project set some ambitious and far-reaching expectations in terms actions and outcomes for the interested groups and actors who all have a role to play in reducing the prevalence of doping in recreational sport. The following tables explain the indicators and which are aimed at these target groups:

- [The European Commission](#)
- [The Council of Europe](#)
- [Member States and their relevant agencies](#)
- [National Anti-doping Organisations](#)
- [Sporting federations, associations clubs and centres](#)
- [Academic institutions](#)
- [Individual sport and fitness coaches and trainers](#)

Expected Project Impact

The Forum, together with the network of the partners have represented the main tool to impact the 4 target groups stated in the project bid.

1. European Institutions and the Council of Europe.

- Pooling and coordinating knowledge in the field of anti-doping and propose an EU wide and cross-sectoral strategy by highlighting and promoting existing EU Member States anti-doping interventions.
- Providing policy recommendations based on up-to-date results in the field of nutritional supplements for sportspeople and initiative a possible harmonisation of testing and labelling of these kind of products.
- Anti-Doping issues included as priority in the EU Political Agenda.

2. National Governments and Anti-Doping Agencies

- Participating and shaping the discourse around doping prevention from EU level to Member States.
- The update Country Fact Sheets (see Annex) contributes to disseminate latest anti-doping legislations, cost-effective prevention practices and policy recommendations.
- Increase the national awareness levels on the risks related to sports food and food supplements for sportspeople and encourage national political discussion on anti-doping issues.

3. Sporting federations-associations and Academic institutions

- Contributing to integrate with latest recommendations in the field of anti-doping the education and training programmes for recreational sport coaches, trainers and any sport professionals.
- Dissemination of education materials in sport and fitness centres.

4. individual sport and fitness coaches, trainers, individuals

- Overall discussion in the field of recreational sport;
- Clarification concerning food supplements risks and encouragement of additional training for coaches and professionals on anti-doping topics.

The Code of Conduct

Within the framework of the EU funded project on anti-doping in recreation sport (FAIR), the EuropeActive team drafted the 2nd Anti-doping Code of Conduct. The Code represents a new call for accountability of the fitness sector on doping. It is voluntary but aims to promote a standardised approach across Europe that can be supported by recreational sport and fitness facilities, sport coaches, instructors and fitness professionals

For the 3rd Anti-Doping Forum, a new Code: “The European Code of Conduct in Anti-Doping in Recreational Sport” was distributed to the participants. The Code addresses the entire recreational sport movement, and focuses on the following themes:

- Education and research to combat and to reject doping
- Social responsibility
- Food and supplements for sportspeople
- Cooperation in anti-doping actions

The Code of Conduct in Ant-Doping in Recreational Sport is included in **Annex 5**.

The three Forums for Anti-Doping in Recreational Sport

The Forum For Anti-Doping in Recreational Sport has represented the key tool for the project outcomes and its promotion and dissemination. The Forum has in these years successfully become one of the most relevant occasions for European recreational sport and doping stakeholders as well as policy makers to come together for sharing idea and good practices. Representatives of the sport food industries, international and national anti-doping authorities, European Institutions, the European Committee for Standardisation, professors and sport/fitness associations have taken part in the very interactive debates during each forum (e.g. antidoping interventions, harmonisation of the testing and labelling of sports food and food supplements aimed at sportspeople, the regulation of doping in recreational sport, the major actors in the fight against doping, the role of NADOs, etc...).

Since the first edition in 2017, the Forum gathered more participants and speakers, so that the 2019 edition was organised in two-days and was opened-up to other Erasmus Plus projects on doping in recreational sport.

The Forum contributed to improve the dialogue and awareness of doping as societal and public health concern and to include it in the european political agenda. The Forum implemented one of the principle recommendations of the Study on Doping Prevention which was also enhanced at the Cluster Meeting on Sport Integrity in Brussels in December 2018:

“Develop a platform to share and disseminate a consistent and agreed understanding of legislation, regulations and good practice in relation to the prevention of doping in recreational sport and to facilitate effective networks for the exchange of actions, campaigns, data and policies”.

The Forum will now continue in the next three years under the framework of a new Erasmus+ project: “FAIR+” to keep raising awareness at national and european level on doping issues and to reduce the lack of co-operation/cohordination among policy makers. The concept of these Forums will continue to span a two-day multi stakeholder format, and be free of charge to registrants.

The first day the focus will be on FAIR+ findings and the second one on the other Erasmus+ projects on doping. In both days, there will be interactive sessions (e.g. Q&A, quiz, café models, live surveys), which have characterised the Forums so far, and will again be chaired by Prof Michael McNamee from Swansea University.

The Forum aims to become a stable event in the EU doping framework, capable of increasingly affecting national and European policies. Many stakeholders have already expressed the willing to see it continued and for this reason have supported the FAIR+ project proposal.

In conclusion, we would like to acknowledge and thank Prof McNamee who chaired all the editions of the Forum and edited the final report, and the Sport Unit of the European Commission for their support in the organisation.

Chapter 2 - The changing landscape in doping prevention in recreational sport

Professor Fabio Lucidi Dr Andrea Chirico

2.1 Introduction

The number of individuals participating in sports has increased considerably in the last few decades and health authorities have encouraged this trend due to the widely recognized benefits of physical activity (Knuth & Hallal, 2009; World Health Organisation, 2015). The articulation of sport practice, including its diffusion in new forms, changes the perspective of both sport and athletes.

Among professional athletes there are anti-doping regulations based on the World Anti-Doping Code (Code) (WADA, 2019). There is concern, however, that doping may be increasing among amateur athletes and even among European young people who are physically active. The Forum for Anti-Doping in Recreational Sport 2 (FAIR) project is based on the insights provided by the Study on Doping Prevention in Recreational Sport, completed by EuropeActive as the consortium leader.

The 2014 Study on Doping Prevention (SoDP; Backhouse et al, 2014) pursued some specific objectives: first, it aimed to describe the existing approaches to doping prevention in relation to recreational sports, and to show how these differ from one European State to another; and secondly, the study analyzed the actions of each national anti-doping organizations (NADOs) in doping prevention in relation to recreational sports, considering also the work made by different anti-doping organizations.

Results of the study revealed a heterogeneity of approaches to doping prevention in relation to recreational sports, and most of the European Countries interviewed for the study declared that there are “efforts underway to promote doping prevention in recreational sport”. Scientific data available for the kinds of interventions stated were, however, rare.

The FAIR 2 project, moving from the evidence of the SoDP study related to the recreational athletes, represents the first opportunity to develop a Europe-wide network to assess good practices and develop new methods for this specific target. This network can provide a basis for both future policy development and a long-term common approach in the prevention of doping in recreational sport. FAIR grounded its activities following a strong evidence-based approach in order to assure the quality of the project and its design aims for a sustainable and long-term impact.

In order to achieve these goals, however, it is necessary to frame the use of doping substances and that of food supplements for sport people, not as actions detached from goals and objectives, but within a perspective that clearly defines the meaning that they assume for the subject who implement these behaviours. It is therefore necessary to be able to “read” the behaviours in the field of doping considering a framework that develops within the specific contexts of recreational sport, which differ significantly from and are very less clearly defined in their borders than high-level sport. These points underscore the importance of defining the boundaries of what recreational sport is. The term is conceptually vague and a hostage to multiple definitions.

2.2 “Recreational athlete” definition and psychological perspective

The European Commission stated that recreational sport is “Whatever ‘Sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/ individuals at sport events, fitness centers, sport and leisure clubs, and outdoor-based activities”. The definition contains insights to identify a “recreational athlete”, although it collapses together at least two different contexts: sport clubs and outdoor-based activities; and two different level of competitions: low-level and non-competitive level environments. Within this definition it is difficult to consider all the different activities related to “recreational sport” as homogeneous behaviour. Moreover, it is difficult to define the term “recreational athlete” as a unique policy target that can be addressed by a universal approach that could frame all anti-doping prevention interventions.

From a psychological perspective, doping has been conceptualized as a goal-oriented behaviour. While at a high level of competition, where the body of research literature is substantial, the end-goal of doping behaviour is gaining an advantage in terms of performance over an opponent. This, however, is not true of all athletes in lower levels of sport practice. At a lower level of sport practice, for example, the use of banned substances by an athlete can be also oriented toward increasing performance competing with him/herself or toward increasing physical appearance. Considering a non-competitive sport, such as a gymnasium-based activity (fitness or bodybuilding), for example, the use of substances is moved by different implicit or explicit motives, the intention of using substances in such cases is driven more by an aesthetic or image enhancing purposes than performance enhancing ones.

At the same time, the meaning attributed to “performance” at a lower level of sport competition is articulated in different ways than how it is in the high level, where it is strictly related with an absolute rank. At a low level of sport practice, the meaning of the “performance” is more complex – and often less related to a challenge over an opponent, then to the challenge of the athlete with him/her-self.

In order to understand how we can implement antidoping strategies for this target population, we need to define, then, the borders of their goals. It becomes crucial, then, to understand the conceptualization of “recreational athlete” term, given the multiple goals that a specific population, as the recreational athletes, can have in order to use doping considering also contexts and the competition levels (if any).

Besides the misunderstanding or the difficulties that the terms “doping” “performance” or “recreational athlete” would bring, from a psychological point of view, it would better to differentiate goals and subsequently to target with tailored interventions.

Understanding which variables or psychological mechanisms are involved and acting correctly on these mechanisms for the purpose of doping prevention in recreational athletes represents the fundamental step from which to start. At the same time, it is particularly important to understand how different National Anti-Doping Organizations (NADOs) interpret the concept of “recreational athlete”. The vision of the NADOs takes on a fundamental role in order to define the different objectives whose realization is related to their anti-doping intervention. The attempt to analyze the different NADO perspectives and actions, the way in which they deal with the literature findings and how, in the different countries, they cope with the existing barriers and opportunities in doping prevention in recreational sport, is one of the main goal of the present study.

2.3 Anti-doping in actions in recreational sport. Theories and variables

At a recreational non-competitive level, where the sanctions appear to be rarely applied and probably ineffective, preventive anti-doping intervention seems to be the key intervention. The best way to design effective interventions to counteract doping in recreational sports is by understanding the mechanisms underlying the intention underpinning that specific behaviour(s). Different well-developed theoretical frameworks dealt with the predictors of one's behaviour, aside from the nature of specific goals. Between those that studied the use of substances with different intentions (performance enhancement vs. aesthetic purposes) we can identify four different mainstreams,

The Theory of Planned Behaviour (TPB) (Ajzen, 1985, 1991):

Central to this theory is the idea that the performance of one behaviour is determined by behavioural intention, that represents individual's plans to perform or not a specific behaviour (Ajzen, 1980). Behavioural intention is determined by three belief-based social cognition behaviours: attitudes, subjective norms and perceived behavioural control (PBC). Specifically, attitudes towards the behaviour represents favorable or unfavorable evaluations or appraisals of the behaviour; subjective norms, considered as a social variable, represents social pressure, generated by the 'important others', to perform or not the behaviour; lastly, PBC refers to the beliefs people hold about resources they have to enact the behaviour, and their capacity to overcome behaviour related barriers.

The Social Cognitive Theory (Bandura, 1989):

Social structure and environmental factors (e.g. norms, laws, peer influences) may operate in concert with personal factors such as one's internal standards for conduct and self-reflective capacities. A thorough understanding of these complex processes of psychological functioning is at the core of social cognitive theory. A key social-cognitive construct is that of self-efficacy, which Bandura (Bandura, 1997) introduced as the perception of personal capability allowing one to pursue goals and control behaviour. Mastery beliefs, partly derived from previous experiences, keep conduct in line with personal capacities and standards. Accordingly, people have little incentive to act or to refrain from action when they believe they cannot bring about desired outcomes because of some difficulty or adversity. Research shows that high perceived self-efficacy is a good predictor of people's capacity to refrain from adopting various unhealthy or antisocial behaviours. Importantly, self-efficacy beliefs do not necessarily conform to generalized or undifferentiated trait-like characteristics, but instead refer to and regulate specific domains of functioning and conduct.

The Self-Determination Theory (SDT) (Deci & Ryan, 1985)

The purpose of SDT is to identify the contextual and environmental factors than can increase or decrease the quality of the individual's motivation (Deci & Ryan, 1985). Central to the theory is the distinction between two types of motivation: intrinsic and extrinsic (Ryan & Deci, 2000). Specifically, intrinsic motivation pertains to engagement in a specific action for the pleasure and satisfaction. In fact, intrinsically motivated a behaviour is performed to experience the interesting components of the activity itself (Chatzisarantis & Biddle, 1998). Conversely, extrinsic motivation refers to tasks that are performed to obtain separable, external, outcomes (Ryan, Williams, Patrick, & Deci, 2009), or to a behaviour associated with pressure, tension and decrease in enjoyment (Chatzisarantis & Biddle, 1998). According to SDT, motives vary along a continuum: at the lowest end, there is the so-called "amotivation" (i.e., when people do not motivate at all); then the external motivation; while, at the highest end, there is the intrinsic motivation.

The Achievement Goal Theory (Elliot & McGregor, 2001)

Elliot and McGregor (2001) suggested that goals can be better understood along the dimensions of definition (i.e., mastery vs performance) and valence (i.e., approach vs avoidance) of competence. Hence, their 2 (valence) x 2 (definition) achievement goal model includes four combinations of goals: mastery approach, mastery avoidance, performance approach, and performance avoidance. Mastery approach goals reflect involvement with an activity for self-improvement and achievement, whereas mastery avoidance goals reflect the tendency to avoid displaying task failure and lack of skills. Accordingly, performance approach goals refer to motivation to demonstrate superior to others performance, and performance avoidance goals imply the tendency to avoid displaying low competence. The 2 x 2 model is the current state of the art in the achievement goal literature with recent research exploring achievement goals' antecedents and consequences during sport involvement. This line of research revealed that mastery avoidance goals were associated with negative emotional and behavioural responses (Elliot & McGregor, 2001). Furthermore, performance approach goals, performance avoidance goals, and mastery avoidance goals were positively related to fear of failure (Conroy & Elliot, 2004). Approach goals (mastery and performance) were positively associated with striving for perfection, whereas both avoidance goals were positively associated with negative reactions to imperfection (Stoeber, Uphill, & Hotham, 2009).

A recent meta-analysis of doping literature funded by the World Anti Doping Agency (WADA) (Ntoumanis, Ng, Barkoukis, & Backhouse, 2014) suggests that the choice of using doping substances is regulated by a complex system of dynamic relations linking motivations, cognitions, and moral convictions or evaluations, referring specifically some mechanisms or variables of particular interest. Attitudes, norms and a-motivation have been found to be the best predictors of the doping behaviours and its intentions, while negative effects on doping behaviours were found from self-efficacy to refrain from doping and morality. Therefore, it is clear that the single variables coming from the psychological theories are not able to completely predict doping intentions but their complex analysis within a general plan of theories in interaction could contribute a better understanding, unfortunately, research rarely considers these variables in an integrated system, and this is even more true in recreational sport where research is scarce.

The application of alternative models and methods is therefore encouraged in this field in order to improve our understanding of the complex doping phenomenon. Further, in scientific literature, new approaches have been proposed suggesting that doping use is influenced by the interplay of sociocultural, socioeconomic, and personality factors. For instance, Donovan et al. (Donovan, Egger, Kapernick, & Mendoza, 2002), Petroczi and Aidman (Petróczi & Aidman, 2008), and Strelan and Boeckmann (Strelan & Boeckmann, 2003) discussed the role of personality factors, decisions regarding the pros and cons of doping use, the legislative system, the affordability, and availability of prohibited substances. Stewart and Smith (Stewart & Smith, 2008) provided a macro-analysis of doping use in sport suggesting that, alongside to personality factors, globalization and commercialization of sport, and sport cultures are key factors in explaining doping use.

Between the more recent models and theoretical frameworks, a contemporary and overarching behavioural model is the Capability, Opportunity, Motivation—Behaviour [COM-B] model. The COM-B model, try to understand the predictors of human behaviours considering the behaviour (B) as the result of an interaction between three different conditions: capability, opportunity and motivation. In order to engage a behaviour, the model propose that an individual need psychological and physical capability (C), opportunities both in terms of social and physical ones (O), and the motivation to voluntarily engage the behaviour (M). Motivation covers automatic processes, such as habit and impulses, as well as reflective processes, such as intention and choice (Michie, van Stralen, & West, 2011).

The model has recently been successfully applied in doping context by Allen et al., (2019) in order to review and critically appraise recent changes to anti-doping policy and the Code in the context of asthma

management, evaluating the impact of asthma medication use on sports performance. (Allen, Backhouse, Hull, & Price, 2019)

Nevertheless, research testing these ideas is still scarce and future studies that take into account these other variables are encouraged. Results from Teg1 are important in this sense, because they will shed a light from a side on the awareness of the SoDP study by the organizations (NADOs) who are active for doping prevention (“Are you aware of the 2014 study on doping prevention?”), but also to understand if the NADOs are considering the literature as a reference point for their activities.

2.4 Anti-doping interventions in action.

Given the complexity of these interacting systems, what happens when moving from the theoretical overview to an interventionist programme?

In order to understand the link between theories and intervention, Bates et colleagues (Bates et al., 2017) reviewed the interventions, within the scientific literature, aimed to prevent misuse of anabolic steroids. They considered the characteristics and components of interventions and their settings and target populations, and also checked for the utilization of a theoretical framework in the intervention development, delivery and evaluation. Using the “theory coding tool” (Michie & Prestwich, 2010) the authors evaluated the 14 interventions included in their review.

Generally speaking, the theoretical constructs were poorly reported in the literature. Were they were reported, they were related to specific theories including ethical reasoning theory (Elbe & Brand, 2016), the theory of planned behaviour (TPB; Allahverdipour, Jalilian, & Shaghghi, 2012), social learning theory (SLT; (Goldberg, Elliot, Clarke, MacKinnon, Moe, et al., 1996; Goldberg, Elliot, Clarke, MacKinnon, Zoref, et al., 1996) and a combination of SLT and the health belief model (Sagoe et al., 2016). In the mediation analysis of ATHENA, models of behaviour including the TPB, social cognitive theory and the information, motivation, behaviour model were described (Ranby et al., 2009). Although no specific theories were described, the Greek anti-doping education intervention (Barkoukis, Kartali, Lazuras, & Tsorbatzoudis, 2016) was based upon establishing social norms and sporting values. For all other studies, no theoretical bases were described, and it was, therefore, not possible to determine whether relevant constructs were used in the development or evaluation of interventions. The rationale or theoretical bases for control groups were not described in any study.

This picture describes clearly that the interventions that are published in scientific literature are relatively scarce and often do not consider clearly or explicitly their theoretical frameworks. Moreover, the multitude of interventions and approaches adopted by NADOs, are often not published in scientific literature.

For this reason, one of the purposes of TEG1 was to understand, through interviews and questionnaires, the everyday actions implemented by the NADOs in order to prevent doping in recreational contexts. (“Method of Anti-Doping Education implemented by different NADOs”).

Data from TEG 1 will be able to show whether the approaches implemented in the everyday actions by NADOs follow a parallel development as the interventions published in scientific literature; if their approaches use constructs framed into psychological theories; and/or if there are some new insights that could be relevant in order to create a new strategic approach for anti-doping recreational contexts.

2.5 Nutritional Supplements: Gateway, trap or opportunity to prevent doping use

The term 'supplement' is an overarching name for vitamins, minerals, amino acids and other substances to be taken orally. They may also be referred to as dietary, food or nutritional supplements or ergogenic aids (supplements purported to improve athletic performance) and are typically sold in the form of tablets, capsules, soft gels, liquids, powders, and bars. Supplements are not required to exhibit efficacy before marketing, nor are they subject to prior approval unless they are genetically modified or claimed to be new. Several studies attested the widespread use of supplements across all levels of sport (Maughan, Depiesse, & Geyer, 2007; Tscholl, Alonso, Dollé, Junge, & Dvorak, 2010), which can reach nearly a 90% of prevalence in collegiate sports (Burns, Schiller, Merrick, & Wolf, 2004) and about 70% in adolescent (Hoffman et al., 2008) populations. The concern about the incidence of supplements consumption, is related on the one hand by their potentially harmful effect on the health, and on the other hand there is mainstream literature, arising from the "gateway hypothesis", that considers it as a risk factor for doping.

The concept of "gateway hypothesis" has been studied since the 1970s (Kandel, 1975). As the name of the theory suggests, an adolescent's early experimentation with alcohol or tobacco or cannabis is an important risk factor for substance use, which can escalate to more addictive illicit drugs later in adulthood. Overall, the theory has had mixed results showing a link of licit drug use to illicit drug use (Guxens, Nebot, & Ariza, 2007; Korhonen et al., 2010; Lessem et al., 2006; Mayet, Legleye, Falissard, & Chau, 2012) and no association (Golub & Johnson, 1994; Mackesy-Amiti, Fendrich, & Goldstein, 1997). Therefore, whether a causal relationship exists between drug types has been debated in literature without a clear determination (Mayet, Legleye, Chau, & Falissard, 2010; Wells & McGee, 2008). By analogy, it can be argued, a risk factor for doping use may be the habitual engagement in performance-enhancing practices, such as the use of nutritional supplements possessing ergogenic properties. Given the young age of the athletes involved in recreational sports context, this could be particularly applicable. During the young age the use of over-the-counter medications or supplements, then, may lead up to use of illegal substances (doping) in the future. While the association between supplement use and doping has been also evidenced across countries and population subgroups (Backhouse et al., 2011), the existing published studies are largely cross-sectional, based on correlational data (De Hon & Coumans, 2007) and, thus, they present only indirect evidence of the hypothesized gateway processes.

Despite this, one study with adolescent athletes that used a longitudinal design showed that supplement use at baseline significantly predicted doping use at follow-up measures (Lucidi et al., 2008). Accordingly, a recent meta-analysis confirmed that supplement use had high effect size on the prediction of doping intentions and actual doping use (Ntoumanis et al., 2014). Given that the application of "gateway hypothesis" to doping behaviour has been evidenced only by an association results, it is not yet clear how the presumed gateway "mechanism" (i.e., the transition from nutritional supplement to doping use) might develop. The gateway theory, in fact, does not consider any psychological variables mediating this association, thus, another research approach has started to consider the use of supplement in a different manner, namely as a protective factor.

From a definitional point of view, nutritional supplements can be understood as products that are taken with the aim to supplement the diet by increasing the total dietary intake of vitamins and minerals and other non-vitamin non-mineral substances. In reality, people may turn to supplements for a wide variety of performance enhancing, aesthetic, or health maintenance reasons such as: balancing the diet; compensating for lack of nutrition in diet or exercise; improving appearance; and wellness or psychological conditions. Considering supplement use as a behaviour oriented toward a goal, it is important to realize that the use of supplements can be driven by a number of different goals than the use of illegal substances. Sometimes,

athletes of different levels (elite, amateur, and recreational) and across age groups turn to the use of dietary products (e.g., proteins, amino acids, creatine, multivitamins, and a wide range of herbal products) with presumed ergogenic properties, namely supplements, as a “safe alternative” to prohibited/illegal substances (Jäger et al., 2008; Petróczi, Naughton, Mazanov, Holloway, & Bingham, 2007). This is the case of athletes during intensive training periods, where the efforts need often an increase of specific macronutrients.

To date, little attention has been paid to the social cognitive aspect of athletes’ supplements use in sport, even though one study (S. H. Backhouse, Whitaker, & Petróczi, 2013) found that between supplement users and nonusers, there were different attitudes toward doping use. A potential explanation proposed by the authors is that the habitual use of otherwise legal nutritional supplements familiarizes athletes with the notion of chemically-assisted performance enhancement and this can further facilitate the use of doping use. In a similar vein, Tsorbatzoudis et al. showed that supplements users displayed biased normative beliefs related to doping use (i.e., they perceived doping as more prevalent in fellow athletes and socially approved).

An alternative to considering the use of supplements as a risk factor (gateway theory) or a protective factor (“safe alternative to doping”) in a deterministic way, it is important to understand the range of psychosocial processes, or common predictors, that are able to drive the same behaviour, the use of supplements, toward two very different outcomes.

2.6 Supplements and unintentional doping

It is very common for athletes of all levels to use supplements in order to integrate their diet, but the possibility that these supplements can contain banned substances is not rare. Unintentional doping generally refers to the accidental use of banned substances (Chan et al., 2016). It is of course also possible that the athletes simply declare unintentional doping to explain a positive finding in the doping control test in an attempt to establish their innocence or to avoid charges of responsibility for their anti-doping rule violation (Whitaker & Backhouse, 2017). Given that WADA has adopted what is in effect a near zero-tolerance policy (predicated on the legal principle of “strict liability”) when it comes to athletes claiming unintentional use, also the data related to the incidence of this phenomenon are scarce.

WADA anti-doping rule violation statistics indicated that 6% and 10% of anti-doping rule violations can be considered as unintentional doping cases, since they led to ‘no sanction’ and ‘therapeutic use exemption (TUE)’ decisions, respectively. (World Anti-Doping Agency, 2016a) The major reason for a ‘no sanction’ decision is that athletes unwittingly consumed certain products containing the banned substance. (World Anti-Doping Agency, 2016b) It is noteworthy that a recent review of literature considering the risk of contamination of food supplements, showed that a wide range (between 11% to 15%) of dietary supplements available on the market were either contained, or were contaminated with, substances banned by WADA (Outram & Stewart, 2015). These prohibited substances could also be present in over the counter drugs used for self-medication (eg, certain common cold and influenza remedies, asthma inhalers).

How psychological research attempted to understand the underpinning process or evaluate possible intervention?

Research on this theme is very scarce. A recent review of literature, however, found six articles dealing with this issue (Chan et al., 2018). Cumulative published articles investigated a potential scenario where a food product contains banned performance enhancing substances and highlights that unintentional doping of athletes may result as lack of awareness and/or understanding of prohibited substances in foods, supplements and/or medications (Baume, Mahler, Kamber, Mangin, & Saugy, 2006; Chan, Donovan, et al.,

2015; Curtis, Gerrard, Burt, & Osborne, 2015; Guddat et al., 2012; Thevis et al., 2013). For example, in the Chan and colleagues (Chan, Donovan, et al., 2015) study, it was found that participants did not check the specific ingredient content prior to consumption, even when offered an unfamiliar brand of lollipop by an unacquainted experimenter. This result underline the importance of education as a central component to any doping prevention program, as it could raise athletes' cautiousness when consuming foods, supplements or medications. A possible way to improve athlete awareness of the risk of unintentional doping should be to encourage them to check the ingredients list before consumption. This self-initiated responsibility is critical for athletes in learning, updating and applying correct knowledge in screening for banned substances (Chan et al., 2018). Furthermore, the data from literature seem to suggest also to sensitize athletes in seek advice or knowledge from reliable sources of information about doping as the current understanding of doping may be fragmented.

Although the above-mentioned behavioural strategies (i.e., seeking reliable doping knowledge and checking ingredient lists) are important in preventing unintentional doping, research in social psychology has indicated that raising awareness of desired behavioural changes is often insufficient to change behaviour itself (Bohner & Dickel, 2011). Therefore, including also mechanisms coming from the SDT, then, considering motivation also in the anti-doping behaviour, could improve information based-only programs (Chan, Hardcastle, et al., 2014). With this in mind, it is important that subsequent research investigates the psychological processes of motivation and engagement in anti-doping behaviours. An example of the evaluation of motivational factors, again from the Chan and colleagues (Chan, Donovan, et al., 2014) whose lollipop-decision making paradigm study by Chan, Donovan, Lentillon-Kaestner and colleagues (2015) included measures of motivation based on the self-determination theory. These authors examined whether motivation in avoiding unintentional doping was related to young athletes' behavioural response when offered a suspicious food product (i.e., the lollipop), and whether it was linked to self-reported doping intention and behavioural adherence to the avoidance of unintentional doping. It was found that, again, athletes with high autonomous motivation for the avoidance of unintentional doping (i.e., because such an avoidance is consistent with their life goals, personal values and responsibilities) were more likely to check the ingredients list of the lollipop in order to verify the presence of banned substances, and they were also more likely to report lower doping intention (Chan, Donovan, et al., 2015). Overall the results showed that both autonomous motivation and controlled motivation for the avoidance of unintentional doping were positively related to certain anti-doping outcomes. Through this finding, it demonstrates that different types of motivation do play a role in adopting and carrying out anti-doping behaviour.

Turning to the socio-cognitive approach, two studies have applied the theory of planned behaviour to understand the avoidance of unintentional doping in athletes (Chan, Dimmock, et al., 2015; Chan, Hardcastle, et al., 2015). Overall, both studies found a positive relationship between subjective norms and perceived behavioural control with intention for the avoidance of unintentional doping. In sum, from a socio-cognitive perspective, the young athletes are more likely to be actively aware of the risk of unintentional doping when they realize that others view anti-doping behaviour as beneficial and achievable.

All these findings together can serve to provide an evidence base for more targeted anti-doping programmes in supplements users. In doing so various sports stakeholders at all levels can advance their awareness of strategies for the avoidance of unintentional doping.

Nevertheless, given the scarcity of studies, there is a dearth of evidence on how to effectively manage the prevention of unintentional doping. Formative research is needed to develop effective interventions to safeguard athletes from unintentional doping. These interventions should involve all stakeholders (e.g., athletes, coaches, sport managers/organisations, practitioners of sport medicine, sport dieticians and doping control officers/agencies) in order to offer a collaborative educational and preventive programme

for the awareness of unintentional doping targeting also multiple psychological variables. Developing interventions that target multiple psychological variables has also been shown to both directly and indirectly affect intention and behaviours in the avoidance of unintentional doping (Chan, Dimmock, et al., 2015; Chan et al., 2016). Such interventions can systematically identify the techniques that enhance autonomous motivation (e.g., autonomy supportive persuasion, enhancement of personal agency), positive attitudes and beliefs (e.g., provide information regarding advantages of anti-doping behaviours and downplaying the disadvantages), through greater awareness and self-monitoring. These techniques should be incorporated into behavioural modification programs and maximise the intervention effects on athletes' anti-doping behaviours considering also socio cognitive variables.

2.7 Future Perspectives

In summary, literature in this field suggest the following general conclusions:

- doping in recreational athletes is an emerging issue and it seems to be different in its goal-related behaviour in comparison to sports professionals (high competitive or elite level);
- athletes continue to use supplements in sport to satisfy their belief in their athletic or aesthetic performance and health enhancing effects;
- athletes use often food supplements without consulting physicians (Waddington, Malcolm, Roderick, & Naik, 2005), being unaware of the possible risk of contamination, or having a clear rationale behind their choices (Petróczi et al., 2007);
- the majority of research uses psychological frameworks that have been used in non-recreational athletes and their application in recreational athletes is scarce, giving rise to a need to consider new or integrated models related to the specificity of the target; and,
- there is a need of combine research and other information gathered from the practices that each different European States has implemented within their sport and socio-cultural context, to enhance understanding in this domain and to generate more effective interventions.

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Chapter 3 - Doping prevention in recreational sport in Europe – a study on emerging practices among European stakeholders

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3.0 Executive Summary and Recommendations

3.1 Summary

The Forum for Anti-Doping in Recreational Sport seeks to build upon the developments in policy that have arisen since the Study on Doping Prevention (SoDP; Backhouse et al., 2014).

One recommendation from the SoDP was to provide a platform for sharing examples of good practice in the emerging field of anti-doping in recreational sport. The Forum for Anti-Doping in Recreational Sport (FAIR) is intended to fulfil this recommendation.

The objectives of the Forum are as follows:

Review existing doping prevention interventions, including for food and food supplements, which are aimed at recreational sports people, and report on good practices;

Provide a forum for open discussion and objective thinking about reducing the prevalence of doping for performance- and image-enhancing purposes; and

Inform key stakeholders and policy makers on evidence-based planning and encourage them to adopt the good practices and to use information material/tools to raise awareness of doping issues to their users.

The Technical Expert Group 1 (TEG1) conducted research designed to 1) understand developments in anti-doping in recreational sport since the 2014 SoDP and 2) to explore and provide examples of good or emerging practice in anti-doping in recreational sport.

3.1.1 Methods

The research was in three parts:

1) A review of existing academic literature concerning interventions designed to prevent the use of doping and image and performance enhancing drugs (IPEDs);

2) An online survey that sought to explore current practices in preventing doping in recreational sport. The survey was primarily directed towards National Anti-Doping Organisations (NADOs); and

3) Semi-structured interviews with National Anti-Doping Organisations, Sports Federations and Governing Bodies exploring examples of emerging practice in the field of anti-doping in recreational sport.

The research literature offers limited guidance in what constitutes a good intervention in anti-doping. There are studies that concern this problem, but not many, and they are often limited in quality. Most of these

studies are directed at schoolchildren, while the onset of Anabolic Androgenic Steroid (AAS) use (the most frequently used group of IPEDs) for example is often from 20 years onwards. Bearing these limitations in mind, we can see that more promising interventions often have multiple target points and can include information designed to better inform students, provide training in alternative ways of building muscle mass, and/or target multiple factors, such as the values concerning clean sport, and the knowledge people may have of the potential harms associated with drug use. Some interventions reported as more effective also take an active learning approach, and utilise respected figures in the delivery of education.

3.1.2 Survey Findings

31 research participants responded to the survey, which was completed by those involved in anti-doping in recreational sport. The survey respondents were mainly members of National Anti-Doping Organisations (NADOs) from a range of senior positions.

The majority of participants were aware of the SoDP and reported a number of developments since 2014 in the context of anti-doping in recreational sport in particular. There is growing recognition of the problem of doping in recreational sport, and our participants report growing consideration of recreational athletes in the development of policy.

Definitions of terms such as sport and recreational athlete varied across research participants. It is important to pay close attention to the way in which such terms are understood by different stakeholders and in different countries across Europe, in an attempt to understand current practices and policies.

The majority of organisations reported jurisdiction in recreational sport, although a sizeable minority of NADOs reported that they did not have such jurisdiction. It should be noted, however, that “jurisdiction” was not defined in the survey, and was therefore open to some interpretation.

A minority of organisations reported testing jurisdiction in fitness centres and gymnasia, and in other non-competitive sporting settings. Such jurisdiction, however, should not be taken necessarily to mean that tests are conducted there.

Some respondents noted the potential ability to test in lower level competitive sport, but stated that practically this rarely happens.

While the majority of respondents thought that the most important group of recreational athletes to direct efforts towards were those involved in competitive sport, a number of organisations cited concerns in fitness and gymnasia.

The growing importance of doping in recreational sport is reflected in a sizeable number of organisations active in this area. Of those who reported educational activity in recreational sport, some mentioned work with minors in school settings or sports clubs. Another theme that arose was interventions with gymnasia, some involving certification programmes for fitness centres, community-based work with collaboration across public services, training of staff and health personnel and more general educational campaigns.

Generally, NADOs take the lead on doping in recreational sport. Some countries, however, have established separate organisations to target the use of drugs in fitness and gymnasia with good results.

Face-to-face group sessions and education via online sources were the most frequent modes of delivery reported.

Financial barriers to further work in this area were reported (e.g. lack of financial or human resources) and while a number of organisations reported fruitful collaborations with other agencies in addressing doping in recreational sport, a lack of cooperation between key stakeholders was cited as a significant barrier to further progress. Both a lack of examples of good practice and the absence of sufficiently detailed legal framework(s) or provision for addressing doping at this level were also noted as barriers.

3.1.3 Interview Findings

A total of thirteen research interviews were conducted with participants from national anti-doping organisations, sports federations and governing bodies. The key findings fall under five main headings: terminology; method of anti-doping education; Examples of anti-doping interventions for recreational sports people; Collaboration; and Evaluation. These issues are discussed below in that order.

Terminology: A range of conceptual or definitional issues influence any discussion of anti-doping in recreational sport. How expansively sport is defined, for example, may well affect whether we describe those in gymnasias or non-competitive sport settings as doping, as opposed to using similar (or the same substances or methods) as IPEDs. In some countries with more fluid transition between higher and lower levels of sport, the term 'recreational athlete' is less important than the term 'athlete'. While it is unlikely that universally shared conventions for the use of terms such as doping, sport, recreational sport, and recreational athlete will ever be arrived at, attempts to properly understand and impact upon doping and IPED use must stem from a nuanced understanding of the context in which such behaviours take place. This requires careful consideration of these conceptual issues.

Method of Anti-Doping Education: The importance of education to better inform recreational athletes, who are likely to be less aware of anti-doping policy compared to elite athletes, was emphasised. Generally, a new approach in building campaigns seems to be that they are more often positive in nature, focused on values that promote enjoyable sporting participation as opposed to earlier campaigns that more often focussed on the negative and disciplinary aspects of doping. In some instances, particularly with younger populations, the intention was not to introduce the detail or complexities of anti-doping policy but to promote and reinforce the positive values associated with sport participation.

Examples of anti-doping interventions for recreational sports people: Growing attention to anti-doping in recreational sport was noted. Some interventions or campaigns sought the commitment of athletes to clean sport values, via co-creation of a code of conduct, signing a declaration prior to an event, or something similar. Interventions that targeted multiple components were described but often not thoroughly evaluated. These components involved, variously, the education of staff in gymnasias, the certification of institutions such as gymnasias and fitness centres and the use of role models to reinforce positive values. The involvement of athletes and peers in the development and delivery of anti-doping education was also reported. On the other hand, knowing the significant problems surrounding doping controls for elite athletes, submitting recreational athletes of all sports to the same type of test regime appears to be a defective strategy. Not only because of the extensive logistics and because of monstrous costs involved in such an enterprise, but also because of the educational, medical, ethical and human-rights-related issues this would involve.

Collaboration: A number of collaborations with a range of agencies were reported as successful as organisations seek to address the challenge of anti-doping in recreational sport. One organisation, working with IPED use in gyms, described the problem as societal more than sport-related. They also noted how they collaborated with not only sport organisations and gyms but also with prevention workers (drugs, smoking, alcohol), regional governments, crime- and violence prevention and the police. A large sport

federation stated how important it was to explicate the links, tasks and responsibilities between the NADO, the federation, the club, the team, the coach, and down to the individual athlete. The relatively new focus on doping in recreational sport means that further collaborations will be required to effectively address the problem. For NADOs, collaborations with other agencies that take different approaches to drug use may need special attention. Divergent foci on harm reduction on one side and fair play and zero tolerance to doping on the other represents a policy and practice challenge that needs to be negotiated among different stakeholders.

Evaluation: Evaluating anti-doping interventions is notoriously difficult. Using prevalence or incidence as a measure of success is problematic since prevalence rates are often small and very difficult to measure with any level of certainty. It can, therefore, be difficult to ascertain the effect of an intervention by such means. Furthermore, many forms of evaluation have not been able to capture the broader effects of campaigns and interventions that seek to develop and promote an anti-doping culture more generally.

3.2 Recommendations (TEG 1)

FAIR recommends:

- that research concerning the range of motivations for doping in sub-elite competitive sport should be initiated. This is necessary in order to clarify whether clear separations are needed between IPED use in gyms, and doping in recreational sports or non-competitive sports. Whereas research regarding use of IPEDs in gyms is beginning to accumulate, we know less of the precise motivations for doping for those competing in lower level sport where the fame or financial gain often associated with professional sport is absent.
- initiating research concerning how recreational athletes in lower level competitive sport source products and information.
- to apply greater care in the use of terms such as doping, recreational athlete and indeed recreational sport. Where necessary further explanation should be provided, in order to prevent inconsistent or superficial explanations of doping in recreational sport, and a subsequent “one-size-fits-all” approach to interventions.
- further research to be conducted on what makes for a successful intervention aiming to prevent doping in recreational sport.
- that when campaigns or interventions are initiated they should seek to carefully describe the target group(s) and consider what means are effective in the specific context(s). Wherever feasible such interventions should be guided by theory and a strategy to evaluate the intervention should be part of the programme to begin with.
- that collaborations are developed across institutional borders, where actors share a commitment to clean sport values, adaptation of an active learning approaches, and use of respected figures in the delivery of education.
- to avoid negative “scare tactics”.
- that all interventions should be subject to proper evaluation. Furthermore, the method(s) for evaluating the program should embrace all the objectives of the intervention. Whereas there are some good examples of evaluating interventions, it is clear that capturing the value of campaigns and interventions is a difficult matter. While further developments in this field would be welcome, considering the broader role that anti-doping initiatives might play in supporting a clean sport culture is essential. Successes of this nature might not always be captured in quantitative or statistical terms.
- that interventions should not only adjust the tools and techniques of anti-doping, traditionally targeted

at elite sports people, but develop recreational sport specific strategies to address doping.

- that research that addresses questions such as who is best placed to address doping in various contexts of recreational sport (e.g. NADOs or public health agencies) should be initiated. It further needs to be examined what level of intervention (such as testing) can be ethically justified and for whom are such interventions best developed, and what might work in reducing doping at these levels?
- knowledge sharing and cooperation across institutional borders. It should be considered whether NADOs or separate institutions to those currently involved with elite level anti-doping might best find new avenues and fewer restrictions to develop a range of approaches beyond the testing and sanctions dominated framework. This should be done with due respect to the level of development of initiatives already implemented
- that recreational athletes ought not to be tested in the same fashion as athletes in elite sport (following the World Anti Doping Agency Code, WADC). While evidence on what is effective in preventing doping in recreational sport is generally lacking, doping controls are much more intrusive and have more significant repercussions for the individual than other types of interventions. In recreational sport, they should therefore be carefully considered if not avoided altogether.
- that if testing is applied, the responsible organisations and bodies should not adopt WADA's definition of doping, nor the entire list of WADA banned substances and methods, but be more narrowly focused on specific drugs of concern, as for instance AAS.
- that consideration should be given to the development of educational codes of conduct as a potentially valuable tool in fostering anti-doping attitudes and values. Involving athletes at a local level in writing such codes may be a particularly effective tool for taking responsibility to discourage illicit drug use.

3.3 Challenges concerning anti-doping in recreational sport

The 2014 Study on Doping Prevention (SoDP; Backhouse et al., 2014) aimed to develop an evidence base for policies intended to prevent doping in recreational sport. The study makes seven key recommendations proposing The European Commission in cooperation with the Member States should:

1. Establish a process to develop a consistent and agreed understanding of which doping substances are used in the context of recreational sport, and whether these substances might overlap or be consistent with the WADA Prohibited List;
2. Develop a robust international, research-driven evidence base to inform future policy, practice, and interventions into the problem of doping in recreational sport;
3. Further evaluate the legislation of individual MS to identify the specific strengths and weaknesses of relevant authorities;
4. Develop agreed MS responsibilities for the co-ordination of prevention programmes related to doping in recreational sport;
5. Develop and co-ordinate educational campaigns, using all forms of relevant media platforms;
6. Support and develop initiatives aimed at raising awareness within each MS public health sector in order to make an active contribution to the prevention of doping in recreational sport;
7. Develop a platform to share and disseminate a consistent and agreed understanding of legislation, regulations and good practice in relation to the prevention of doping in recreational sport and to facilitate effective networks for the exchange of actions, campaigns, data and policies. (Backhouse et al., 2014: 10)

The report found that the use of performance enhancing drugs in recreational sport was a concern for many EU member states. Some scholars have also expressed concerns regarding the extent of doping in recreational contexts and the associated health consequences, and thus perceive the doping phenomenon to be a societal problem that carries a significant threat to public health (Kanayama, Kaufman, & Pope, 2018; McVeigh & Begley, 2017; Sagoe & Pallesen, 2018).

Although the concern over doping (or image and performance enhancing drug use (IPEDs) as it is often labelled outside competitive sports) has been broadly highlighted in policy documents and the research literature, the development of a common policy or even a policy with common aims across the 28 Member States is a challenge.

The aim of the Forum for Anti-Doping in Recreational Sport (FAIR) has been to investigate and evaluate current practices with the intention of making suggestions based on what is considered to be good or emergent practice across the EU 28. Indeed, the forum provides a response to recommendation 7 of the Study on Doping Prevention providing a forum to share examples of good or emerging practice in preventing doping in recreational sport. The Forum for Anti-Doping in Recreational Sport builds on the findings of SoDP (Backhouse et al., 2014) and aims to highlight any subsequent developments in the prevention of doping in recreational sport in the EU.

An online questionnaire was developed and distributed to experts from national anti-doping organisations (NADOs) and other organisations responsible for addressing doping in recreational sport across the EU 28-member states. The questionnaire (Appendix 1) aimed to identify and describe existing work, programmes, strategies, legislation and policies on doping prevention in recreational sport across the EU. The information gathered was also used as a starting point from which to develop an interview guide designed to gather examples of emerging practice in the field of anti-doping education and interventions in recreational sport. The information gathered from the questionnaire and the subsequent interviews presented in this report represents the current status of anti-doping prevention in recreational sport across the EU28.

For the purpose of the present study, a definition of recreational sport developed in conjunction with the European Commission was utilised. Within the definition, Recreational sport is understood as:

Sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.¹

Every specific definition invites criticism. This one is no exception. For example, in certain contexts non-competitive activities such as running or jogging, or going to the gym would not be considered sport, but rather described as exercise, physical activity, or leisure time activities. In contexts where the activity is not considered a competitive sport and where doping rules do not apply it might be more useful to refer to the use of image and performance enhancing drugs (IPEDs) rather than doping. “Doping” is more commonly understood to refer to the breaking of a set of rules (committing an Anti-Doping Rule Violation in WADA

¹ To offer some history of the development of this definition. The definition started in the Expert Group on Anti-doping in Recreational Sport (finished 2014). More recently it was developed through the Study on Doping Prevention and then with the Forum for Anti-Doping in Recreational Sport itself. In order to conduct the survey effectively the aim was to offer a definition of recreational sport that was also agreed by the European Commission. This definition was approved by Olivier Fontaine as the Policy Officer in the Sport Unit at The Directorate-General for Education, Youth, Sport and Culture (DG EAC).

nomenclature). In this report, however, both terms are used, since the scope of the study embraces both drugs in competitive recreational sport and in the gym culture. These terminological difficulties and their implications are discussed in further below.

3.3.1 Objectives of the study

As noted in the introduction the objectives of the Forum for Anti-Doping in Recreational Sport (FAIR) are as follows:

Review existing doping prevention interventions, including for food and food supplements, which are aimed at recreational sports people, and report on good practices.

Provide a forum for open discussion and objective thinking about reducing the prevalence of doping for performance- and image-enhancing purposes.

Inform key stakeholders and policy makers on evidence-based planning and encourage them to adopt good practices and to use information material/tools to raise awareness of doping issues to their users.²

This report, including the surveys and interviews with members of anti-doping organisations and other stakeholders form part of the first research strand of the FAIR project. The aim of the TECHNICAL EXPERT GROUP 1 - Doping prevention interventions research strand aimed to answer the following questions;

Q1: With an aim to review and assess new interventions: What has changed since 2014 (publication of SoDP)?, and,

Q2: With the aim to understand how organisations understand good practice in this context, and the obstacles to achieving this ideal: What has been learned by the interventions in place in the countries taken as case studies?

3.3.2 Methodology

The research concerning doping prevention interventions (TEG 1) comprised two parts. First, a survey was distributed to national anti-doping organisations and other organisations responsible for the prevention of doping in recreational sport. The survey utilised a combination of open and closed questions. It explored current initiatives designed to prevent doping in recreational sport, stakeholders' perceptions of the importance of preventing doping in recreational sport, and potential obstacles to such efforts. The survey was completed online by respondents, after initial email contact.

Prior to completion of the survey all participants were provided with an information email that explained in full the purpose and aims of the study. The introductory email referred to the previous 2014 Study on Doping Prevention project (SoDP) (Backhouse et al., 2014) exploring existing policies around doping in recreational sport in the EU28. It stated that the survey aimed to understand what knowledge was generated by the SoDP and what had happened since in the respective organisations. In order to reacquaint participants with the SoDP, access to the report was provided in the information email via a hyperlink. All participants involved were advised that the information received would be compiled into a report and presented at the annual Forum for Anti-Doping in Recreational Sport (in November 2018 and 2019). The survey was designed by members of FAIR and the research team. It was piloted with an anti-doping organisation prior to its distribution.

2 <http://www.europeactive-euaffairs.eu/projects/FAIR>

The second part of the research entailed semi-structured interviews with members of national anti-doping organisations, national and international sport federations and other stakeholders responsible for preventing doping in recreational sport. Interviewees were selected in order to provide a degree of representation from across Europe, and included a range of sports and organisations that had experience with initiatives in the area. They are a starting point from which to understand emerging practice in the field of anti-doping education and interventions in recreational sport. They should not be regarded as an exhaustive account of good or emerging practice in the EU. A total of 13 interviews were conducted, of which four were face-to-face and nine were conducted via Skype. The interviews lasted between 48 and 97 minutes.

As a supplement to these two parts, the research also included a study from University for Health Sciences, Medical Informatics and Technology (UMIT), Austria, surveying the EU28 NADO's anti-doping education targeted at young athletes and adolescents (section 3.0 Doping Prevention for Adolescents).

3.3.3 Data analysis

The survey was comprised of open-ended, closed and multiple-choice questions, subsequently a combination of data analysis methods were utilised. Due to the type of data collected, analysis comprised of both qualitative analysis and descriptive statistics where appropriate, including summarising, tabulating, organising and graphing data to summarise key findings. Results from the open-ended questions were analysed and grouped together where appropriate. Interviews were transcribed and thematically analysed

The most pertinent themes are presented and discussed below.

3.4 Anti-doping interventions; a review of existing literature: Key Findings

A key aim of the FAIR project is to examine the effectiveness of interventions aimed at reducing doping in recreational sport (no. 1 above). In 2017, Bates and colleagues published a systematic review investigating the effectiveness of strategies to prevent use of image and performance enhancing drugs (IPEDs). It is to this date (November 2019) the most thorough and structured review of the literature in the field and thus provides the best framework within which to examine the academic work in this field.

In developing the systematic review, Bates et al. 2017 conducted a comprehensive search of relevant studies published from 1990 to 2016. The inclusion criteria meant studies had to be published in either English or French and aimed to prevent the use of drugs taken to enhance muscularity, performance or appearance. The study implemented the Effective Public Health Practice Project (EPHPP) quality assessment tool to determine and assess the methodological quality of studies. This allowed for discussion of study strengths and weaknesses and identification of any discrepancies.

Within the results, a total of 12,857 articles were identified with 23 articles eligible for inclusion in the review. These covered 17 studies and evaluated 14 distinct interventions.³ Of these 14 interventions, only three were considered to have a strong design. 12 of the 14 interventions took place in a school setting and thus outside of sports. Thus, while many more interventions may have been conducted, only few have

³ Bates et al (2017) included these 23 articles: Goldberg et al. 1990; Goldberg et al. 1991; Goldberg et al. 1996a; Goldberg et al. 1996b; Goldberg et al. 2000; Nilsson et al. 2001; Goldberg et al. 2003; Goldberg et al. 2007; Tricker & Connolly, 1996; Trenhaile et al. 1998; Laure & Lecerf, 1999; MacKinnon et al. 2001; Laure & Lecerf, 2002; Elliot et al. 2004; Nilsson et al. 2004; Elliot et al. 2006; Elliot et al. 2008; Jalilian et al. 2011; Ranby et al. 2009; Barkoukis et al. 2016; Elbe & Brand, 2016; Sagoe et al. 2016; Wippert & Fließner, 2016.

been evaluated and tested to a degree that allowed for publication in academic journals. This bears witness to the fact that the evidence base for anti-doping interventions is in its infancy, and also to the difficulty in constructing interventions that are target the right factors and conditions while at the same time allowing for evaluations that are sensible enough to measure for significance and other factors such as relevance of application.

Studies included within the review were typically situated in educational settings, targeted at young people and mainly focused on behavioural change via messages of the potential harms associated with image and performance enhancing drugs. Additional approaches included educational strategies that aimed to improve knowledge, skills, morals, values, norms and encourage healthy alternatives in relation to image and performance enhancing drugs (IPEDs). Out of the 14 distinct interventions, 11 had a primary focus to reduce risk factors for IPED use, 12 interventions focused on education, 7 were persuasion driven and 5 were led by a combination of training methods that involved information provision and the development of skills to resist use of IPEDs. In a few cases, weight training for the purposes of demonstrating how mass can be developed without drug use was also included (Bates et al., 2017).

Using the Effective Public Health Practice Project (EPHPP) quality assessment tool, three studies were rated “strong”, five “moderate” and nine “weak”. Selection bias and withdrawal from studies were amongst the common weaknesses of these studies (Bates et al., 2017). The effectiveness of interventions varied between studies, 5 studies measured change in IPED use but were limited due to baseline measures, short term follow ups and limited effect size. Some studies also included nutritional supplements, which skewed findings (Elliott et al. 2004 and Ranby et al. 2009). Interventions which employed a range of methods that included higher numbers of behavioural change techniques were generally associated with more encouraging outcomes. Interventions which included a combination of educational and information components designed to develop skills, change social norms or encourage goal setting in relation to image performance enhancing drugs also appeared more successful (Bates et al., 2017).

Within the 3 strong studies (discussed in Goldberg et al., 1996a; Trenhaile et al. 1998; Goldberg et al. 2000; Mackinnon et al. 2001; Sagoe et al. 2016), various points are worth discussing. Goldberg et al. 1996a, Goldberg et al. 2000 and Mackinnon et al 2001 utilised the Adolescents Training and Learning to Avoid Steroids (ATLAS) style intervention which focused on anabolic androgenic steroid (AAS) education in combination with nutritional and strength training methods, which were received through pamphlet material. These studies focused on young male athletes in school and assessed use of AAS, attitudes towards AAS, intentions, knowledge and norms, body image and ability to resist offers of AAS. The studies reported post-intervention and 1 year follow-ups. The studies reported that there were fewer new incidences of AS use and lower intentions to use among ATLAS participants compared to controls at the end of season and 1-year follow-up. Attitudes and knowledge regarding AS favoured ATLAS participants at both times, however, impacts on normative beliefs and perceptions about others’ AAS attitudes were mixed and short-term benefits for drug resistance skills were not maintained at 1-year evaluation.

The intervention by Sagoe et al., (2016) (also considered to be “strong”) implemented the Hercules intervention which consisted of anti-doping education alone or combined with strength training. This study focused on both male and female adolescents in school settings and assessed intentions and knowledge with regards to AAS; doping attitudes, satisfaction with appearance and ability to resist offers of AAS (post-intervention). The results of the intervention found that intentions to use AAS increased slightly following the education and training intervention, but there were no significant differences compared to education alone or control groups. There was no intervention impact on attitudes towards doping, ability to reject offers of AAS or appearance satisfaction, but knowledge about AS and AS consequences increased following both education and training, and education alone.

3.4.1 Changes since Bates et al., 2017

Since the publication of Bates et al. (2017), three studies have been published that would have met the inclusion criteria. (Lucidi et al. 2017; Medina et al. 2019, Yager et al. 2018). In his 2019 thesis, Bates noted the following on these studies:

One study from Italy evaluated an intervention designed to improve media literacy (Lucidi et al., 2017) and one study from Spain evaluated an educational programme based on WADA principles (Medina et al., 2019), despite presenting the study in the context of preventing use outside of sporting contexts. One study from Australia replicated the ATLAS program with non-athletes (Yager et al., 2018). (Bates, 2019, p. 53).

Evaluating these three, additional studies Bates state that:

While these studies add to the range of approaches that interventions have employed, their inclusion would not have changed the implications and conclusions in this review, particularly given the similarity in setting and population to other approaches already considered. None of the three evaluated impact on any IPED use, presumably due to the age of participants. These additional studies add to the evidence base on IPED prevention, but do not support the development of a clearer picture in terms of what types of approaches are likely to be effective at reducing use (Bates, 2019, p. 53).

3.4.2 Conclusion concerning the literature review

Although the studies provide some encouraging findings, it is noted that approximately 80% of IPED users begin use after the age of 20, therefore, interventions focusing primarily on younger adolescent age groups (11-15) may have limited impact (Christiansen and Bojsen-Møller, 2012; Pope et al. 2014, See also the survey from UMIT included in this report). In his study Bates concluded that “despite the increase in research around AS and other IPEDs over the past three decades and substantial increase in the use of these substances outside of professional sport, there is little evidence on how to reduce use” (Bates et al., 2017, p. 14). Nevertheless, interventions that include multiple components tend to display the most positive outcomes with study findings. Tentatively, therefore, it can be suggested to those planning and designing future anti-doping interventions, that consideration should be directed towards strong and rigorous designs and a multi-component intervention approach. One such example that we will consider later is the Swedish “100% Pure hard training” (100% Ren Hårdträning), delivered by PRODIS (Prevention of Doping in Sweden

The more promising interventions utilised a range of methods or approaches in seeking to impact upon behaviour. These may include providing information designed to better inform students, providing training in alternative ways of building muscle mass, or designing interventions to target multiple factors, such as values concerning drug use, the norms that surround drug use, and the knowledge people may have of the potential harms associated with drug use. Some interventions reported as successful also adopted an active learning approach, and utilised respected role models in the delivery of education. The findings, however, should be interpreted with some caution, as the literature in the field is still in its early stages of development as a field. There are not many studies, and very few have been judged to be of high quality. Determining the effectiveness of interventions is also a difficult task. A study may be effective in a short-term assessment of knowledge (after one session) but this would not necessarily be a significant factor in reducing doping in recreational sport.

3.5 Doping Prevention for Adolescents

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3.5.1 Introduction

As has commonly been noted, doping is not only a problem in adult sport. It is notoriously difficult to obtain reliable estimates for prevalence in this area of social taboo, and many studies are characterised by problematic designs wherefore figures should be interpreted with a high level of caution. However, the available data suggest that 1-4% of adolescents (increasing with age) have used banned substances at least once in their life (Laure & Binsinger, 2007; Laure, Lecerf, Friser, & Binsinger, 2004, Sagoe et al., 2014). There may therefore be a need of special tailored prevention programmes targeted specifically at adolescents. Since adolescence is the time when values and attitudes are shaped, value-based programmes, could be of relevance here (Backhouse et al., 2009; Kohlberg & Hersh, 2009).

As shown in the literature review above, very few intervention studies have been properly evaluated. Those that were, often focus on knowledge acquisition, even though the deterrent effect of knowledge about doping and its side effects might be questionable (Bates et al., 2017). Studies either found no association between knowledge and doping susceptibility (Blank, Leichtfried, Schaiter, Müller, & Schobersberger, 2014) or doping behaviour (Goulet, Valois, Buist, & Côté, 2010) or even showed that students with a higher use of prohibited substances showed an even higher knowledge about doping (Wanjek, Rosendahl, Strauss, & Gabriel, 2007). Thus, knowledge acquisition alone is likely not enough if the aim is to actually change peoples' behaviour (Blank et al., 2014; Goulet et al., 2010; Peters, Schulz, Oberhoffer, & Michna, 2009). Therefore, other measures need to be adopted. Multifaceted prevention approaches including social and skills training have been shown to be more effective in other social domains such as bullying and alcohol abuse when targeted at children and young people (Backhouse, McKenna, & Patterson, 2009), and it is thus reasonable to assume that this might also be the case in preventing IPED use.

NADOs are one of the key stakeholders responsible for doping prevention. Yet, we have had no general overview of what NADOs offer to prevent IPED use in adolescents. Thus, the Institute of Sport Medicine, Alpine Medicine and Health Tourism (ISAG) at the Health and Life Science University (UMIT) in Hall in Tyrol, Austria conducted a study that aimed to investigate what prevention programmes are offered for athletes (adults and adolescents). Since the study ran simultaneously with the FAIR project and used a similar methodology, it was thought beneficial to share data and results between the projects for the purposes of creating synergy. The results can be used to highlight examples of good practice in doping prevention for adolescents that may be adopted by a wider audience of stakeholders and policy makers.

3.5.2 Methodology

A questionnaire was sent via email to the NADOs of all EU 28 member states, and additionally to Norway and Switzerland, in order to collect information on prevention programmes offered to children and adolescents (athletes as well as non-athletes). Participants were asked to indicate the name, content and frequency of the prevention programmes they offered. Email addresses were taken from the respective NADO websites. Where contact information was available, those responsible for education or prevention were contacted. Where this was not possible, the general email address was used. Prior to participation, NADOs were informed about the study and gave their written consent. Programmes were grouped according to the content and/or delivery mode into teaching material, face-to-face seminars and written information (booklets, brochures, posters etc.).

3.5.3 Results

From the 33 contacted NADOs, 23 (= 69.70%) participated in the study and returned the questionnaire. From these, 15 (= 65.22%) offer programmes specifically developed for the youth. These programmes were divided into teaching material (lesson plans), face-to-face seminars and written material (brochures, pamphlets, posters etc.). Seven NADOs offer teaching materials to be used in school, nine have face-to-face seminars in schools, and three make booklets available (whereby one was designed specifically for primary school children). In the following, some examples of good or merging practice are highlighted.

3.5.4 Examples of emerging practice

Seven NADOs (Switzerland, Denmark, Finland, Belgium Flanders, Norway, United Kingdom, Germany) offer teaching material on their websites that are accessible to all and can be downloaded free of charge. They all include general information about doping such as the prohibited list and the procedure for doping controls. Four NADOs additionally focus on conveying a positive body image. For instance, Denmark provides articles followed by student-tasks about past and present body ideals, body ideals in the media, eating disorders or the individual's perspective vs. the others' perspective about oneself. Furthermore, they offer material for sports teachers to show students how to do strength training and plan an effective workout without the use of IPED. Similarly, Norway uses videos with different people talking about body ideals and how they have changed over the years. They also discuss peer pressure and body ideals and the role of (social) media. In addition, examples of student-tasks are offered helping to engage everyone in discussing body ideals. Germany provides input to discuss "beauty" and how contemporary ideals of beauty can make young people feel under pressure.

The decision-making process around doping use is dealt with by four NADOs by discussing or playing through dilemma situations that include issues like peer pressure or fair play. Germany provides short films of imagined situations (for instance a boy being offered pills to enhance his performance) to have pupils discuss the whole process of decision-making. The issue of fair play is mostly dealt with by playing games with unfair conditions (for instance one team having fewer players). Here, especially materials from Denmark, Norway and the UK deserve to be highlighted, as they include many examples of how to integrate this in physical education contexts. In addition, five NADOs provide questions for discussion about ethical problems related to doping such as "Why is it unfair to dope?" "Why should it be punished?", or "Should doping be legalized?"

In addition to the teaching material, two NADOs offer prevention programmes specifically developed for primary school children. Denmark has teaching material available on their website ("Fairplay i idrætten" [Fair play in Sport]) to teach the concept of fair play to create a culture that includes fairness and respect for rules and regulations. Discussion questions about how to be a good teammate or how to deal with dissatisfaction are supported by exercises that are based on unequal conditions (for instance one team with more team players). Slovenia also focus on fair play in two children's books ("Gamsek Miha in prvo tekmovanje" [Mike the little chamois and his first competition], "Gams Miha in čudežne jagode" [Mike the chamois and the magic berries]). The books are specifically designed for children aged 6 to 10 years, with the first one focusing on training and fair play in general and the second one addressing the topic of using performance-enhancing substances.

3.5.5 Conclusion

More than half of the NADOs investigated offer programmes for children and adolescents, most frequently in the form of comprehensive teaching material to be used in schools. This finding is in line with the idea that prevention is best targeted early (Backhouse et al., 2014; Backhouse et al., 2009; Tahiraj et al., 2016) and

especially before the first contact with doping (Vitzthum et al., 2010).

The teaching material for schools especially deserves to be highlighted, because they are available for everyone and can be used without much preparation. They do not typically focus on doping but on related issues (for instance body image and peer pressure) – topics children and adolescents have to deal with (Smolak, 2004; Völker, Reel, & Greenleaf, 2015) beyond sport. Studies have shown that personal factors such as self-control and resilience to peer pressure are protective factors when it comes to doping (Erickson, McKenna, & Backhouse, 2015; Gatterer et al., 2019; Overbye, Knudsen, & Pfister, 2013). Many of the available materials apply this knowledge and they can therefore be used by not only coaches or teachers in sport schools, but also by primary and secondary teachers who can integrate them into daily lessons, with due respect to local needs. UKAD, for instance, offers a vast number of teaching material, divided by topics and adapted to specific age groups. Finally, a number of programs focus on creating a positive body image with the aim of providing adolescents with tools to resist peer pressure, which could help prevent IPED use in this particular age group.

3.6 Presentation of findings from the survey and the interviews

This section presents the findings of the survey and semi-structured interviews aimed at collecting data on doping prevention in recreational sport across the EU28. The aim of the survey was to ascertain existing approaches with the interviews reporting on emerging practice in anti-doping in recreational sport across the 28 EU member states. The notion of good practice in this context may well infer a degree of assurance about what constitutes good practice. This in turn may be taken to mean that other practices have not reached that particular threshold. As we can see from the above the academic literature does not offer a high level of certainty. The term “emerging practice” is therefore more appropriate as an evidence base develops.

3.6.1 Questionnaire Study

A questionnaire was distributed to all NADOs in the EU. Questions concerned existing practices, perceptions and obstacles concerning anti-doping in recreational sport. The questionnaire was available online, and developed by both FAIR and the research team. The sample included 28 representatives of the member states from the European Union, with the addition of Norway⁴. Experts were contacted from each member state to represent their NADO or an organisation responsible for or working with doping in recreational sport. The vast majority of organisations representing the member states were NADOs, with the exception of four other experts from Croatia, Finland, Ireland and Sweden respectively. Croatia was represented by the Croatian Institute for Toxicology and Anti-Doping (HZTA), which is a public health institution responsible for the prevention of poisoning, harmful effects of chemicals and reducing the consequences of accidents involving hazardous chemicals. Representing Finland was the A-Clinic Foundation/Dopinglinkki, a non-profit organisation in Finland focusing on anti-doping work outside of competitive sports. Appointed for Ireland was Sport Ireland, an umbrella organisation - with multiple national roles and responsibilities - which directs the development of sport within Ireland. Experts from Sweden were from Riksidrottsförbundet, the Swedish Sports Confederation, an umbrella organisation of the Swedish sports movement with the task of supporting its member federations.

The online survey received a total of 31 responses due to one member state responding twice offering

4 The Norway NADO was not included in the SoDP (Backhouse et al., 2014)

complementary answers (UK) and two separate organisations from Belgium (which, uniquely has four NADOs) responding to the survey. As a result, the secondary answers from these member states have been included in the survey to enrich the quality and array of data. A duplicate response was also offered by the Norwegian NADO, but one was removed at the request of that organisation. Duplicated answers were also received from Portugal and Bulgaria but were subsequently removed due to their identical answers. Therefore, the data below reports upon 31 responses to the survey.

Study participants

In a similar format to the 2014 report, survey responses are presented in an identifiable fashion. This is indicative of the function the survey plays as a form of service evaluation, rather than a standard anonymised report on questionnaire data. The first two questions concerned the organisation that the individual was representing, and their position within this organisation. Table 1, provides an overview of the survey respondents.

Table 1. Organisation and position of respondent

Country		Organisation	Position of respondent
Austria	AT	Austria (NADA)	Head of information and education
Bulgaria	BG	Bulgarian Antidoping Centre (BUL-NADO)	Executive director
Croatia	HR	Croatian Institute for Toxicology and Anti-Doping (HZTA)	Head of Anti-doping department
Cyprus	CY	Cyprus Anti-Doping Authority	President
Czech Republic	CZ	Czech Anti-Doping Committee (CADC)	Head of doping control and monitoring section
Denmark	DK	Anti-Doping Denmark (ADD)	Senior consultant
Estonia	EE	Estonian Anti-Doping Agency (EADA)	CEO
Finland	FI	Finland (FINCIS)	Development coordinator at A-clinic Foundation
Flanders (Belgium)	FL-BE	NADO Flanders (Belgium)	Legal Advisor
France	FR	France- Agence française de lutte contre le dopage (AFLD)	Director, Communication and prevention
Germany	DE	National Anti-Doping Agency of Germany (NADA)	Deputy head of prevention/Project manager
Greece	GR	Hellenic National Council for Combating Doping (ESKAN)	President
Hungary	HU	Hungarian National Anti-Doping Organisation (HUNADO)	Managing Director
Ireland	IE	Sport Ireland	Director of Anti-doping and Ethics

Italy	IT	NADO Italia	Director
Latvia	LV	Latvia NADO	Education and Information manager
Lithuania	LT	Lithuanian Anti-Doping Agency	Acting Director
Luxemburg	LU	Luxembourg (ALAD)	Secretary general
Malta	MT	NADO Malta	Chairperson of the anti-doping commission
Netherlands	NL	Anti-Doping Authority of the Netherlands	CEO
Norway	NO	Anti-doping Norway (ADNO)	Director, Prevention and Public Health
Portugal	PT	Anti-Doping Authority of Portugal (ADoP)	President of the Anti-Doping Authority
Poland	PL	Polish Anti-Doping Agency (POLADA)	Director
Romania	RO	Romania NADO (RNADO)	President
Slovenia	SI	Slovenia (SLOADO)	Education Coordinator
Slovakia	SK	Slovak Anti-doping Agency (SADA)	Director
Spain	ES	Spanish Anti-Doping Agency (AEPSAD)	Director
Sweden	SE	Swedish Sports Confederation (SSC)	Acting CEO
United Kingdom	UK	UK Anti-Doping (UKAD)	Head of education and athlete support
Wallonia region (Belgium)	WR-BE	Belgium Communauté française (ONAD)	Education officer

Home - Sport Ireland. (2018). Retrieved from Croatian Institute for Toxicology and Anti-Doping - www.hzt.hr

A-Clinic Foundation. (2018). Retrieved from www.a-klinikka.fi/in-english

Swedish Sports Confederation. Retrieved from www.rf.se/Undermeny/RFochsvenskidrott/SportsinSweden

NADOs

Austria- <https://www.nada.at/de>

Bulgaria- <https://www.anti-doping.government.bg>

Cyprus- <http://cyada.org.cy/entipa>

Czech Republic- <http://www.antidoping.cz/aktuality.php>

Denmark- <https://www.antidoping.dk>

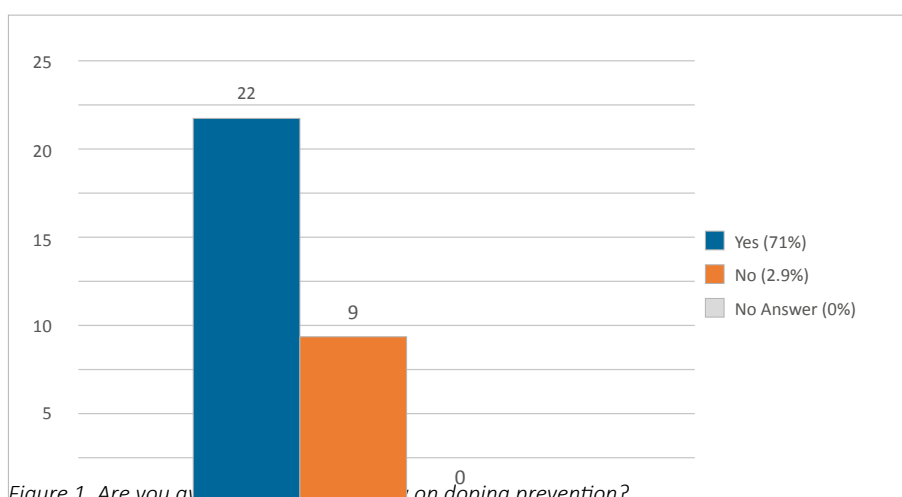
Estonia- <https://antidoping.ee/?lang=eng>

Finland- <https://www.suek.fi/web/en/finada>

Flanders (Belgium)- <http://www.dopinglijn.be>
France- <https://www.afld.fr>
Germany- <http://www.nada.de/nationale-anti-doping-agentur-deutschland>
Greece- <http://www.0069.syzefxis.gov.gr>
Hungary- <https://antidopping.hu>
Italy- <http://www.coni.it/it/?id=34>
Latvia- <https://www.antidopings.lv>
Lithuania- <http://www.antidopingas.lt>
Luxemburg- <http://www.alad.lu>
Malta- <http://nadomalta.org>
Netherlands- <https://www.dopingautoriteit.nl/home>
Norway- <https://antidoping.no>
Portugal- <http://www.adop.pt>
Poland- <http://www.anty doping.pl/en/facebook-3>
Romania- <http://anad.gov.ro/web/ro>
Slovenia- <http://www.sloado.si>
Slovakia- <http://www.antidoping.sk>
Spain- <https://aepsad.mecd.gob.es/inicio.html>

The 2014 study on doping prevention

This survey was intended to build upon the knowledge generated from the 2014 SoDP (Backhouse et al., 2014). It is not a duplicate study, however, and includes a range of different questions to that of the 2014 survey. It does not allow for direct comparison in every respect. Respondents were asked whether they were aware of the SoDP. Of the 31 responses received, 71% (22) of respondents were aware of the 2014 study, in comparison to 29% of respondents (9) who were not.



3.6.2 Exploring the effects of the 2014 SoDP

In the second question along this theme, respondents were asked to offer 'What, if any, developments in their country's anti-doping policies and practices in recreational sport resulted from the findings of that report?' The question attempted to explore whether the previous study and its findings have had an impact upon prevention efforts concerning doping in recreational sport. The question received 31 answers in line with the expected number of responses.

The majority of respondents reported various developments in their country's anti-doping policies and practice in recreational sport. Common themes reported in the development of anti-doping policy and practices in the member states consisted of the formation of anti-doping education and information programmes and campaigns targeted towards recreational athletes. Several of these educational developments consisted of e-learning platforms and value-based campaigns (e.g. UK, Italy, Malta, Portugal, Estonia and Finland). One key limitation to be reported here concerns the interpretation of the question itself. While the question asked for developments that resulted directly from the report in 2014, the interpretation of respondents seems to have been a broader. One, reporting any developments since 2014, is not necessarily attributable to the report. For example, a member state might have reported a lack of awareness of the 2014 report, but still report developments following it.

Reported developments resulting from the 2014 study included, for instance, the inclusion of recreational athletes when developing new anti-doping policies and educational initiatives (Latvia, Malta). It was noted that in the formation of new anti-doping rules recreational sports will be implemented (Latvia) as well as collaboration with organisations that predominantly serve and support recreational athletes (Austria, Ireland, UK.) It should be noted that these changes were not explicitly advised or outlined in the policy recommendations of the SoDP. Therefore, while they are certainly relevant and interesting developments the directness of their association with the 2014 SoDP is unclear. In addition, replies to this question show that decisions for establishing new initiatives are not made because of a single (EU) document, but rather from a broader pragmatic assessment of what is needed and what is possible.

Developments were not limited to policy changes. Some cited law changes as well as policies that support anti-doping efforts more generally (Flanders Belgium; Portugal; Slovakia, Romania) the latter referring more explicitly to recreational sport. NADO Romania outlined new additional legislation in anti-doping policies for recreational sport. Highlighting the importance of cooperation among agencies, including law enforcement, Customs and the National Authority of Consumer Protection to prevent and combat the illicit trafficking of doping substances in the country.

The UK reported that no major changes have developed due to barriers in place, such as a lack of human and financial resources available to target recreational sport:

Limited resources or capacity to undertake much work in this area at the time of the research. Education workshops delivered by UKAD or sports continues, as does some event-based education for school-based competitions, some amateur sport competitions and information available on our website. More recently and post a Government initiated review of UKAD, further recommendations have been made and resources provided to support an increase of activity in this area, including possible education interventions in gyms/fitness industry as per UKADs new strategic plan 2018-2022.

It should be noted that the report of such developments across the member states is based upon the data and responses received solely from the survey. It is reasonable to assume that developments reported may have generally been produced within the last four years though not necessarily as a result from the SoDP.

3.6.3 Defining the recreational athlete

As noted above, the definition on recreational sport developed by both FAIR and the European Commission and presented in the introduction to the survey read as follows: “Sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.” In question 5, however, the survey asked respondents to define what they considered to be a recreational athlete. It is an open question how definitions of this nature might help inform and develop policy concerning doping in recreational sport. It might be argued that prior to clear policy such definitions need to exist and be agreed upon. On the other hand, anti-doping policy targeted at athletes competing at a range of different levels might function without exact definitions as long as these policies focus on prevention and education and not testing and sanctioning. When the latter occurs, rules and regulations with clearly stipulated definitions are needed. The findings presented no common definition of the term ‘recreational athlete’. The vast majority of respondents reported that no formal definition existed, with many organisations using the definition of a general ‘athlete’. Although responses varied considerably, a common theme was identified, with the most frequently used descriptions being similar to the following; “low level, competitive/non-competitive, gym, fitness, club members, organised activities and hobby.” The range of answers collected is exemplified from the quotes below. Netherlands reported:

We use the (informal) definition that a recreational athlete is an athlete who works out in fitness centres without participation in sports competition.

Flanders Belgium stated:

Any person engaging in sporting activities in an organised context. This also includes fitness activities in a fitness club or gym.

Hungary offered their account as

An athlete who is not professional, but loves sport and spends his free time practicing, having an aim to be healthy.

In contrast to these descriptions the Estonian Anti-Doping Agency highlighted their concerns about the lack of clarity:

It is not clear at all; in some cases these are athletes, who do not participate at the national championships (e.g in doping cases); or the athletes who are participating at non-Olympic sports (e.g bodybuilding); or the gym users.

In conclusion, the definition of a recreational athlete is varied, and sometimes subsumed under the more general definition of an athlete (WADA, 2015). Some interesting differences between definitions were evident. For example, some referred to a recreational athlete as someone who does not take part in organised or competitive sport. Others included any person engaging in sporting activities in an organised context, including fitness activities in fitness clubs or gyms.

Interestingly the Hungarian NADO offered a definition that was based upon the aim of the activity (enjoyment and health) as opposed, presumably, to the winning and prize-oriented ethos of elite sport.

3.6.4 NADOs' jurisdiction in recreational sport

The experts were asked to indicate if their NADO has established jurisdiction in recreational sport, as defined in their country. The majority of member states, 61.5 %, reported jurisdiction in place regarding recreational sport. As illustrated in figure 2, this is in contrast to the 35.5 % who responded that their organisation had no jurisdiction in this area. Jurisdiction might be interpreted as being able to intervene in recreational sport in some way. This might amount to education, sanctioning, or as having the ability to test athletes who participate in sport recreationally. Even though the question refers to recreational sport, (where a definition was given at the start of the survey) and not to recreational athletes (where the definition varied considerably), such results should still be interpreted with caution. First, it is unclear quite what this jurisdiction would amount to. For example, if this were to allow the testing of recreational athletes, the definition of what a recreational athlete is varies among states. Secondly, further questions indicate that where the ability, for example, to test athletes in lower sporting levels exists, this does not necessarily mean that such tests actually take place. Other considerations and obstacles, such as the (lack of) relevance and efficacy of such test or financial constraints, might mean athletes at this level are not tested, despite the anti-doping organisation theoretically being able to do so.

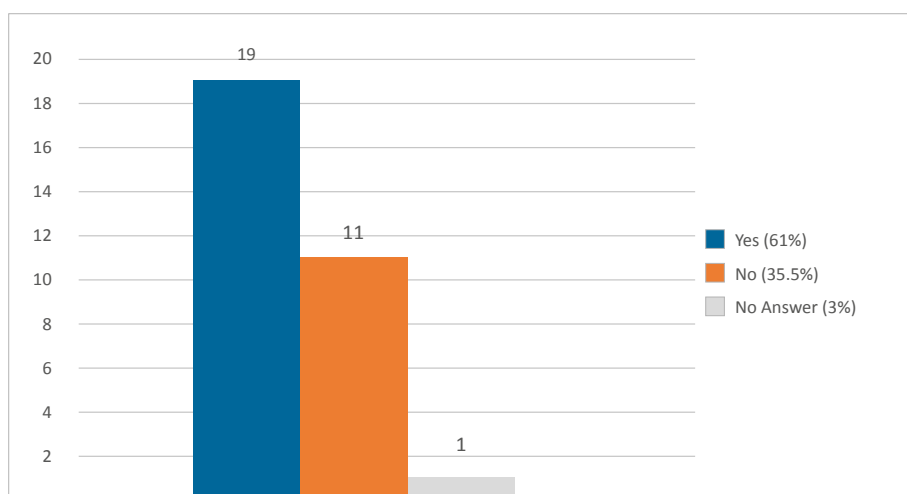


Figure 2. Does your NADO have jurisdiction in recreational sport as defined in your country?

3.6.5 Which athletes can be tested?

As indicated in Figure 3, a range of athletes are included in the NADOs' athlete testing protocols. Athletes identified by anti-doping organisations and placed into testing programmes are potentially subject to a range of doping tests. Since the 1960's testing athletes for banned substances has been a primary tool in anti-doping work in elite sport (Dimeo, 2007). As the survey aimed to examine how much this approach is utilised in anti-doping work in recreational sport, respondents were asked to select as many options as were appropriate. The respondents were asked to report 'Which of these types of athletes can be tested by your NADO? High level/ Elite level competitive athletes were the most frequently selected (97% with one respondent who did not answer this question), with low level/recreational competitive athletes (81%) following. Reportedly, the least selected category of athletes eligible for testing across the EU are non-competitive / non-sport club related athletes (10%) (Denmark, Greece, Flanders-Belgium). Although not been reported here, other organisations (such as Norway and Sweden) can also test at this level under specific circumstances.

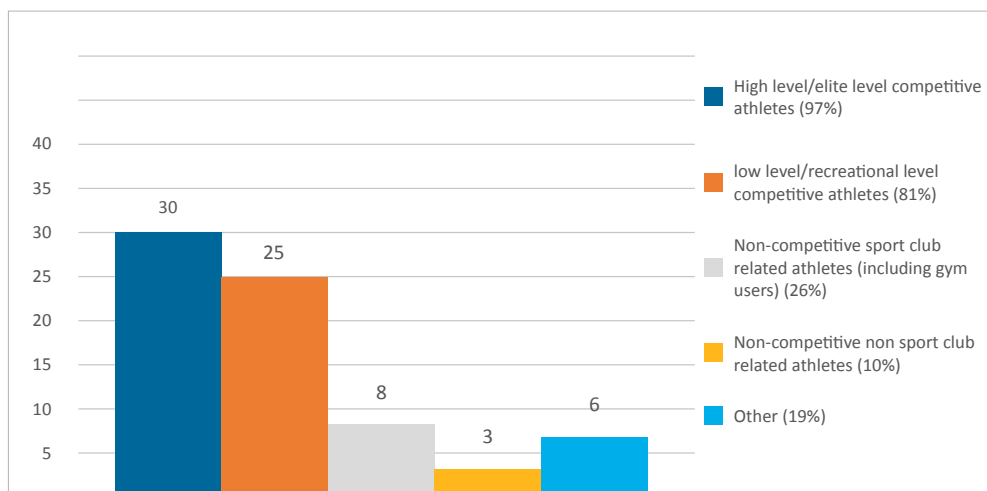


Figure 3. Which of these types of athletes can be tested by your NADO?

Respondents were invited to elaborate or comment on their answers, which produced a variety of responses. To illustrate this, the answers ranged from a limited testing capacity to athletes with a national level sports licence only (Spain) or international, national level athletes and recreational athletes participating in national sports federation competitions only (Czech Republic). Contrary to this, several respondents reported a significantly broader range of testable athletes, such as any person who competes in any sport event organised in the country (Slovakia) to the largest inclusion from Flanders Belgium, Denmark and Greece, who in theory can test all athletes from low level non-affiliated and fitness member athletes to elite level. Again, though, there are restrictions here that are difficult to capture in a questionnaire response. In Denmark, for example, powers to test do not extend to someone jogging in a wood, or to testing a member of a gymnasium or fitness club that does not subscribe to the national anti-doping scheme (Christiansen, 2011, 2020).

Further analysis of the results revealed that the majority of member states who reported the capability of their organisations to test non-competitive sport club related athletes (including gym members), confirmed they had the power to test gym users. Of the eight respondents shown in figure 3, four (Romania, Wallonia region Belgium, Sweden, Cyprus) expanded on their selections by describing regulations or barriers currently in place for testing gym users specifically. The Wallonia region of Belgium outlined limits in place of their testing jurisdiction stating;

Our NADO is competent for all-athletes testing - elite level as well as low-level -, affiliated or not, including minors and fitness members. However, the subject competence comes under the sports federation's jurisdiction. Consequently, except on mandatory demand from a judge or public prosecutor, our NADO avoids testing on athletes that have no affiliation to any sports federation, in which case there is a high risk of having a positive case result but no sanction at all, which would be ineffective from a budgeting point of view and in terms of doping deterrence. In particular for these reasons, as well as to avoid the sense of impunity and for public health reasons, a legislative reform is in progress in order to give a mandatory disciplinary competence to one and the same independent body, and this, regardless of the sports affiliation.

Cyprus also noted:

Cyprus Anti-Doping Authority (CyADA) has testing jurisdiction over “Low level/ Recreational level competitive athletes” if they participate in an event that is organised by a national sport federation or a national sport federation’s member club. Similarly, CyADA has testing jurisdiction over “Non-competitive sport club related athletes (including gym users) if the club or the gym are members of a national sport federation. It is worth pointing out that, regardless of CyADA’s testing jurisdiction described above, CyADA has not performed any testing in recreational-level athletes.

A key theme presented throughout the range of answers provided, displayed that athletes who are required to comply with the anti-doping rule provisions generally consisted of competitive athletes affiliated to national federations, sport organisations, or governing bodies, who are contractually bound to the rules of a sport. The results display some disparity in the variety of other athletes or individuals that are required to comply with anti-doping legislation across the member states of the European Union.

3.6.6 The importance of doping prevention in recreational sport

Respondents were asked to assess the importance of doping prevention in recreational sport in their country in comparison to elite sport. The findings are presented in figures 4, 5, and 6 in individual bar graphs. The responses reveal that the majority of member states consistently agree that the category of a recreational athlete in which doping prevention is most valued consists of low level/recreational level competitive athletes. As can be seen in figure 4, 87% of the respondents expressed that doping prevention aimed at low level/recreational level competitive athletes is assessed to be somewhat or very important in their organisations.

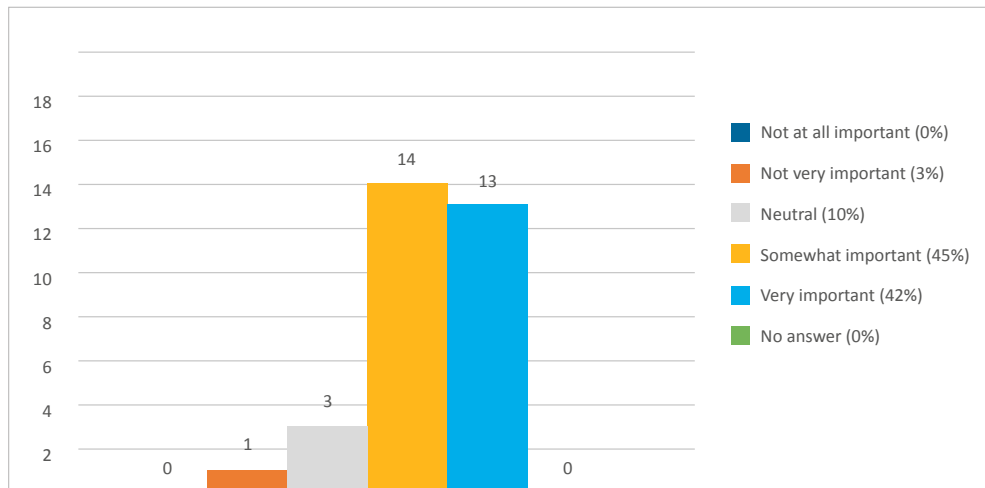


Figure 4. In your country, how important is doping prevention in recreational sport when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes].

A diverse range of responses was received for the third category of recreational athletes, non-competitive non-sport club related athletes displayed in figure 6 where 16% of respondents reporting that doping prevention for such athletes is regarded as not at all important and 19% regarding the category as not very important. This conflicts with the 23% of respondents who regard doping prevention in this category as very important. Interestingly (figure 5), the group ‘Non-competitive sport club related athletes (including gym users)’ generated greater importance ratings. With 42% rating doping prevention as somewhat important, and 26% as very important.

It would be interesting to further explore whether the membership of a sport club in a non-competitive sense or gym attendance explains these perceptions of higher importance evaluations. When invited to expand on their choices several respondents noted that they are restricted due to limited funding and budget restrictions (Netherlands, Malta, Estonia). An additional key theme featured was the reference from several MS to the necessity of directing new initiatives, missions and educational campaigns to control doping substances in fitness gyms and the bodybuilding population. Several examples are presented below

We can observe increase of use of PEDs by users of fitness clubs and gyms. (Poland)

For lower level competition, prevention is being done through the federations. For non-competitive gym users, campaigns are set up with the cooperation of gyms and fitness clubs. The website contains all additional information on prohibited substances. (Flanders Belgium)

Anti-doping work in recreational sports became a bigger issue in the last years which led to the development of our information and education campaign “anti-doping certificate for fitness centres. (Austria)

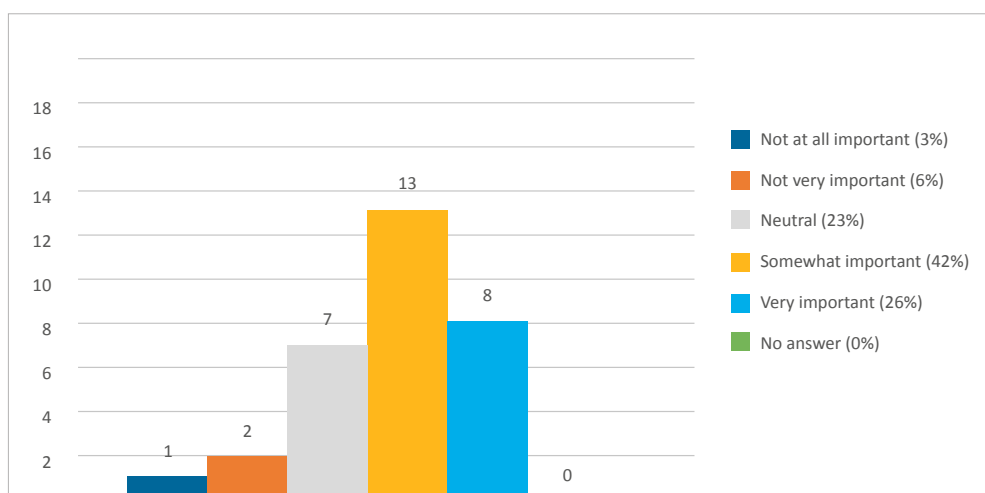


Figure 5. In your country, how important is doping prevention in recreational sport when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym members).

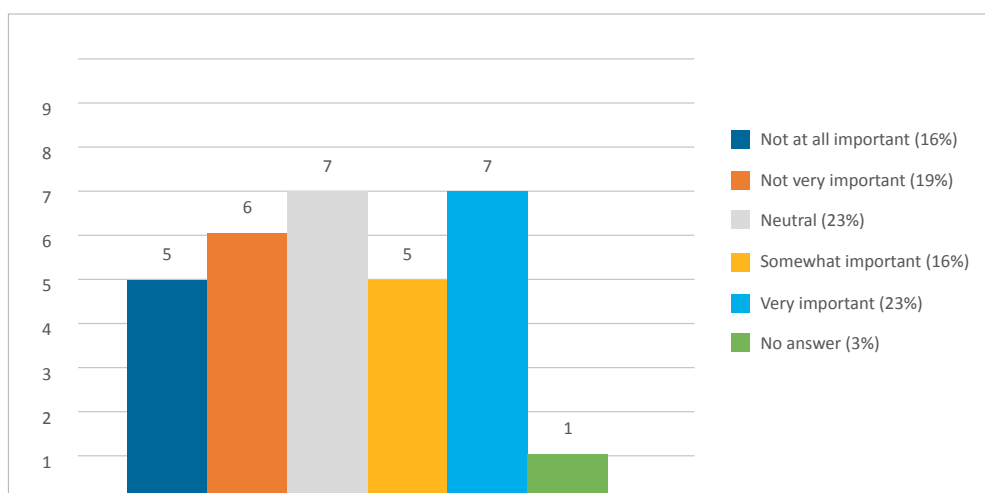


Figure 6. In your country, how important is doping prevention in recreational sport when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes].

3.6.7 Initiatives for the prevention of doping in recreational sport

Respondents were asked 'In your country, are there any prevention initiatives in recreational sport (other than testing)? and encouraged to offer examples of programmes in each of the following categories (if appropriate): 1 low level/recreational level competitive athletes, 2 non-competitive sport club related athletes including gym members and 3 non-competitive non-sport club related athletes. The majority of prevention initiatives described by respondents consisted of educational programmes and campaigns, many of them directed towards children and youth athletes in athletic schools or sports clubs. For examples Portugal note that:

The "Clean Sport" project aims to raise awareness, educate and guide future sportspeople in the search for an increasingly clean sport, thus contributing to the preservation of health, ethics and sporting truth.

Similarly, Norway responded:

The program 'Clean Sports Club' focus on youth and lower level athletes. An E-learning program called Real Winner, Face-to-face lectures all over the country. Anti-doping Norway held about 630 face-to face presentations in 2017, the majority targeted towards lower level athletes and youth in sports clubs and in high schools.

For initiatives targeted at non-competitive sport club related athletes, including gym members, 19% (6) of responders listed initiatives specifically directed towards fitness centres or gyms. Examples of these initiatives included, 'anti-doping certificates for fitness centres' (Austria), 'Clean Fitness Centre', an anti-doping certification program for fitness centres (Norway) and 'True strength' campaign focused on the fitness industry to prevent the use of AAS and other prohibited doping substances in gyms (Netherlands).

3.6.8 Examples of doping prevention programmes for non-elite athletes

Respondents were also asked to provide up to three examples of doping prevention programmes in place specifically for non-elite athletes in their country. The question unsurprisingly received diverse responses, with programmes varying from prevention programmes in primary schools for children aged six to nine via posters and booklets (Slovenia), a 'Report doping in sport-hotline' (UK, Sweden), to 'Doping: what the coach needs to know' – an initiative aimed to educate future coaches in sport (Portugal, Lithuania). Two common themes were highlighted from the responses received with most strategies aimed at children or teens and fitness centres or gyms occurring the most frequently. Many respondents listed prevention programmes aimed to educate children and students ranging from the ages of six to eighteen, whilst also directing the education towards teachers and parents (Norway). Bulgaria listed a UNESCO project of specialised lectures developed for orphanages participating in sport events, education sessions in secondary schools and sport federations (Belgium, Wallonia Region), prevention programmes aimed at athletic schools (Cyprus) and 'vive sin trampas' – a programme for physical education teachers to enable the teaching of anti-doping education to all students aged 13-18 (Spain). See also the section "Doping Prevention for Adolescents", p. 43.

The second common theme highlighted was the number of programmes created and directed specifically towards gyms and fitness centres, with several programmes focusing on the promotion of clean training. Ireland listed an initiative targeting gym users and fitness professionals promoting clean gyms and the safe selling of supplements, while Romania reported on anti-doping education designed to reduce the use of doping substances in bodybuilding and fitness gyms. Austria provided examples of anti-doping certificates for fitness centres that includes lectures for employees and members.

3.6.9 Who takes the lead on doping prevention in recreational sport

Member states were surveyed on the organisations or professions that “take a lead” in their country’s doping preventions in recreational sport (“If doping prevention in recreational sport is taking place in your country, please select the organisations/professions significantly leading on these activities?”). Experts were asked to select up to three of 12 possible choices, so it seems reasonable to suggest that ‘taking the lead’ has been interpreted broadly here to reflect the contribution of a range of institutions. The findings are displayed in figure 7. Results show that National Anti-Doping Organisations significantly lead the majority of anti-doping preventions across the EU (87%). The second highest organisations/professions selected were school/teachers, which totalled 39%, and sports federation club associations with 42%. In comparison to the lesser selected groups of health care professionals (including doctors) 23% and sport clubs (sport trainers and coaches) 23% in leading doping prevention in recreational sport. It should be noted that the question restricted respondents to choose from the list available in the survey. 29% per cent said “other” which may reflect that while in Ireland, Croatia, Finland and Sweden it was another organisation than the NADO that was primary responsible to lead on Anti-doing in recreational sport, their mode of work was not reflected in the available options.

A range of alternative organisations or professions not listed were selected by 29% of the expert group. A variety of answers were provided, including the Ministry of Sport (France), Association of gym owners (Spain), the Maltese Olympic Committee (Malta) and the Federation of Fitness Clubs (Flanders-Belgium).

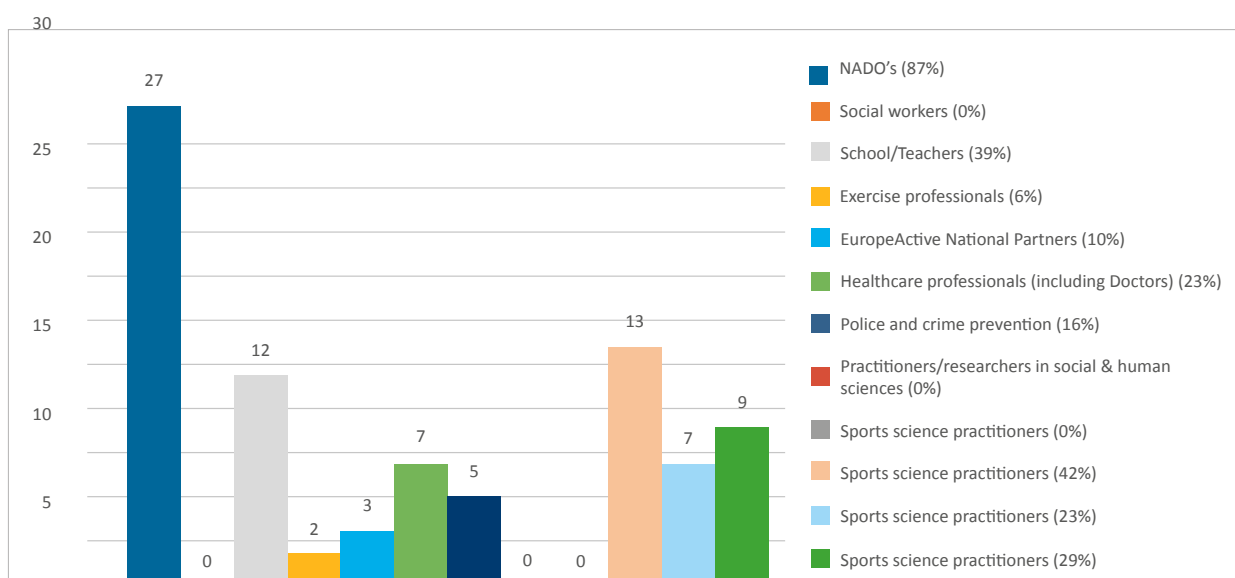


Figure 7. If doping prevention in recreational sport is taking place in your country, please select the organisations/professions significantly leading on these activities? Please tick up to three boxes.

3.6.10 Main mode of delivery of doping prevention education in recreational sport

Figure 8 displays the most common delivery mode of doping prevention in recreational sport across the EU (“If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?”). Results established the process of face-to-face group sessions as the most common method of delivery with 74% of experts reporting the practice. Prevention through the medium of digital and online

resources such as e-learning or smart phone and tablet applications was the second most common reported method used by the organisations (61%). The use of print media such as pamphlets received the same score (61%). Outreach programmes (mass participation events) followed with 55% and social media campaigns closely next with 48%. In contrast, the least selected mode of delivery was reported as face-to-face individual sessions (16%). Other responses referred to books (Netherlands), and information available on a website (UK).

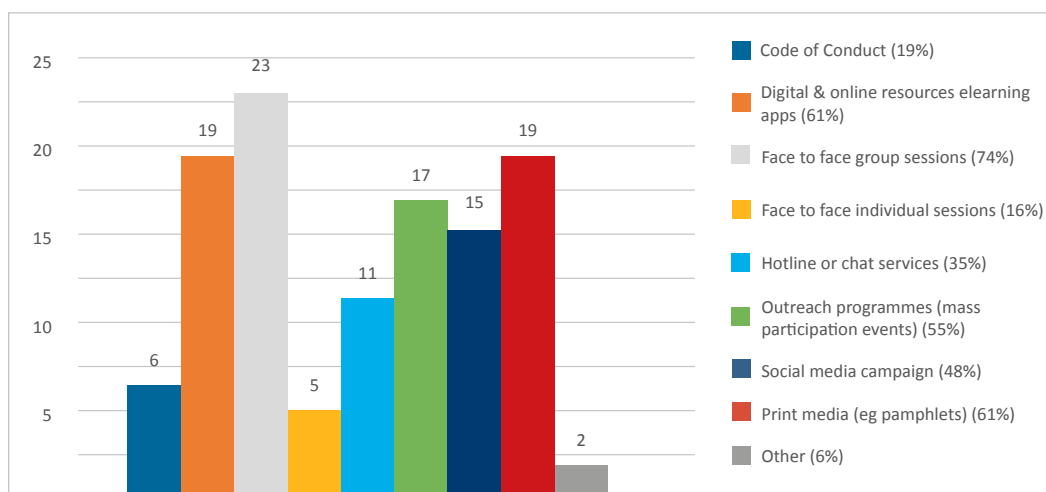


Figure 8. If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?

3.6.11 Sharing of doping prevention expertise

Figure 9 (“Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations?”) displays that the majority of NADOs/member states (90%) share their expertise in doping prevention with public bodies or other anti-doping organisations. A range of collaborations were presented by the experts, with Slovakia cooperating with law enforcement regarding prohibited substances in sport and providing workshops for coaches, physiotherapists, physicians and universities. The Netherlands cooperate with the Ministry for Health, the organisation of Fitness Professionals and with European partners. As stated, and likely similar to other NADO reporting practices, Slovenia report annually to the Ministry of Education, Science and Sport, the Foundation for Sport and to the National Olympic Committee, whilst also sharing their programmes and experiences with NADOs worldwide. As mentioned previously, this should not be regarded an exhaustive list of such initiatives among responders.



Figure 9. Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations?

3.6.12 Examples of good practice that can be shared

When asked if there are any examples of good practice in doping prevention in recreational sport that they are prepared to share with other EU countries, 48.5% of the experts agreed to distribute their experience and knowledge, compared to 45% of the experts that reported no examples of good practice existing which they could or are willing to share. When invited to expand on their answers several experts provided examples of good practice and website links to prevention initiatives that they are willing to share. The Netherlands outlined they are willing to share whatever may be helpful, providing an example of a 'supplement checker app'. Norway provided a programme named 'local mobilisation towards doping' a programme involving the municipality, where the goal is to implement good routines for the prevention of doping.

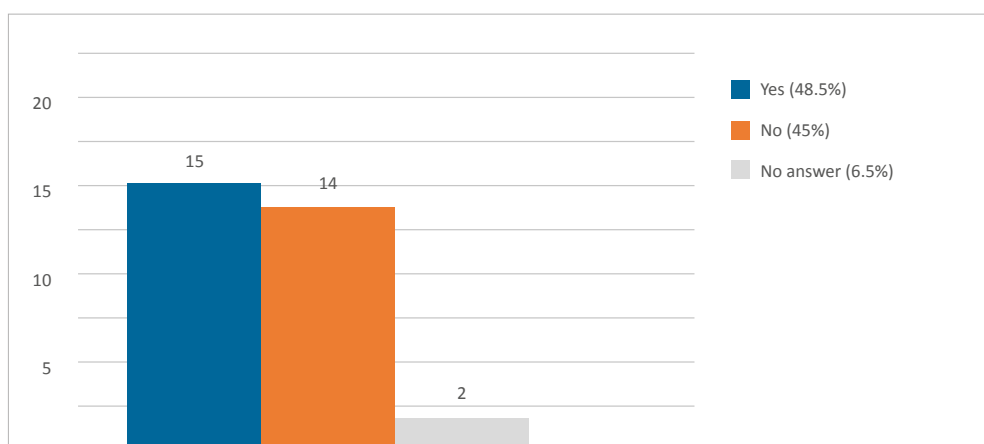


Figure 10. In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries?

3.6.13 Barriers for doping prevention in recreational sport

Potential barriers to implementing doping prevention in recreational sport were the topic of the final question ("Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?"). Experts were asked to rate a total of three barriers by scoring them 1 to 3 with 1 being the most important. Participants were provided with a total of seven potential barriers which are presented in figure 11 below.

- H. Difficulties in establishing a clear aim or purpose for the intervention prevention
- I. Difficulties in establishing a standardized approach to intervention
- J. Lack of good practice
- K. Lack of financial and human resources
- L. Lack of cooperation between key stakeholders (i.e. federations, clubs, and athletes/gyms and fitness centres)
- M. Not a priority for our country
- N. No provision or the legal framework for doping control and prevention in this setting

As presented in figure 11, 80% of experts included D (lack of financial and human resources) in their top three barriers on doping prevention in recreational sport. The significance of this barrier is highlighted throughout the report with many member states expressing their concern over a lack of financial and human

resources in several other answers. Barrier E (lack of cooperation between key stakeholders) received the second most answers with 60% of experts placing it in their top three, with 19% of the experts declaring it as the most important barrier. In joint third place 47% of experts included both C (lack of good practice) and G (no provision or the legal framework for doping control and prevention in this setting) in their top three barriers out of the seven available options.

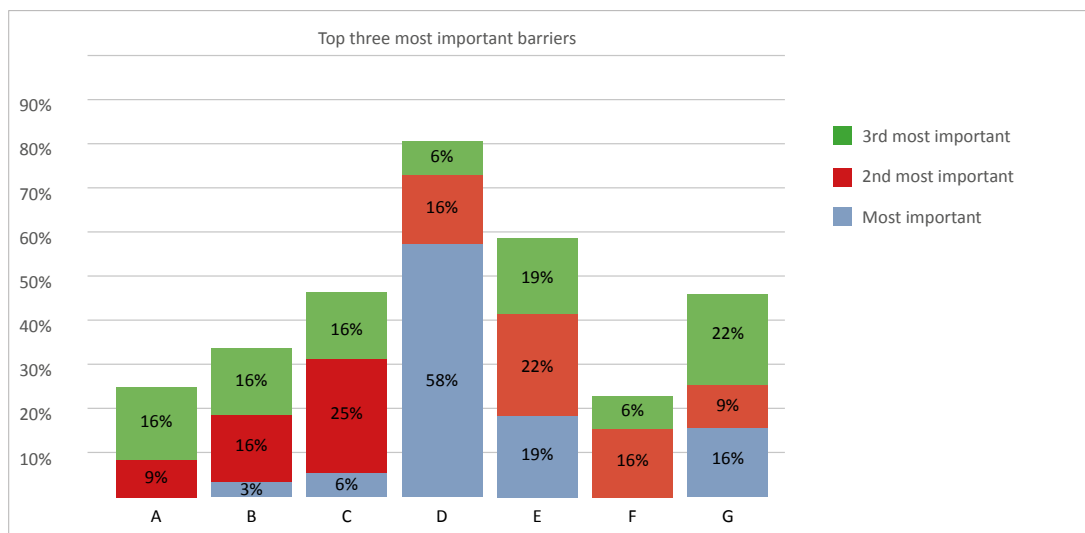


Figure 11. Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?

When invited to expand on their answers the UK in relation to item E further outlined:

No one agency in the UK has full responsibility for doping prevention in recreational sport, therefore cross-organisational strategic coordination is required. There are potential conflicts of messages - as a NADO it is clear that prohibited substances are banned, however that may or may not be the case in all activities defined as 'recreational', some public health agencies therefore approach this from a harm reduction perspective. How both types of messaging co-exist in recreational sport needs to be further explored.

Norway also provided an additional barrier on doping prevention, stating there is a general lack of research regarding effective preventive programmes in recreational sport. Subsequently, they stated a desire to see an increased focus on this matter.

3.7 Semi-structured Interviews exploring emerging practice

3.7.1 Methodology

Based on the survey results, semi-structured interviews intended to explore emerging practice in anti-doping in recreational sport were conducted from January to July 2019. Interviews were conducted with NADOs and other federations in a range of sports. Interviews lasted between 48 and 97 minutes and were conducted by Dr Ask Vest Christiansen or Dr Andrew Bloodworth in conjunction with Ms Evie Ham and Mr Luke Cox. Questions were adjusted for the interviewee in question. A template for the question schedule is available in Appendix 2. Interviews were fully transcribed and subsequently thematically analysed by all researchers involved in the project.

This research was approved by the College of Engineering Research Ethics Committee at Swansea University. Participants were given the option to have their organisation affiliated to any quotes included in the report, or to remain anonymous.

3.7.2 Sample

A total of 13 interviews were conducted: four with National Anti-Doping Organisations; two with other organisations involved in doping prevention at a national level; one with a European Level organisation; and six with national sports federations (governing bodies). The participants were from across Europe. Where permission has been given, we attribute quotations to the organisation in question.

3.8 Results

3.8.1 Terminology

Anyone who has researched or aimed to regulate doping and anti-doping have struggled with the definitions of “sport”, “doping”, and “athlete”. As has already been discussed, things do not become easier when we add the prefix “recreational-”, and the concepts and constituencies of recreational sport, recreational athlete and doping in recreational sport are addressed. Thus, there is no doubt that addressing doping in recreational sport is an area fraught with terminological difficulties. Recreational sport might be interpreted in a range of ways. Again, as noted, a broad interpretation as developed by Europe Active, the FAIR project and condoned by the European Commission includes non-competitive physical activities, but this can provoke confusion. The definition is as follows:

Sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.

This definition permits consideration of doping in recreational contexts, for example gymnasia, in countries where no rules are being broken. This in itself seems a difficulty as in some contexts at least doping is reserved for the breaking of a sports rule. The term recreational athlete, or discussion of the lower levels of sport, also provokes confusion.

Here the Cyprus Anti-Doping Agency illustrate that an athlete may move fairly fluidly between categories of recreational and competitive athlete:

For us there is no clear distinction between recreational and competitive sport activities. Especially in countries like Cyprus, a small country where sport is not really at a high level, so someone might be running for recreation but can easily enter the competitions at a national level. So, it easily becomes both recreational and competitive athletes. I know in the UK the national level you'd have to go through different stages, divisions. But for us there is no clear distinction. In some sports like triathlon and marathon, it is very easy to cross this thin line and become a recreational runner or triathlete and compete in an event organized by the national federation and under our rules you become a competitive athlete.

Poland also outlined terminology difficulties:

In the Polish legal frame, in the case of an athlete, in a sport case or an anti-doping act, we refer to elite athletes, athlete means elite athlete. But it isn't formalised. In our national scheme we don't have the legal basis to distinguish between the two – we could use the code but that would only work for the work of the NADO and not the whole country.

Germany described diverse terminology when referring to substance use in sport:

The term doping here in Germany is only related to elite- and organised sport. Taking part in competitions and being competitive or belonging to a club, then you are a part of organised sport. If you are a part of organised sport then it is doping. Everything else in Germany is referred to as drug misuse.

The implications of a range of definitions being used, and of a fairly fluid use of such terms is not only relevant for the classification of an athlete for testing or sanctioning purposes. In trying to properly understand doping and IPED use in these contexts it is helpful to consider in detail the motivations of the individual and the specific context and culture within which such behaviour is discussed and informed. We discuss these difficult terminological problems and make some recommendations in the Discussion section below.

3.8.2 Method(s) of anti-doping education

Overall, the interviews, along with general impressions from the survey, suggests that in many countries the focus on anti-doping for recreational populations is a relatively new development. For some, this area was not well enough resourced to facilitate development of a full strategy. Yet as we present our data below, even with the resource restrictions, we can still see the development of some innovative practices as doping in lower level sport is increasingly considered an issue that needs to be addressed.

First, consider the foundations of such programmes. The German National Anti-Doping Organisation made the important point that education must come before increased anti-doping initiatives at recreational levels. Many interviewees described a more positive approach to anti-doping education, focused less on preventing use and applying sanctions, and more on facilitating and supporting positive behaviour. UK Anti-Doping described the foundations of their programme as an example of this:

We never talk about doping or anti-doping, we always talk about clean sport - from the other side we try and talk about clean sport with an over-arching, positive, let's get back to what sport is about. You will start to see all of the programmes, whether for elite or recreational sport, have clean sport drive - clean sport accredited - clean sport week, clean sport advisor, all our programmes are clean sport focused and not doping or anti-doping.

Likewise, Poland's NADO outlined a similar positive approach when asked whether their initiatives are target to any particular sports;

Usually we would focus on all aspects but our experience of speaking about risks and side effects of PED's doesn't really work so it is better not to scare people, positive messages are better received by the athletes - we focus more on diet and training, discussions with specialists, medical doctors.

Where anti-doping is first introduced to the player, or how it is introduced is no doubt important as educators seek to maximise engagement from athletes of all levels. Many organisations suggest that early messages should be more positive ones. Younger age groups are unlikely to require an in-depth account of testing process. The focus here is on the promotion of specific values and behaviours that promote a resistance to activities such as doping. UK Anti-Doping describe such programmes here:

The schools programme also send out these messages, 'get set for the spirit of sport' & 'get set for the spirit of competition'. This would talk about values, sportsmanship, doing the right thing and enjoyment of sport. We also have 'think real', which is a new project that touches upon diet, healthy habits, energy drinks, food first. Neither of those programmes touch upon anti-doping but would be relevant to get in the right habits - any ages between 7 and 16 – which develops good habits before people start thinking of anti-doping.

Linking this to the effectiveness of applying doping controls, known from elite sport, to encompass also recreational athletes, the UKAD representative noted that:

Testing recreational athletes and banning them is doing little to stop the problem. So I think the programmes targeting younger sports people is a good example of a proactive, preventative approach which is trying to get these kids into the right habits right from the beginning in a healthy way. And so that when they get a little older they are not obsessed with social media and the gym IPED thing will become less of an attraction.

Germany's NADO further explained how their anti-doping education is first introduced to the youth:

Most of the time this is values based, it's about making decisions, talking about values, about principles and the reason to why they are doing sport and why fair sport is important and what it does mean to them. And then again, we will continue with these daily situations that you can get in like nutrition, nutritional supplements, injuries, stress, how to deal with expectations, and then we are slowly getting into the stuff of anti-doping information.

3.8.3 Examples of emerging practice: Building an anti-doping culture

We were able to discuss many programmes designed to prevent doping at all levels, or indeed some that were focused on recreational sport. The programmes were in a variety of formats, some on-line methodologies were employed partly because this was understood as a cost-effective way of reaching many people. Other programmes and interventions were in a more traditional workshop format or indeed at competitions. Interestingly and in line with the more positive methodology described above, a number of approaches sought to obtain a commitment to clean sport participation from the athlete. The Polish Anti-Doping Agency described one such social media example of this approach. They highlighted how raising awareness might also raise participation in the more detailed anti-doping educational packages.

Similar to the ice bucket challenge⁵ but on a voluntary basis, if you want to take part you can do it. We have an ambassador from the UFC athletes,⁶ who is famous, and she promotes and declares

5 *The Ice Bucket Challenge, sometimes called the ALS Ice Bucket Challenge, is an activity involving the dumping of a bucket of ice water over a person's head, either by another person or self-administered, to promote awareness of the disease amyotrophic lateral sclerosis (ALS) and encourage donations to research.*

6 *UFC is The Ultimate Fighting Championship. It is an American mixed martial arts promotion company based in Las Vegas, Nevada.*

that she competes clean and is against doping. That works well. We also have outdoor campaigns such as posters in highly populated cities and there was a big potential of people who could see the campaign.

The response to this quotation took the form of a question as to where these ideas come from? Had it emerged from any kind of research or anything in particular? And, why did they use them? They responded:

It wasn't real research but we attempted to come up with low budget campaigns because we do not have a big budget. Social media campaigns are more focused towards amateur athletes, to give them a message that anti-doping exists and there are some important values of sport. A simple message, which isn't overloaded.

Then the interviewee continued to describe how those interested can progress to more detailed educational materials.

But for people who want to take it a bit more serious, you can do a quiz or e-learning for elite athletes. But all people can use it. We provide information on dietary supplements to amateur athletes about how some supplements are not safe, how they are not always what they say they are, in short to rise caution about dietary supplements and diet.

Another example of addressing recreational athletes in multiple ways comes from PRODIS (Prevention of Doping in Sweden) and is entitled 100% Pure Hard Training (100% PHT). It is quite an extensive program that involves many levels of prevention and is targeted broadly at fitness enthusiasts. We interviewed the project manager of PRODIS for the present study. 100%PHT was developed by STAD (Stockholm Prevents Alcohol and Drug Problems) in 2008 and is an intervention aimed at preventing and reducing AAS use among gym-goers. A Euro-barometer survey from 2014 found that 44% of Swedes were training in a gym, which meant that Sweden was the country in Europe with the largest proportion of Gym members in the EU (Westin, 2018). 100%PHT is built as a multi-component community-based prevention programme entrusted by the Swedish government and financed by The Public Health Agency of Sweden. The associated policy documents stress that doping in this context is regarded more a societal than a sport related problem (Westin, 2018). In line with this, the overarching premise for 100%PHT is that preventive work should be based on cross-professional and cross-sectoral collaboration between different actors in the social system. The intervention components of 100%PHT, or 'the method' as it is referred to, consists of the following five items (Westin, 2018):

1. Educational training (for key persons such as gym staff and owners, local police and municipal prevention coordinators);
2. Policy and action plan (each gym that is part of the scheme develops a written action plan and a policy document);
3. Cooperation (close cooperation between stakeholders such as the police, the local sports umbrella federations and gyms);
4. Certification of gyms (gyms who comply with the 100%PHT policy are certified. Gyms that do no longer are de-certified); and
5. Media campaigns (e.g. websites, podcasts, articles, social media, role models and a yearly anti-doping awareness week).

The method is marketed in such a way as to focus on the positive elements of the culture. The programme manager of 100% PHT explained it in this way:

We are now focusing more on the positive aspects and trying to install a sense of empowerment in the gym goers instead of focusing on the negative aspects and always be telling them that they cannot do this and that. Now it is more the positive aspects like what you can eat instead or what you should be eating in order to improve your training based on normal food and not supplements.

On the collaboration (item no. 3), the respondent further said:

Other stakeholders at the local and regional level are also involved, which is very positive. These could be from the health care sector, crime prevention, etc. The networks with regional and local coordinators provide education for the gyms in the region, and secure that each gym lives up to the standard in order to maintain or get the certification saying “we are a 100 % pure hard training gym”.

Further, on the reception of the programme and method the respondent explained:

It has been very well received. We have noticed a lot of people and gyms are contacting us and they want to start working with the method. Another successful part is how we have created a week of national awareness to fighting doping, and we also encourage gyms to compete against each other and for them to come up with their own competitions. If they do a competition, film it and send it to us, then we share it on social media, so it is like a win-win-situation for the gym and for us. They get free publicity and we show our network and the public that a lot of gyms want to work against doping.

As of 2018, 19 out of the 21 counties Sweden is regionally and administratively divided into, were working with the method. This involved more than 600 out of approximately 2,000 gyms. A questionnaire study revealed that most stakeholders are very satisfied with the method, and finds it engaging with high levels of cooperation between stakeholders, and that the method is considered straightforward and easy to understand (Gripenberg, Westin, & Hasselberg, 2018). The project manager confirmed this: “We did interviews with gym owners and staff and also PRODIS coordinators about how they felt the work was going and those interviews revealed a very positive attitude.” Commenting further on what was the most successful part of 100% PHT, our interviewee continued:

I think just having a method to provide to the regional and local levels is one of the most positive outcomes, because a lot of prevention workers and the police they want to work against doping, but they do not know how to, so just having a method to implement and apply is a first positive step.

Outside the gym community, explicit commitments to clean sport or anti-doping values were also seen in a number of examples from sports. At an international triathlon competition in Denmark, participants were asked to publicly sign a clean sport declaration on a board or poster at the event – prior to participation. As the CEO of the Danish Triathlon Federation said:

We felt that it would involve a moral statement if you signed. The elite athletes will always go and sign, but more importantly we wanted the age-group athletes to go and sign to make this an explicit thing. Even if they do not add their signature, the message is present, it is there as a reminder of something we find important.

Likewise, a number of organisations espoused the value of ‘Codes of Conduct’ as a way of affirming a certain set of ‘clean sport’ values. In one such case, the Code of Conduct was used in direct response to a perceived problem as described below. The organisation, however, did not want to create a top-down policy document, but wanted clubs and athletes to take ownership of the process:

So, we have drafted this template for a code of conduct, and what we try to do is to get the clubs to write this code themselves. In pre-season the first team players sit down and say these are the behavioural standards we are going to abide by we're not going to abuse the referee, we will respect supporters, we're going to keep our language in check when we're on the pitch and we won't use illicit drugs.

Involving players themselves in the construction of a code of conduct is intended to ensure a greater commitment to the values they espouse. The initiative came out of concrete experience with a club where leaders knew drugs were being used. The federation felt the problem needed to be addressed but wanted to involve the club in the process:

I've been down to the club quite a few times and I spoke to the first team on their own with the code of conduct and I said 'I'm not going to write this for you' but you have to decide what it needs to say. And a couple of the boys said to me "you know, we've got some people who aren't here who feel that taking cocaine and playing [sport] they're just part of the same lifestyle." And I said, 'well look you have to call them out on their behaviour we're not going to do that here'. And if they won't abide by it then the club have to get rid of them.

In addition, the interviewee here stressed how important coaches were in changing the culture and players' attitudes:

If coaches have a mind-set where they will pull players up on poor behaviour it will make a massive difference. However, if your coach, if the biggest influence in your career and even at recreational level, doesn't care enough about this stuff and seem like they don't care, then the players won't care either.

On a broader note, the German Anti-Doping Agency discussed working on projects in which athletes themselves are heavily involved. The importance of a message constructed by athletes for athletes cannot be underestimated in a climate in which athletes appear to feel under-represented (see e.g. Gleaves & Christiansen, 2019). Again, this is likely to ensure that these messages are better received. Germany's NADO also outlined a peer focused anti-doping education approach:

It is popular in Germany to use the peer approach so that you are educating educators. And these educators should be the same age that the athletes are or the gym users, so we would train people at the age of 14 or 16 to be an educator themselves and spread the word and knowledge about anti-doping education. Or then again if there are some popular athletes or coaches in the gyms we would try to approach them to spread the word, so then it's not me being there to educate someone but it's their peer group.

Related to this, the Danish triathlon federation utilised elite athletes as role models in an innovative fashion. They used a baton (known from relays in athletics) with a handwritten note inside with a clean sport message. Five well-known elite athletes started with batons and then handed them over to other athletes, while taking photos with the baton and the message and tagging each other on social media:

We did not use elite athletes because we are particularly interested in them, but because they have many followers on their SoMe [Social Media platforms]. After all, they promote themselves on SoMe and therefore they were really good ambassadors for this. The five batons, were then eventually handed over to the age group athletes who also tagged each other and passed them on. So, we began with the elite to also make it exciting for 55-year-old Peter to take an interest and pass on the baton to his peers.

After the initial round with the physical baton, the federation intended to repeat the campaign in 2019, but this time without the physical baton and only on Social Media. This would make it possible to trace the expansion of the message. The idea has been passed on to the International Triathlon Federation whom it is hoped will utilise it in the future.

While the use of positive role models has been a common approach in anti-doping, the Norwegian Ski Federation note the very particular challenges posed in a recreational context when cooperating with ex-dopers to let them tell their stories:

The former athletes are already a big part of the anti-doping work. We have one ex-doping user coming from gym culture, who was doping for recreational reasons, and we use him for promotional work and education where we use interviews with him, but it is a big shame with these people from recreational sport, because they are not willing to do it publicly. They are afraid of being shamed and stigmatized. I was talking with some of them and they seemed really willing and supportive of our ideas and the work we were doing, but they were afraid of hurting their family members if they participated. They feared that their kids would be bullied at school and so on.

3.9 Collaboration

Many organisations were engaged with educating multiple stakeholders. As we saw with PRODIS, collaboration was an integrated part of their 'method' (see p. 66). The project manager outlined the extended scope of this and her active role in it:

Beside 'the method', I also try to identify if we have any synergies with other areas. An example could be those who work against crime, not only the police, but also other regional governments, crime- and violence prevention initiatives. It could be looking at mental illness or health issues to see if we can work together and gain a wider perspective when it comes to doping. So, we are not just looking at the target group, those who go to the gym, rather we aim to have a wider focus when it comes to figuring out how to prevent use of doping.

Also, Doping Linkki, a Finnish Organisation focused specifically on doping at recreational levels, aimed for significant collaboration between organisations. As an example, the interviewee mentioned the range of people that they educate, involving collaboration with multiple agencies:

There is quite a large variety of educations. It is meant for gyms – public and commercial – and the people who are working there. Then we have education for the fitness industry – it could be for people studying to become personal trainers. It is a part of their studies. We also educate prison officers and people from the health care industry such as medical doctors and soon we will also be educating nurses.

As regarding the individual sport federations, the Norwegian Ski Federation stressed how important it is to explicitly state the links between the NADO, the federation, the club, the team, the coach and down to the individual athlete:

Our anti-doping work is organized in a way, so that everyone has a responsibility. We have an action plan, which involves the entire organisation starting with the lower levels and with our clubs. Really, it starts with the individual member, then the next level involves the clubs, then comes the schools and high schools [that has special classes for skiers] and the regional teams and then the national teams. It involves all levels.

The aim of this exercise, the interviewee stressed, was that with such links established it is possible to make it clear to everyone at every level who is responsible for what and where or whom to go to when questions arise.

Others, such as the German NADO, noted that the concern with recreational sport is a more recent focus for policy. Many agencies across Europe are no doubt seeking to foster these collaborations as they seek to develop ways of addressing this problem. For NADOs in particular though, some agencies involved with doping and IPED use in gym users or recreational players and athletes will have a very different approach. In the UK, for example some public health organisations take a harm minimisation approach that might for example involve needle exchange services. Quite how these harm minimisation messages would coexist with messages from NADOs traditionally taking a zero-tolerance approach is an issue raised by UK Anti-Doping in both the survey and interview. The point, as we saw on p. 62, is how education on drug types, against needle sharing, and correct injection techniques, can coexist with traditional NADO-based anti-doping work. We discuss this issue further on p. 78).

The specific motivations for drug use, and indeed the very particular nature of the problem of doping in recreational sport is evident at this point. Users of IPEDs in gyms do not view themselves as ‘drug users’ in the same way that they think of heroin, cocaine or alcohol use for example (Monaghan, 2002). This again raises issues as to the best forms of collaboration, which was discussed by the representative from Dopinglinkki:

We only have the A-Clinic Foundation with the alcohol clinics and then there is an addiction hospital here in Finland as well. But people who are using doping substances – and only doping substances – have told us that they will not go to the same place, because it is dealing with alcohol and drug abuse, and they – the doping users – “do not have any problems”. We do not yet have a place where we can advise these people to go, we have a couple of medical professionals that we recommend them to seek out. We are currently planning on getting a place specialising in this.

Clinics for steroid-users seeking help and rehabilitation do, however, exist in Norway, Holland and Sweden. These clinics all operate in association with hospitals and are not related with sport organisations. Sweden likely have the most extensive program in Örebro Län (Örebro County) where the Dopingmottagningen has existed since 2012 (Christiansen, 2020).

3.10 Evaluation

Evaluating anti-doping initiatives is a difficult exercise – not least, if one demands hard figures as evidence of effectiveness. For example, how does one measure the size of a population who do not have a certain behaviour (e.g. doping), and still do not have that behaviour (doping) after an intervention, but would have had that behaviour had (or even had not) the intervention not existed? Measuring this in populations where the behaviour to be avoided is already marginal to begin with is very difficult. If the prevalence of the avoidable behaviour is high – consider smoking among teenagers as an example – it is easier to measure the impact of an intervention. One must introduce a large scale educational campaign in schools and raise the price of cigarettes by 100% and two years later, one can measure whether there has been a significant

impact from the campaign on incidence as well as and prevalence. Doping in recreational sport is a different matter. Eighty percent of AAS users in gym settings only begin using AAS when they are in their 20s (Pope et al., 2014). This means that educational campaigns in primary, secondary and upper secondary schools will feel irrelevant for the majority of the students and the campaigns' impact on prevalence and incidence will be impossible to measure with any degree of statistical certainty. Targeting gyms does not make a much easier, since the prevalence is still very low – even among the relevant age groups.

We learned from the example of 100%PHT above, that PRODIS (the responsible organisation) assessed their 'method' to be successful and efficacious (see p. 66). Both their own survey and the project manager, whom we interviewed, deemed it a success. It could thus serve as an example of an emergent practice worth imitating. However, if one wants to measure the success in figures and numbers the assessment is less clear. PRODIS deserves credit for giving it a solid attempt to see if the impact of the method could be measured, and thus set up an evaluation in the period 2015 to 2017.

As a baseline measurement, members from 27 gyms (n= 996) that would later apply 'the method' (intervention gyms) and from 27 gyms that would not (control gyms) (n= 973) were surveyed. They found that 20 persons in the intervention gyms (= 2.0%) and 20 persons (= 2.1%) in the control gyms had used ASS at least once in their life (lifetime prevalence). When asked if they had used AAS in the last 12 months (point prevalence) none in the intervention gyms and 7 (0.7%) in the control gyms replied in the affirmative. After baseline measurement, the 100%PHT intervention program was implemented. At follow-up, approximately 18 months later, there were 26 gyms in the intervention group (n= 897) and 26 gyms in the control group (n= 923). While all other background parameters of survey-respondents had stayed virtually stable (e.g. distribution of gender, age, and training frequency) there now were 2 persons in the intervention gyms and 3 in the control gyms that had used AAS within the last 12 months. Clearly, no statistically significant difference can be identified between the intervention and the control gyms as regards incidence of AAS use (Denhov & Molero, 2018). What, then, can be concluded? On the face of it, one could argue that the numbers demonstrate that 100%PHT has no effect. Yet bearing the above observations on prevalence in mind, jumping to such conclusions seems excessive. One thing is that the prevalence is low to begin with, yet it must be acknowledged that measuring prevalence on socially sensitive issues is notoriously difficult, and traditional survey methods are known to be flawed (Pitsch & Emrich, 2012; Pitsch, Emrich, & Klein, 2007; Simon, Striegel, Aust, Dietz, & Ulrich, 2006). Thus, a more nuanced and reasonable conclusion seems to be that in the context of AAS use in gyms our tools for measuring effectiveness of interventions such as 100%PHT are incomplete. As already hinted at, a reasonable assumption for why this is the case, is that when prevalence rates are low to begin with, it is methodologically very difficult to make reliable measurements of incidence and prevalence (Christiansen, 2020). Lifetime prevalence of AAS in the general population in Sweden are below 1%, and among gym members, it is no higher than 2.7% (Leifman & Rehnman, 2008a, 2008b). While this means that measuring changes in prevalence over an 18-month intervention period in two different types of gym-settings is very difficult, it does not mean that value-based programs, education of staff, community collaboration and certification of gyms are worthless. Rather, it points to how campaigns like these, with positive messages that aims to push values, norms and cultures, needs time to work to have an impact. On shorter time scales and without very big populations to survey, impact can likely only be assessed in more qualitative modes.

It is reasonable to assume that because of this, there has been a tendency in academic literature for interventions that focus on knowledge and recall of facts concerning anti-doping to report positive effects. Such interventions may be successful in their own terms, but it is not clear that these terms would lend themselves to affecting upon doping behaviour in the real world. UKAD expressed some frustration with this approach that focuses on a one-off intervention:

As outsiders, we see the academic community spending money and resources towards the benefit of clean sport. We support this absolutely. However, some challenges exist for us. Typically, the research proposal is centred on a one-off intervention which we know do not work. If you came to us and proposed for money to evaluate our Coach Clean Programme, I would say “No” because we could pay a masters student to do that and that information is part of a larger system, which we are trying to embed in the environment. And it is that system we want to evaluate, not the one-off intervention.

European funded projects such as this Forum for Anti-Doping in Recreational Sport (FAIR) and RESPECT (Research-Embedded Strategic Plan for Anti-Doping Education Clean Sport Alliance Initiative for Tackling Doping?) should be more effective in reducing this perceived gap between academic practice and what might be construed as useful in the anti-doping community. At its root there lies a difficult problem: how best to assess the effectiveness of more wide-ranging attempts to reinforce anti-doping values? Test results themselves might only tell part of the story, however, failing to capture how clean athletes might have been supported and their resilience increased.

3.10 Discussion

3.10.1 Objectives and Limitations

It is clear from both the interviews and the survey that anti-doping in recreational sport is a problem gaining growing traction. Many organisations are still in the process of developing the necessary collaborations and of course funding streams to ensure that the problem is addressed appropriately. Resources, however, are not the only obstacle to the effective prevention of anti-doping in recreational sport. We can see from the literature review conducted above, and in particular the work of Bates et al. (2017) that there are limited studies that help inform us as to how to design interventions or educational programmes in anti-doping. There are some tentative suggestions, such as ensuring interventions are wide ranging, and seek to change behaviour in a range of ways. This could be by providing training for alternative ways of building muscle mass, or designing interventions to target multiple factors, such as values concerning drug use, the norms that surround drug use, and the knowledge people may have of the potential harms associated with drug use. While programs involving such elements are in place in some countries, their effectiveness may still be difficult to measure, as we saw with the PRODIS-example (see p. 71). Some interventions reported as successful also adopted an active learning approach, and utilised respected role models in the delivery of education. Nevertheless, as we have seen, while such interventions are assessed positively it is difficult to provide the hard data demonstrating that they are effective in terms of reducing overall use of IPEDs.

Further, many studies have their limitations (Bates et al., 2017). Some interventions deemed effective have been effective only in changing levels of knowledge in the short term. A deeper issue concerns the question as to what we are aiming at when we develop anti-doping interventions. A campaign or strategy designed to engender or promote an anti-doping culture will be difficult to assess in the tight, clearly defined terms often required in academic contexts. Changing cultural patterns and values cannot easily be measured over short periods of time with statistical significance and p-values < 0.05. Thus, if the aim is to support anti-doping programmes that help promote and foster anti-doping behaviour in real world contexts, evaluating

7 Further details of the RESPECT project, led by Professor Susan Backhouse at Leeds Beckett University, are available at: <https://www.leedsbeckett.ac.uk/carnegie-school-of-sport/research/research-centres/human-performance/respect/>

campaigns in such a narrow manner, often thought of as the golden standard in tightly controlled academic studies, may be counterproductive.

There is very limited research on the doping problem in competitive recreational sport. While there exists a number of studies on IPED use prevalence in both the general population and among gym-members, we do not yet have a good understanding of prevalence in various recreational sports. In addition, we do not know how information is garnered and disseminated on doping products, or as to whether particular sports or ages are of particular concern. Evidence of what is the best window of opportunity (if there is such a thing) as regards influencing adolescents' and young adults' values on these matters is also lacking. The literature is more extensive regarding the gym scene, where we have a good understanding of the factors that might be associated with the decision to use image and performance enhancing drugs (e.g. Bates, Tod, Leavey, & McVeigh, 2018; Christiansen, 2020; Hoff, 2016; Kimergård, 2014). Doping in competitive sport, albeit below the elite level, is less researched and poorly understood (Henning & Dimeo, 2015, 2018).

The very particular nature of this problem is one to bear in mind. While the survey began with a broad definition of sport, which encompassed competitive and non-competitive activities, the motives that accompany doping with these diverse activities would likely differ significantly. In some instances, doping might be a relatively well researched and considered. Scholars like Monaghan and Christiansen describe the drug taking "experts" of the gym community, who are comfortable not only with using a range of drugs to compensate for side effects, but also with their decision to use such drugs as one that can still be aligned with a desire to remain healthy (Christiansen, 2020; Christiansen, Vinther, & Liokaftos, 2017; Monaghan, 2001). We know less of the precise motivations of those competing in sport for doping where the fame or financial gain often associated with professional sport is absent. We also know less about how such individuals' source products and information.

Throughout the study (and indeed in the academic community researching doping generally) terminological issues can prove significant stumbling blocks. Very general definitions of sport, can lead to a discussion that fails to attend the range of motivations and cultures that exist in these contexts, in different sports and indeed countries. We therefore need a terminology that can be used in a more nuanced fashion as we seek to describe the problem of doping in recreational sport. Likewise, we have also seen some variance in the definition of recreational athlete. WADA's revisions of the 2015 code (WADA, 2019), to come into force in 2021, offer some guidance (the term should not include those athletes who have been considered within 5 years national or international level athletes). These revisions also track a more nuanced treatment of recreational athletes where mandatory public disclosure of the ADRV is not required, and where sanctioning can be more flexible. These developments may go some way to addressing the sceptics' concerns over 'mission creep'. Indeed, knowing the significant problems surrounding doping controls for elite athletes (Dimeo & Møller, 2018), submitting recreational athletes of all sports to the same type of test regime appears to be a defective strategy. Not only because of the extensive logistics and because of very high costs involved in such an enterprise, but also because of the educational, medical, ethical and human-rights-related issues this would involve.

This section has sought to demonstrate that both the academic literature, and indeed the authors' working understanding of recreational athletes, recreational sports and doping in recreational sports, needs further development before a fuller, proper, understand the attitudes and cultures that promote anti-doping, and in some instances doping behaviour is said to be evidence, or good practice, based. The research literature currently offers some, though limited, guidance on how to design interventions effectively. We can look to reasonably well-evaluated programmes such as those lead by PRODIS and others, targeting the gym community in order to guide us on the better researched area of doping in gymnasia (indeed the Nordic

countries, Denmark, Norway, Sweden and Finland, has had this on the agenda for more than a decade)⁸, but in terms of anti-doping in competitive recreational sport, the available research is very limited. We do not yet have a sense in this context as to how knowledge, motivations and behaviours differ here, or how these populations in general offer a different challenge to that of elite sport. At this point, it seems pertinent to refer to the German NADO conclusion that prior to any anti-doping initiative an education programme must aim at developing knowledge as to what exactly anti-doping means for the recreational athlete. That, it is argued, provides the best chance of gaining the necessary support from communities to ensure that any campaigns and interventions are successful.

The problem of inconsistent terminology and meaning is a difficult one to overcome. Making a recommendation that involves the adoption of a particular definition seems unhelpful here. The terms “Sport”, “physical activity” and indeed “doping” are understood in a range of ways and languages across Europe (and beyond). It is suggested here, however, that terms such as “doping”, “recreational athlete” and indeed “recreational sport” are used with caution, and where necessary are supported by further explanation, in order to prevent a confused or superficial explanation of doping in recreational sport, or a one-size-fits-all approach.

3.10.2 Emerging practice

While it is clear that literature in the field offers some but limited guidance on what constitutes an effective anti-doping intervention, or education we have seen some convergence on certain approaches or practices. These practices appear to have both support from those working within anti-doping as the approaches found most successful, and from the academic literature. Some of these practices are outlined below.

First, many organisations noted the importance of positively framed messages. Some organisations (such as UKAD) avoided the use of terms such as “doping” and “anti-doping” generally. Others (PRODIS) utilised positive and motivating slogans (100% Pure Hard Training) designed to capture anti-doping values. Generally, as noted by the Polish NADO scare tactics are not thought to be successful, and this has been noted in the academic literature as well (e.g. Bates et al., 2017). In addition to this, messages framed more positively have the advantage of remaining relevant to those who never intend to dope. It seems that more positive messages, at times situated within a broader approach to other aspects of sport integrity, offers a way of promoting clean sport values, particularly to populations (either younger athletes or recreational athletes) who are not aware of the nuances of anti-doping policy.

In the Forum for Anti-Doping in Recreational Sport (FAIR) meeting in November 2018, how to build a culture that supported athletes in playing, competing, and indeed excelling at sport without doping was the subject of considerable discussion. This was viewed as an oppositional approach to that where traditional anti-doping interventions are construed of in narrow terms, and where these narrower conceptions of the value of anti-doping interventions and education lead to narrower outcome measures, such as those based around knowledge. At the Forum, there was support for a broader understanding of what is intended with anti-doping interventions or education, as they seek to develop a culture that supports athletes in making decisions consistent with clean sport (and anti-doping policy).

While interventions simply build on the acquisition of knowledge will not do the trick, the same goes for policies that alone are founded on doping controls. There is limited evidence that testing and sanctioning of

8 For instance, Anti Doping Denmark has had external bodies evaluated their campaigns in gyms three times since 2008 (Kulturministeriet (Ministry of Culture), 2012; Steele, Bang, Brandt, & Kirkegaard, 2010; Storm, Toft, & Bang, 2015)

gym members has had a significant impact upon prevalence rates (Christiansen, 2011, 2020). It is notable that, while a harm reduction-oriented approach like the one that has been utilised in the UK, it is in contrast to the testing and sanctioning dominated approach. Yet this approach also lacks evidence of effectiveness. As Bates put it: “There remains however no evidence to date beyond anecdotal accounts to demonstrate that services (including pharmacy NSPs⁹, substance use services or AAS clinics) are effective in influencing AAS choices or changing behaviours” (Bates, 2019, p. 170).

We have also seen the use of a range of methodologies to encourage athletes to publicly declare their support of anti-doping. This might be in a baton relay, on social media, or at a Board during an event (as in the case of Danish Triathlon), or via competitions and larger social media campaigns as described by PRODIS and the Polish NADO.

In a similar respect, codes of conduct were the topic of some discussion as potentially valuable tools in fostering anti-doping attitudes and values. Indeed, in one of our discussions involving athletes in writing codes of conduct was thought of as a particularly effective tool in discouraging illicit drug use. Athlete involvement in anti-doping policy more generally, and how to effectively use the athlete voice has been the topic of some discussion. The RESPECT programme seeks to further develop this theme. The German National Anti-Doping Organisation also cited the growing involvement of athletes in their work. There are both positive developments. The use of a range of methodologies including codes of conduct, contracts and declarations to further reinforce anti-doping values.

Finally, there is a growing recognition of a role to play by athletes themselves in ensuring anti-doping approaches remain meaningful to their intended audiences. A number of organisations noted that they tried to use relevant and appealing role models in campaigns. Recreational sport of course, offers some different challenges to elite sport. In elite sport, the use of highly regarded top-level athletes as role models is commonplace and may have an impact on children and adolescents. For adult and age-group athletes, however, if role models are utilised it is likely that they must be utilised in a different manner. Caution is noted for those seeking to try methods often used with elite populations and deductively applied to lower level populations where different challenges might be faced.

3.10.3 Quantitative and Qualitative data

It is significant that all 28 EU member states (and Norway) responded to our survey. The majority of respondents worked for national anti-doping organisations, whereas some participants worked for national level governing bodies or non-profit organisations with responsibility for prevention of doping in recreational sport. With regard to the interviews, the sample size is a strong one for an exploratory study such as this. The participants were gathered from across the totality of Europe, and importantly represented a range of different stakeholders, NADOs, non-government organisations, federations and umbrella organisations. The positions of participants might all reasonably be described as senior, ranging from Directors, Chairpersons, Presidents and Chief Executive Officers to those responsible for communication and education. The excellent response rate of the survey in particular allows us to make some general claims or conclusions here with regard to practices across Europe with the confidence not normally permitted in research studies of this nature.

A significant minority were not aware of the findings of the Study on the Prevention of Doping in Sport (SoDP). A finding that we interpret as predicated on individual awareness rather than organisation wide awareness. Nevertheless, this still represents a reminder to consider the most effective ways in which to

9 *Needle and Syringe Programmes.*

disseminate research findings. The relationship between research and practice, how to help research better inform practice, and how research findings might be more effectively and clearly disseminated, was raised in a number of interviews. The RESPECT initiative, aimed to bridge the gap between research and policy, by bringing together a host of experts in the field of anti-doping education in an effort to develop a more coordinated approach to anti-doping education and policy. While this project aims to offer a more sustained and systematic approach to addressing the issue, the present findings suggest that researchers might better involve those working in anti-doping earlier in research projects, in order to develop research questions that are informed by the broader anti-doping context. There are also suggestions that researchers might utilise more imaginative ways of disseminating findings, including shorter leaflets and webinars.

Nevertheless, we must also be conscious that our aspirations or goals of the research are not unrealistic or over ambitious. While the response to question 4 (Developments resulting from the 2014 report, see p. 50, no doubt charts policy and legislative developments not directly attributable to the report there are two important points to be made here. First, some responses indicate an awareness of and impact of the SoDP. The Anti-Doping Authority of the Netherlands, while offering a tentative response stating that there were no concrete implications of the 2014 report, noted the possibility that 'collaboration with municipalities and addiction clinics' may have resulted from the study. The study also helped inform a project proposal for an e-learning site for recreational athletes (in Estonia). The A-Clinic Foundation/Dopinglinkki in Finland focusing on anti-doping in recreational sport noted an increased number of e-learning programmes, an increase in the number of Clean Sport Commitment fitness centres, and an increased general awareness of doping in recreational sport. It is, of course, difficult to demonstrate a direct causal link between research and policy or legislative changes.

Questions 5 and 6 enquired as to whether the respective NADO/Country used a definition of recreational athlete, and about the NADO/Organisation's jurisdiction in recreational sport (see p. 51 and 28). As mentioned in the results section, the importance of definitions to subsequent policy in this context is an open question. Some organisations referred to preferred definition of athlete, others a definition of recreational athlete, for some the term itself was not one that they used. While researchers pay very close attention to the definition of key terms, and their methodological implications, it would be valuable for all actors in the sphere to give further consideration to the relationship between the formation of such definitions and anti-doping policy, jurisdiction, and the associated legal frameworks. Notwithstanding this, diversity in the understanding of what constitutes a recreational athlete is likely always to remain, and this diversity is likely to have impacted upon other parts of the survey (where for example we ask about jurisdiction in recreational sport, "as defined in your country").

It is certainly feasible that at times the respondents have interpreted these key terms in slightly different ways, thus some caution should be exercised in making comparisons or generalisations. It is noteworthy that the significant lack of shared definitions or terms was the topic of some recommendations in the 2014 SoDP. There the discussion concerned the definition and clarification of the term "recreational doping". This raises some interesting questions concerning what a legitimate role of an anti-doping agency might be. How expansively might we use the term "doping", which is normally taken to pertain to the WADC definition, listing a range of Anti-Doping Rule Violations. If at a public awareness level, "doping" is understood specifically to mean WADA rule-breaking, is it then justifiable to extend the term to non-competitive environments? And if is not, should NADOs then be responsible for the prevention? Perhaps a more pressing topic, less concerned with the semantic issue of definitions, is how to deal with the use of performance enhancing drugs in gymnasias, fitness centres and weight training environments such as intervening in the potentially self-harming decisions of competent adults, or the hazardous use of muscle building drugs among young men an ethical use of anti-doping machinery and resources? If one accepts that the public health problem is so pressing as to justify paternalistic action of this nature, further questions might consider what

would be the most effective way of addressing such behaviour, falling as it does outside the sport integrity domain. On the other hand, this also raises further questions in different circumstances when preventing the use of hazardous muscle building drugs among young men. Whilst the paternalistic interference may appear more justifiable, questions may also be raised whether this extent of work should be within the remit of NADOs and their resources.

As we see later in the discussion, it is likely to be in the commercial gyms, where those seeking to enhance their appearance and sub-elite athletes intending to gain muscle bulk will meet and mix. Moreover, in gym cultures a variety of different messages concerning performance enhancing drug use, their effectiveness, safety, and the possible sanctions or otherwise coexist (Bates, 2019; Christiansen, 2020). While NADOs are seeking to collaborate with other agencies in seeking to better understand and address recreational doping, we have noted potential difficulties here. NADOs work in a context in which substances are prohibited. In some contexts (the gymnasium in the UK for example) no doping rules (or indeed UK laws) are currently being broken by someone using AAS without participating in sport. Harm minimisation or harm reduction approaches have tools that can play an important part here, but at the same time it means that for example NADOs' approach does not necessarily align with some other stakeholders' approaches. A conflict of interest could thus arise between organisations who work with harm reduction and organisations who work with anti-doping based on education, testing controls and sanctioning. Those who have a strict anti-doping stance could argue that health personnel working with harm reduction schemes with AAS users are complicit in recreational athletes' drug use (McNamee and Phillips, 2011). The counter argument from the harm reduction side could be that if it is known that people are going to engage in risky and dangerous behaviours that are preventable at comparatively little cost in resources, then there is a strong ethical case that society ought to act to steer them away from these risks (DrugScope, 2004). Christiansen and Bojsen-Møller has discussed this dilemma concerning how the Danish NADO could apply a harm reduction approach to steroid using gym-members without compromising their other activities. They noted that:

[i]f harm reduction schemes for anabolic steroid users in gyms are to be accepted in the public sphere, and those who run the schemes are to avoid accusations of hypocrisy, it is necessary that control of doping among elite athletes is institutionally separated from the units acting out the harm reduction policy on recreational athletes in gyms. Thus, harm reduction policies do not imply the dismantling of conventional drug controls or education (Christiansen & Bojsen-Møller, 2012, p. 46).

In line with this, and pointed out by the Cyprus Anti-Doping Agency (cf. p. 54), just because a NADO have the jurisdiction to test for instance gym users, does not mean that they will actually utilise this possibility.

Similarly, some NADOs reported that in principle, lower-level athletes can be tested, however due to limited resources and funding, it is seldom practiced. Nevertheless, one cannot infer from the mere power to test in gymnasia or at lower levels of sport that it is or will be exercised. Such decisions are influenced by questions of whether the testing is necessary or beneficial for the aims, and of course by questions of human and financial resources. Nevertheless, in terms of doping prevention in recreational sport, NADO testing jurisdiction figures (question 7, p. 53) showed that 25% of NADOs (a significant proportion) reported being able to test under certain circumstances in non-competitive sport club related environments, including gyms.

Question 8 (p. 55), sought to assess the importance of doping prevention in different sectors, and allowed scope to elaborate on responses. Lower level competitive athletes received higher importance rankings, followed by non-competitive sport club related athletes (including gym users) and then non-competitive sport club related athletes. The Portuguese anti-doping authority clearly articulated that their legislation in doping essentially follows the notion of Anti-Coping Rule Violations, and is focused upon sports practitioners and sporting federations. They note that prevention efforts in recreational contexts exist, but interestingly

refer to concerns over the 'repression' factor at a recreational level. There certainly are ethical questions to be asked regarding the extension of doping efforts beyond those who are not competing formally in sport. Here the concern moves to a paternalistic one, with the intention to protect the health of the user whether such protections are aligned to individual's motivations or not. The effectiveness of testing in gymnasias has been questioned (Christiansen, 2011). Yet in most places where it is applied today (as in the Scandinavian countries) testing is not a stand-alone approach, but something that supplements other prevention measures, like (online) education, dialogue with members and staff, training of staff, the promotion of clean role models, layout of the gym etc. In the UK, on the other hand, we see an example of a harm reduction strategy, whereby IPED users can obtain clean needles for the use of such methods and substances (such as AAS). As noted by Bates, this strategy, however, also lack evidence of effectiveness (see p. 75 in this report).

The question of responsibility was also raised, with some suggesting that prevention in recreational contexts is a public health issue better addressed by other agencies. For example, in Finland it is DopingLinkki, an agency that have developed with a public health aim, and is separate from sports organisations, that deal with doping in the context of recreational sport. DopingLinkki are thus focused on doping in non-competitive contexts, for fitness enthusiasts who might using substances on the prohibited list, and others who might work with them, or friends and family. Question 11 (p. 58) offers further detail as to the agencies that might be involved with this (beyond NADOs). Interestingly though, NADOs were overwhelmingly the highest ranked body here, followed by schools and teachers and then sports federations and sports clubs and coaches. While this may simply be mirror the respondents to the survey specifically, the existing picture at least does suggest extensive involvement from sport related bodies in prevention of doping at a recreational level. As has been noted, however, with limited resources, intervention may often be limited to the provision of information.

Questions 9 and 10, and indeed 14 (p. 57, 57 and 60) concerned examples of doping prevention and good practice that the research participants can provide. The interview data presented here includes further detail on this, although, as stated previously, cannot be taken as an exhaustive account of good or emerging practice in the field. Examples from outside this project worth mentioning here are the DELTS project and the Safeyou project that also have interactive videos with a storyline where the viewer must make certain ethical and behavioural choices that then determines the next chapter of the story, so to speak.¹⁰

There is thus extensive activity in the context of recreational sport. In our own sample, Italy presented new educational initiatives expanding their partnerships by attending various junior and youth championships. During these events, NADO Italia deployed a multi-contact education approach addressing athletes, support personnel and coaches, focusing on educational activities regarding prohibited substances and anti-doping matters (see also the section: Doping Prevention for Adolescents, p. 43). Even if their own study was unsuccessful in demonstrating any statistically significant change in their subjects' beliefs or behaviour, Barkoukis et al. 2016 recommend that prevention interventions should aim to include multiple points of contact from an athlete's entourage such as coaches, managers or peers, to ensure relatable messages are being delivered to a wider population. This is not only in line with common sense, but also a strategy utilised by some NADOs and organisations. Examples are Dopinglinkki in Finland, PRODIS in Sweden, Anti Doping Danmark, The Doping Authorities in the Netherlands and Anti Doping Norway. Similarly, Bates (2017) and Goldberg et al. (1996) recognise that interventions with a multi-dimensional contact approach, highlighting the significant role peers, coaches and parents have in interventions, are likely to be more successful. Such an approach may help to ensure that athletes have a broad network of positive influencers to facilitate the

10 For more information on DELTS see <https://deltsproject.eu/>. For information on Safeyou see: <http://safeyou.eu/> and for their videos see: http://safeyou.eu/?page_id=2529.

delivery of educational messages on a personal and prevailing level. NADO Italia also worked in conjunction with other agencies in designing a project focusing on anti-doping training in high schools specialising in sport for pupils aged 14-18. Respondents from Portugal and Finland mentioned developments of good practice by striving to raise awareness of the phenomenon of doping in recreational sport and the potential harms to the athlete's health it can cause. Finland too focused their developments on increasing the number of e-learning programmes available for various athletes the DELTS programme is an example of this.¹¹

A significant finding from the survey presented is that the majority of prevention initiatives that considered good practice were aimed at gym users/fitness centres or directed towards children and youth athletes in various environments such as schools and youth competitions. The SoDP (Backhouse et al., 2014) emphasised the need for educational programmes on sports ethics aimed at children and young people delivered by appropriate agencies, and while it cannot be concluded that the programs and initiatives mentioned are a consequence of this study, they are certainly significant interventions. Displaying modes of good practice in response to question 10 (p. 57), Slovenia provided numerous examples of prevention initiatives directed towards children, stating that their primary target groups are young athletes at a range of ages. Utilising the potential benefits of using specific environments, Slovenia provided a range of programmes within primary schools, high schools and sport clubs for children aged from six to eighteen years of age via lectures, outreach programmes, posters and booklets (see also p. 43).

Norway specifically detailed several prevention initiatives focusing on children, youth and lower level athletes. Anti-doping Norway held about 630 face-to-face group-presentations in 2017, with the majority targeted towards lower level athletes and young athletes. Roughly 50% of the presentations were held in high-schools reaching a range of participants, including competitive athletes, gym users, non-competitive and non-sport club related athletes. Utilising a multi-dimensional approach Cyprus (CyADA) include youth athletes, coaches, teachers and parents within their target group, tailoring their doping prevention programmes to encompass a large population whilst also ensuring a broad network of positive influencers. Spain also offered specific projects aimed at youth athletes which includes 'Green seal Erasmus+ sports programme', a project implemented by a consortium of six European countries to develop preventive actions responding to doping in recreational sport in youngsters. Romania focuses on students by raising awareness of the potential risks of the use of food supplements containing pro-hormones and prohibited substances.

With regard to interventions in gyms and fitness centres, research by Sagoe, Molde, Andreassen, Torsheim & Pallesen, 2014 revealed AAS as the most widely used substances used to alter appearance and enhance performance levels, with an estimated global prevalence of 6.4%. While the accuracy of this figure can be challenged, it is fair to say that AAS is the most common used group of IPEDs in fitness centres. In the Western world studies indicate that 3-8% of the male population of gym-goers at some point have experience with AAS (Christiansen, 2020; Simon et al., 2006). Thus, with the use of AAS now commonly occurring outside of the sporting realm with frequent use being highlighted in fitness centres and gyms, interventions are needed to reduce the potential harms associated with such use (Bates, Tod, Leavey & McVeigh, 2018). Addressing these concerns, a range of countries (and indeed organisations) provided strategies designed to create awareness and ultimately reduce the use of doping substances in fitness centres and gyms. The prevention strategies varied considerably with some countries focusing on universal prevention programmes delivered in educational and school-based settings, while others offer harm reduction services to drug using gym users. Others like Finland (DopingLinkki) and Denmark for instance, offer an online health advisory service, hotlines, and live chat help for recreational athletes including gym members who are using doping substances, extending their support to also include family members,

11 See: <https://deltsproject.eu>

partners and health personnel. Like PRODIS, Dopinglinkki are also involved in the education of gym instructors.

The Austria NADO has gone further in developing an extensive multiple level prevention programme to include the individual recreational athletes, employees, coaches and companies in the wider society offering nutritional supplements. Displaying means of good practice, Austria developed agreed responsibilities, assigning the duty of doping prevention in fitness centres and gyms to the authority of NADA Austria. The respondent outlined a new programme established to target fitness centres and practices as a result of receiving extra funding from the Austrian government in 2018. The programme (in a strategy shared by other organisations) labelled “anti-doping certificate for fitness centres”, regularly educates employees, coaches and customers of fitness centres, providing yearly educational seminars to customers. Once every two years the fitness centre employees and coaches must take part in an anti-doping seminar conducted by the programme’s educators, which includes a mandatory e-learning test that needs to be passed yearly. In addition to an educational approach, NADA Austria offers screening and testing of the nutritional supplements offered within the fitness centres for prohibited and potentially harmful substances. If any prohibited substances are detected, manufacturers can be held accountable according to Austrian law and can face up to five years imprisonment depending on the severity of the infringement. The fitness centres that conform to the criteria set by NADA Austria accordingly receive a quality label. Similarly, the Anti-Doping Authority of Netherlands provided information regarding a supplement checker application included in their anti-doping prevention program that targets fitness centres. The program called ‘own strength’ (Eigen Kracht) focuses on the use of supplements in fitness activities.

The main mode of delivery of doping prevention in this context was face-to-face group sessions followed by online and digital resources. With the budgetary restrictions in place being referred to throughout the survey, interventions and programmes that are cost effective and have the ability to reach many people are likely to remain important. In the main, NADOs shared expertise involving doping prevention with other agencies, and 50% were willing to share examples of good practice with other EU Countries (figure 11). The Forum for Anti-Doping in Recreational Sport has served as a forum for the sharing of good practice, and indeed our interviews, provide some examples of emerging good practice.

Finally, when considering the most prominent barriers to prevention of doping in recreational sport, it is unsurprising that financial and human resources were thought of as highly significant. The significance of this barrier is highlighted throughout the survey with many member states expressing their concern over a lack of financial and human resources in several other answers. There was also a concern expressed about the lack of cooperation between key stakeholders. In joint third place 47% of experts included both C (a lack of good practice) and G (no provision or the legal framework for doping control and prevention in this setting). Norway also noted a significant additional barrier on doping prevention, stating there is a general lack of research regarding effective preventive programmes in recreational sport. Subsequently, they would like to see an increased focus on this matter. This certainly seems an important research area for the future, and echoes our more general conclusions of the literature review, that suggest understanding the effectiveness of anti-doping interventions more generally is a difficult and complex matter. A further area for significant research would be to critically explore the observation made by UK-Anti-Doping concerning the potential for incoherence of aims (e.g. fair play vs. harm reduction) embraced by different stakeholders in the efforts against doping in recreational sport (cf. p. 62 and 78).

It was observed by a range of organisations throughout the survey that extension into recreational contexts, especially non-competitive ones, offers a different and difficult challenge to anti-doping agencies. Understanding better how gym goers for example view supplement use and performance enhancing drug use, the sanctions associated with such use, and different educational messages is worthy of further exploration (Christiansen, 2020).

3.11 Conclusion

It is clear that the multiple and substantial barriers preventing the application of anti-doping policies in recreational sport still needs to be addressed. The same barriers were observed in 2014 in the SoDP report, signifying that certain key restrictions such as funding and resource issues are still in place. Nevertheless, despite the difficult climate, there have been some significant developments in the field of prevention of doping in recreational sport. This study has reported extensively on emerging practice across the MS. Nevertheless, questions still remain as to how best to intervene and measure success of interventions in such populations, as non-competitive environments in particular offer a different challenge to the anti-doping rule violations typically addressed by anti-doping agencies.

3.12 References

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Chapter 4 - Reducing the risk of inadvertent doping from food supplement use: Current practice and future actions

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4.0 Executive Summary (TEG2)

4.0.1 Context and objectives

Within the context of doping in sport and the use of substances and methods on the World Anti-Doping Agency Prohibited List, the dominant narrative framing the action is that of the 'cheating athlete' who intentionally uses prohibited substances and methods to gain an advantage over their competition. This does not, however, account for the many cases where athletes have unwittingly ingested prohibited substances. This is known commonly as 'inadvertent doping'. One frequently asserted reason for such doping is the ingestion of poorly manufactured and labelled supplements.

The Technical Expert Group 2 (TEG2) conducted a multi-phased study using a combination of qualitative and quantitative research techniques in order to examine: a) How inadvertent doping risks of food supplements are currently being handled (e.g. the advice given to sports people, risk minimisation processes endorsed); and b) What, if any, policy or practice changes need to be implemented to further reduce the risk of inadvertent doping through food supplement use.

4.0.2 Methods

Three-phases of research were undertaken. Phase 1 involved a desk-based review to categorise and define popular terminology used within governmental organisations and non-governmental organisations worldwide. Phase 2 comprised a synthesis of the EU landscape pertaining to legislation, enforcement, standardisation, certification and guidance relating to food supplements and the risk of inadvertent doping. The guidance analysis was informed by a brief online survey of national anti-doping organisations and international federations to assess the advice they provide to athletes and athlete support personnel with regards the use of food supplements. Finally, Phase 3 involved semi-structured interviews with a purposeful sample of stakeholders in the field of food supplements, sports nutrition and anti-doping to explore the context of inadvertent doping risk and future actions.

4.0.3 Key findings from TEG2

- The terminology surrounding what constitutes a supplement is confusing and it is important to acknowledge that the heterogeneity of terminology and definitions may weaken rather than strengthen the food laws which these products are governed by. While similarities were recognised (e.g., definitions related to the oral consumption of nutritional substances in order to supplement the diet for a perceived benefit), the diversity of terms and definitions adds to the complexity of the market and potentially acts as a barrier to collective stakeholder action.
- In the EU, there are multiple laws related to food, food supplements and food intended for sportspeople. As many laws also refer to further legislation, the landscape is highly complex.

- The lack of overarching legislation for food supplements poses a challenge regarding the regulation and enforcement of food supplements, leading to Member States implementing national legislation. Consequently, Member States are forced to respond to different domestic needs and pressures. More formal legislation and clarification of food supplements are needed to ensure consistency of messages and product handling across EU Member States.
- There is no EU wide legislation for independent testing of food supplements with regards to product quality and purity prior to accessing the market. In France, there is a standard for good development and manufacturing practices aimed at ensuring the absence of doping substances in food supplements and other foodstuffs intended for sports people. This standard numbered NF V94-001 can be certified by SPORT Protect.
- Next to the certification of standards, several risk management services for elite sport have been established over the last 15 years. These certification systems have no common standard of work but commonly involve a) systemic and batch-specific testing of sport nutrition products of behalf of the industry; b) providing manufacturers' certificates of the tests performed; and c) having a public accessible database of certified product batches.
- Seven risk management services have been identified by TEG2. In alphabetical order, these systems are: BSCG Certified Drug Free, Cologne List, HASTA™ - Human and Supplement Testing Australia, Informed Choice, Informed Sport, NSF Certified for Sport and NZVT – Dutch Safeguards System for Dietary Supplements in Elite Sport.
- Around 70% of the National Anti-Doping Organisations (NADOs) (N=25) and International Federations (Ifs) (N=13) surveyed, endorsed or recommended a supplement risk minimisation process. Only a few organisations do not endorse or recommended a supplement risk minimisation process because they do not want to advocate supplement use.
- All the NADOs and Ifs reported providing guidance to athletes and athlete support personnel to reduce the risk of inadvertent doping from food supplements. Although the messages provided differed substantially, a common approach was the focus on assessing the risk of supplement use, with less attention to the assessment of the need for and consequences of such use.
- Almost all NADOs and most IF alert individuals to the latest supplement contamination and or adulteration risks. For NADOs government organisations are the greatest source of information relating to these risks. WADA and NADOs were the greatest sources of information for Ifs. About half of the organisations provide alerts on product-specific risks. To disseminate the information multiple channels are used, eg website, education programs, social media and newsletters. None of the organisations reported on the monitoring or effectiveness of these methods. Established networks with European Monitoring and Alerting systems was notable by its absence.
- When conversing with 16 stakeholders from the fields of medical and allied health professions, anti-doping, athlete representation, academia, standards setting, trade and regulatory bodies, and industry, three predominant patterns of talk around consumer risk were identified via thematic analysis: 1) complex sociocultural contexts; 2) easy to purchase supplements but there are no guarantees; and 3) a reactive and under-resourced global system with localised legislation. These themes are illustrated below, along with the relevant sub-themes.

4.0.4 Recommendations

FAIR recommends that:

- future actions in policy and practice are framed deductively (Reed et al., 2018) by three future focused themes that recognise how agency, interconnectedness, and unpredictability influences evidence translation in complex systems. These themes represent three strategic principles, which are 1) Act scientifically and pragmatically, 2) Embrace complexity and 3) that frame the subsequent recommendations.
- independent studies to determine the extent of contamination and adulteration in supplements purchased across various channels (e.g., in store, online, in gyms) should be commissioned.
- an inter-agency supplement use decision-making process should be developed that integrates third party testing services for doping tested athletes with evidence of efficacy.
- funding should be made available for longitudinal studies that examine the long-term effects of food supplement use and to critically appraise the 'need' for supplements and fund long-term evaluations of education programmes designed to prevent inadvertent doping & health harms.
- a central repository of how national food laws are applied to further understanding of the complexity of the food supplement legislative landscape.
- the current educational approach is refined to enable athletes and support personnel to critically appraise the 'need' for supplements and make evidence-informed decisions.
- there is a need to reframe food supplement use as a public health issue rather than an enforcement and compliance issue.
- consumer attitudes and beliefs around the perceived 'need' for food supplements should be surveyed alongside an awareness raising campaign concerning the potential risks of supplement use beyond elite sport.
- minimum standards of production should be developed to improve the (prohibited substance free) quality of products entering the market.
- key agencies (e.g. via EFSA/RASFF) should be brought together to better protect athletes and the public at large from supplement contamination and adulteration risks.
- future policy must be the product of closer collaboration, and communication across organisations in order to achieve greater consistency when addressing the risk of inadvertent doping and health harms from food supplement use in society at large.

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4.1 Framing the research

Within the context of doping in sport and the use of substances and methods on the World Anti-Doping Agency Prohibited List, the dominant narrative framing the action is that of the 'cheating athlete' who intentionally uses prohibited substances and methods to gain an advantage over their competition. Yet, this does not account for the many cases in which athletes have unwittingly ingested prohibited substances. This is commonly known as 'inadvertent doping' (Backhouse et al., 2017). Part of the answer lies in the ingestion of poorly manufactured and labelled supplements.

Strict liability - a keystone of the World Anti-Doping Code (WADA, 2015) - dictates that an anti-doping rule violation (ADRV) occurs when a prohibited substance (or its metabolites or markers) is found in a bodily specimen, regardless of whether the athlete intentionally ingested the substance. For the athlete, not knowing a prohibited substance was in a supplement they ingested is not an excuse. Although the Code makes a provision for contaminated and adulterated products, if an athlete tests positive, the burden of responsibility rests with the athlete to prove how the banned substance entered their system and they therefore have to prove that they have taken all reasonable steps to manage the risks associated with supplement use.

Comprehensive and reliable data on food supplement consumption in the EU are scarce and more EU-wide evidence is needed on both the consumption of supplements and consumers' understanding of their use (The European Consumer Organisation, 2016). General population surveys of food supplement consumption, however, highlight a large part of the population are using these products (e.g., Hämeen-Anttila et al., 2011; Timbo et al., 2006) and self-report data is corroborated by the growing sales figures of a multi-billion-dollar global industry (with varying estimates of worth across market intelligence company reports).

The European Commission has harmonised rules in place – under general food law - to protect its citizens against potential health harms associated with the production and consumption of food supplements (European Food Standards Authority, 2019). Nevertheless, the regulatory landscape for food supplements is complex and as the current EU legislative framework on food supplements is implemented on a devolved basis, and in consequence overlapping areas of responsibility between several different bodies have been created, with no single department having an overarching lead covering both policy and enforcement (Department for Health, 2011).

Studies show that food supplements can contain unlabelled and harmful ingredients (e.g., Cohen et al., 2019; Cohen et al., 2018; Martinez-Sanz et al., 2017; Duiven et al., 2015). For example, a review by Martinez-Sanz and colleagues (2017) highlighted food supplements have a 12-58% contamination rate of substances prohibited by the World Anti-Doping Agency (WADA). In some cases, contamination was not intentional and was due to poor quality control. In other cases, however, the adulteration of the substance was thought to be intentional.

The risk of unlabelled and/harmful ingredients being within food supplements is particularly high in products claiming to increase sport performance. It is estimated that up to 9% of all the positive doping tests are caused by elite athletes using poorly labelled supplements (Outram et al., 2015). As a result, many sport organisations, such as the International Olympic Committee (Maughan et al., 2018) and the World Anti-Doping Agency (n.d) have advised athletes to exercise extreme caution when using supplements. Consequently, the risk of inadvertent doping (i.e. unwitting ingestion of prohibited substances) from supplement contamination is a concern for sportspeople, sports bodies and national anti-doping organisations. The principle of strict liability drives this anxiety because an athlete is ultimately responsible for any (prohibited) substance found in their body, irrespective of their intentions. In some cases, products are even deliberately spiked with high dosages of pharma-coactive ingredients which can lead to severe health incidents (Archer et al., 2015). Therefore, the presence of prohibited substances in supplements is not just an issue for elite sports, it is a public health issue due to the omnipresent threat to the health and wellbeing of consumers (Cohen et al., 2018; 2019).

The Study on Doping Prevention (SoDP; Backhouse et al., 2014), found that a key barrier to the implementation of doping prevention programmes is the lack of nutritional supplement regulation. Therefore, to inform future advances, there is an urgent need to draw upon the good practice of key sectors who have existing doping prevention interventions for food supplements and develop an understanding of the current perspectives of stakeholders aligned with inadvertent doping risk reduction. In recognition of the risk of inadvertent doping from sports food and sports supplements in sport, this study aims to inform and direct policy and practice development for food supplements. This is critical as evidence-informed decisions can strengthen systems and literature suggests that engaging policymakers and other stakeholders in research exercises increases the likelihood of the implementation of research evidence by policymakers.

4.2. Research Objectives

A multi-phased study using a combination of qualitative and quantitative research techniques has been undertaken in order to examine:

- A. How inadvertent doping risks of food supplements are currently being handled (e.g. the advice given to sports people, risk minimisation processes endorsed); and
- B. What, if any, policy or practice changes need to be implemented to further reduce the risk of inadvertent doping through food supplement use.

Phase 1 involved a review of the definitions employed in the field of study within the EU and beyond. Phase 2 comprised a synthesis of the EU landscape pertaining to legislation, enforcement, standardisation, certification and guidance relating to food supplements and the risk of inadvertent doping. The guidance analysis was informed by a brief online survey of national anti-doping organisations and international federations to assess the advice they provide to athletes and athlete support personnel with regards the use of food supplements. Finally, Phase 3 involved semi-structured interviews with a purposeful sample of key stakeholders in the field of food supplements, sports nutrition and anti-doping to explore the context of inadvertent doping risk and future actions. Critically, the final phase of the research sought to understand the policy and practice needs of stakeholders in the field in order to combine these perspectives to inform and shape policy and practice on reducing the risk of inadvertent doping in sport and society.

The analysis is organised into three sections:

1. Categorisation and definitions of popular supplement terminology used within governmental organisations and non-governmental organisations worldwide;
2. Overview of preventive actions taken by National Anti-Doping Organisations and International Sports Federations to reduce the risk of inadvertent doping; and
3. Qualitative analysis of stakeholders' views on current challenges and future opportunities to reduce the risk of inadvertent doping in sport and protect the health of the consumer.

4.3 Categorising and defining popular supplement terminology used within governmental organisations and non-governmental organisations worldwide

4.3.1 Introduction

Athletes have increasingly been cautioned about the consumption of food supplements by International and National anti-doping organisations (e.g., World Anti-Doping Agency and United Kingdom Anti-Doping) due to concerns surrounding the integrity of product labelling and manufacturing methods (McCarthy, 2019; Rosenbloom & Murray, 2015). Despite warnings against the use of such products there is no universally accepted definition of what constitutes a supplement (Knapik et al., 2016; Waller et al., 2019; Bradley et al., 2015; Perrichet, Mensik, Meyer, & Coppens, 2017; Maughan et al., 2018). This leads to confusion and a potential misunderstanding of what products athletes are advised to avoid (Maughan, Shirreffs, & Vernec, 2018; Peeling et al., 2019). This poses a problem for anti-doping organisations and those involved with sports nutrition as it can lead to a disparity between policy and practice, and with it, an expansion in the variety of terms used to discuss such products which can elevate confusion and promote harm.

When discussing food supplements, organisations worldwide have chosen to use terms including 'sports food', 'sports nutrition', 'food for sportspeople' (someone who plays sport more than once a week; European Commission, 2016), 'functional foods', 'dietary supplements', 'nutritional supplements', 'natural health products', and 'complementary medicines'. The diversity of terminology and the lack of definitional clarity may impact on consumer safety, trade negotiations, and the application and implementation of legislation to specialised products globally (Perrichet et al., 2017). Thus, this section evaluates web-based sources in an attempt to highlight the issues related to the current variability in the proposed definitions and provide a synthesised account of terms currently used within the field.

A list of 18 international and national governmental and non-governmental organisation web-based resources were accessed and reviewed (see Table 6.1). This list is not exhaustive, and further definitions and terms may be operational. The sample in this review utilised ten different terms to describe supplements which are consumed to enhance an individual's diet (Table 6.1, Column 2). The terms 'food supplements' (N=5) and 'dietary supplements' (N=4), were used globally. The terms 'food for sportspeople', 'sports food', and 'sports nutrition' was adopted by six organisations in Europe and Australasia. The least frequently used terms were 'nutritional supplements' (N=1), and 'supplements' (N=1), 'functional food' (N= 1), 'natural health product' (N=1), 'medical supplement' (N=1), 'performance supplement' (N=1) and 'complementary medicines' (N=1). The analysis provided an interesting insight into the definitions used to explain these terms.

Table 4.1. Terminology and definitions used for supplements

Region	Terminology	Organisation	Definition
EU	Food Supplements	Legal Definition - Directive 2002/46/EC of the European Parliament and of the Council (DEP)	Foodstuffs, the purpose of which is to supplement the normal diet and which are concentrated sources of nutrients (e.g., vitamins and minerals) or other substances with a nutritional or physiological effect, alone or in combination, marketed in dose form, namely forms such as capsules, pastilles, tablets, pills and other similar forms, sachets of powder, ampoules of liquids, drop dispensing bottles, and other similar forms of liquids and powders designed to be taken in measured small unit quantities (European Parliament, 2002)
		European Food Safety Authority (EFSA)	Concentrated sources of nutrients or other substances with a nutritional or physiological effect, whose purpose is to supplement the normal diet. Food supplements are marketed 'in dose' form, for example as pills, tablets, capsules or liquids in measured doses etc (European Food Safety Authority, n.d.).
		U.K. Department of Health and Social Care (UK HSC)	Any food for the purpose of which is to supplement the normal diet and which – a) is a concentrated source of a vitamin or mineral or other substance with a nutritional or physiological effect, alone or in combination; and b) is sold in dose form". The definition of "dose form" in regulation 2 says that "dose form means a form such as capsules, pastilles, tablets, pills and other similar forms, sachets of powder, ampoules of liquids, drop dispensing bottles, and other similar forms of liquids or powders designed to be taken in measured small unit quantities". The definition of 'to supplement' can be interpreted as 'taken in addition to' the diet (U.K. Department of Health, 2013).
		U.K. Food Standards Agency (UK FSA)	Any food for the purpose of which is to supplement the normal diet and which is a concentrated source of a vitamin or mineral or other substance with a nutritional or physiological effect, alone or in combination and is sold in dose form (U.K. Food Standards Agency, 2018).
	Food for Sportspeople	European Scientific Committee on Food (SCF)	Foodstuffs intended to meet the expenditure of intense muscular effort, especially for sportsmen. 1. Carbohydrate-rich energy foods; 2. Carbohydrate electrolyte-solutions; 3. Protein and protein components; 4. Supplements; a. Essential nutrients; b. Other food components (Scientific Committee on Food, 2001).

	Sports Foods	Specialised Nutrition Europe (SNE)	Food specifically designed, formulated and marketed in relation to physical activity, physical performance and/or post-exercise recovery. They ensure an appropriate supply of fluids, nutrients and/or substances which help the body prepare for, maintain and recover from high intense physical performance. Enriched foods with supplements such caffeine or creatine: some dietary ergogenic aids improve exercise performance capacity and/or enhance training adaptations or allow an individual in certain circumstances to tolerate heavier training to a greater degree by helping recover faster or helping to stay injury-free and/or healthy during intense training. Sports foods can be presented in many different formats including drinks, powders, bars, gels, and tablets. Generally speaking, sports foods can be divided into different subcategories including: 1. Carbohydrate-rich energy food products: products high in glycemic carbohydrates essential before, during and after exercise for providing energy; 2. Carbohydrate-electrolyte solutions: drinks providing electrolytes and carbohydrates as the major energy source which are effective in maintaining or restoring hydration status; 3. Protein and protein components: high protein and essential amino acids products that help muscle maintenance/gain by ensuring a good synthesis of proteins; 4. Supplements containing substances such as caffeine, amino acids or creatine products which help to improve exercise performance capacity and/or enhance training adaptations by allowing an individual in certain circumstances to tolerate heavier training to a greater degree by helping recover faster or helping to stay injury-free and/or healthy during intense training (Specialised Nutrition Europe, 2015).
	Functional Food	British Nutrition Foundation (BNF)	Foods containing a dietary ingredient that affects its host in a targeted manner so as to exert positive effects that justify certain health claims and have health promoting properties over and above their nutritional value. The term 'functional foods' can be viewed as encompassing a very broad range of products, ranging from foods generated around a particular functional ingredient (e.g. stanols-/sterol-enriched reduced/low fat spreads, and dairy products containing probiotic bacteria), through to staple everyday foods fortified with a nutrient that would not usually be present to any great extent (e.g. folic acid fortified bread or breakfast cereals; omega 3 fatty acids from fish oils added to bread or baked beans; British Nutrition Foundation, n.d.).
Australasia	Sports Foods medical supplements & performance supplements	Australian Institute of Sport (AIS)	Sports foods - specialised products used to provide a practical source of nutrients when it is impractical to consume everyday foods. Medical supplements — used to prevent or treat clinical issues including diagnosed nutrient deficiencies. Best used with advice from an appropriate medical/nutrition practitioner. Performance supplements — Supplements/ingredients that can support or achieve an enhancement of sports performance. Best used with an individualised and event-specific protocol, with the advice of appropriate sports science/nutrition practitioner (Australian Institute of Sport, 2019).

		Food Standards Australia New Zealand (FS ANZ)	Foods specially formulated to help people achieve specific nutritional or sporting performance goals. They are intended to supplement the diet of sportspeople rather than be the only or main source of nutrition. These products are regulated under Standard 2.9.4 – Formulated supplementary sports foods (Food Standards Australia New Zealand, 2016).
	Dietary Supplements	FS ANZ	For the purpose of the Australian Health Survey, dietary supplements refer to products defined as Complementary Medicines under the Therapeutic Goods Regulations 1990 that are not intended for inhalation or use on the skin. They include products containing ingredients that are nutrients, such as multivitamin or fish oil products (Food Standards Australia New Zealand, n.d.).
	Complementary Medicines	Australian Government Department of Health. Therapeutic Goods Administration (AUS Gov TGA)	Medicinal products containing such ingredients as herbs, vitamins, minerals, nutritional supplements, homeopathic and certain aromatherapy preparations and are regulated as medicines under the Therapeutic Goods Act 1989. A complementary medicine is defined in the Therapeutic Goods Regulations 1990 as a therapeutic good consisting principally of one or more designated active ingredients mentioned in Schedule 14 of the Regulations, each of which has a clearly established identity and traditional use: Designated active ingredients, an amino acid, charcoal, a choline salt, an essential oil plant, or herbal material (or a synthetically produced substitute for material of that kind), including plant fibres, enzymes, algae, fungi, cellulose and derivatives of cellulose and chlorophyll, a homeopathic preparation, a microorganism, whole or extracted, except a vaccine, a mineral including a mineral salt and a naturally occurring mineral, a mucopolysaccharide non-human animal material (or a synthetically produced substitute for material of that kind) including dried material, bone and cartilage, fats and oils and other extracts or concentrates a lipid, including an essential fatty acid or phospholipid a substance produced by or obtained from bees, including royal jelly, bee pollen and propolis a sugar, polysaccharide or carbohydrate a vitamin or provitamin. Complementary medicines may be either listed or registered, depending on their ingredients and the claims made (Australian Government Department of Health, 2013).
Region	Terminology	Organisation	Definition
North America	Dietary Supplement	U.S. Food and Drug Administration (US FDA)	Products taken by mouth that contain a “dietary ingredient.” Dietary ingredients include vitamins, minerals, amino acids, and herbs or botanicals, as well as other substances that can be used to supplement the diet. Dietary supplements come in many forms, including tablets, capsules, powders, energy bars, and liquids (U.S. Food and Drug Administration, 2017).
		National Institutes of Health: Office of Dietary Supplements (NIH)	As defined by Congress in the Dietary Supplement Health and Education Act which became law in 1994, a dietary supplement is a product (other than tobacco) that is intended to supplement the diet; contains one or more dietary ingredients (including vitamins; minerals; herbs or other botanicals; amino acids; and other substances) or their constituents; is intended to be taken by mouth as a pill, capsule, tablet, or liquid; and is labelled on the front panel as being a dietary supplement (National Institutes of Health, 2011).
	Supplements	Dietitians of Canada (DoC)	Supplements are tablets, pills capsules or beverages that one may add to the diet to get more vitamins, minerals or other nutrients (Dietitians of Canada, n.d.).

	Nutritional Supplements	Canadian Food Inspection Agency (CFIA)	A food sold or represented as a supplement to a diet that may be inadequate in energy and essential nutrients (Canadian Food Inspection Agency, 2019).
	Natural Health Product	CFIA	A substance set out in Schedule 1 [NHPR] or a combination of substances in which all the medicinal ingredients are substances set out in Schedule 1, a homeopathic medicine or a traditional medicine, that is manufactured, sold or represented for use in: the diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state or its symptoms in humans; restoring or correcting organic functions in humans; or modifying organic functions in humans, such as modifying those functions in a manner that maintains or promotes health. However, a natural health product does not include a substance set out in Schedule 2, any of substances that includes a substance set out in Schedule 2 or a homeopathic medicine or traditional medicine that is or includes a substance set out in Schedule 2 (Canadian Food Inspection Agency, 2017)
Worldwide	Dietary Supplements	IOC Consensus Statement	A food, food component, nutrient, or non-food compound that is purposefully ingested in addition to the habitually consumed diet with the aim of achieving a specific health and/or performance benefit. Dietary supplements come in many forms, including the following: 1. Functional foods, foods enriched with additional nutrients or components outside their typical nutrient composition (eg, mineral-fortified and vitamin-fortified, as well as nutrient enriched foods); 2. Formulated foods and sports foods, products providing energy and nutrients in a more convenient form than normal foods for general nutrition support (eg, liquid meal replacements) or for targeted use around exercise (eg, sports drinks, gels, bars); 3. Single nutrients and other components of foods or herbal products provided in isolated or concentrated forms; 4. Multi-ingredient products containing various combinations of those products described above that target similar outcomes (Maughan, Burke, et al., 2018, p. 439-440).

Table 4.2. The themes identified within each organisation's definition.

Region	Organisation	Target market	Benefits of consumption	Ingredients	Product form
Europe	DEP, EFSA, UK HSC, UK FSA	Above the normal diet	Nutritional and physiological effects	Vitamins, minerals, and other substances	Dose form
	SCF	To supplement the diet of a sportsperson	Nutritional and physiological effects	In-depth list of dietary ingredients	Not described
	SNE	To supplement the diet of a sportsperson	Performance benefits	In-depth list of dietary ingredients	Not described
	ESSNA	To supplement the diet of a sportsperson	Nutritional and physiological effects; Health and medical benefits; Performance benefits	In-depth list of dietary ingredients	Convenient forms

	EI	None	None	In-depth list of dietary ingredients	Convenient forms
	BNF	Above the normal diet	Health and medical benefits	Not described	Staple foods
Australasia	AIS	To supplement the diet of a sportsperson	Health and medical benefits; Performance benefits	In-depth list of dietary ingredients	Not described
	FS ANZ- Sports Food	To supplement the diet of a sportsperson	Nutritional and physiological effects; Performance benefits	Not described	Not described
	FS ANZ- Dietary Supplements	None	None	Vitamins, minerals, and other substances	Not described
	AUS Gov TGA	None	Health and medical benefits	In-depth list of dietary ingredients	Not described
North America	US FDA	Above the normal diet	None	In-depth list of dietary ingredients	Dose form
	NIH	Above the normal diet	None	In-depth list of dietary ingredients	Dose form
	DoC	Above the normal diet	Nutritional and physiological effects	Vitamins, minerals, and other substances	Dose form
	CFIA- Nutritional Supplement	Above the normal diet	Nutritional and physiological effects	Not described	Not described
	CFIA- Natural Health Product	None	Health and medical benefits	Vitamins, minerals, and other substances	Not described
Worldwide	IOC Consensus Statement	Above the normal diet	Health and medical benefits; Performance benefits	In-depth list of dietary ingredients	Dose form, Convenience form, Staple foods

4.3.2 Findings

While there is no universally accepted supplement definition, the majority of the definitions reviewed recognise supplements to be dietary ingredients taken to supplement an individual's diet. In EU law food supplements are defined as 'any food the purpose of which is to supplement the normal diet and which is a concentrated source of a vitamin or mineral or other substance with a nutritional or physiological effect, alone or in combination and is sold in dose form'. Within the EU, food supplements are regulated as foods and are subject to the provisions of general food law. Although not exhaustive of the global context, the analysis identified 11 distinct terms and 19 individual definitions across three continents. In brief, four main themes captured the differences related to the definitions (see Table 4.2); target market, product claims, ingredients and product form.

a) Target Market

Many organisations (n=16) suggested that for a product to be recognised as a food supplement the product must be consumed as a means to supplement an individual's diet (Table 4.2). The definitions were found to represent two separate target markets: (a) in addition to normal diet; and (b) to supplement the diet of a

sportsperson. For example, products consumed above the normal diet were recognised by 11 organisations as either dietary supplements, food supplements, or functional foods. In contrast, products consumed to supplement the diet of a sportsperson are referred to as sports food, sports nutrition and performance supplements (n=5). These terms were used to represent products which are formulated and marketed in relation to physical activity and sport (Specialised Nutrition Europe, 2015). All definitions imply the addition of a substance to an individual's diet, but organisations appear to differentiate between such products according to the target market.

b) Product Claims

A second component of the definitions relates to the purported benefits of such products. Fifteen organisations explicitly reported the effects of products within their definition: nutritional and physiological effects, health and medical benefits, and performance benefits. The most commonly cited reason for consumption was expected nutritional and physiological effects (n= 10). Health and medical benefits were described by six organisations. Four organisations that specifically referenced sport (i.e., sports food) identified performance benefits. It was noted that four organisations (ESSNA, AIS, FS ANZ, IOC) reported more than one reason why consumers may utilise the products identified within their categorisation. Four organisations did not report any reasons why individuals would consume the products within their categories.

c) Ingredients

The majority of organisations (n=16) include a list of dietary ingredients as a definitional attribute. Nutritional substances such as vitamins and minerals are named, to some degree, and grouped into subcategories. Some of these organisations (n=8) refer only to vitamins, minerals, and other substances, whereas other organisations (n=9) provide a more in-depth list of dietary ingredients (e.g., amino acids, carbohydrate electrolyte-solutions, creatine, herbs, protein). The AIS uses the term sports foods as an 'umbrella' term to describe specialised products used to provide a convenient source of nutrients when it is impractical to consume everyday foods (e.g., sports drinks, sports gels, sports bars). The definition does not provide explicit details around dietary ingredients. No insight into the categorisation of dietary ingredients was provided by three other organisations and, thus, it can only be assumed what products they aim to include.

d) Product form

The form in which products exist appeared to differ across the definitions. The majority of organisations who used terms such as 'food' or 'dietary supplements' suggested that products were dispensed in dose form such as tablets, capsules, pastilles, sachets of powder, and measured liquids (n=9). In contrast, some organisations who used terminology specific to sportspeople (i.e., sports foods, sports nutrition) suggested products were dispensed in convenient forms such as, bars, drinks, and powders (n=2). While the majority of definitions relate to standalone products (e.g., tablets or powders), the BNF reported that functional foods were dispensed within staple everyday foods. These products may be marketed and regulated as conventional foods, yet, they are fortified (e.g., with additional vitamins and minerals). Furthermore, in contrast to other organisations who appear to describe one form of nutritional supplement, the IOC consensus statement on dietary supplements and the high-performance athletes concludes that nutritional substances come in many forms (Maughan, Burke et al., 2018, p. 440). Eight organisations did not specifically identify how products were dispensed.

4.3.3 Conclusion

It is clear that the multiple and substantial barriers preventing the application of anti-doping policies in recreational sport still needs to be addressed. The same barriers were observed in 2014 in the SoDP report, signifying that certain key restrictions such as funding and resource issues are still in place. Nevertheless, despite the difficult climate, there have been some significant developments in the field of prevention of doping in recreational sport. This study has reported extensively on emerging practice across the MS. Nevertheless, questions still remain as to how best to intervene and measure success of interventions in such populations, as non-competitive environments in particular offer a different challenge to the anti-doping rule violations typically addressed by anti-doping agencies.

4.4 Risk minimisation approaches to protect consumers and reduce inadvertent doping

4.4.1 Introduction

A recent review of 23 published studies examining the presence of banned substances in supplements used in sport noted rates of contamination of between 12 and 58% (Martinez-Sanz et al., 2017). This finding is especially concerning for national and international level athletes who use food supplements as part of their nutrition programme as the risk of contamination and adulteration heightens the anxiety of committing an Anti-Doping Rule Violation. Even minimum amounts of contamination and adulteration with prohibited substances can be enough to trigger a positive test that almost always leads to major consequences for the athlete (e.g., social isolation, financial loss, negative health effects).

Next to low levels of contamination, some products are even deliberately spiked with high dosages of pharma-coactive ingredients that pose a health risk to the general public as consumers (Archer et al., 2015). Therefore, the presence of prohibited substances in food supplements is not just an elite sport issue, it is also a public health issue.

In order to map the current preventive actions, four distinct areas of risk minimisation were researched: legislation, standardisation, enforcement and certification.

4.4.2 Legislation

In the EU, there are multiple laws related to food, food supplements and food intended for sportspeople. As many laws also refer to other legislation, it is beyond the scope of this study to give a complete overview. Only key legislation, therefore, will be summarised in this section.

a) General EU food legislation

Regulation (EC) No 178/2002 of the European Parliament and of the Council came into force on 28 January 2002. It describes the general principles and requirements of food law, established by the European Food Safety Authority and laid down procedures in matters of food safety. This General Food Law Regulation is an EU wide foundation for food and feed legislation, applicable to all the member states. It covers all stages of production and distribution. Next to this regulation, the EU has many other food safety regulations like legislations on labeling and nutrition, which includes the directive on food supplements. EU Hygiene rules dictate food business operators at all levels of the food chain to implement procedures based on the Hazard

Analysis and Critical Control Points (HACCP) principles, which may prevent contamination issues. See

https://ec.europa.eu/food/safety_en

https://ec.europa.eu/food/safety/biosafety/food_hygiene/legislation_en

b) EU food supplement regulation

Directive 2002/46/EC of the European Parliament and of the Council came into force on 10 June 2002. The directive harmonises the laws of the EU member states related to food supplements. It only lists which vitamins (and vitamin substances) and minerals (and mineral substances) may be added in the manufacture of food supplements. The use of other substances may be covered by other specific EU legislation, like Regulation (EC) No 2015/2283 on novel food, may be covered by national legislation, or may not be covered at all. Most doping substances are prohibited as food supplement ingredients, but not all.

c) EU regulation around food intended for sportspeople

Directive 2009/39/EC of the European Parliament and of the Council came into force on 6 May 2009. It laid the ground for the development of several specific directives on groups of foodstuffs intended for particular nutritional uses. One of the groups was called foods intended to meet the expenditure of intense muscular effort, especially for sportspeople. Provisions likely to have an effect on public health would have been adopted after consultation of the European Food Safety Authority.

On 15 June 2016 the European Commission concluded in a report to the European Parliament and the Council that the horizontal rules of food law provide the necessary safeguards for food intended for sportspeople in terms of food safety, food composition, consumer information and legal certainty. Therefore, the European Commission advised against a specific directive on food intended for sportspeople. The creation of this directive did not occur¹².

4.4.3 Standardisation

Standards are documents that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. They are not mandatory unless they are referred to as 'mandatory' in specific legislation. Good standards, however, can almost have the same effect as legislation. Global standards are developed and published by the International Organization for Standardization, ISO. In Europe, the general standardization organization is the European Committee for Standardization, CEN. It is officially recognized by the European Union and by the European Free Trade Association.

The implementation of standards can help to prevent the possibility of doping contamination and adulteration in the production and manufacture of food supplements which are intended for use by sportspeople. Especially if manufacturers uphold the standards and anti-doping organisations recognize them as adequate in preventing unintentional doping violations by the use of food supplements.

12 European Commission. A report from the Commission to the European Parliament and the Council on food intended for sportspeople. Retrieved from: <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-402-EN-F1-1.PDF>

a) General food safety management standard

International standard ISO 22000:2018 called Food Safety Management Systems - Requirements for any Organization in the Food Chain came into force on 18 June 2018. The standard maps out what an organization must do to demonstrate its ability to control food safety hazards in order to ensure that food is safe for consumption. It can be used by any organization regardless of its size or position in the food chain. It is not specifically targeted at preventing inadvertent doping. Implementing a proper food safety management system could prevent the risk of contaminated and adulterated supplements being released into the market, posing risks to health and sporting eligibility.

b) European standard for food supplements and sports food free of doping

European standard CEN/TC 453 has the working title “Doping prevention in sport — Good development and manufacturing practices aimed at preventing the presence of prohibited substances in food intended for sports people and food supplements”. At the time of writing this report, CEN/TC 453 was under drafting and was subject to a formal enquiry with CEN members. A voting date of 23 October 2020 is forecasted. The scope of the document is to set out provisions for the development and manufacture of food supplements and sports food intended for sportspeople.

The standard is being designed to provide manufacturers with a framework to minimise the risk of the presence of prohibited substances in food intended for sportspeople and food supplements. Such a risk cannot be eliminated entirely, and no company should make claims to this effect. Nevertheless, a number of processes commercial organizations can put in place in order to reduce the risk of the presence of prohibited substances. Given the side effects of doping substances on health, which is one of the criteria for their prohibition, the prevention of doping by contamination and adulteration of foods intended for sportspeople and food supplements is an important public health issue. This issue concerns all sports people, including recreational sports practitioners

As basis for the document, the standard NF V94-001 of the French Standardization Body AFNOR was first used. This document came into force in June 2012, but if a European standard is agreed then it will supersede any national standard.

4.4.4 Enforcement

To ensure industry compliance, enforcement is necessary. Regulation (EC) No 178/2002 of the European Parliament and of the Council established the European Food Safety Authority, or EFSA. EFSA produces scientific opinions and advice which form the basis for EU policies and legislation.

The same regulation also provides the legal basis of the Rapid Alert System for Food and Feed, or RASFF. RASFF helps food and feed control authorities with the exchange of information about measures taken in relation to food and feed health risks. The tool provides notifications classified as alerts (i.e., when products presents a serious risk on the market, and rapid action is necessary), information notifications (i.e., when products are identified by Member States but are not present on other markets), or border rejections (i.e., when products are rejected at a European Economic Area border; EU, 2018). While, the RASFF provides product alerts, the RASFF does not identify trade names or release the identity of individual companies to prevent disproportionate economic damage (EC, 2018c).

By means of RASFF, EU countries are able to act more rapidly and in a coordinated manner. EU countries are members of EFSA and RASFF. EFSA can ban the use of certain supplement ingredients on an EU level, the national food safety authorities can do the same within their national territory. For monitoring purposes,

member states may require food supplement manufacturers to send product labels to the national food safety authorities. The national food safety authorities may also take illicit food supplements off the market and may warn the other national food safety authorities via RASFF to do the same.

RASFF uses an information technology system (e.g., Administrative Assistance and Cooperation system; ACC) that enables EU countries to voluntarily exchange data in a structured manner regarding cross-border non-compliance and violations of EU legislation (EC, 2018a). In 2018, a total of 267 requests for cooperation were launched in the AAC by Member States, Norway, and the EC itself (EC, 2018b). Dietetic foods, food supplements, and fortified foods were among the top 10 product categories, reported in 2018 (EC, 2018b). The AAC system enables information to be shared efficiently and provides a mechanism to prompt action when risks to public health are detected in the food chain.

In 2017, the RASFF received 3832 notifications, of which 314 were categorised as dietetic foods, food supplements, and fortified foods (EU, 2018). This might not represent the entirety of food safety incidents surrounding food supplements occurring in the EU. To elaborate, EU law does not include specific provisions on the use of substances other than vitamins or minerals in food supplements, and the free movement of these products are subject to national restrictions. Furthermore, food supplements, which constitute a concentrated source of substances and have a physiological effect, have also in certain circumstances been categorised as medicinal products and, thus, are regulated under different legislation. This gives rise to situations where a given product is authorised for marketing as a food in some Member States, while being classified as a medicinal product in another Member State(s).

Food supplements sometimes contain active medicine ingredients. This is not allowed according to the Community code relating to medicinal products for human use (Directive 2001/83/EC of the European Parliament and of the Council). Medicines are regulated by the European Medicines Agency (EMA), which uses a system that ensures end-to-end verification of medicines. Here, all manufacturers are required to provide the barcode of newly commissioned drugs to a central European hub (Naughton, 2018). Data is then shared with Member States which enables healthcare facilities to verify the information contained within each barcode (e.g., legitimacy of a medicine, expiration date, and product recall information). This system aims to prevent falsified medicines from entering the legal supply chain and ensure patient safety. If an alert is made on a medicinal product, Member States are required to raise the alert using the Rapid Alert System for Pharmaceuticals. This system ensures alerts are received by the end user (e.g., pharmacist), national medicinal organisations, and the EU hub. The EU then processes the alert and raises its own alert to the European Medicines Verification Organization.

Constituents from herbal medicines can also be found in food supplements. As there is no global consensus of what constitutes a food supplement (see earlier section on definitions), many of these products may be classified by Member States as herbal medicines (Maughan et al., 2018). These herbal medicines are not subjected to the same provisions as regular medicines (Gromek, Drumond, & Simas, 2015; Ekor, 2014). While the Traditional Herbal Medicines Registration Scheme legally requires registered manufacturers to monitor the safety of their products, this is not required until products are on the market (European Medicines Agency, n.d.). Therefore, the quality, efficacy, and safety of these products is a major concern for health authorities across Member States, and the general public (Ekor, 2014).

In sum, the lack of overarching legislation for food supplements, poses a challenge regarding the regulation and enforcement of these products. Member States are forced to respond to different domestic needs and pressures (Dwyer, Coates, & Smith, 2018). More formal legislation and clarification of food supplements and regulatory control are needed to ensure consistency of messages and product handling across EU Member States.

4.4.5 Certification and supplement testing services

There is no EU-wide legislation for independent testing of food supplements with regards to product quality and purity prior to the market. There are, however, several accredited certification bodies that certify organisations for their demonstrated implementation of international, European and national standards.

In France, the NF V94-001 standard is certified by SPORT Protect.



Next to the certification of standards, several certification and testing services for food supplements in elite sport have been established over the last 15 years. Such services are focused on risk management to help manufacturers and consumers identify and manage the potential contamination and adulteration of products with substances prohibited in sport. These services all have in common:

- systemic and batch-specific testing of products on behalf of the industry;
- providing manufacturers certificates of the tests performed; and
- having a publicly accessible database of certified product batches.

At the time of the publication of this report, seven established supplement testing services were identified. In alphabetical order, they are:

BSCG Certified Drug Free®

www.bscg.org

Home country:	USA
Initiative of:	BSCG LLC
Established:	2004
Laboratory:	Own laboratory
ISO 17025:	Yes
Batch tested:	Yes, but not fully. For acquiring the BSCG Certified Drug Free® logo, every finished batch, or one batch monthly, must be certified with random blind sampling of participating products. Tested batches are listed on the website.
Substances covered:	274 WADA prohibited substances. The substances belong to classes S1, S2, S3, S4, S5, S6, S7, S8, S9 and P1 of the WADA prohibited list
Minimum Laboratory Performance Level:	Generally, 10-100 ng/g (ppb) for most compounds with the remaining compounds in the 100-500 ng/g (ppb) range.



products in database: 800+

Cologne List®

www.koelnerliste.com

Home country: Germany
 Initiative of: Olympic Training Center Rhineland (Olympiastützpunkt Rheinland) in cooperation with the National Anti-Doping Agency Germany (NADA) and the Athletes' Commission of the German Olympic Sports Confederation (DOSB)
 Established: 2006
 Laboratory: Center for Preventive Doping Research (CePreDo) at the German Sport University Cologne
 ISO 17025: Yes
 Batch tested: Yes. Tested batches are listed on the website.
 Substances covered: Mandatory for an undisclosed number of WADA prohibited anabolic steroids (S1) and voluntary for an undisclosed number of WADA prohibited stimulants (S6)
 Minimum Laboratory Performance Level: Generally anabolic agents at 10 ng/g (ppb), stimulants at 100 ng/g (ppb)



products in database: 800+

HASTA™ - Human and Supplement Testing Australia

www.hasta.org.au



Home country: Australia
 Initiative of: HASTA is a division of Racing Analytical Services Limited (RASL)
 Established: 2015
 Laboratory: Own laboratory
 ISO 17025: Yes. Tested batches are listed on the website.
 Batch tested: Yes
 Substances covered: 200+ WADA prohibited substances from the following classes: Anabolic Agents (S1), Peptide hormones, growth factors, related substances, and mimetics (S2), Beta-2-agonists (S3), Hormone and Metabolic Modulators (S4), Diuretics and masking agents (S5), Stimulants (S6), Narcotics (S7), Beta-blockers (P1)
 Minimum Laboratory Performance Level: Generally anabolic agents at 10 ng/g (ppb), other compounds at 100 ng/g (ppb)

products in database: 75+

Informed Choice

www.informed-choice.org

Home country: USA
 Owner: LGC (sister programme of Informed Sport)
 Established: 2007



19

Laboratory:	Own laboratories in USA and UK
ISO 17025:	Yes
Batch tested:	Yes, but not fully. For acquiring the logo, products are tested monthly by skip-lot testing and random blind sample purchase. Tested batches are listed on the website.
Substances covered:	200+ substances prohibited in sport. It includes but is not limited to WADA prohibited substances such as Anabolic agents (S1), Beta-2 agonists (S3), Diuretics and masking agents (S5), Stimulants (S6), and Narcotics (S7).
Minimum Laboratory Performance Level:	Generally anabolic agents at 10 ng/g (ppb), other compounds at 100 ng/g (ppb)
# products in database:	800+

Informed Sport

<http://www.informed-sport.com/>



Home country:	United Kingdom
Initiative of:	LGC (sister programme of Informed Choice)
Established:	2008
Laboratory:	Own laboratories in United Kingdom and United States of America
ISO 17025:	Yes
Batch tested:	Yes. Tested batches are listed on the website.
Test menu:	220+ substances prohibited in sport. It includes but is not limited to WADA prohibited substances such as Anabolic agents (S1), Beta-2 agonists (S3), Diuretics and masking agents (S5), Stimulants (S6), and Narcotics (S7).
Minimum Laboratory Performance Level:	Generally anabolic agents at 10 ng/g (ppb), other compounds at 100 ng/g (ppb)
# products in database:	800+

NSF Certified for Sport®

www.nsf-sport.com



Home country:	USA
Initiative of:	NSF International
Established:	2004
Laboratory:	Own laboratories in USA, Europe (Germany) and China
ISO 17025:	Yes
Substances covered:	270+ substances banned by major athletic organizations. It includes but is not limited to WADA prohibited substances such as Anabolic agents (S1), Beta-2 agonists (S3), Diuretics and masking agents (S5), Stimulants (S6), and Narcotics (S7).
Batch tested:	Yes. Tested batches are listed on the website.
Minimum Laboratory Performance Level:	Generally 2-100 ng/g (ppb), depending on compound
# products in database:	2000+

NZVT - Dutch Safeguards System for Dietary Supplements in Elite Sport



www.nzvt.info

Home country:	Netherlands
Initiative of:	The NZVT is a joint effort involving the Netherlands Olympic Committee * Netherlands Sports Confederation (NOC*NSF), the trade organization for supplement producers and providers in the Netherlands (NPN), and Doping Authority Netherlands, in close cooperation with the NOC*NSF Athletes' Committee, the Institute of Food Safety of Wageningen University and Research Centre (RIKILT), and the Ministry for Health, Welfare and Sports (VWS).
Established:	2003
Lab:	Primary lab: LGC
Secondary lab:	Centre for Preventive Doping Research (CePreDo) at the German Sport University Cologne Also, certificates from laboratories of other recognized supplement testing systems are accepted.
ISO 17025:	Yes, mandatory for laboratories of all recognized supplement testing systems
Batch tested:	Yes. Tested batches are listed on the website.
Substances covered:	Laboratory dependent
Minimum Laboratory Performance Level:	Laboratory dependent

products in database: 300+

4.5 Preventive Actions by National Anti-Doping Organisations and International Federations: Findings from Stakeholder Surveys

This phase of the research programme aimed to recruit representatives from: (a) National Anti-Doping Agencies (NADOs) across EU28 (n=28), and (b) International Federations (IFs) who are World Anti-Doping Code signatories (n=42). Individuals were contacted via email and invited to take part in the study. The correspondence informed the recipients about the aims of the study and asked them to complete a survey of advice provided to athletes and support personnel on food supplements. Forty-two individuals, representing 38 organisations (25 NADOs and 13 IFs) consented to participate in the study (54% response rate), which was granted ethical approval from the Carnegie School of Sport Research Ethics Committee at Leeds Beckett University.

The results of the survey were deductively conceptualised into the three themes based on the questions provided in the survey:

1. Current guidance provided by NADOs and IFs to athletes and athlete support personnel (ASP) to reduce the risk of inadvertent doping from food supplements;
2. Risk minimisation processes; and
3. Alerts to supplement contamination and/or adulteration risks.

These themes describe the current guidelines and practices used by NADOs and IFs. The themes are presented using both quantitative and qualitative data. This approach has allowed us to provide the reader with an in-depth understanding of the current landscape (Creswell & Plano Clark, 2011; Zoellner & Harris, 2017). Some individuals requested we identified their organisation and not their name or role.

If no permission was granted to use identifying information, quotes have been anonymised to protect the identity of the individual who completed the survey (e.g., Anonymous 1) in keeping with the research ethics approval.

4.5.1 Findings

Addressing the information provided within the survey, four sub-themes were constructed: (a) the content provided by organisations; (b) the dissemination methods used; (c) the intended audience; and (d) the development of the information provided.

a) Content Provided

This sub-theme captures the messages conveyed by the organisations who responded to the survey. The organisations reported providing guidance that related, to some degree, to “assessing the need”, “assessing the risk”, and “assessing the consequences” of food supplements (see Figure 6.1). All the NADOs who took part in the survey reported providing guidance to athletes and athlete support personnel (ASP) to reduce the risk of inadvertent doping from food supplements. However, the messages provided by each NADO differed and only three organisations closely aligned with all aspects of good practice outlined in frameworks for decision making on food supplement use promoted by the Sports and Exercise Nutrition Register in the UK (SENr; Sports and Exercise Nutrition Register, Close, Naylor, & Riach, 2016) and the IOC Consensus statement on dietary supplements and the high-performance athlete (Maughan et al., 2017). Specifically, they encouraged athlete consumers to “assess the need, assess the risk, and assess the consequence”. The other 22 NADOs did not specifically highlight this decision-making approach, however, our analysis showed that elements of this framework were evident across their provision. Specifically, organisations placed greatest emphasis on assessing the risk (100%), in comparison to 17 (68%) and 11 (44%) organisations who acknowledge assessing the need and assessing the consequences, respectively. The codes that relate to each of these messages are supported by quotations reported in Appendix 2.

While “assessing the risk” made up the majority of the guidance provided by NADOs, the messages surrounding risk varied. Seventeen NADOs (68%) focused on risk minimisation techniques, whereas safety aspects, product labelling issues (e.g., falsely report health claims or incorrect ingredient lists), and product contamination were only highlighted by nine organisations (36%). Five NADOs (20%) informed stakeholders of the problems with product composition, and three NADOs (12%) reported potential health risks. The messages conveyed by the 17 organisations who identified the importance of “assessing the need”, specifically related to advocating a healthy diet in the first instance (n=8, 50%) and to seeking support from professionals (e.g., nutritionists and doctors; n=6, 24%) to inform their decision-making. A variety of consequences were acknowledged across the 11 NADOs. Organisations identified consequences relating to WADA rules and regulations (i.e., strict liability, sanction, and ADRVs; n= 11) and more general issues such as social consequences (i.e., financial implications, gateway issues; n=2), health consequences (e.g., side effects/physical development; n= 4), and performance detriments (n=1).

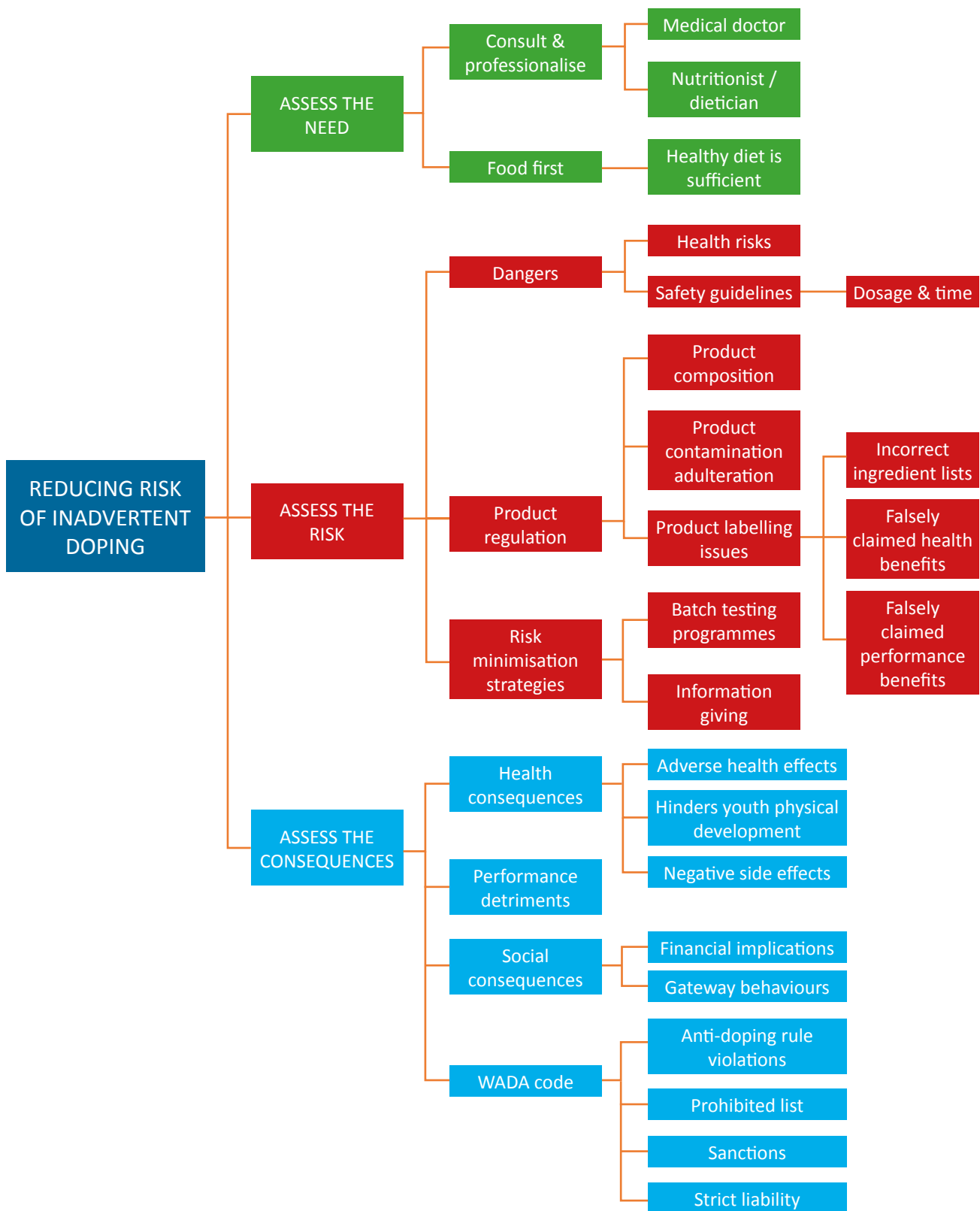


Figure 4.1. A visual representation of the current guidance provided by NADOs and IFs to athletes and athlete support personnel to reduce the risk of inadvertent doping from sports food and sports supplements

The majority of IFs provided an overview of the (differing) content used in their guidance surrounding the risk of inadvertent doping (n=12). Ten IFs (71%) focused on the need to assess the risk surrounding supplements providing guidance related to product contamination (n=7); product labelling issues (n=6); risk minimisation techniques (n=9); vigilance (n=2); dangers (e.g., health risks; n=2); and lack of regulation surrounding these products (n=2). Three IFs warned against food supplement claims and highlighted the lack of scientific evidence supporting claims.

Despite calls to assess the need for supplementation (e.g., Larson-Meyer, Woolf, & Burke, 2018; Close, Naylor, & Riach, 2016), only six IFs (46%) specifically addressed this point. The majority of these organisations identified the need for individuals to consult specialists (e.g., nutritionists and doctors; n=5) when seeking to understand whether supplementation is necessary for them. Furthermore, three organisations informed individuals that a “healthy diet adapted to the needs of a particular athlete should cover all competitive athlete’s nutritional needs” (Anonymous 1). While most organisations advocated an ‘avoid supplements altogether’ approach, one organisation identified that there are circumstances when athletes may need to use supplements for medical reasons: “When there is a need to resort to medications or food supplements, athletes are reminded to be very careful” (Anonymous 1).

Assessing the consequences was identified by seven organisations (54%). While, other consequences exist and have been highlighted within the SENr guidelines (e.g., health), all of these organisations referred to consequences relating to global anti-doping policy (i.e., strict liability, sanction, and ADRVs).

b) The development of the information provided

This subtheme captures how the information provided by the NADOs and IFs was developed. In particular, the results capture the development of in-house materials, collaboration across organisations, and the shared use of materials.

Twenty-one NADOs provided information about how they developed the information they provided to athletes and ASP surrounding reducing the risk of inadvertent doping in sport. The majority of these organisations suggested that they developed their materials in-house (n=19). For example, NADO Italia reported that the development of in-house materials ensured that the information provided was in the stakeholders’ native language: “NADO Italia has prepared a brochure in the Italian language”.

Although the majority of organisations reported that they developed in-house materials, seven NADOs reported that they collaborated with other organisations to develop their provision of information surrounding supplements and inadvertent doping. This is illustrated in the following quote:

In 2012, as part of the national plan, the Ministry of Sports, the National Pharmacists Association and the MILDECA (‘Interministerial mission for the fight against drugs and addictive behaviours’) joined forces to raise awareness and inform athletes and other persons on the accidental risks of doping when buying dietary supplements (Anonymous 8).

Five NADOs reported that they signposted stakeholders to external websites and materials. For example, a representative from the NADO Norway shared, “We refer to the supplement program developed by the Norwegian Olympic Training Centre”.

The information provided by IFs was developed using a variety of sources. In some instances, IFs directed individuals to previously developed information from organisations such as WADA (n=7), NADOs (n=6), other IFs (n=1), or the International Olympic Committee (n=1). Encouraging individuals to seek information from their NADOs was highlighted as useful, providing individuals with local tailored knowledge about the risk of inadvertent doping that would not be feasible for IFs to collate:

[IF] is co-operating with, and relies on, various NADOs regarding [the] distribution of information on food supplements, as they know the specificities of their local markets, legal regulations, problems with specific companies or products, and they can communicate easier potential dangers to the athletes. Various NADOs dispose special online platforms (which are in local languages) where athletes can verify whether their medication or food supplement contains a prohibited substance (Fédération Internationale de Natation).

Given the importance of localised provision, the development of in-house material (n= 4) provided an opportunity to share sport-specific stories and information was reported:

Several information videos are also available on the World Rugby “Keep Rugby Clean” website and are used for face-to-face education. These include 2 x films (Arthur Bouwer and Sam Chalmers), where players have disclosed how their misuse of supplements led to the committing of ADRVs. Additionally, a ‘Dangers of supplements’ film is also available. This is a more general deterrent film on the theme of supplements. A specific section on supplements is also contained in the general anti-doping education film ‘Keep Rugby Clean with Sean Maloney’, also available on the website (World Rugby).

A collaborative approach to content development was evident in the responses provided by three IFs. Specifically, two IFs suggested that they worked with industry experts (e.g., researchers) and stakeholders (e.g., athletes and coaches) to develop materials, which can then “be used to inform [IFs] policies and materials in the area of supplements education” (World Rugby).

c) The dissemination of information

This subtheme captures how the information provided by the NADOs and IFs was disseminated. The results highlight that a number of verbal and written forms of communication were used by organisations to share information related to reducing the risk of inadvertent doping from sports food and sports supplements. Interestingly, details surrounding the monitoring and evaluation of these methods was not highlighted by any of the organisations.

The majority of NADOs (n=24; 96%) reported using written forms of communication to share information related to reducing the risk of inadvertent doping from food supplements. Figure 6.2 shows that the most common way to disseminate written information was through the use of their organisations’ website (n=18). Nevertheless, other online and written methods were acknowledged (e.g., e-learning modules, e-documents, book chapters). One organisation noted that although they did not distribute any form of written information they provided a consultation service for stakeholders to use: “We offer consultation service via email or phone calls, explaining whether using certain supplements may be associated with [a] high/significant risk of doping. We have no special brochures for this topic”.

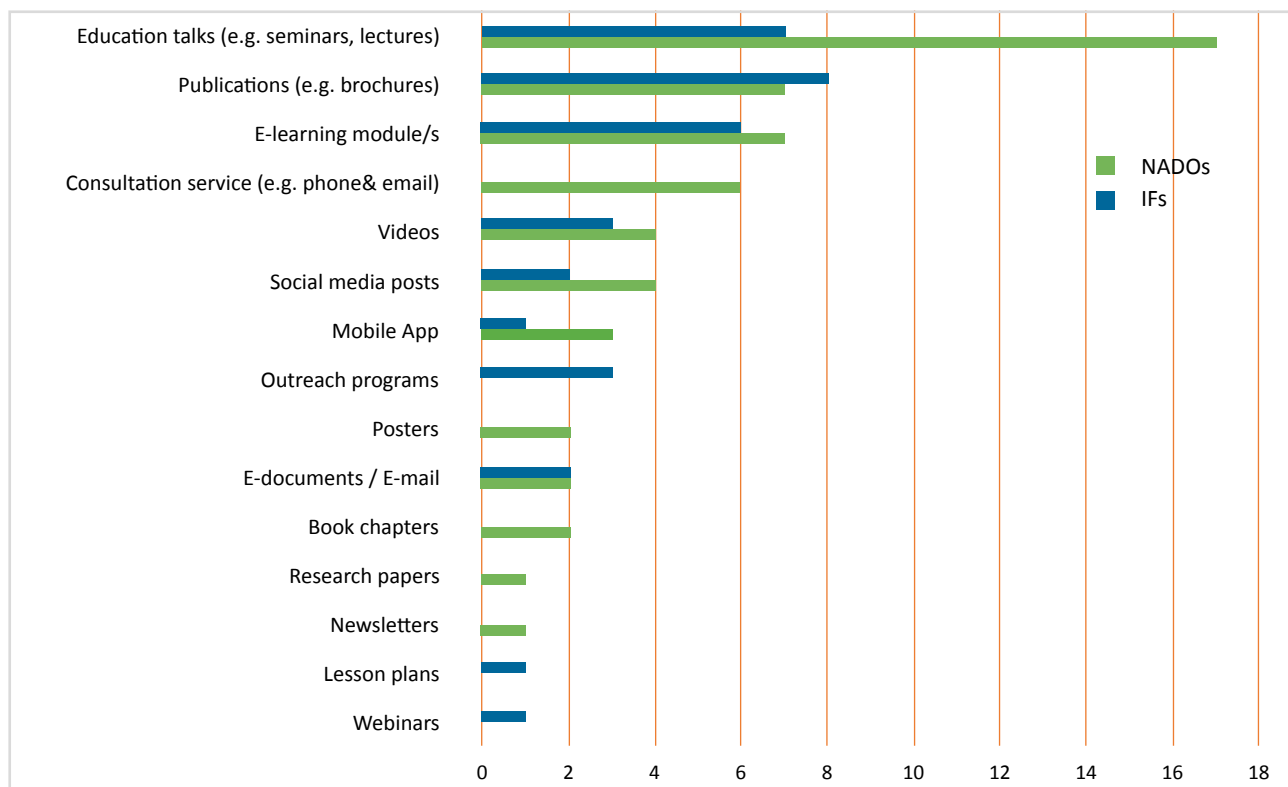


Figure 4.2. The NADOs and IFs reported methods of dissemination.

The use of verbal communication methods was reported by 20 (80%) NADOs. For example, organisations reported conducting education talks (e.g., seminars, lectures, conferences) and using videos to disseminate their messages around supplement use in sport. A number of NADOs (n=17; 68%) acknowledged that information relating to supplements was “communicated to athletes/athlete support persons mainly through face-to-face education” (Cyprus Anti-Doping Authority).

While NADOs reported the methods they used, please note, the question was open-ended and, thus, individuals were not specifically asked to report this information. Therefore, further methods may be used within their provision. Nevertheless, the results highlight that websites and face-to-face education programmes remain the dominant methods NADOs use to disseminate information relating to reducing the risk of inadvertent doping from food supplements.

IFs reported using both written and verbal forms of communication to share information related to reducing the risk of inadvertent doping. Written information was provided by 13 organisations and was disseminated using eight different strategies (see Figure 6.2). Nine IFs used verbal communication methods to provide information to relevant audiences. For instance, organisations reported using a mixture of education seminars (n=7), videos (n=3), outreach programs (n=3), and webinars (n=1). These methods were often publicised on the organisations’ websites. Some organisations detailed the learning strategies they use to support and encourage individuals to adopt behaviours that reduce the risk of inadvertent doping. For instance, organisations highlighted the use of case studies, quizzes to test knowledge, process flow diagrams, images, and incentives. While organisations appear to test knowledge using quizzes at the end of e-learning modules, no formal evaluation methods were reported.

d) Intended audience

This subtheme highlights the intended audience for the information provided by the NADOs and IFs. Specifically, the results show that NADOs and IFs aim to share information surrounding the risk of inadvertent doping with a variety of stakeholders. All the NADOs identified athletes as the main audience for information relating to the risk of inadvertent doping, although 20 organisations identified other stakeholders whom they provide information on this topic to (see Figure 4.3), six of whom suggested that they tailored the information they shared to the intended audience. This is illustrated in the following quote: “we have developed school [based] material[s] for the oldest students in primary schools (13-16 years old) about health, body ideals, fitness/strength training, social media etc” (Anti-Doping Denmark). For the majority of NADOs the messages about the risk of inadvertent doping “remain the same for athletes and ASP” (UKAD).

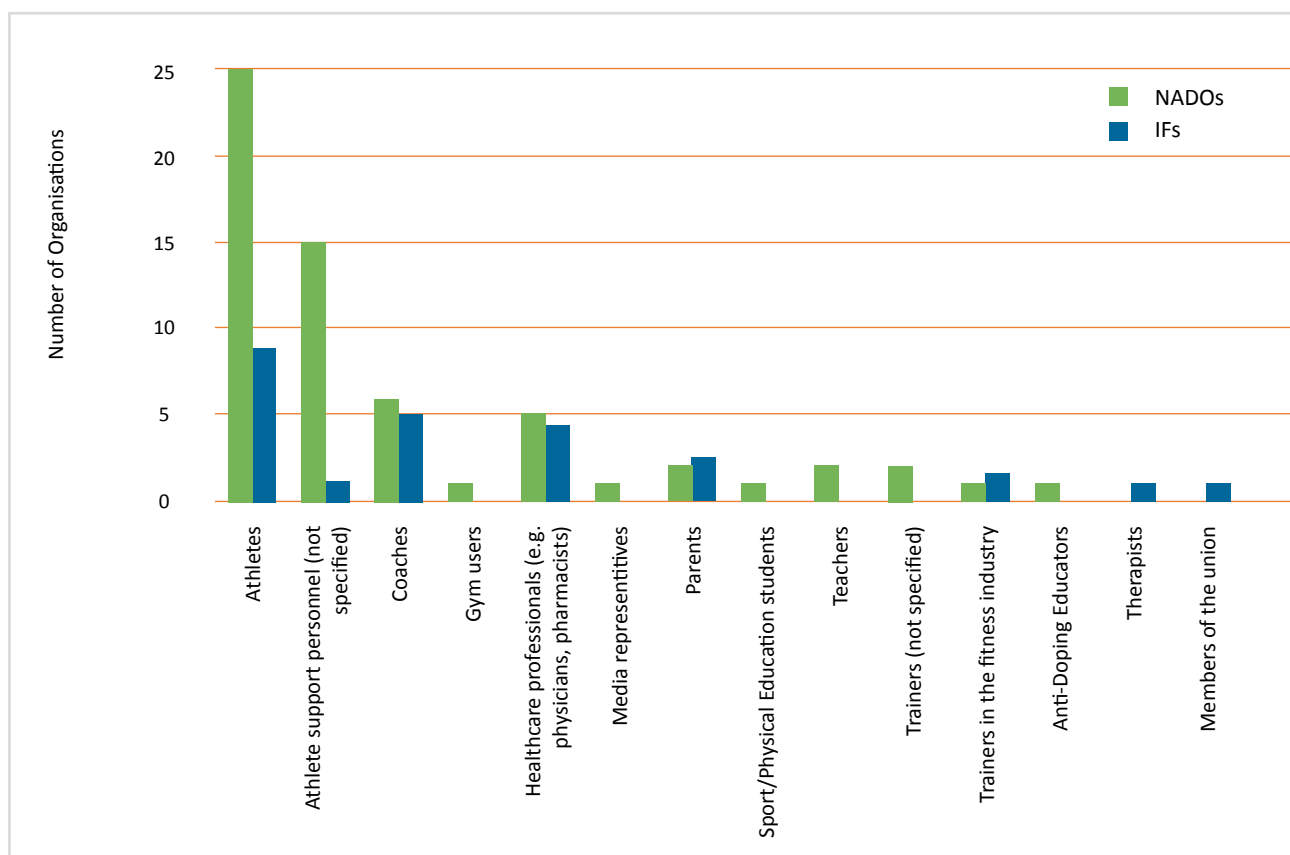


Figure 4.3. The NADOs and IFs intended audience for information relating to the risk of inadvertent doping.

The NADOs identified differences in the athlete populations for whom they provided information. For instance, six organisations reported providing information to elite level athletes, including those performing at a National level or above. However, three organisations identified that they provided tailored information to non-elite athletes (e.g., recreational level, high-school students). This was deemed important because “supplements [are] a growing concern among athletes of all levels” (Anonymous 8). In support, ADNO reported that they received more questions surrounding supplement use from individuals working in non-elite sport:

Among all questions ADNO receives from target groups below elite level (i.e. younger/recreational

athletes, gym users, support personnel, parents, teachers), questions related to dietary supplement are amongst the most prevalent. Elite athletes are often well informed on matters related to anti-doping. Most of them have been subjected to testing for some years and know the rules and regulations which apply to them.

Furthermore, the importance of providing information surrounding the risk of inadvertent doping to individuals who are not confined by the sporting environment but who may consume supplements for health and aesthetic reasons was specified. This approach was advocated by two organisations who have “devised program[s] of education activities meant for the trainers working in the body-building and fitness gyms” (Romanian National Anti-Doping Agency).

Nine IFs identified that the current guidance they provide to reduce the risk of inadvertent doping from food supplements was also intended to reach a variety of stakeholders (see Figure 4.3). Unsurprisingly, athletes were identified by all IFs as the most important recipients of the information. More specifically, five organisations reported providing information to elite youth athletes (i.e., under 19 years old).

Six IFs identified the elite performance population as the intended audience. For example, one organisation reported their focus was on the provision of elite sport internationally and, therefore, it was the responsibility of other organisations (e.g., NADOs) to disseminate this information to athletes in the performance pathway:

Endorsement and recommendation[s] need to be given to athletes' way before they reach the International top-level competitions, as an International Federation, our focus is with this International top group- at this stage [it] is almost already too late to give this basic information (International Ski Federation; FIS).

While the performance domain appeared to dominate the different approaches employed by the IFs, one organisation specifically alluded to the need for a player development pathway, which aimed to provide guidance to recreational level athletes (i.e., secondary-school athletes):

The development of a World Rugby Anti-Doping Education Policy, to comply with the WADA Education Standard and to provide guidelines and mandatory requirements for member national unions on the frequency, content, and delivery of annual education sessions/materials. This is being developed in consultation with leading anti-doping education experts worldwide. Each union will be required/encouraged (TBC) to map out a player development pathway (from secondary school) specific to their own union, with key education pathway milestones (and education delivery points) identified at each stage (World Rugby).

e) Risk minimisation processes

Through the survey we explored the risk minimisation processes of the NADOs and IFs who completed the survey. Specifically, the results identifying the number of organisations who do, and the number who do not reportedly endorse and or recommend athletes and ASP to a supplement risk minimisation process; the types of risk minimisation processes used; and the reasons why organisations do not endorse or recommend a supplement risk minimisation process are offered.

The survey responses revealed that 19 NADOs endorsed or recommended a supplement risk minimisation process. Some organisations reported strategies involving batch testing (n=9), information giving (n= 4), or a combination approach which included endorsing third party batch testing programs and providing information (n=6). While batch testing was the most utilised risk minimisation process across the NADOs, there was a variety of programmes which were endorsed (see Figure 4.4). Informed Sport and NSF International were the most cited third-party testing service although a number of other programmes were

identified. One organisation reported that they endorsed certain programmes “since many of the products available in Austria are on one of these lists” (Nationale Anti-Doping Agentur Austria GmbH).

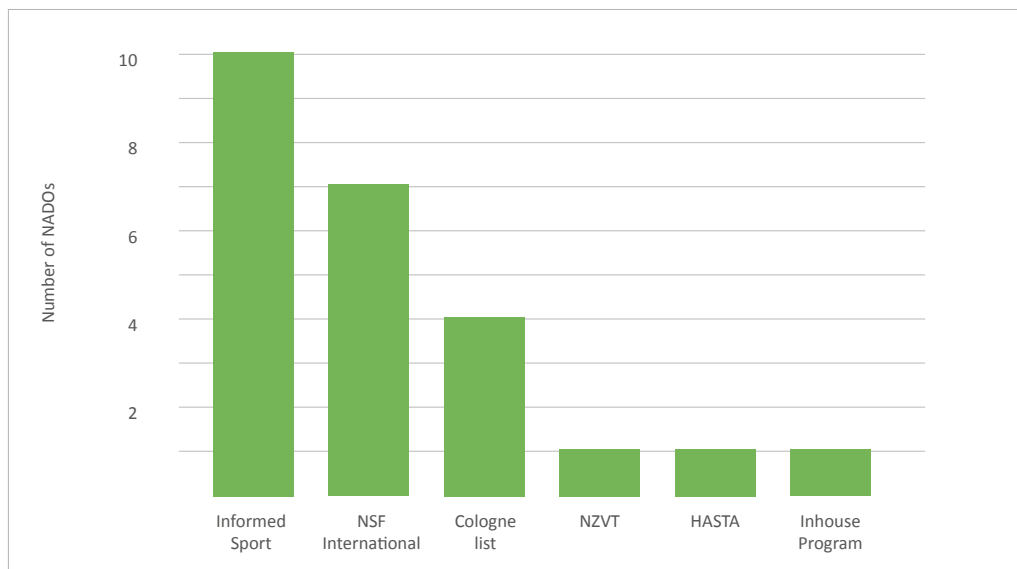


Figure 4.4. Third-party testing services reportedly endorsed by NADOs.

Although organisations recommended or endorsed risk minimisation processes, three NADOs specifically highlighted the concept of “strict liability” and seven NADOs identified the risks associated with supplement use (e.g., contamination and product labelling). Acknowledging the risks of supplements on their website, one organisation reported that if products were not found within certification programmes, athletes should check the ingredients listed on the supplement against the Prohibited List:

If the athlete needs a supplement, we advise them and their ASP to search for a certified supplement through Informed Sport or NSF Certified for Sport. If they can't find their specific product, we endorse them to search for the ingredients and check if any of them are prohibited (Anti-Doping Denmark)

Six NADOs reported not endorsing or recommending a specific risk minimisation process. A lack of resources (i.e., staff) was reported by one organisation (i.e., NADO Belgium French Community). Whereas, a representative from the Lithuanian Anti-Doping Agency identified that although they did not have “a special program, all relevant information [is] given during [their] education activities”. Two further organisations reported that they did not endorse or recommend any form of risk minimisation process as they perceived that “when endorsing such programmes, [they] endorse supplement use in general and that is against [their] policy” (Anonymous 5). Moreover, these organisations identified limitations with third-party testing services (e.g., tests have limited sensitivity). ADNO reported that they provided guidelines for national and international level athletes but were concerned that if the organisation was seen to endorse supplements, this may lead to an increase in supplement use. Therefore, ADNO did not endorse any certification program:

On a general basis, ADNO discourage[s] athletes from using supplements ... For athletes at a national and international level, we inform about the general risk and refer to the guidelines set forth by the department of nutrition at the National Olympic training centre ... ADNO does not recommend any certification program ... We are also worried about that approving more or less harmless products may down the road lead to the use [of] more supplements, and possibly more risky products at a later stage (ADNO)

Nine IFs endorsed and or recommended a supplement risk minimisation process. Six organisations specifically endorsed or recommended the use of batch testing programs, informed sport (n=6) and NSF Certified in Sport (n=1), to minimise the risk of supplements containing a banned substance. Despite signposting individuals to these resources, two IFs specifically noted that they did not endorse these programs on their accompanying websites. The remaining three IFs provided information relating to risk minimisation processes rather than identifying batch testing programs

Four organisations specifically reported not endorsing or recommending a supplement risk minimisation process. One organisation reported that this was the responsibility of NADOs because athletes need to be given this information “before they reach the international top-level competitions” (FIS). One organisation echoed this view and reported that they did not endorse or recommend a risk minimisation process because many elite athletes do not use dietary supplements, and if they do, they have access to specialised support on this topic:

Many elite level athletes do not use dietary supplements and instead rely on a food-first approach to getting the nutrients they need to fuel their training. Registered sport dietitians can inform athletes about how a properly planned food-based diet can help them as they train and compete (Anonymous 2)

f) Alerts to supplement contamination and or adulteration risks

The survey also sought to identify the processes organisations use to alert athletes and ASP to the latest supplement contamination and adulteration risks. Specifically, this theme captures how the organisations’ source information relating to supplement contamination and or adulteration risks, the method of dissemination, and the intended audience for the alerts.

Overall, 20 NADOs and eight IFs reported alerting individuals to supplement contamination and or adulteration risks. It is important to note, four NADOs referred to disseminating general information about supplement contamination and, therefore, did not identify a specific alert system. Five NADOs and five IFs reported that they did not provide alerts about supplement contamination and or adulteration risks. No reasons were offered by respondents for this approach, although, one organisation reported that if the information was received from WADA, they would “if possible, formally and informally communicate WADA warnings” (Estonian Anti-Doping Agency). Therefore, the source of the information may be relevant to the alert processes used by NADOs. Finally, four IFs did not provide a reason for not alerting individuals to supplement contamination.

Figure 4.5 shows that NADOs reported government organisations as the greatest source of information relating to supplement risks. This is not surprising as supplements may differ from country to country, and certain products may not appear on the international market. While a reliance on government organisations is warranted, NADOs should remain aware that the exclusive dependence on these organisations may hinder their ability to inform individuals of supplement contamination and or adulteration risks.

To elaborate: government organisations are expected to identify substances which are considered illegal across their country and, not, report the presence of doping agents in products. Supplements which contain substances that are included in WADA’s prohibited list may not be identified by government organisations because they are legally available on the market. Thus, NADOs must use a range of methods to gain information relating to contamination and or adulteration. This is illustrated in the following quote:

Mostly we obtain information through [our] own research of products available on the [country] market. One example was [a] supplement containing methylhexanamine, which was freely and legitimately available on our market because it is not prohibited to be sold in [country]. On several markets (e.g. USA), methylhexanamine is prohibited to be in supplements (Anonymous 9)

Five NADOs appeared to alert stakeholders to products available globally. To elaborate, one organisation reported, “we react to both current international and national messages about any risks regarding such matters” (Anonymous 3).

Figure 4.5 also shows that WADA and NADOs were the greatest sources of information for IFs on supplement risks, followed by doping panel decisions which involved inadvertent doping, the media, and partnering laboratories. One organisation reported a lack of information surrounding this topic and, thus, depended on their own research to alert individuals about supplement contamination and or adulteration: “actually, we lack to receive regular information on this topic, we can only rely of what is found on the Internet” (FIVB).

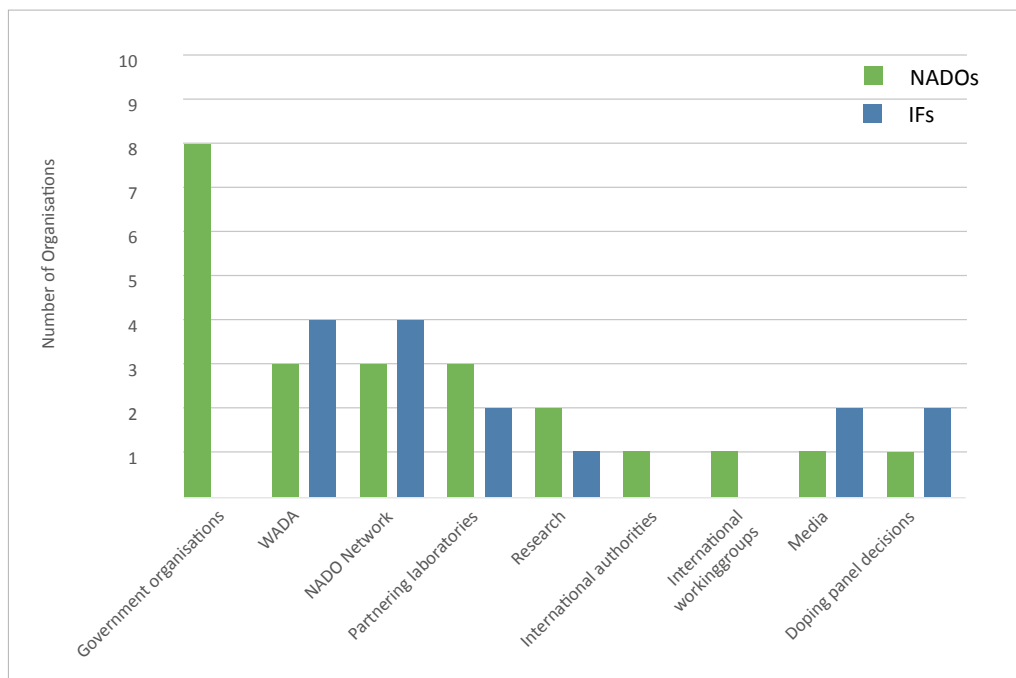


Figure 4.5. The sources NADOs and IFs use to gain information about supplement contamination and or adulteration risks.

NADOs predominantly use their websites to disseminate alerts relating to risks of supplement contamination and or adulteration. In contrast, the information provided by five IFs identified that alerts were predominantly reported via social media platforms (e.g., Twitter) and through newsletters (Figure 4.6). Many NADOs and IFs often use multiple channels to disseminate information to stakeholders. For example, a representative from Sport Ireland reported that they use “advisory notes on [their] website and also Twitter”. Education programs were also highlighted as a way in which NADOs could inform stakeholders of the risks surrounding supplements: “we disseminated the information in our information and awareness programs” (Anonymous 4). It should be noted, however, that this approach may limit the dissemination of information, as it would only be available to those who enrolled or took part in these programs. None of the organisations reported the effectiveness of these methods.

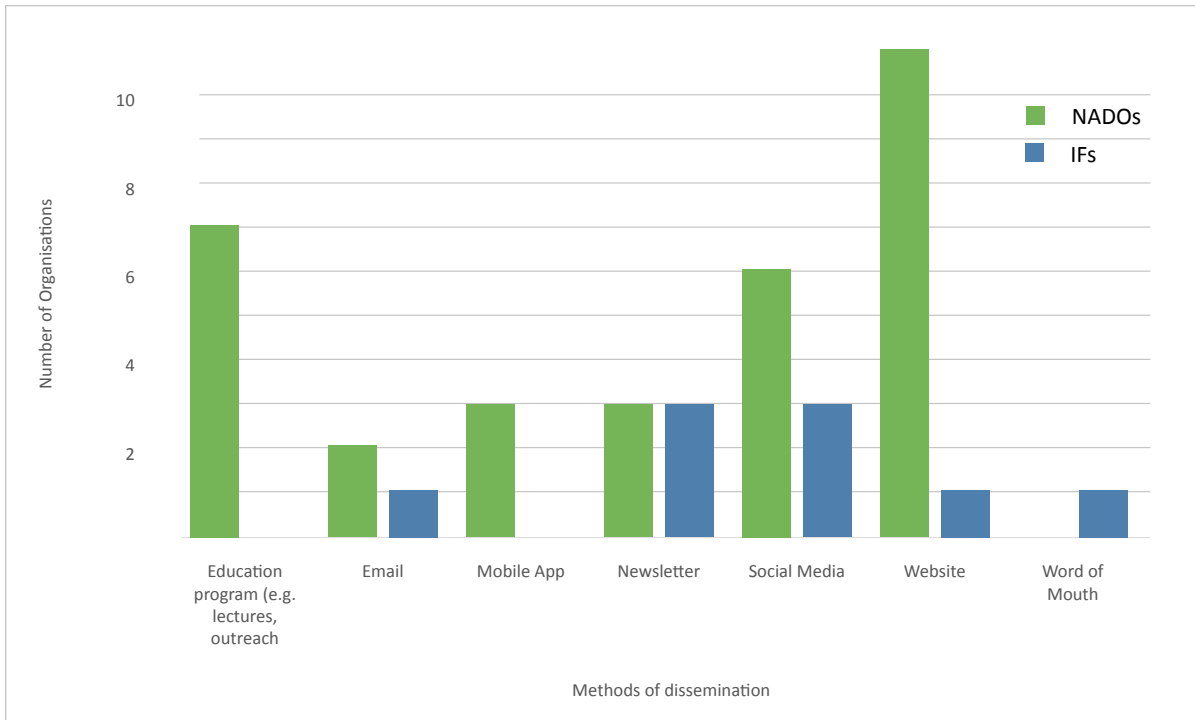


Figure 4.6. The dissemination methods NADOs and IFs use to share information about supplement contamination and or adulteration risks.

Eight NADOs and six IFs reported the intended audience for the alerts they provided around supplement contamination and adulteration (see Figure 4.7). The majority of these organisations (n=9) identified athletes as the intended audience, although three NADOs also identified ASP (who are also subject to sanctions if they violate anti-doping rules, including possession, administration or trafficking of prohibited substances/methods, and complicity such as assisting, encouraging, aiding or abetting) (WADA, 2015). Three IFs reported that they would alert their “member federations [to information and ask them to] distribute the information among its members (athletes, coaches, support personnel, etc)” (Anonymous 1).

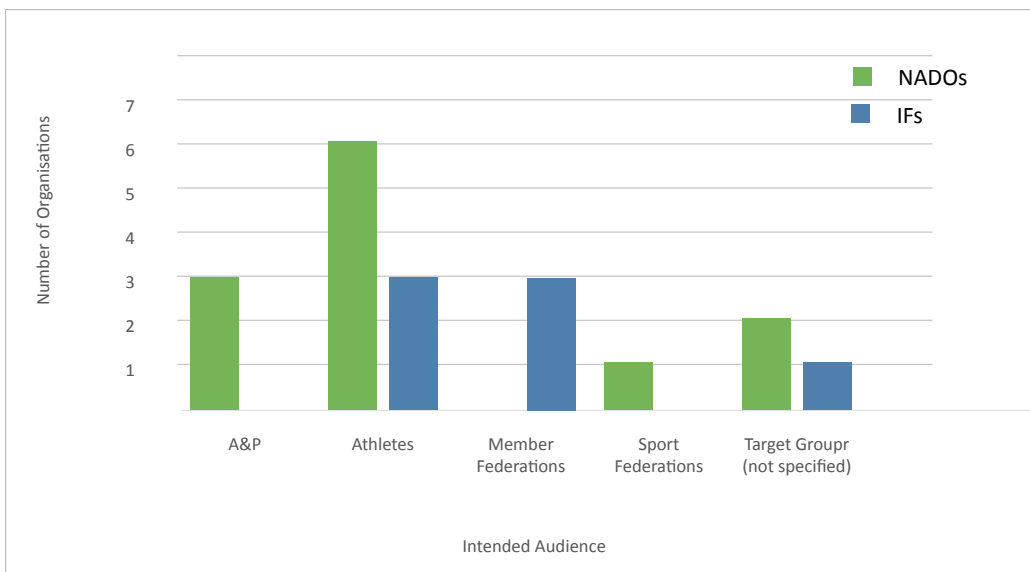


Figure 4.7. The audiences NADOs and IFs intended to receive the alerts about supplement contamination and or adulteration risks.

Thirteen NADOs and seven IFs reported providing information regarding product-specific risks. However, on closer examination of their responses, it appeared that only 13 (8 NADOs and 5 IFs) of these organisations had an organised response system in place to provide alerts surrounding product-specific risks to relevant stakeholders. Two NADOs reported that despite their efforts to provide alerts to stakeholders around product-specific risks, this was at times harnessed due to the involvement of other national agencies: “We may also receive information from the customs, but in that case, we do not make those data public, as these are within the responsibility of police” (Anonymous 2).

Twelve NADOs and six IFs reported that they did not provide any alerts to product-specific risks. Three NADOs cited a lack of resources (e.g., time, people, and information) as the reason for not alerting stakeholders to product-specific risks. For example, “EADA has 2.5 full-time employees and, therefore, no time resources for that” (EADA). Furthermore, two IFs suggested that they do not “endorse any supplements” (International Ice Hockey Federation; IIHF) and, therefore, they also choose to not “warn from [sic] specific products” (IIHF). Two IFs reported that due to the localised nature of the supplement market, NADOs would be better placed to disseminate this information to stakeholders:

Product-specific [information] is always related to a product that is sold in a specific country. As an International Federation, there is no way you are able to gather all the national current knowledge on what is on the market and where the specific risks are (FIS).

We do not have a mechanism whereby we would automatically be informed by an external body. This process would seem to work better as led by NADOs rather than IFs as the NADOs will work closely with national standards organisations and will be able to advise on products specific to that country (World Rugby).

While a number of organisations reported that they did not have an organised response system in place, ADNO suggested “if there are specific products which have been identified as contaminated with prohibited compounds, and which have been linked to more than one doping case (for example Jack3d), [they would] inform athletes and other relevant groups [about] these products”. Moreover, representatives from the National Anti-Doping Agency of Germany reported that they do not publish the name of the product. Instead, NADA Germany would “inform about the area where a finding was made e.g., fat burner, neuro-enhancement.” (NADA Germany).

Figure 4.8 shows that the NADOs and IFs receive information related to product-specific risks from a variety of sources. The supplement market can be localised, and this is reflected in the findings as NADOs reported receiving product specific information from governmental organisations, such as food standard agencies. Nevertheless, in the age of internet purchasing individuals can purchase products from around the world yet, only one organisation reported receiving information from other NADOs about product-specific risks. Four IFs reported the source of product-specific risks and similar to previous findings regarding alerts about supplement contamination and adulteration risks, WADA and NADOs were the greatest sources of information for IFs (Figure 8). It is noteworthy that IFs reported receiving a lack of “information on this topic” (FIVB) and often resorted to “follow[ing] the media more generally” (International Floorball Federation) to attain relevant information related to product-specific risks.

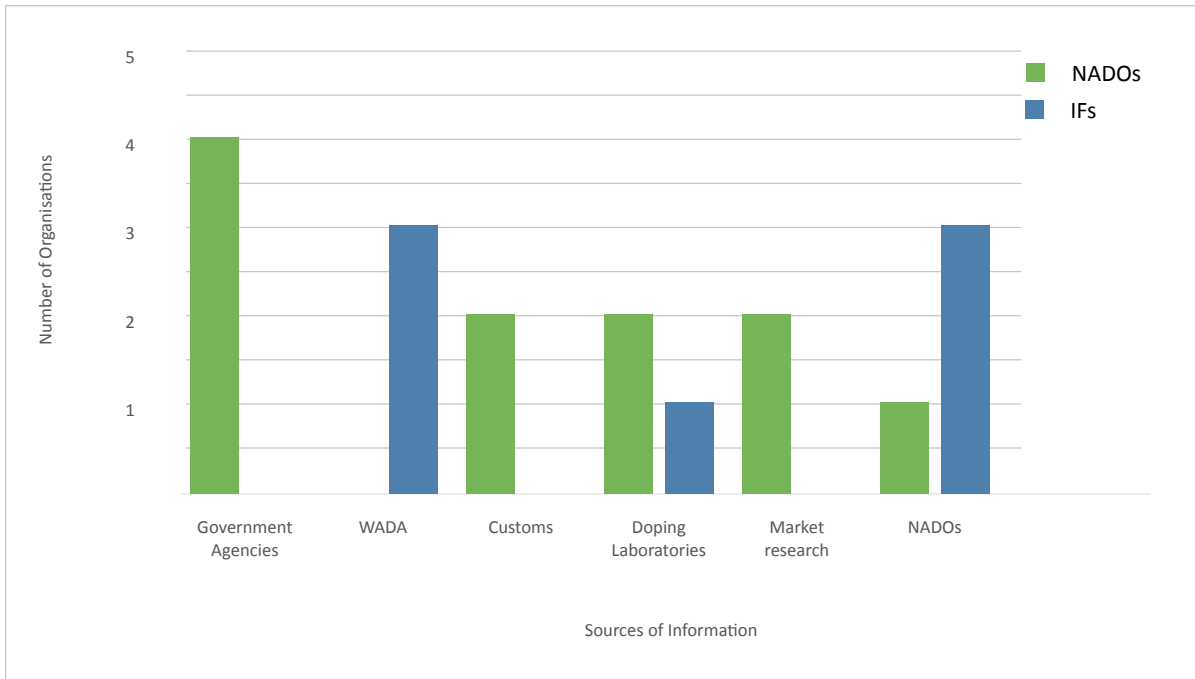


Figure 4.8. The sources NADOs use to gain information about product-specific risks.

In summary, the findings highlight the fact that there is no universal method of disseminating product-specific risks to relevant stakeholders. NADOs and IFs reported using various communication channels to disseminate information relating to product-specific risks (see Figure 4.9). Like risks of contaminants and adulterants, organisations predominately used their websites as a means to disseminate product-specific information. Seven NADOs and two IFs specifically reported using multiple methods to alert stakeholders to product-specific risks. Interestingly, two NADOs identified collaborative communication efforts across their organisation and government organisations (e.g., food standards agencies).

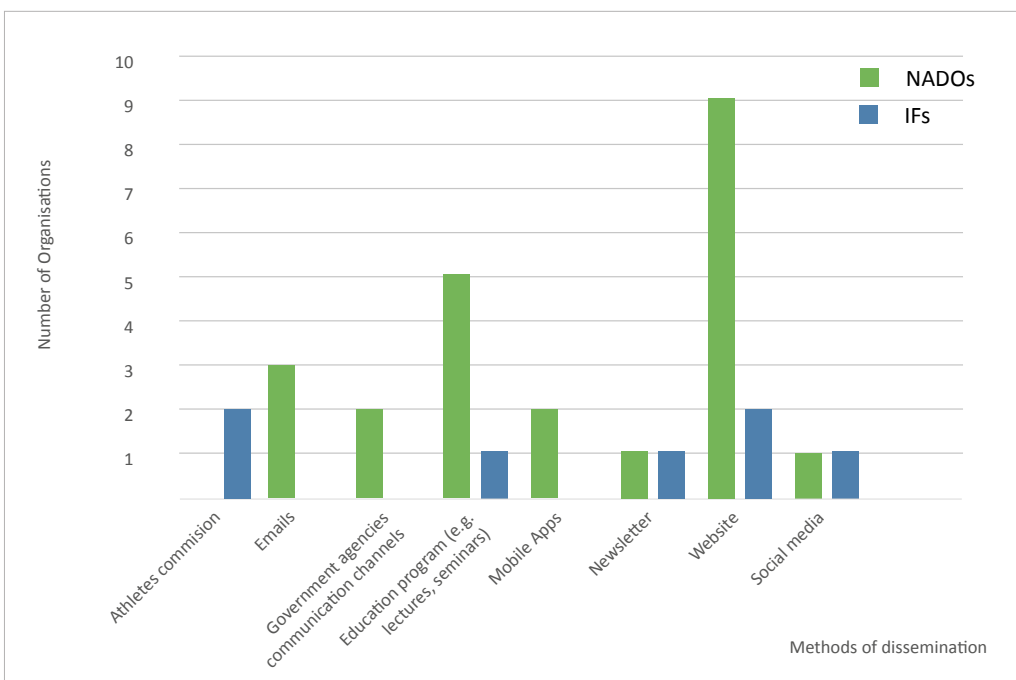


Figure 4.9. The dissemination methods NADOs and IFs use to share information about product-specific risks.

4.6 Current challenges and future opportunities to reduce the risk of inadvertent doping and protect health of the consumer: Findings from stakeholder interviews

4.6.1 Introduction

Although studies have reported on the prevalence of supplement use in competitive and recreational sport (Maughan et al., 2018) and highlighted the risk of contaminated and adulterated food supplements (Martínez-Sanz et al., 2017), there has been little exploration of stakeholders' perspective of their attempts to navigate the supplement risk landscape and actively influence anti-doping policy and practice. By identifying and sharing ideas and opportunities for future policy and practice development in the context of food supplements and inadvertent doping risk, it is hoped that international sports communities will grasp the importance of optimal investment and resource allocation to protect the integrity of sport and the health of food supplement consumers.

4.6.2 Methodology

A purposeful sample of 16 experts in the field of anti-doping and/or supplement risk and regulation were invited to take part in a semi-structured interview to allow a deeper understanding of the context shaping policies and practice. The interviews took place between May – July 2019, lasted between 58 and 105 minutes (totalling over 18 hours of conversation) and were conducted by Prof Susan Backhouse. The sample was recruited through the international networks of the research team. The stakeholders included senior leaders in their respective fields, with up to 40 years' experience, from medical and allied health professional groups (e.g., sports nutritionists, medics); anti-doping organisations (e.g., Heads of Education), athlete committees, academia, standards organisations, trade and regulatory bodies, and industry. The criteria used for the purposive selection of key informants is as follows:

- Representatives from professional associations who are active in trying to shape and influence anti-doping policy and practice;
- Practitioners who are active in anti-doping policies and practice;
- Representatives of non-state and industry sector active in trying to develop understanding of the problem to inform public health and/or anti-doping policies and practice; and
- Representatives from athlete groups who are affected by the supplement risk landscape.

This holistic approach supports the coverage of multiple stakeholders across the European landscape to acquire a greater understanding of the existing doping preventions interventions for food and food supplements aimed at sports people. During this process, particular attention was directed towards determining:

4. How the inadvertent doping risks of food supplements are currently handled (e.g. the advice given to sports people, risk minimisation processes endorsed); and
5. What policy and practice changes, if any, are required to better protect sports people from inadvertent doping?

This phase of the research was approved by the Carnegie School of Sport Research Ethics Committee at Leeds Beckett University. An interview schedule is available in Appendix 2. Participants were given the option to have their organisation specified alongside any quotations included in the report, or to remain anonymous. Given the number of participants that wished to remain anonymous it was decided that all quotes would be anonymised. Interviews were audio recorded, following the participant's informed consent to do so to allow for accurate transcription prior to analysis. The audio recordings were then transcribed verbatim and analysed using collaborative reflexive thematic analysis (TA) (Braun and Clarke, 2019). The purpose of TA is to identify patterns of meaning across a dataset that provide an answer to the research question being addressed. Patterns are identified through a rigorous process of data familiarisation, data coding, and theme development and revision, whereby researcher subjectivity is understood as a resource, rather than a threat to knowledge production (Braun and Clarke, 2019). In the present study, the themes were constructed from codes that unify disparate data and capture the essence of some degree of recurrent meaning across a dataset (Braun and Clarke, 2013). It involved a rigorous coding of the data followed by a recursive process of theme development.

4.6.3 Findings – Consumer Risk

This study contributes to an understanding of current challenges and future opportunities for preventing inadvertent doping and threats to consumer health from food supplement use, as appeared in the data from the 16 key stakeholders interviewed. These participants offered expert perspectives on the growth of the food supplement industry, the major issues facing users of food supplements in sport, good practice in reducing the risk of inadvertent doping from food supplement use and future policy and practice opportunities, based on their professional and community experience. The findings are grounded in the practical realities of delivering policy and practice 'in the real world'. Thematic analysis led us to identify three predominant patterns of talk around consumer risk: 1) complex sociocultural contexts; 2) easy to purchase supplements but there are no guarantees; and 3) a reactive and under-resourced global system with localised legislation (Figure 4.10).

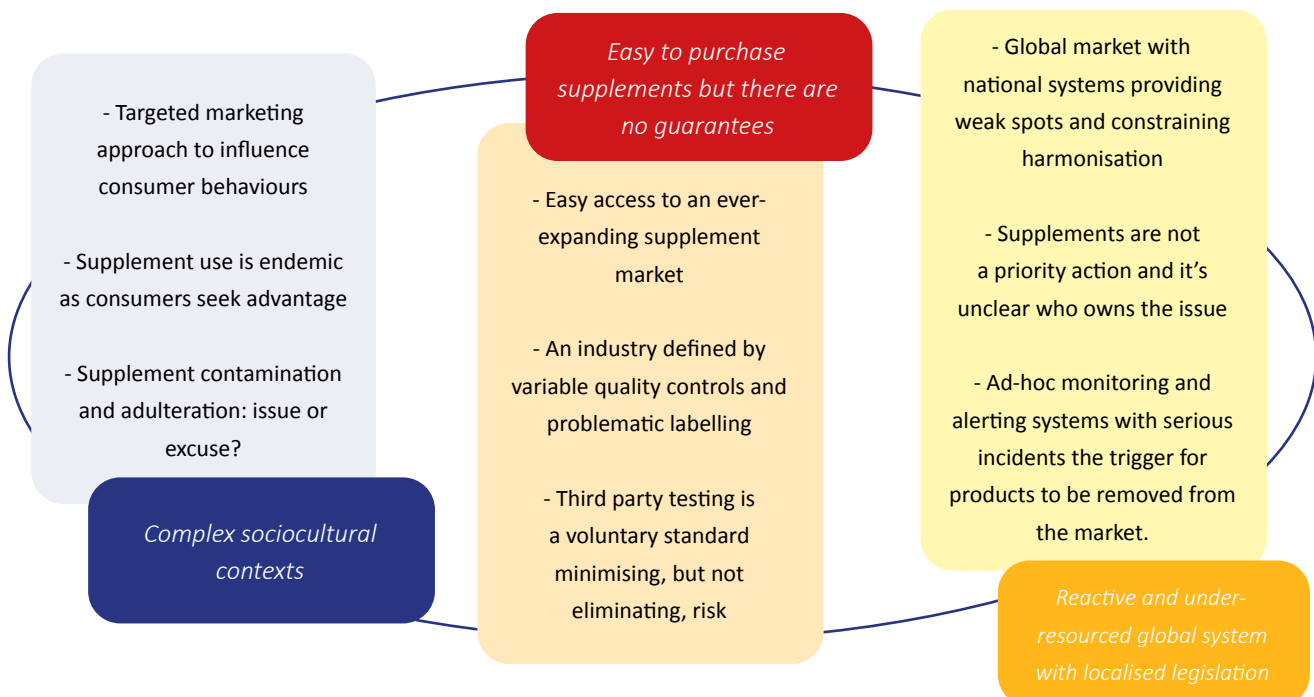


Figure 4.10 Three consumer risk themes, and associated sub-themes, identified from the stakeholder interviews

1) Complex sociocultural contexts

Underpinning this theme are three sub-themes: a) targeted marketing approach to influence consumer behaviours; b) supplement use is endemic as consumers seek advantage; and c) supplement contamination and adulteration: issue or excuse.

a) Aggressive marketing approach to influence consumer purchasing behaviours

An important aspect of the complex sociocultural context that frames food supplement use is an aggressive and resourced marketing approach that influences consumer purchasing behaviours. Participant 7 acknowledged that the “industry has found an interest there that people are interested in, the horses are out of the barn, so they continue to push, push, push more products out there”. They go on to say:

an uneducated consumer is really at risk of falling prey to consuming things that maybe they don't need, that they feel like they do need. And there's a really aggressive marketing campaign going on out there with some of the brands because they know that they can influence consumers that really maybe do not know better (Participant 7).

Marketing was also identified as a ‘big thing’ by Participant 8, when they shared:

I think companies are getting really good at targeting certain sub-sets of individuals and providing to-go snacks and those sorts of things that can fit into a day-to-day lifestyle. So, convenient snacking, on-the-go snacking, that's definitely an area that's evolved quite extensively and still growing (Participant 8).

Targeting performance improvements was also acknowledged. The experts were united in their belief that consumers are driven to improve their performance. Drawing from experience, Participant 10 asserted “forget everything anyone else might tell you in professional sport, it's about winning and if you don't win, you get sacked”. Connecting performance with food supplement consumption and marginal gains, Participant 10 pointed to minute margins at the elite end as “the difference between winning and losing” and went on to post:

maybe there are situations where the evidence isn't up to speed with what we know in applied practice. And because of that, I think athletes are willing to take some risks, and when I say 'risks', I don't mean risks in terms of a false drugs test, I mean a risk in, it [the supplement] may work, it may not (Participant 10).

The belief that supplements will bring about the positive effects claimed on the label was highlighted by Participant 11: “when you can claim that for example that caffeine is increasing your performance. The consumer is waiting for that; he has an expectation of an effect, so an effect on the performance”. This expectation can pose a threat to the health and wellbeing of the consumer seeking an immediate stimulant effect. This ‘seeking substances that work’ view is reflected in the discussion on DMAA entering the market:

So, we haven't seen anything as significant as DMAA in the past. Yes, there are substances coming up all the time because, yes, it's something that we have to accept in our industry. That there is part of our consumers who are seeking substances that work, that have performance effect, or maybe even to give you the strong feeling, but they work. In that sense, yes, the aim was accepted in the sense, but it gave you an immediate stimulant effect as I was told (Participant 2).

Respondents agreed that there is a desire to use active supplements that do something and that bring about bodily sensations to show that the product is working. Participant 1 concludes that “probably most of the

customers would like to do something legal'. This idea, of a permissible alternative to prohibited substances in sport, is worth acknowledging. Participant 3 thinks that "we've acculturated to the idea that you can ... like cultural expectations or whatever that, a) it's not cheating to take a pill as long as it doesn't include an item listed as a banned substance". Reflecting further on the consumer motives for supplement use, Participant 7 concludes:

So, all of those things, I think, really are playing into a growth to dietary supplements, there's also everyone's looking for alternative ways to deal with maybe stress, recovery, lack of sleep, those sorts of things. They're looking for solutions that aren't drugs and so because of the cost of drugs, because of the negative, I guess, perception of drugs in some areas, there is a need at the consumer level that they want what they believe is natural solutions or better alternatives to drugs, I believe it's really driving a lot of these acceptance to dietary supplements (Participant 7).

Finally, the stakeholders acknowledged that not all brands are the same and the potential to make money from supplement sales exacerbates consumer risk:

b) Supplement use is endemic as sportspeople seek advantage

This theme captures patterns of shared meaning around experts' perceptions of the social opportunity and motivations driving supplement use behaviour in sport and recreational contexts. The accounts point to socially embedded practice whereby social norms and social influence drive the supplement use behaviours of individuals. Participant 14 illustrates:

...athletes don't just decide one day, completely independently and in isolation that they need to take a certain type of supplement to improve, they're brought along in a certain way, they see their peers taking stuff because it's so prominent, their coaches are saying that you have to take this to do it, so I think that proliferation is just endemic. if it's within the environment then it's natural that the athlete would look to take it as well (Participant 14).

Supplement use being normalised was also observed by Participant 9 who said,

"Supplements are a normal part of everybody's lives" and they connect normalisation to athletic identity, when saying "we realised this is a normal part of their lives. A normal part of their abnormal lives as an elite athlete" (Participant 9). It was said that observing prominent use of supplements amongst peers also drives a "fear of missing out, so FOMO is one of those things, 'my competitors are taking supplements, so I'd better take supplements'" (Participant 8). Yet, Participant 10 shares the view that "there are still too many people in this industry that just want to come from a perspective that all supplements are cheating"

and this could potentially stigmatise support seeking from qualified professionals when it comes to supplement use in sport. Instead, sportspeople appear heavily influenced by their peers and support personnel (who may not be qualified to provide sound nutritional advice and guidance).

It is important that society at large are capable of making risk minimised decisions when it comes to supplement use. This is not always the case though, as Participant 8 cautions that "taking, I suppose, information from friends and peers saying,

"This is okay," and we've seen incidences in the past where someone has recommended a product and, unfortunately, it's led to an inadvertent doping case as well".

Later in the interview, Participant 8 also spoke of the recommendations of friends when discussing the most devastating consequence of such influence:

“Claire Squires died during the London 2012 marathon after using a product called Jack3d on recommendation from friends. So exhausted but then took a stimulant-based product that obviously pushed her over the edge, which is really unfortunate”.

Reflecting back on their athletic career, Participant 12 spoke of the trust they had for their coach and assumed that he would do his due diligence before recommending a product:

We certainly did trust our coach and I think I assumed and believed that he would be as careful as I would be in terms of a positive test because it would reflect poorly on the whole team and him obviously as the Head Coach. So, I just assumed that nobody wanted to see any inadvertent positives coming out of supplement use, so I trusted that he had done his due diligence (Participant 12)

The importance of permitted alternatives to doping was raised by a number of participants, including Participant 1, who acknowledged that from the customer side

“there’s a desire to use active supplements, some supplements that really do some something. And I think probably most of the customers would like to do something legal”.

Consequently, numerous drivers for supplement use were acknowledged in the participant accounts, including performance goals, sport demands, supplements giving consumers a buzz, and body aesthetics. Participant 12 recognised that

“think there’s probably a number of different drivers behind it but it seems to me that performance and body image are big ones behind it. I know that the supplement industry is widely marketed and distributed to recreational athletes in gyms, for example, so I do think its body image and its performance”.

Moreover, for an elite athlete

“sport drives us to look for the edge and sometimes some of it is dietary supplements can give us the edge, so we’ve got to stop thinking about them being as cheating, because we know they’re not, but perfectly allowed (Participant 10).”

Participant 12 drew on their experience of participating in an

“extraordinarily physically demanding”

sport and consequently,

“there were all kinds of efforts being made to try to find an edge through supplements. I remember that it was a constant, someone always had their ear to the ground on what the latest supplement was”.

In keeping an ear to the ground on the latest innovations, Participant 10 cautions:

“I think the desire to be ahead of the curve is always going to be a challenge because if something is ahead of the curve, by its very nature, it’s unlikely to have been tested. I’ve said CBD a couple of times, but that’s another example of that where up until recently there wasn’t a tested CBD oil. But a lot of athletes wanted to use it anyway even though it wasn’t tested because they wanted to be ahead of the curve (Participant 10).”

c) Supplement contamination and adulteration: Issue or excuse?

This theme captures patterns of shared meaning as participants’ accounts cluster around the concept of uncertainty regarding whether or not contaminated and adulterated supplements are a significant issue or the scapegoat for failed drugs tests. Presently, we do not have a clear evidence-based understanding of the actual threat of inadvertent doping from supplement contamination and adulteration as Participant 1 acknowledges:

Well, what are the current levels? I don’t know. There’s no reliable statistic, at least not with me. I see what I see. It’s like, you’re at the seaside and you have this little net and you take a scoop, and whatever is in the net, you’ve got in the net and what’s out in the sea? You don’t know (Participant 1).

Stakeholders acknowledged that

“it’s really difficult to assess whether it’s intentional, or lack of awareness, or where exactly this balance lies”.

However, Participant 10 stresses that supplements are the easiest thing to blame:

So, you fail a drugs test and you’re like, “I’m going to pick up a ban, my reputation has gone, and it was that nasty supplement.” Really? And because of that, we believe them as an industry, and we’ve used that to say most of the drugs tests have come from supplements without ever really proving it. We just say, yes, okay, it might have been (Participant 10).

Participant 10 goes on to say that they believe the issue of inadvertent doping through supplement use has been blown out of proportion, but qualifies “Please don’t get me wrong, I do think there’s a risk there, I’m not convinced the risk is as big as what we’ve been telling everybody” and then acknowledges that “it’s easy to risk minimise”. With risk minimisation in mind, global anti-doping policy, through its concept of strict liability, emphasises that the burden of responsibility lies with the athlete taking part in competitive sport to prove that there was no fault or negligence when it comes to supplement use (WADA, 2015). The expectation is that athletes prove that they minimised the risk of consuming a prohibited substance through third party testing of their products. Participant 10 reflects on how this has changed the context within which they practice:

Now, we’ve actually the likes of Informed Sport and everything like that now, we can prove it because we’ve got them all on file and actually, we’ve not seen it, so I think there we need a more honest conversation about our realisation. And actually, it probably is a very small issue, but that doesn’t mean we don’t take it seriously, but we’re just being a bit more honest with the athletes, so we’ve stopped being a boy who cried wolf (Participant 10).

2) Easy to purchase supplements, but there are no guarantees

This theme was identified from the accounts generating meaning in relation to a) easy access to an ever-expanding supplement market; b) an industry defined by variable quality controls and problematic labelling; and c) third party testing is a voluntary standard minimising, but not eliminating, risk

a) Easy access to an ever-expanding supplement market

A gateway to inadvertent doping and consumer risk is “the Internet and the global reach” (Participant 3) because “people can very easily sell products because of the Internet now... the Internet has completely changed the sales and the Internet has completely changed that game where people can make it in their house and sell it online and have sales “ (Participant 7). Participant 13 extends this perspective further when discussing the safety issues of the industry and the ease of access through the internet:

...there is such a wide access to food supplements in the market. If you look into how food supplements are being marketed traditionally, they are being marketed in many countries in pharmacies, they are being marketed in many countries in specific health shops, and some are marketed in retail, the more common retail centres. But all these outlets, all these retail channels are quite controlled and the companies selling them are very well identified, they notify the product. So, there is a quite good insight into the supply chain that leads to the consumer and that is completely absent when you go to sales over the internet. Because you do not have that same level of expertise, you do not have that same level of knowledge; many products are not even notified because they are just out there on the web. A lot of these sites that are not necessarily trustworthy are not even in Europe but you can order as European consumers, you can order products and I'm not saying that all these products are dangerous or fraudulent or adulterated, that's certainly not the case, but they are maybe also not really in compliance with the strict rules that we have in Europe for domestic production. That is, I think for the consumer quite an important aspect because consumers do not really distinguish between sources of sales that they can trust and sources of sales that they probably should avoid (Participant 13).

Although the internet provides ready access to supplements, distribution to stores still exists and Participant 3 acknowledges that in addition to the internet, the physical opportunity to purchase in the petrol stations and local stores further nudges us towards supplement use behaviour:

But even these shady products, the most blatantly problematic products, they're often sold in stores. It's not that these store owners are, themselves, like they own a little shop in downtown XXX and they decide 'oh, I'll get on the Internet' and then purchase some weight loss or smart pills. No. It's that they have these international firms that are making these really shady supplements that are straight ahead adulterated with drugs or multiple drugs, will often have a business model where they're shipping in very large shipments to individuals in the United States but then go with a truck from store to store, to little stores and little gas stations around the United States and say, "What would you like? (Participant 3)

The take-home message from the interviewees was that “if you buy this over the internet from platforms that are outside Europe then you're asking for problems” (Participant 13). Yet it was also acknowledged that in the case of good practice producers there “might be instances where their reliable company suddenly has had a problem, but it's very rare. Most companies test all the time” (Participant 2). Participant 2 went on to underscore the existence of geo-risk depending on product manufacturing location and cautioned against the use of multiple products because “when you start buying products from anywhere, and take multiple products, that's when a problem may happen. That's my experience. There are athletes that have problems

having that position. Taking many products from very different sources”.

b) An industry defined by variable quality controls and problematic labelling

The source of the supplement is a key concern for the interviewees because a lack of awareness of risk of contamination and adulteration was not only levelled at the athlete consumers, it was also identified amongst producers who outsource manufacture:

not all the producers completely realise what risks they are running...they put a lot of energy in their products and they have it produced somewhere else. They don't always realise what the risks are of packaging or making tablets or storage of the products (Participant 9)

And a principal concern was raised about the absence of quality testing in the market:

People are bringing products to the market, nobody's doing any quality testing, as far as we know, or no independent institute anyway. They put in a chemical or chemically synthesize ingredients, APIs¹³, which are not tested for safety, nor have their impurities been tested for safety or for even for the presence. That's where my principal concern lies (Participant 9).

Consumer expectations regarding the quality and efficacy of the products purchased from the market was vividly described, and contrasted with other industries, by Participant 6:

I sometimes, you know, challenge athletes and any consumer, why do we have different expectations about the supplement industry to any other industry that we work with. If I buy a toaster I expect that it will toast bread and it won't electrocute me in the process and yet the way that most governance is set up in most countries and regulations around supplement use is it really falls back on the Government to prove something is a problem rather than the industry to get into the point where it's not. So, I just don't understand why we don't have that same level of expectation around supplements and if you could turn this into just a consumer protection thing where people are just amazed that an industry would be so bold as to not have their act together before they put something to market then that would be a really good improvement I think (Participant 6).

In addition to issues of quality testing in the market, supplement labelling was also a source of concern. Labels can be misleading for the consumer and this poses a threat to their health, as well an inadvertent doping risk to competitive athlete subject to highly sensitive doping controls:

Well, at the same time, how reliable are labels, we don't know. We come across really big brands of supplements, not even doping related, but I recall a really huge manufacturer. We had three samples to sample. First, we had two samples, one was a product for a healthy prostate and the other for cardiovascular issues. We ran an analysis and analysis was identical, you know, and, and the ingredient listings were totally different. And this was a manufacturer that in particular that year, they went over 100 million euros sales a year. And because of this, we asked the inspectorate can you give us another sample? And then we got the second sample from I think the cardiovascular products, and totally different analysis this time around, and the label was unchanged. So, whatever is going on, we don't know. And nobody's really checking. Is it a problem? Well, if it does harm, yeah, it's a problem. But we don't know if it does cause harm (Participant 1)

13 Active pharmaceutical ingredient

In addition to ingredient listings on supplements not representing the contents of the product, the use of unrecognisable synonyms was also seen as an issue:

the labels are so misleading, it could include a banned substance but with a synonym that would be unrecognisable to a non-chemist. It could include a codeword for the banned substance that no one would know unless there was research done on it and then there's straight ahead adulteration (Participant 3)

Specifically, Oxilofrine was used as an example to illustrate the threat of synonyms (ie alternative names) on supplement labels:

An accurate chemical synonym for oxilofrine is methylsynephrine and since synephrine is a legal supplement ingredient, I guess the company just thought that the FDA and no one else would really notice if they just literally wrote on the label, 'this contains methylsynephrine'. No one would actually ... you would have to be a chemist to know that that's a totally different compound that's actually not found in nature, but instead it's a pharmaceutical drug. So, that's another way that labels can be deceptive because they actually use an accurate synonym, but one consumers cannot understand (Participant 8).

In dealing with synonym threats, Participant 8 recalled that in 2010 the use of problematic synonyms connected with the prohibited amphetamine derivative, methylhexanamine, and the poor industry practices that were identified at the time:

it was thought to be naturally occurring. So, from geranium, geranium extract, geranium oil, but in actual fact, it's a synthetic compound and what we were seeing is some companies either putting geranium in and then on the back of that, including methylhexanamine in the formulation. Of course, individuals were not aware of the fact that that would have been present within the products (Participant 8).

Poor industry practices and working within the grey area of the law was also raised by Participant 3. In particular, chemical tweaking in order to generate repeat business:

They can just sell stuff to athletes that is going to have no or almost no effects, but the athletes might notice that after a few weeks or months that nothing is improving. So you can see how tempting it is to start to either place ingredient into the supplement in the grey area of the law, "Well, I just tweaked this chemical, so maybe it's pretty much like a banned drug, but it's different so therefore it should be okay". So, part of it is an effort to get customers to return to your product in a hope that whatever the adulterant or this new experimental compound the company is putting into the supplement might actually improve the athlete's workouts or improve their performance and then they'll swear by a firm's product (Participant 3).

Indeed, labels also posed a potential risk because they can provide the illusion of safety and efficacy, as Participant 3 concedes "here is what appears to be safe, these are on sale in the store shelves without a prescription and effective, because it's labelled as such, a pill to do something. So, why not give it a try and use it?" Participant 3 goes on to discuss the issue of legitimacy claims and the challenges of a growing supplement market where consumer loyalty to brands is seemingly key:

The problem is amplified because, for the most part, all the legal or legitimate ingredients either have no effect on improving performance or a very modest effect on improving performance. So, what you're allowed to say on the label is completely out of proportion to what a legitimate supplement can deliver, so the firms have a number of problems: They can just sell stuff to

athletes that is going to have no or almost no effects, but the athletes might notice that after a few weeks or months that nothing is improving. So you can see how tempting it is to start to either place an ingredient into the supplement in the grey area of the law... part of it is an effort to get customers to return to your product in a hope that whatever the adulterant or this new experimental compound the company is putting into the supplement might actually improve the athlete's workouts or improve their performance and then they'll swear by a firm's product (Participant 3)

The issue of product claims was raised by Participant 13, saying that “we do know now that the claims legislation is not fit for purpose and has led to problems for food supplements that are now being assessed by the commission”. Specifically, “the process to authorise a claim is very long and difficult, it is creating uncertainty, and it is creating an interpretation across countries and authorities. This is really detrimental for the sector” (Participant 13) and “the Commission couldn't know that in 2007” (Participant 13).

Participant 13 continues to suggest that the repeal of the PARNUTs Directive (replaced by the Food for Specific Groups Regulation) and the categorisation of sports food within general food legislation (considered as ‘general foods’) raises concerns for sportspeople and general consumers:

We used to have for instance a claim possible for sodium; and you know how sodium is important for sports persons because when they practice an intense physical activity, they will dehydrate; there is a higher risk of dehydration for a sports person. Then, you need to avoid this dehydration; to have intakes of sodium to limit the dehydration. So, the sports food electrolyte drink solution or some sports food; they contain sodium. They contain a higher content of sodium than these general foods. Why? Because it is important that sports person is consuming them in order to avoid dehydration. But in parallel sport food is not good for normal consumers. Because normal consumers when they don't practice intense physical activity, they should limit their consumption of sodium. So currently, we are not able anymore to use this kind of claims on sodium, for instance. Sodium is one example, but there are many others. As a result, “having no specific legislation for the sports food category is currently an issue, and in the study on sports food previously mentioned (external consultant/ European Commission in 2016) these issues were identified¹⁴”.

c) Third party testing is a voluntary standard minimising, but not eliminating, risk

To address issues of quality control and to assist in customer protection, the issue of independent testing of supplement products was discussed and it was acknowledged that the use of third-party certification systems was at the present time initiated by the “goodwill in producers” (Participant 9) who have to pay for the service. Participant 8 offered that third-party testing is a “voluntary standard ... so it's up to the brands to approach them and input them into their products or processes. So again, it can be quite costly but typically if a brand wants to show that there's a level of trust and credibility, they will go above and beyond that to provide products associated with it” (Participant 8). On the matter of supplement companies providing third party testing as a minimum standard, Participant 6 said “I've spoken with different supplement companies that say we'd love to do more batch testing and we'd love to make it generally available but this is how our business model works”. Thus, resourcing and the profit-drivers of the industry acts as a potential barrier to industry-wide implementation of independent product testing.

Furthermore, the lack of guarantee even with third-party testing services was repeatedly acknowledged. Participant 9 goes on to say “in theory it should be possible to have a 0% of adulterated or contaminated

14 https://ec.europa.eu/food/sites/food/files/safety/docs/fs_labelling-nutrition_special_study.pdf

supplements. But in practice that's simply impossible. And that has been proven by our own system where the companies decide themselves to submit their products to doping control and every year, we find some of those traces". Athletes were central in the discussion on 'no guarantees' and this is critical given the concept of strict liability underpinning global anti-doping rules and regulations. Participant 12 made the following observation:

the number one comment and the number one discussion we have with athletes is why can't there be a product out there that's guaranteed and that's going to be risk free, and that is certified or somehow contains some kind of guarantee that if they take this supplement they will not run the risk of having an inadvertent positive (Participant 12)

Athletes have also been warned that they might not be able to trust the third-party certification logos either, Participant 7 concedes that "whenever there's value of something, so a value of a mark or something that represents value, there are going to be companies that will try to get that without actually going through the actual certification process or the investment of verifying that quality". Given there are no guarantees, the for-profit nature of the third-party testing organisations was called into question, along with the sales advantage that comes from being able to promote a brand, product and/or batch is third-party certified:

it's definitely now seen as a selling point that you can say, 'I'm fully Informed-Sport'. I know a couple of people who I've advised them where I've said, "Look, the best thing you can do at the moment is to put everything through third-party testing." And I've been candid with them, I've said it, "That's massive advertising for athletes, but if everything you sell is tested, then you're doing everything you can to protect the athlete." And where I do feel a bit sorry...there are some companies who believe that what they're doing is above and beyond what Informed-Sport do but as an industry we've kind of said no, you must use Informed-Sport. So, we are forcing people to use a company that is a for-profit company based on their for-profit company's own research. Now you need to be a little bit careful on that because some companies are coming back to me, saying, "Actually, what we do is above and beyond Informed-Sport, we have all our raw ingredients tested, we don't have anything that comes into the factory, no contamination can happen, X, Y and Z, and we do our own in-house testing at the end to make sure everything is fine. And we can prove all this with a certificate, so why do I now need to spend what would cost me £250,000 a year, if not more, to send all my stuff to this company to get their certificate when they don't test for as many things as we do?" It's a hard argument to turn around and say, "Because that's what a few of us have decided is right." So, we've got to be a little bit careful there and that's where we've got to be a bit careful in position statements that we don't overplay a particular brand by saying everything must be Informed-Sport tested. Because there are at least now three comparable companies out there and, actually, if a company has a certificate for every raw ingredient, if they've got their own in-house laboratory, and they test more things than Informed Sport do and put that within their product, is there a problem with that? And they're willing to take liability of what's in it is what they say is in it? I don't know, I think we've got to, as an industry, have a little bit of a think about what we're asking people to do and making sure the advice we're giving is correct and it's not just driven from those companies themselves who've made the rules of the game up (Participant 10).

Participant 10 also raised the issue of supplement sponsorship within elite sport and the impact of product endorsement and placement on the behaviour of young athletes and the general public when they said that "some companies will independently batch-test for the elite team that they're working with and then 'Joe public' or the youngsters within the team risk buying non-tested products from the shelf". They also acknowledge the negative monetary behavioural reinforces of supplement sponsorship as "athletes often

aren't given a choice in it; they'll be pushed a shaker in their hand to stand in front of a camera and tell the camera why it's been instrumental in your training. And often they might not even know what's in their hand, so it's a tough one because the amount of money that comes in now can be the difference between people in that organisation keeping their job or not" (Participant 10).

Drawing upon their experience in an elite youth sport setting, Participant 10 further illuminates the complex interaction of team sponsorship with internet access and privileged elite sport testing protocols that are not openly publicised:

An academy player was walking around the training ground having a supplement from our team sponsor, but I know the academy didn't give it to the academy. So, when asked 'where is that from?', the answer was 'off the Internet'. Now that means they've bought a non-tested supplement, but they've bought it because they've used the same brand the first team are using. But they don't know that the first team are getting it from a quarantined stock of tested and, again, I don't agree with that approach of where the Joe public get different to the elite athletes. If the supplement company they need to test it for an elite player, then why aren't we testing it for everyone? (Participant 10)

3) A reactive and under-resourced global system with localised legislation

This theme draws out the significance of the lack of accountability and resource availability in the system, which creates a barrier to addressing poor manufacturing practice and raising awareness of the risks involved in supplement consumption across a global landscape that remains bounded by local legislation. Adding to this is the lack of ownership of the problem constrains advocacy and advances in policy and practice. Therefore, this theme was identified from the accounts generating meaning in relation to a) global market with national systems providing weak spots and constraining harmonisation; b) supplements are not a priority EU action and it's unclear who owns the issue; and c) ad-hoc monitoring and alerting systems with serious incidents the trigger for products to be removed from the market.

a) Global market with national systems providing weak spots and constraining harmonisation

Participant 13 provided a helpful insight into the evolution of legislation pertaining to food supplements, concluding limited progress has been made, particular in relation to harmonisation across Europe:

Well, the food supplement legislation dating back from 2002 was actually key legislation, harmonising food supplements at European level under the food umbrella. So, that means before that food supplements were regulated at national level either as food stuff, either as medicinal products, either as a category in between somewhere with a specific name and in 2002 the European Union harmonised these products under the food umbrella. This immediately means that all aspects of EU food law apply and that means that much of the safety of food supplement is governed by that specific horizontal food legislation. They are covered by the general food law, regulating traceability and notification in cases of adverse events, the contaminants are regulated under the contaminant legislation, you have additive use regulated under the additive legislation, labelling is regulated, novel food supply, hygiene rules apply, so all that body of EU legislation applies and in addition there are specific labelling requirements that apply to food supplements. For instance, that a consumer should not exceed the daily recommended amount that they should take, that the food supplement should not be seen as a substitute for a normal varied diet and so on this applies. Then there are a number of elements where also the commission has tried to harmonise the composition so we have a harmonised list of nutritional substances that can be used and the forms of these substances. But that's where it stops, so more detailed compositional

data requirements on for instance how many, how much vitamins and minerals can be contained of or what kind of other substances can be used is still national level. Some member states have quite extensive legislation in that area, other member states have virtually no legislation. The requirements differ substantially between member states to that extent that it is probably not possible to try and harmonise that at European level. We would want this to be harmonised obviously for the internal market and for consumer protection but it's a long way and not much progress has been made since 2002 in that respect.

Differences across national borders are not centrally documented for easy access and on this point Participant 13 said “No, they are not, they are of course documented in national legislation but you have to know for each country what national legislations applied, how it is applied because there is always a difference between how legislation is on paper and how it is applied”.

National markets also arose in the discussions with Participant 13, who perhaps alluded to the root cause of some of the barriers to harmonisation and their potential impacts:

“...everybody thinks its system is the best and which is also understandable because the whole domestic market is built around the national system. So, if you change that you affect your national market and you disturb the national market which may affect your local producers positively but also negatively”. Therefore, although Europe was deemed to be a less risky place from which to purchase supplements, it is not without its critics when it comes to harmonised legislation. Participant 5 cautioned that in the “absence of a harmonised EU approach, Member States developed their own legislations. This is detrimental to consumers across Europe, as they are no longer benefitting from the same level of protection across Europe”.

Affording higher levels of protection was seen to be hindered by perceived ‘weak spots’ in the European Union as Participant 1 emphasised that “we only know what comes in from outside of the EU. If it’s already in, it’s same with the medicines. I mean, most of it is already in because they find a weak spot somewhere in the European Union, and in comes one huge container. And in the medicines, they do a lot of drop shipping”. Illustrating the concept of drop shipping, Participant 1 went on to explain:

You will purchase a product. And it will be delivered to your door in two or three days. And you will say oh, that’s really, really fast from China. But it’s already there. It’s already in the country. And it’s just you ordering something in China, the person in China sending this email to the warehouse owner, this package with that barcode, you go to that address, that’s drop shipping, and then that’s a big, big thing. So, it’s not only for doping, but also on the illegitimate side, it’s a big thing. And just because of the sheer volume of these products, it’s impossible for customers to check everything. You know, it’s just sort of collateral damage (Participant 1).

Participant 2 reiterated the risk when purchasing from sites selling products manufactured outside Europe: “I think from what I’ve seen, the problems are for companies from outside Europe using substances deliberately”. They go on to say that

“you’re interested in appreciable risk, and there is no appreciable risk for consumers really in products that are manufactured in Europe mostly I would say, and from mainstream companies”.

Participant 4 also pointed to risk manifesting beyond Europe

“You can buy them from places outside of Europe that potentially can have, like not the same rules on the food supplement safety and so on and you don’t necessarily know what you’re buying”.

It was also noted that

“more and more sports food are imported from third countries – through internet sales - and are not complying to the EU food legislation” (Participant 5)

and

“alerts related to the presence of doping substances in sports food are mostly coming from imported products” (Participant 5).

Indeed, a notable challenge identified by one of the interviewees was that

“it’s quite difficult for enforcement authorities to really target these internet sales” (Participant 13).

Recognising the powerful markets outside Europe, Participant 14 highlighted that

“it’s a global industry, regulating across all those different legal frameworks would be difficult at a global level (Participant 14)

and therefore we arguably need a more pragmatic approach that responds to the inherent complexity of the food supplement industry and marketplace. Beyond the EU but relevant to EU citizens purchasing supplements via the US, Participant 3 also stressed that it’s not

“realistic to have a regulatory framework where it takes ten years to ban dangerous substances using so many resources to remove just one ingredient from these supplements. That’s completely a non-functioning system, but that’s pretty much what we seem to have here in the US”.

The political context across Europe and in the US featured in discussions. Participant 8 identified,

“I think there are going to be some significant changes within the nutrition industry at the time of Brexit”.

Across the US it was noted that there is currently limited attention being afforded to food supplements by the media. Thus, the political context can further exacerbate risk to consumers, given the global supplement market, as the media are often a source of information:

For two and a half years I would say there’s a massive focus on politics that we haven’t seen in many years, so prior to two and a half years ago, there was a lot of mainstream media interest. Now, over the last two and a half years, much less, given the turmoil, so we’ll see what happens (Participant 3)

b) Supplements are not a priority action and it’s unclear who owns the issue

Fundamentally, a shift in the EU over the last 10 years from legislation to regulation was deemed to be important in relation to the matter of supplement risk:

Politically speaking, also, there was a shift over the last 10 years in designing of EU legislation. And now there is a strong policy strategy of the European Commission, which is better regulation; This better regulation strategy aims at doing less legislation at European level. Taking this into account, the European Commission intends to only finalise legislation when this is strictly necessary and on ‘big policy choices’. And basically, what they said is that we need to focus on the

big things, and we need to do less or nothing on the small things. The PARNUTs directive repeal appeared exactly as this moment, started in 2012 / 2013. The European Commission was already preparing the strategy for better regulation and therefore, sports nutrition has not been seen as a 'priority subject' for future EU regulation. Similar cases can be observed in the food area, for instance, with the country of origin of the ingredients, or front-of pack nutrition labelling. In the absence of a harmonised EU approach, Member States developed their own legislations. This is detrimental to consumers across Europe, as they are no longer benefitting from the same level of protection across Europe. This is also very challenging for the food industry, having to face different legislations in the different Member States.

Across the accounts, the question of 'who owns the problem'? was also posed. One interviewee shared the following thought: "EMA⁴⁵ has decided, no, we're only about the legal side of things. So, who's about the illegal side of things, or about the grey areas? So, we need ownership of the problem. And well, that's not that clear cut, there is always a matter of debates and definitions" (Participant 1). This was reiterated by Participant 6 when reflecting on an experience they had as an allied health professional

"we had a couple of things that tested positive and we all looked at each other and thought 'who's responsibility is it to do something about this now?'

Ultimately, the lack of evidence on the extent of the problem appears a significant barrier to any further efforts in this domain, relative to other issues. Participant 12 acknowledged that "it's increasingly rare that someone actually does test positive for inadvertent doping and the other issues are so much more urgent and pressing, and harmful" while Participant 6 extends this critical appraisal of the current situation:

as an ideology everyone thinks it's [consumer protection] a good idea but then when you start talking to some of the authorities about what would you do to put this into action most of them just don't want to hear about it. The Health Authorities or the quarantine and customs, whichever level you want to tackle it from, they all think that this is too small a product problem in the big scheme of the problems that they deal with on a daily basis to warrant more resources or time being spent on it...worrying about whether an athlete's test is positive is just not on their radar for most of the authorities which is really disappointing...I don't know whether the safety issue will ever raise enough awareness or enough of a priority for the Health Authorities, it's just too niche for them (Participant 6).

Participants did see opportunities for collective action and reform of the laws governing supplements, but noted that this was likely to be led by the industry, rather than consumers or policy-makers:

there is some change in landscape of the industry and I think the industry is seeing in the future that this continued behaviour by members of the industry, the adulterants, the novel ingredients in stimulants, it's eventually going to have a financial impact for the industry as a whole. So, I think, quietly, behind the scenes, we might be able to make some progress because the industry, they're really looking at the next decade, two decades. And I think they are worried. They're worried about what's been going on and the safety issues. So, I think it's possible that, quietly, behind the scenes, there might be some progress really in the next few years, despite the mainstream media is not going to be super engaged (Participant 3).

15 European Medicines Agency - <https://www.ema.europa.eu/en>

c) Ad-hoc monitoring and alerting systems with serious incidents the trigger for products to be removed from the market.

In addition to a lack of certainty over who owns the problem of supplement contamination and adulteration, participants also raised the issue of different approaches to risk management across the member states when risk is identified:

... they are also different in the risk management measures that are in place. Like in most member states there is a notification obligation so that authorities know what products, what new products are being put on the market, not in all but in most cases. But in some member states there is really active control on that information and in other member states there is not (Participant 13).

In order to notify consumers of product risk, it was recognised that there is a need to share resources, data and information. Yet this was also deemed problematic, owing in part to inter-agency agendas and boundaries:

But I would still say it's rather ad hoc. Predominately, the main reason for that is that two important stakeholders in this system. They are the food authority and the healthcare inspectors. The first one is, of course, about food law. And the second is about the medicines act, and they have their own research and they have their own ... Well, their job is enforcement's and they are not eager to share whatever they know. Because if it's part of a court case, they cannot even share this information. So, they're very conservative in sharing data. And it's always a struggle ... under what conditions do you get the data...and all our work is, should be public. So, that's difficult for them to deal with. So, they're not eager to share everything they have or everything they know. So, most of the information comes ad-hoc from the people out in the field. So, the health care professionals, the pharmacovigilance, the poison information institute (Participant 1)

Participant 2 noted that they “don't think that in Europe we have the data sharing among countries yet. A system to detect those issues if they have them. I think in the US they have a system there in that sense to put together the data if there is any issue with products. It happens rarely, but when it's happened, the US have been able to detect the issues. I'm not sure the EU would be able to do the same”. In terms of acting on single sport industry issues, Participant 2 also shared a seemingly industry-led response, rather than a systemic and collective approach to action following substance threat and detection:

I don't think in Europe we have improved that much in terms of detecting single sports industry issues and acting on those. Lessons from the clients, we get questions about substances, or we monitor media, different sources. So, when we have a substance we don't know about, we will look for it, and we say one is not to use that substance. That's been one of the lessons, and yes, we have learned that you have to be very careful with some of the new plants. They are presented as natural when they are really not, so I think overall the industry has learned a lesson (Participant 2).

Stakeholder accounts illuminated serious delays in taking action to remove health harming products from the shelves. It appears that only in the face of death and serious health harms to consumers will authorities act. This point is illustrated through the US context, but given the global supplement market, is a critical issue for European citizens and public authorities:

It's not until there's widely publicised cases that really get the attention of the mainstream media, so like with ephedra, there had been a lot of hand-wringing and a lot of trying to decide what to do, it was really the death of a professional Major League baseball pitcher that really caught the

attention of everyone to say, “Hey listen, these ephedra products really kill you.” So, he was a very prominent professional athlete who tragically died and then that ended up maybe being the final thing that got the ephedra ban finally rolling. Similarly, with DMAA, the agency was aware of it for years but did nothing until there were some very prominent cases in which some US military troops were thought to have suffered harm from DMAA supplements. And it was only after the military moved against this, it was after the New York Times and some national television shows here covered these deaths and these other potential harms that the FDA did anything about DMAA (Participant 2).

This stark reality brings us back to the process of products coming to market as companies “don’t have to have a product approved before it can hit the shelves” (Participant 2) and “unless someone gets really sick, sometimes they’re not even tipped off to knowing that there’s a problem with these products” and “if there’s clearly a health risk, of course, then it’s easy to remove a product from the market. But, of course, you don’t necessarily want to wait before people start dying” (Participant 2). Participant 2 questioned “what are your tools? What can you do?” when “you become aware of a product that’s out in your markets and well, as far as you know, you have zero deaths and maybe a couple of people that went to the GP”. On the matter of becoming aware of a product issue, Participant 2 asserted that “If you have to wait for hell to break loose until you can do something that’s not ideal”.

For the athlete and general consumer picking products off the shelves, resources were also a barrier to learning lessons of risk and using this understanding to inform their supplement use decision-making:

I suppose first teams typically have a lot of support in nutritionists, dieticians, chefs that can provide nutrients there, but if you go down even into academy sometimes, they don’t have the appropriate support and will maybe see a first team player consuming a particular product and then go out and source it themselves. And that’s quite worrying because, ultimately, sometimes brands will maybe ad-hocly [sic] test their products specifically for that team. That athlete has seen that first team player consume that product and gone off and purchased it himself and that particular batch that he’s purchased may not be tested, so the risk of an inadvertent doping could be higher there (Participant 8).

Therefore, individuals not benefiting from individualised and tailored support are at an increased risk and this warrants attention. This is critical because for the consumer, they need to understand that “[industry] don’t have to have a product approved before it can hit the shelves and so the danger of that is, you’re assuming that people are going to do right by running their business and providing products that are safe for general consumption” (Participant 7). Going after industry was seen as cost-prohibitive and further exacerbated the risk to the consumer:

And as the industry is the same way, they know with CBD and other products that even though they’re illegal and they’re on the shelves in these stores or out in the marketplace and online, that there’s little likelihood that someone is going to catch them and prosecute them because it costs so much money to go after them. They’re going to go after the big fish, things like that, so the consumer loses because there are products out there that should not be out there (Participant 7)

The dynamic, and often reactive, nature of the industry also poses further challenges to the system to act in a coordinated manner, because “with the innovation that goes on in the supplement area where everyone, two, three years, all the supplements have changed into a new formulation. There’s no point in spending a lot of time trying to ban a product, which is already virtually off the markets” (Participant 1).

4.6.1 Findings - Future actions in policy and practice

Future actions in policy and practice are framed deductively (Reed et al., 2018) by three future focused themes that recognise how agency, interconnectedness, and unpredictability influences evidence translation in complex systems. These themes represent three strategic principles, which are 1) act scientifically and pragmatically; 2) embrace complexity; and 3) engage and empower.

1) Act scientifically and pragmatically

In the context of supplement use and risk of inadvertent doping and consumer harm, this theme recognises the importance of taking knowledge of existing evidence and combining it with knowledge of the unique conditions of a system. This theme also speaks to the importance of establishing the scale of the problem of supplement contamination and adulteration and monitoring and evaluating any current and/or future interventions in the field in order to ensure lessons are learnt and fed into future developments.

Focusing on inadvertent doping risk, the sense amongst stakeholders was that people are becoming somewhat more aware that supplements pose a risk. Nevertheless, the extent of this risk is still to be ascertained, and this is a priority action. A number of the experts cautioned that the risk of ingesting a supplement containing a prohibited substance is “really very rare because there is usually a lot of cleaning and also you do not usually produce food supplements on the same lines that you have treated doping substances with” (Participant 13). There is clearly a need to establish the extent of the problem:

I think it's something that we're going to have to definitely quantify as a first step... around the scale of the issue, because we think there's an issue, we think there's a problem and we're pretty sure we know there is. But until you actually get to grips with the actual scale of it, then you can't really address until, until you know that (Participant 14).

As well as the scale of the problem, it was deemed necessary to continue to determine the efficacy of the supplements on the market because, as Participant 8 concludes:

“if you look at the research, there's only really a handful of supplements that are beneficial to athletic performance or support of growth and recovery”. Extending this line of thought, Participant 2 speaks of the challenge “that we are not promoting enough research in what works, and that innovation may not necessarily come from new substances. But maybe a new combination of substances from a better understanding of our genetics and our nutrition”.

In turn, it is critical that these efficacious products are clearly communicated to the consumers. Recognising the need to act scientifically and collaboratively, Participant 7 reflected on the situation:

you have the food industry, the supplement industry, drug industry, coming out and saying that this will cure this, this is the latest evidence here, mega fish oils are great for your heart health. And then you have science come from the other side saying, well this ... and then you have people in the middle that are with their own agendas playing in the middle. So, the consumer is very confused because there are so many platforms to speak from, that the consumer is very confused and that always muddies the water (Participant 7).

This links to the call by Participant 10 to bring together

“an independent panel of experts, we could put together that list, lock a few experts in a room for a week, almost a bit like IOC supplement stand, probably something like that. And then on an annual basis companies apply to go on that list as ‘we've got a product that would fit into that

category”.

Participant 6 was aligned with this thinking and noted the problems that arise when independent-testing organisations promoting products that are not evidence-based on their website:

a lot of the companies that get the batch testing done are the ones that sell the Pirate Juice and so if you go to the list of things that have been batch tested there’s more likelihood that there will be things that have got no evidence behind them at all whereas the group of products that you’d like to have athletes spend more of their priority intention to, I mean there are fewer of those that have been batch tested by comparison (Participant 6)

Participant 6 went on evidence what acting scientifically and pragmatically looks like when supporting athletes; limiting the number of decisions that they have to make through a decision-tree:

“if you can try and systematise that decision tree approach that helps athletes to get to that much smaller group of products about which they’re making decisions pretty quickly that’s good because I think every athlete has only got a certain amount of space in their life to make decisions or consider things, and so if you can eliminate things really early on then the process of getting to the nitty gritty is to go shorter, and you haven’t got exhausted athletes who are paralysed by the time they get there. So, that would for me be best practice and while you’re doing that at one level with the athletes you’re agitating at the level of the supplement industry that says that this is an expectation that you produce products that have had very good manufacturing processes in place and that there’s auditing systems or third party testing that should be in place, particularly for an athlete focus supplement. I sometimes, you know, challenge athletes and any consumer, why do we have different expectations about the supplement industry to any other industry that we work with. If I buy a toaster I expect that it will toast bread and it won’t electrocute me in the process and yet the way that most governance is set up in most countries and regulations around supplement use is it really falls back on the Government to prove something is a problem rather than the industry to get into the point where it’s not. So, I just don’t understand why we don’t have that same level of expectation around supplements and if you could turn this into just a consumer protection thing where people are just amazed that an industry would be so bold as to not have their act together before they put something to market then that would be a really good improvement I think (Participant 6).

Calls were made to address the following question: “when does a food become a supplement or a supplement become a food? It’s really tough and it’s quite complex for nutritionists these days to define and draw a line in the sand (Participant 8). This concern was shared by Participant 10 who put the point with force: “the big challenge now for me is the fortified foods and that area is, when does a food becomes a supplement? And if anyone has the answer to that, please put it on a postcard and send it to me, because I don’t have a clue of when a food becomes a supplement”. They elaborated on the need to provide clarification on this matter to ASPs and their athletes:

So you go into a petrol station now and you will find at least 30 or 40 products, all of which you might think are a supplement but an athlete might not realise that they’re taking it. And then the question then is, should I be concerned about that? And if I shouldn’t be concerned about that, why am I concerned about a protein bar? So if you’ve got a normal bar in a shop that’s got added whey protein, and a player can just go and buy it in a petrol station as they’re filling up their car, should I be concerned about it? In my head, yes. If I then tell them no, they don’t need to be concerned about it, that’s a food, why am I then telling them that they can’t take their favourite Grenade bar because it’s not been tested? But it’s got the same ingredients in it with just the

added whey (Participant 10).

Finally, the need to develop the evidence base on the long-term effects of supplement use was identified as “nobody knows” (Participant 1) what the effects are. This absence of evidence is made worse when combined with the issue of burden of proof. Participant 1 finished their interview by saying:

the biggest problem with these, particularly these active products, is that the burden of proof lies with the government. That’s the big issue. So, if you want to regulate something, then reverse the burden of proof back again to the manufacturer. And that’s of course, for medicines. That’s very clear. And if EMA doesn’t want to call these product medicines, well, fine. As a scientist, I still think these are medicines. But anyway, they’re a different stakeholder than I am. But I would love to see the burden of proof for pharmacologically effective or presumed pharmacologically effective products live with the manufacturer (Participant 1).

Collectively, stakeholders drew upon their experience and expertise to call for a better understanding of the scale and scope of the problem to identify and test potential solutions that move beyond anti-doping compliance and enforcement so that we create a learning culture that serves to support and invest in continuous system improvement.

2) Embrace complexity

The challenges identified in protecting athletes from the risk of inadvertent doping and consumers more broadly from the threat of health harms, underscore a system with a range of interdependent parts that are not entirely functional nor fit for purpose. Respondents offered support for legislative and regulatory reform, as well as education reform to better develop consumer capability when it comes to making supplement use decisions. This future focused theme was identified from the accounts generating meaning in relation to a) developing capability to make informed decisions; and b) reframing the issue as a public health concern.

a) Developing capability to make informed decisions

In order to protect consumers, including competitive athletes, from the potential risks of supplement use, there was agreement amongst the stakeholders that a move away from ‘just say no’ campaigns were needed when it came to supplement use as they did not recognise the complex environments within which some of those decisions are made. Talking about anti-doping organisations, Participant 10 said:

they’re reluctant to give the advice and for me this is a bit like sex education. I say this all the time, you can say to 18-year-old kids ‘don’t do it’, and teenage pregnancy is through the roof, or you can say to them, ‘actually, do it the right way... and this is how you check that you’re doing it safely’. And the head in the sand, ‘don’t do it’, which is a current position that I see from authorities, I don’t think it’s helping anybody (Participant 10).

The accounts highlighted the need for education which acknowledged and responded to the complexity of the context within which supplement use is situated. The importance of learning and the assessment of learning was also emphasised. Participant 10 observed:

It goes without saying, as far as I see, no athlete has had supplement education, and that’s a huge statement. They’ve been given supplement facts and anti-doping facts, but to educate someone you need to assess learning and I don’t think we ever go as far as assessing learning. So in rugby at the moment, each year the athletes have to do concussion awareness training and part of that is they have to answer some questions on it. So, should you, as a pro athlete, have to do some anti-doping education where, at the end of it, there are ten questions that you’ve

got to answer? So now we can assess learning, and if they're not learning, we need to refine our techniques of delivering, so I've worked with a group of athletes who, all their supplement and anti-doping education, up to a point, was given in leaflet forms or written education ... We've given them booklets, and we would now say that athlete has now had education because we've sent them a booklet. That's not education, so as educators, which we are, we need to be involved in developing athlete education assessing that learning has taken place and I don't think we do that (Participant 10).

Participant 2 also responded to the complexity of the decision-making process and reinforced the importance of evidence-informed communication approaches by saying that

"we need consumer education in terms of what nutrients they need, what type of products to rely on. What products may cause a risk to their health, or adopting risk?"

They continued that "education remains, I think, a corner stone. Better enforcement, yes, but in the end, some of it will be left to the consumer and to the athlete. And so, we need education, and understanding how to communicate risk (Participant 2). Participant 4 spoke of the importance of education for

"everyone involved in sports, even at the lower level, especially this education around nutrition and supplements". Embracing complexity and the interactive nature of sport and society, stakeholders also spoke of the "education effort would need to go beyond athletes, but also to the teams, and people advising the teams" (Participant 2). For example, "we need to have a massive education around the people who are genuinely giving this advice, which is the conditioners as well, they're generally the ones who are lumped with doing the supplement stuff in most sports" (Participant 10).

Shifting the current educational approach from one where organisations attack the issue from the risk of inadvertent doping to one which critically appraises the actual need for supplementation:

let's just get the evidence based things first and then think about the anti-doping risk as a second thing, and if you do it that way then you eliminate like 95% of supplements from consideration by athletes and then making decisions around the use of a specific product and a brand of that product, it's a smaller series of decisions you need to make (Participant 6)

The importance of creating accessible 'just in time' information was raised:

And, making it accessible for them, I think will be key because a big, a big issue with getting athletes attention is they don't see the relevance at certain points, so when they're sitting down for an education session, that's not necessarily the time that they see the relevance of that message. Whereas if they're in a supplement shop and they're looking at a tub and it's like, well, is this something that I should be doing, that's the time that they're primed, ready to receive a message, so if they know that they can go somewhere and access that information, and that's when they're most likely to take it in, then strategies have to be developed or tools have to be developed to make that available (Participant 14).

To enhance the accessibility of the information, storytelling was encouraged by Participant 6:

I think the story telling is always a really important one and having athletes who have had the experience go out and talk about it, especially those athletes that might have taken something that sounded quite safe or that, you know, if someone goes out and does really risky things that story may have relevance to a certain group of people but you really want to address the majority of the more sensible ones, and I think messages around 'I never thought it would be me' or 'I'm

normally so careful about things' those sort of personal case histories are probably the best way of doing it.

b) Reframe the issue as a public health concern

Moving towards a public health approach to addressing the issues of supplement use in sport and society was also called for by a number of stakeholders. By way of support for this paradigm shift, Participant 3 referred to Geller et al (2015), a landmark study:

that was done by epidemiologists at the CDC where they were monitoring emergency department visits for cases where doctors said that their patients were there at the emergency department due to an adverse effect from a supplement. They estimated that something close to 23,000 emergency department visits every year and a few thousand admissions to the hospital every year are due directly to dietary supplements in the US. Because what we were just talking about before, that doctors don't routinely ask their patients, the patients don't ask their doctors, and in the study it was just like usual practice, no doctors are training their attention to supplements, so it's just like whatever was written on the chart. We know that this is just the tip of the iceberg, so now we know that these supplements are not placebos, they're expensive, but they also, some of them, can have serious health effects. And it's not generally surprising that when you take a closer look at what's inside them that they can have potent drugs in there (Participant 3).

Participant 4 also commented that “we're talking also about anti-doping as the purpose of protecting athlete health, at the moment, this isn't often discussed” and Participant 8 notes that they found “three products that actually were of health concern rather than doping concern, and the health authorities had to get involved to remove those from the marketplace because they potentially could have led to some serious implications”. Consequently, Participant 2 reflects:

I think one of the issues that we have is that authorities, and I have to say across Europe, do not make the link very often that banned substance for doping are usually a health risk as well. So, it's not just a concern for competition, but it's really for safety of athletes, but ordinary people as well (Participant 2).

The current approach to supplement risk, typically led by anti-doping agencies, was also deemed to influence broader societal perceptions and these were potentially problematic:

There's a perception that I'm not a professional athlete, so I shouldn't worry about doping. To me, part of this is where doping is not explained often enough as a health issue. It's not only about cheating in competition if I want to put it in simple terms, but it's really about your health. People do not understand that very often. So, if they are not in competitions, they don't worry too much. Really, they don't realise what the significance is to them, and they also want to have results again. They think that once I'm using an ordinary supplement bottle or jar, and not in sachets without a label, as long as there is a label and it looks good, it's probably fine to have. So, yes, there is a problem with the broader community of users of products beyond athletes (Participant 2).

Participant 2 summarised their view that “the main change would be for health and safety authorities to realise that this is a health issue that needs to be tackled, and it can be tackled rather easily”.

3) Engage and empower

The final theme for future action recognises that the translation of evidence requires commitment and insights from policymakers, industry, the sporting community and athletes with experience of navigating the complex and adaptive supplement industry and anti-doping system, and any proposed changes need to align with their motivations and concerns. A key acknowledgement was the need for collaboration across the system to drive change. Participant 13 recommends efforts to:

try to harmonise what can be harmonised, so I would look into best practice because we do not need to re-invent the wheel. If you see in Europe for food supplements you have countries with quite a low experience and an extensive framework for food supplements and a good working notification system like for instance Belgium. They have a law for the expectance of substances, they have lists, they have the notification procedure with the whole department dealing with that.... So instead of trying to do everything again take what is best practice in a member state and build up on that. If there is a list of 1000 plants being acceptable in Belgium without problems for food supplements why would that list not be acceptable in another member state (Participant 13)

Working with retailers was also seen as critical because:

the broader issue is to make sure that some products are not available on the market, and that's partly down to retailers. I think retailers have a large role there to make sure that some products are not available if they contain some substances. I think that would take care of most of, if not all, most of the doping issue....if you want to buy DMAA today, and you go to Alibaba, there are more than 1000 listings of DMAA that you can buy easily from your home in Europe. So, I think that even if the big online retailers were to remove the substances which are known to be banned, that would be very beneficial I think (Participant 2).

To make this happen, Participant 2 determined that “it’s for the Commission to drive this, because they have managed to get this done in some other areas. It can be the ultimatum, and I think that would be ... I mean, there will be always people who will be looking in the darkest places for banned substances, but online platforms would not carry those substances perhaps. That would make, I think, a big difference”.

Collaboration was also needed when threats to the health of society at large are brought to light. It was reiterated that we have to engage and empower authorities to take action “rather than putting their hands up and saying, ‘it’s not my issue’, it’s coming together to remove products from the market... So it’s really coming together as a community and dealing with these issues together rather than in siloes as such” (Participant 8). The need for a collective voice was also recognised by Participant 7:

we know in this day and age with devices and connection, that those who speak the loudest and have the most resources to spend in that area will usually win out because it drowns out all the other voices. But it can't drown out everyone's voice if there are many different groups speaking as one voice, so when you have a lot of siloes and you have a lot of people speaking in different areas by themselves, it does have the impact....But the best chance we have is to, as a group, throw it all out there, come to a consensus and move out there and educate to it (Participant 7).

At European level, the development of the CEN standard on preventing doping substances in sports food/supplements, initiated also by the French Food Standard agency (AFNOR) was discussed as a positive move towards harmonisation of good manufacturing practices for supplements targeting sportspeople. Participant 5 believed it to be:

a very positive development to increase visibility and implementation of good manufacturing practices to reduce the risks of doping substances in sports foods. You have many different kind of good practices to be put in place to be improved; ranging from the selection of ingredients, which do not contain doping substances, selection of suppliers of ingredients, appropriate training to the personnel to be aware about these, design of the premises and production tools, and also having a document control based on the regular update of the WADA list. And, of course, the composition of the product with no doping substances. Let's say the implementation or so of a specific scheme or so with suppliers to ensure this absence of prevention of doping substance like existence of traceability system (Participant 5).

4.7 Synthesis and recommendations for action

The globalisation of the supplement industry and the threat of consuming prohibited substances through food supplement use, has led organisations such as NADOs and IFs to warn athletes and others involved in sport of the risks of such use. Nevertheless, the threat of consuming potentially health-harming substances stretches beyond the confinement of sport, and a multi-agency approach for consumer safety is required. The insights shared throughout this synthesis were provided by 56 individuals, representing 52 organisations and the research team. To conclude this programme of work for TEG2, future recommendations are shared and include approaches for a) EU Institutions (e.g., Council of Europe + Commission), b) National Policy Makers (e.g., Health Ministries, NADOs, Professional Associations) and c) Recreational Sport Federations (e.g., International Federations). In turn, the actions presented will support the professional development of influential agents situated within the complex sociocultural contexts where supplement use takes place (e.g., coaches, nutritionists/dieticians, and other support personnel).

4.7.1 Synthesis of findings

The growth and innovation of the food supplement sector has heightened concerns surrounding the risk associated with food supplements that appeal to sportspeople participating in every level of sport (Garthe, 2019). The scope of these concerns includes product contamination and adulteration and misleading or inaccurate product labelling (Martínez-Sanz et al., 2017; Rocha, Amaral, & Oliveira, 2016). A range of motives underpin supplement use behaviour, as evidenced in the wider literature (Maughan et al., 2018), and the interviews with stakeholders in phase 3 of this study. Further, food supplement use is not confined to elite levels of sport – patterns of consumption vary across different sports and activities and supplement use behaviour is strongly influenced by complex and adaptive socio-cultural contexts. Moving beyond the cognitive frame, the stakeholders interviewed in phase 3 of this study acknowledged the habitual nature of supplement use and highlighted the insurance policy mindset that can drive this behaviour. A recent report by the European consumer organisation Bureau Européen des Unions de Consommateurs (BEUC, 2016) concluded that consumers are not adequately informed about food supplements. Therefore, combined with a general perception that food supplements are benign yet necessary in sport, competitive athletes are a particularly vulnerable group for exposure to health and sporting eligibility risks.

The findings of this study showed that across NADOs and IFs, assessing the risk of supplement use was the most commonly adopted element of supplement decision making frameworks, such as those published by the Sport and Exercise Nutrition register (SENr) guidelines (2016) and IOC Consensus Statement (Maughan et al. 2018). Based on the concerns surrounding the risk of inadvertent doping through the use of food supplements and the number of athletes reported using supplements (Knapik et al., 2016; Maughan, Depiesse, & Geyer, 2007), raising awareness of the risks associated with supplement use is paramount. It is noteworthy, however, that the lack of scientific and independently generated evidence

on the efficacy of food supplements creates uncertainty regarding whether the predominant messages should instead focus on assessing the objective need for supplementation before associated risks are considered (Larson-Meyer, Woolf, & Burke, 2018; SENr et al., 2016). Thus, organisations would do well to re-balance current approaches to supplement use and provide greater resources and support to athletes across all levels of sport so that they have the capability to assess their actual, rather than perceived, needs. Such an approach would elevate the importance of critical appraisal skills to examine the efficacy of products currently on the market. As highlighted by a stakeholder in phase 3, such a shift in approach is likely to eliminate the vast majority of products marketed to consumers; thus, reducing the burden on athletes to assess the need. In addition to developing critical appraisal skills, there remains a need to ensure that appropriately qualified nutritionists and dieticians are within reach of athletes being advised to assess their need for supplementation. A lack of opportunity to consult with such professionals makes internet sources, an easy – but risky – alternative.

Currently, some organisations adopt a ‘just say no’ approach to supplements because they believe that endorsing the use of supplements is against their espoused values and beliefs. Drawing upon the scientific literature, such a prohibitive approach is at odds with evidence pointing to the harmful effects of scientific uncertainty for stakeholders (Pepper, Squires, Peinado et al., 2019). Furthermore, a skewed curriculum does not help athletes to recognise the fact that although there is evidence that appropriate use of some supplements can benefit the athlete (Maughan et al., 2018), such benefits are limited to a small number of products (e.g., caffeine, creatine, specific buffering agents and nitrate) (Maughan et al., 2018). Therefore, a more balanced educational approach would emphasise this limited evidence base and situate decision making within a framework that requires a nutritional assessment by a qualified professional and a greater awareness of the variability in response to supplements depending upon an individual’s genetics, microbiome and habitual diet (Maughan et al., 2018). Without a comprehensive approach to food supplement education and provision of qualified personnel, consumers are open to alternative, and potentially less rigorous, sources of information (Wunderlich, & Gatto, 2015). Although the intention to discourage supplement use is evident in the ‘just say no to supplements’ approach, organisations must acknowledge the unanticipated consequences of such prohibitive approaches on already vulnerable consumers. This was carefully acknowledged by stakeholders in phase 3.

Although a focus on supplement risk was apparent in phase 2 of the research, differences in the guidance provided to athletes and athlete support personnel in order to reduce their risk of doping practice was noted. This may be due, in part, to a lack of capability and resources within the anti-doping system. Anti-doping organisations and sports federations are already stretched to fulfil their compliance responsibilities (Patterson et al., 2014) and more proactive preventive approaches are not prioritised as their long-term effects are more difficult to monitor and assess. Indeed, organisations reported a lack of time and resources (e.g., information and staff) as barriers to their current practice. Besides, limited policies and clarification surrounding food supplements is compounded by the lack of a universally accepted definition of what constitutes a supplement (Bradley et al., 2015; Perrichet, Mensik, Meyer, & Coppens, 2017; Maughan et al., 2018), as well as a complex legislative and regulatory landscape that is not seen as a priority area for EU institutions. With no organisation at the helm of developing good practice in inadvertent doping risk reduction and management, organisations reported that they developed education and resources based on their values (e.g., avoid at all costs) and beliefs (e.g., the accuracy of certification programmes), rather than established evidence-informed guidelines. Improved policies and knowledge through collaborative research and practice is called for, along with the identification of a body with an overarching lead covering both policy and enforcement of food supplement inadvertent doping risk reduction.

Our findings showed that there is no universal method for alerting stakeholders to supplement contamination and adulteration risks in the sporting context. Specifically, NADOs reported primarily

using their website, education programmes, and social media to disseminate information. In contrast, IFs primarily informed stakeholders via newsletters and social media. Product-specific risks were predominantly communicated via an organisation's website. However, organisations appeared less likely to alert stakeholders to product-specific risks. Although all WADA Code Signatories (e.g., NADOs and IFs) are responsible for enabling clean sport (WADA, 2018), IFs reported that NADOs may be better placed to disseminate information around product-specific risks because supplements may differ country to country, and certain products may not appear on the international market. Organisations must, however, acknowledge that the online sales of supplements are an international health and regulatory concern (Goldman, Pope, & Bhasin, 2018). Thus, NADOs, IFs, researchers, and policymakers must consider the globalisation of the sports food industry and effectively communicate consistent messages to stakeholders. International and national governmental organisations (e.g., European Union and National Food Standards Agencies) play an important role in consumer protection along global food supply chains (Lüth, Boone, Kleta, & Al Dahouk, 2019). The findings point to the presence of limited exchange of information between these organisations and NADOs and IFs. Specifically, IFs reported receiving limited information around this topic, and, had to depend on potentially unreliable sources (e.g., internet and media). Establishing better collaboration with the current European Supplement Risk Alerting System (RASFF) (even simply raising awareness of its existence) would be a good place to start. More precise recommendations to enable such collaboration to take place will require further consideration.

Food safety authorities do not assess the safety of food supplements prior to market (Cohen et al., 2018) and as long as this defining feature of the industry remains, collaborative actions across multiple sectors and agencies will be required to ensure that adulterated and hazardous supplements are promptly removed from the marketplace. To illustrate the importance of this point, and to reinforce the need for global action given the international nature of trade in this industry, between 2007 and 2016 the U.S. Food and Drug Administration (FDA) identified 746 brands of supplements adulterated with pharmaceutical agents, including prescription medications (e.g., sildenafil), withdrawn medications (e.g. sibutramine) and unapproved drugs (e.g., designer steroids) (Tucker et al., 2018). Most adulterated supplements were marketed as sport supplements, weight loss or sexual enhancement and it is important to note that these categories of supplements have been attributed to a disproportionate number of the estimated 23,000 emergency department visits attributed to supplements each year in the US (Geller et al., 2015). Even when voluntarily recalls of supplements have been made, investigations have shown that supplements previously subject to recall remain on sale and were still adulterated with pharmaceutical drugs sometimes years after product recall (Cohen et al., 2014). Raising awareness amongst the general public of this situation is important so that potential supplement consumers are better informed to make decisions. Indeed, in a short communication on supplements containing a synthetic stimulant never tested in humans (1,3-dimethylbutylamine, DMBA) Cohen and colleagues caution that until consumers can be assured that sports, weight loss and mind enhancing supplements do not contain untested pharmaceutical drugs, these products should be avoided (Cohen et al, 2015).

Across all organisations, no formal monitoring and evaluation methods were reported. While it was evident that the majority of organisations provided some form of guidance to reduce the risk of inadvertent doping, and several made attempts to alert stakeholders to supplement contamination and or adulteration risks, it is important to determine the effectiveness of current practices. A small number of IFs reported measuring the immediate impact of e-learning programs on stakeholders' knowledge, yet the longitudinal impact of these practices on knowledge and behaviour change are unknown (Calle et al., 2016). Claims of inadvertent doping by high-profile athletes through food supplement use raises questions regarding the effectiveness of organisations' efforts to reduce the risk of inadvertent doping in sport (Moston & Engelberg, 2019) and also highlights a theme identified in phase 3 of the research – when is supplement contamination an issue or an excuse? Currently, anti-doping education practices focusing on the risk of supplement use are legitimised

by the growth of the supplement industry (Garthe, 2019), the widespread reported use of supplements by stakeholders (Knapik et al., 2016, Maughan et al., 2018), and the prevalence of inadvertent doping cases (Moston & Engelberg, 2019). In acting scientifically and pragmatically, there is a need to establish the scale of the risk of inadvertent doping and health harms from supplement use and organisations must do more to monitor and evaluate the impact of their practices to encourage evidence-informed policy and practice development and refinement.

Athletes were recognised as the main audience for messages and alerts provided by NADOs and IFs. There is evidence to suggest that supplements are a growing concern among athlete populations (e.g., elite, national, grassroots; Gabriels, Lambert, Smith, Wiesner, & Hiss, 2015; Whitehouse & Lawlis, 2017) and, thus, several NADOs reported tailoring information and resources to elite and non-elite athletes. In contrast, the majority of IFs focused on educating and alerting only the elite athlete population. Unfortunately, by limiting their attention to the elite population, IFs may be reducing the effectiveness of their practices. Since, attitudes, values, and decision-making skills are developed through childhood and adolescence (Patton et al., 2016; Steinberg, 2007). Furthermore, organisations acknowledged the significance of reaching ASP, and NADOs recognised the importance of educating individuals who are not confined by the sporting environment but who may consume supplements for performance and health reasons. Influencing stakeholders (e.g., parents, coaches, medical professionals, nutritionists/dieticians) capability, opportunity and motivation to reduce the risk of inadvertent doping through supplement use will enhance the protective enablers (Erickson, McKenna, & Backhouse, 2015) in place to act against the dopogenic environment (Backhouse et al., 2018). The dopogenic environment is defined as the sum of influences created by the surrounding, opportunities and conditions that promote Anti-Doping Rule Violations (e.g., presence of a prohibited substance through the use of an adulterated product whereby the presence of pharmaceutical drugs in the product was not declared on the label). Reducing the risk of inadvertent doping and health harms from food supplement use is challenging but increasing the audience whom organisations purposely target with evidence-informed messages and alerts, will go some way to supporting the protection of athletes who are known to be frequent consumers of food supplements.

4.7.2 Evidence-informed recommendations

In line with Phase 3 of the research study, future actions in policy and practice are framed deductively (Reed et al., 2018) by three future focused themes that recognise how agency, interconnectedness, and unpredictability influences evidence translation in complex systems. These themes represent three strategic principles, which are 1) act scientifically and pragmatically; 2) embrace complexity; and 3) engage and empower (Figure 4.11).

These actions respond directly to key implications arising from the study. Specifically:

- To gain the support and buy-in of multiple actors in the sport and health setting to address the issue of supplement use and inadvertent doping, there is an urgent need to establish the scale of the supplement risk problem in Europe and beyond. In addition, there is an absence of evidence on the long-term effects of supplement use and longitudinal cohort studies of supplement users are required.
- In spite of efforts by NADOs and IFs to provide information surrounding food supplements, and WADAs goal of global harmonisation (Müller 2017), the messages organisations currently provide lack consistency and balance. They also lack an evidence base informing consumer decision making when it comes to supplement use and consumers are often ill-informed because of the complexity of the industry. Guidance promoted by the Sports and Exercise Nutrition Register in the UK (SENr; Sports and Exercise Nutrition Register, Close, Naylor, & Riach, 2016) and the IOC Consensus statement (Maughan

et al., 2017) provides a foundation for developing an inter-agency framework for decision making on food supplement use. For example, develop a supplement use decision-making process that integrates risk management services with evidence of product efficacy. Resource sharing, collaboration, and communication across EU Institutions, WADA, NADOs, IFs and professional association is imperative if such a framework is to be developed and implemented. To achieve this ambition, organisations must commit to working together and aim to deliver benefits which cannot be provided by an organisation acting alone (Sullivan & Skelcher, 2017).

- The lack of overarching legislation for food supplements, poses a challenge regarding the regulation and enforcement of products. Member States are forced to respond to different domestic needs and pressures.



Figure 4.11 Future actions in policy and practice to reduce the risk of inadvertent doping and consumer risk, framed deductively to recognise agency, interconnectedness and unpredictability (Reed et al., 2018).

- National Anti-Doping Organisations and International Federations are providing guidance to athletes and athlete support personnel to reduce the risk of inadvertent doping from food supplements. However, the scale and scope of the guidance varies considerably and skewed towards a risk rather than preventive frame. The predominant focus is on assessing the risk of supplement use as it pertains to committing an anti-doping rule violation, with less attention afforded to assessing the need and assessing the consequences (e.g., potential health harms).
- There exists an ad-hoc monitoring and alerting system for supplement use risks and any threats are not feeding efficiently into national and international anti-doping systems, leaving consumers disengaged and at risk.
- To effectively tackle the risk of inadvertent doping and consumer health harms from food supplement use, it is important that organisations monitor and evaluate their practices. To begin, we must develop a greater understanding of the world from athletes and other stakeholders' perspectives. Acknowledging the consumers' position will enhance the reach and significance of messages around food supplements. Raising awareness of the risk of contaminated and adulterated supplements beyond high performance sport, and developing capability to minimise risk, remains a priority.

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Chapter 5 – An update on the EU 28 factsheets from the 2014 Study on Doping Prevention in Recreational Sport

A copy of the 2014 Study can be found at:

https://ec.europa.eu/assets/eac/sport/news/2014/docs/doping-prevention-report_en.pdf

Austria National Anti-Doping Agency - NADA Austria

<https://www.nada.at/de>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	The Study on Doping Prevention has not had direct influence. However, doping in recreational sports became a bigger issue in the last years which led to the development of our information and education campaign "antidoping certificate for fitness centres".				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Austria follows the definition of the WADA.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: NADA Austria can test every person part of a club (associated to a national federation) who takes part in a competition which is organized by a national federation and/or receives funding from the Austrian government or regions.				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]				✓	
Note: Anti-doping work in recreational sports became a bigger issue in the last years which led to the development of our information and education campaign "anti-doping certificate for fitness centres"					
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	"Anti-doping certificate for fitness centers"				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>"Anti-doping certificate for fitnesscenters" - information and education including lectures for employees and members of fitnesscenters.</p> <p>"Anti-Doping School Program" - carried out in sport schools and soccer academies. Since not every student makes his way into elite sport, this program has its influence on lower levels of sport as well</p> <p>"Anti-Doping Coaches Program" - mandatory lectures for all coaches in the Austrian Coaches Training program - starting with non-elite coaches.</p>				
If doping prevention in recreational sport is taking place in your country, please select the organizations/professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other					
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					
Code of conduct	✓				
Digital and online resources	✓				
Face to face group sessions	✓				
Face to face individual sessions					

Hotline or chat services	
Outreach programmes	✓
Social Media campaign	✓
Print media	✓
other	
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	<p>Recreational Sport has always been at the centre of the NADA Austria work since 2008. Our education programmes in the past were mainly focused on young athletes in elite sports and sub-elite sports. Back in 2012 we developed an Anti-Doping School Program which is delivered in 38 Austrian elite sport schools and includes soccer academies. We will include Ice hockey academies as well soon.</p> <p>The basic principle of the school program is simple:</p> <p>Every class (starting with 14 year old until 19 year old) is visited by one educators for 3 hours once a year. We try to make these lessons as interactive, engaging and fun as possible, the general rule is “less information, more education”. The effectiveness of this approach is currently evaluated through an Austria University.</p> <p>Last year NADA Austria developed similar approach in the Austrian Coach training system which covers the vast majority of all coaches working in sport.</p> <ul style="list-style-type: none"> • We start with 2 hours at level 1 (not mandatory for all, only for sports and disciplines where doping could be an issue), • 4 hours at level 2 (which is the basic course for all higher training in the Austrian Coach training system for all sports), 3 hours at level 3 (Sport specific training) and • 3 hours at level 4 (master class). <p>All these lessons are delivered by educators of NADA Austria to make sure that every coach in Austria gets the same education.</p> <p>In 2018 NADA Austria received extra funding from the Austrian government to establish a completely new program targeting fitness sports.</p> <p>In the framework of the “anti-doping certificate for fitnesscenters” we educate the employees, coaches and customers of fitnesscenters on a regular basis. Once every two years, the employees and coaches have to take part in an anti-doping seminar conducted by my educators, and they have to pass a test in our eLearning course every year. There is a deliberate seminar for customers every year.</p>
	<p>In addition, we screen and test the nutritional supplements offered in fitnesscenters. If the analyses find prohibited substances, the producer can be held accountable according to the Austrian law (up to 5 years prison, depending on the severity of the crime). Fitnesscenters fulfilling all the criteria we have established receive a Quality Label from NADA Austria.</p>

Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES NADA Austria is active member of the Education Expert group of the council of Europe and has a very close relationship to NADO Germany and Antidoping Switzerland. In addition, NADA Austria regularly attends international conferences and meets with colleagues of other NADOs.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES "Anti-Doping Certificate for Fitnesscenters" - unfortunately not available in English, but google translate should work well enough: https://fitness.nada.at/de		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			✓
Difficulties in establishing a standardized approach to intervention			✓
Lack of good practice		✓	
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			✓
Not a priority for our country			✓
No provision or legal framework for doping control and prevention in this setting		✓	
None of the above apply, please specify others.			

Belgium (Flanders) National Anti-Doping Organisation Flanders

<https://www.dopinglijn.be/>

Are you aware of the 2014 Study on Doping Prevention?	Yes
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	NADO Flanders has a long history of ANTIDOPING in recreational sports and has continued in the same manner.

What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Any person engaging in sporting activities in an organised context. This also includes fitness activities in a fitness club or gym.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓	✓	✓	
	Note: Although in theory, all persons engaging in organised sporting activities can be tested (non-sport club related athletes), they are not included in the test distribution planning.				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓				
	Note: For lower level competition, prevention is being done through the federations. For non-competitive gym users, campaigns are set up with the cooperation of gyms and fitness clubs. The website contains all additional information on prohibited substances.				

<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>1. Guides, brochures, website</p> <p>2. Campaigns with federation of fitness clubs</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>Brochures: guide for athletes, guide for parents, guide for federations. These documents are available to the public and spread through national federations.</p> <p>Campaign “Charter for the fitness sector”, and active communication in “KUSm” campaign (to be launched second half of 2018)</p> <p>Play True Event”, organised with all NADOs of Belgium (4), Belgian Olympic Committee and broader stakeholder participation.</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
<p>NADOs</p>	<p>✓</p>
<p>School /teachers</p>	
<p>Exercise professionals</p>	
<p>EuropeActive National Partners</p>	
<p>Healthcare professionals</p>	
<p>Police and crime prevention</p>	
<p>Sport federations club associations</p>	<p>✓</p>
<p>Sport Clubs (trainers and coaches)</p>	<p>✓</p>
<p>Other</p>	<p>Federation of fitness clubs (fitness.be / DFO)</p>
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
<p>Code of conduct</p>	<p>✓</p>
<p>Digital and online resources</p>	
<p>Face to face group sessions</p>	
<p>Face to face individual sessions</p>	
<p>Hotline or chat services</p>	
<p>Outreach programmes (big events)</p>	<p>✓</p>

Social Media campaign			
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	The main goal is to inform a broader public on antidoping. This is done through stakeholders such as national federations and the fitness organisation which further distributes it to fitness clubs (gyms). All information can also be acquired directly from NADO.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Mainly with federations and the other (national) antidoping organisations of Belgium. There is also a broader cooperation within the national health platform that works on drug prevention.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO "Anti-Doping Certificate for Fitnesscenters" - unfortunately not available in English, but google translate should work well enough: https://fitness.nada.at/de		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			✓
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)		✓	
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting		✓	
None of the above apply, please specify others.			

Belgium (Wallonia-Brussels) Organisation Nationale Anti Dopage Federation

Wallonie-Bruxelles - ONAD

<http://www.dopage.cfwb.be/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Athlete: each person who has a contract of exploitation of a club for physical activity purposes (no matter the level)				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓	✓		
	<p>Note: Our NADO is competent for all-athletes testing - elite level as well as low-level -, affiliated or not, including minors and fitness members.</p> <p>However, the subject competence comes under the sports federation jurisdiction.</p> <p>Consequently, except on mandatory demand from a judge or public prosecutor, our NADO avoids testing on athletes that have no affiliation to any sports federation, in which case there is a high risk of having a positive case result in no sanction at all, which would be ineffective from a budgeting point of view and in terms of doping deterrence.</p> <p>In particular for these reasons, as well as to avoid the sense of impunity and for public health reasons, a legislative reform is in progress in order to give a mandatory disciplinary competence to one and the same independent body, and this, regardless of the sport's affiliation.</p> <p>In this way, low level athletes, even non-affiliated, attending Fitness centres will also be subject to sanctions if their doping test held in a Fitness centre leads to a positive result. A little before the reform comes into effect, several information sessions will be held, targeting the relevant public.</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important

<p>In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]</p>			✓		
<p>In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]</p>				✓	
<p>In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]</p>					✓
<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <ol style="list-style-type: none"> 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes 	<p>Note: Regarding the first question about Low level/Recreational level competitive athletes we consider it “Neutral” for what already exposed in the previous question.</p> <p>On the other side we consider more important, the gym users and non-competitive athlete categories. Several approaches from our prevention program targets this group: School education, General information sessions and conferences for the broader public, Complete information on our Website and Facebook page, Coaches and educators and support personnel training sessions, brochures for athletes, parents and general public, ...</p> <p>In the following months our objective is to reinforce this program and these actions and to extend it to a more specific public attending fitness centres.</p> <p>See above</p>				

If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Education sessions - Secondary schools and sports Federations Complete information - Website, Facebook, Brochures Education training - Coaches and support personnel
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?	
NADOs	✓
School /teachers	
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	
Police and crime prevention	
Sport federations club associations	
Sport Clubs (trainers and coaches)	
Other	
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?	
Code of conduct	
Digital and online resources	✓
Face to face group sessions	
Face to face individual sessions	
Hotline or chat services	✓
Outreach programmes (big events)	
Social Media campaign	
Print media	
other	
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	See above. As of today the distribution methods of our prevention program targeting recreational sport are essentially online (Website, Facebook). Nevertheless, with the coming legislative reform (in progress but not yet enforced), additional means will be investigated and developed in order to better target the specific audience of recreational sport.

<p>Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations?</p> <p>If yes, please explain how.</p>	<p>YES</p> <p>For the first time in Belgium, a national prevention action will be launched with the 3 other NADOS, Olympic and Paralympic Committees and Federations associations (a first event in Belgium gathering public and private authorities): PLAY TRUE DAY. The idea is to offer each federation or other organisation (sports clubs, schools, states, etc.) the opportunity to reach its public with anti-doping education and awareness actions. The events will take place during the first weekend of September and throughout the month</p>		
<p>In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.</p>	<p>NO</p>		
<p>Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?</p>	1	2	3
<p>Difficulties in establishing a clear aim or purpose for the intervention prevention</p>			
<p>Difficulties in establishing a standardized approach to intervention</p>			
<p>Lack of good practice</p>			
<p>Lack of financial and human resources</p>	✓		
<p>Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms</p>			
<p>Not a priority for our country</p>			
<p>No provision or legal framework for doping control and prevention in this setting</p>			
<p>None of the above apply, please specify others.</p>			

Bulgaria Bulgaria Anti-Doping Centre

<https://www.anti-doping.government.bg/>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	/				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Спорт в свободното време				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓				
	Note: Athletes from sport schools can also be tested. Youth Prevention Programme includes athletes from sport schools that are on relatively low competitive level				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓				
	Note: АЦ е ограничен в провеждането на обучителни програми за спортуващи в свободното време, тъй като фитнес центрове, където те предимно спортуват са частни				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	<p>1. Working on EU projects like 'Just Sport' from UNESCO (educational programme for kids from Orphan houses)</p> <p>2. Annual plan based on National Strategies.</p>				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>Specialised lectures for the kids in Orphan houses participating in sport events (UNESCO project)</p> <p>Teaching tutors programme - providing information to young athletes that have the potential to become part of the Elite.</p> <p>'Just Sport' Project.</p>				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals	✓				
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other	NGOs				
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					
Code of conduct					
Digital and online resources					
Face to face group sessions	✓				

Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Conference 2018 - Providing lectures to fitness instructors ("Just Sport" - project)		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	N/A		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	N/A		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			✓
Difficulties in establishing a standardized approach to intervention	✓		
Lack of good practice			✓
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)	✓		
Not a priority for our country		✓	
No provision or legal framework for doping control and prevention in this setting	☒		

None of the above apply, please specify others.			
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Croatia Croatian Institute for Toxicology and Anti-Doping

<http://www.antidoping-hzta.hr/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>Croatian NADO took part in international project "Play true".</p> <p>Croatian NADO supported international project "Just sport".</p> <p>Counselling Centre for Anti-Doping and Rational Pharmacotherapy works as a part of NADO activity.</p> <p>WADA ALPHA educational program is accessible in Croatian. Parents Guide is translated in Croatian and presented in Symposium for Educational Workers.</p>				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	There is no definition				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: /				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]					✓
	Note: We find this issue to be a public health problem in a first place.				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	Education				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Just Sport Project raising awareness of doping in educational workers with lectures and Parents Guide Brochure in Croatian. Pre Play Programme				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners	✓				
Healthcare professionals	✓				
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other					
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					

Code of conduct			
Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions	✓		
Hotline or chat services	✓		
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	NADO in partnership with Europe Active National Partners, Central State Office for Sport and Ministry of Science and Education		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/ or anti-doping organisations? If yes, please explain how.	YES On educational meetings, through print media and e-media, and joint projects.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES Project Pre Play Project Just Sport		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources			✓
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)	✓		
Not a priority for our country			

No provision or legal framework for doping control and prevention in this setting		✓	
None of the above apply, please specify others.			

Cyprus Cyprus Anti-Doping Authority

<http://cyada.org.cy/en/>

Are you aware of the 2014 Study on Doping Prevention?	Yes			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	No major developments resulted from the findings of the 2014 Study on Doping Prevention.			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.			
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes
Which of these types of athletes can be tested by your NADO?	✓	✓	✓	
	<p>Note: Cyprus Anti-Doping Authority (CyADA) has testing jurisdiction over "Low level/ Recreational level competitive athletes" if they participate in an event that is organised by a national sport federation or a national sport federation's member club. Similarly, CyADA has testing jurisdiction over "Non-competitive sport club related athletes (including gym users) if the club or the gym are members of a national sport federation.</p> <p>It is worth pointing out that, regardless of CyADA's testing jurisdiction described above, CyADA has not performed any testing in recreational-level athletes.</p>			
	Not at all important	Not very important	Neutral	Somewhat important
				Very important

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]				✓	
	Note:				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	CyADA has a doping prevention programme aiming at student-athletes at athletic schools, their coaches and their teachers as well as their parents.				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Doping prevention programme at athletic schools				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					

Other			
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources			
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Cyprus Anti-Doping Authority (CyADA) is working with a partner (other NADO) for the development of its doping prevention strategy including its education material. Until then, CyADA provides mainly face-to-face sessions for athletes and athlete support persons from national federations or sport clubs, as well as seminars for student-athletes at athletic schools and their coaches, teachers and parents.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Cyprus Anti-Doping Authority (CyADA) is working with UK Anti-Doping for the development of its doping prevention strategy including education material.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice		✓	
Lack of financial and human resources	✓		

Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			✓
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Czech Republic Anti-Doping Committee of the Czech Republic

<http://www.antidoping.cz/>

Are you aware of the 2014 Study on Doping Prevention?	Yes			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	No			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	We have no special definition of a recreational athlete. We have only the definition of a National Level Athlete in the Czech AD-Regulation in accordance with code. Other athletes at lower level are meant as recreational. But some of them can participate in special competitions.			
Does your NADO have jurisdiction in recreational sport as defined in your country?	No			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes
Which of these types of athletes can be tested by your NADO?	✓	✓		
	Note: We can test only International and National level athletes (registered members of National sports federations) and recreational athletes participating at National sports federation competitions.			
	Not at all important	Not very important	Neutral	Somewhat important
				Very important

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]				✓	
	Note: Low level competitive athletes can be informed via National Sports federations, other two groups via web only (www.antidoping.cz)				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	<ol style="list-style-type: none"> 1. CADC web presentation and sometimes paper leaflets via National sports federation 2. CADC web presentation 3. CADC web presentation 				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>In the Czech version: http://www.antidoping.cz/vzdelavani_materialy.php In the English version: http://www.antidoping.cz/education_materials.php</p>				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations	✓				

Sport Clubs (trainers and coaches)	✓		
Other			
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources	✓		
Face to face group sessions			
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	nearly all info via web to recreational athletes		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES We share informations about doping prevention nearly only with National sport bodies/federations		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice		✓	
Lack of financial and human resources	✓		

Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			✓
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Denmark Anti-Doping Denmark – ADD

<https://www.antidoping.dk/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	/				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Non-competitive athletes - including gym members				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓	✓	✓	
	Note: inmates in prisons using gym facilities				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]		✓			
	Note:				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1. Preventive campaigns 2. Strong focus on relations and cooperation with fitness centers, fitness educations (personal trainer and fitness instructor) and preventive campaigns				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Fair Play-campaign in connection with School Olympics (https://skoleol.dk/alt-om-skole-ol/skole-ol-fairplayloeftet/) Focus on healthy and good role models - #-campaign (#Renstyrke + #Rentraening) (https://www.antidoping.dk/sitetools/downloadcenter/hashtag-ren-kampagne)				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other					
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					

Code of conduct	✓		
Digital and online resources			
Face to face group sessions	✓		
Face to face individual sessions	✓		
Hotline or chat services	✓		
Outreach programmes (big events)			
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Informal and formal cooperations		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES http://www.inado.org/fileadmin/user_upload/member-docs/Member_Documents/2017_Fact_sheet_ADD_fitness_program.pdf		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice		✓	
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			

No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Estonia Estonian Anti-Doping Agency

<https://antidoping.ee/>

Are you aware of the 2014 Study on Doping Prevention?	Yes			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	No direct results, but the findings were used to write a project proposal for Unesco to create an e-learning site for the recreational athletes.			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	It is not clear at all; in some cases, these are athletes, who do not participate at the national championships (e.g in doping cases); or the athletes who are participating at non-Olympic sports (e.g bodybuilding); or the gym users			
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes
Which of these types of athletes can be tested by your NADO?	✓	✓		
	Note: Lower-level athletes in principle can be tested, however due to the limited resources these athletes are not tested too often; more often promotional activities are targeted for them			
	Not at all important	Not very important	Neutral	Somewhat important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]					✓
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	Note: There are numerous signals presented to Estonian Anti-Doping Agency (EADA) that testing amongst the recreational athletes is necessary. Due to the financial resources, the focus is more on the education and promotional activities. Play True Day, e-learning, outreach, school lessons				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Play True Day campaign is targeted to the lower-level athletes http://www.antidoping.ee/en/preplay-project/play-true-day-estonia/ Several outreach activities at the competitions are also for the spectators (including recreational athletes), so this educational tool cannot be underestimated Website specially written for the recreational athletes http://spordinpuhtalt.ee/				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers	✓				
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other					

If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES So-called multiplier trainings are being delivered on demand.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES To my mind, our outreach programmes are very creative and lots of fun for the spectators.		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			✓
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)		✓	
Not a priority for our country			

No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Finland Finnish Anti-Doping Agency (FINADA)

<https://www.suek.fi/web/en>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>1) We have increased the number of e-learning programmes for various professionals</p> <p>2) The number of The Clean Sport Commitment fitness centers has increased more than 3 times compared to 2014 (including municipal fitness centers)</p> <p>3) The awareness of doping in recreational sports has increased in Finland</p>				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	In Finnish: "kuntoilija"				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓				
	Note: Lower-level athletes in principle can be tested, however due to the limited resources these athletes are not tested too often; more often promotional activities are targeted for them				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]					✓
	Note: Doping prevention outside of high/elite level competitive sports is very important: the number of users is higher, it is a public health issue.				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	Clean Sport Commitment programme				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>Educating personnel of sport clubs and personal trainers (e-learning modules and lectures) all over the country (4 clean sport commitment ambassadors).</p> <p>Educating medical professionals (e-learning modules and lectures) and providing the latest (scientifically based) information from the field.</p> <p>Providing online health advisory service and live chat help for people (recreational athletes and gym goers) who are using doping substances, but also for their family members.</p>				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs					
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					

Sport Clubs (trainers and coaches)			
Other	We are a Non-governmental organisation		
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services	✓		
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Online resources (www.dopinglinkki.fi) in 4 languages, 2018 more than 20k different visitors/month, online health advisory services, many e-learning modules and lectures, taking part to the various exhibitions, clean sport commitment program (including print media, e-learning tool, newsletter, gym visits,...), media (newsletter, interviews, national radio and tv presentations)		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Close collaboration with FINCIS, Ministry of Culture and Sports and other sports organisations (communication, expert meetings, marketing, exhibitions), many international projects with universities, anti-doping organisations and foundations		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES 1. Online health advisory service and live chat service 2. E-learning tool/education for fitness professionals 3. E-learning tool/education for medical professionals 4. Educational material for teachers (secondary school AND upper secondary schools) 5. Clean sport commitment program for commercial and municipal fitness centers		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			✓

Difficulties in establishing a standardized approach to intervention		✓	
Lack of good practice	✓		
Lack of financial and human resources			
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

France French Agency for the Fight-Against Doping (AFLD)

<https://www.afld.fr/>

Are you aware of the 2014 Study on Doping Prevention?	No			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	/			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Neither the French law nor AFLD defines a recreational athlete.			
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes

Which of these types of athletes can be tested by your NADO?	✓	✓			
	<p>Note: French law defines an athlete as someone who prepares for or takes part in:</p> <ul style="list-style-type: none"> - a competition organized or authorized by a national sport federation - a competition where a prize (money or in-kind) is awarded (even if not organized or authorized by a national sport federation) - an international competition 				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]			✓		<p>Note: The prevention/education aspect of anti-doping in France, for athletes of all levels, is handled together by the Ministry of Sport and AFLD, in cooperation with the medical commission of the NOC, national sports federations, the Antennes médicales de prévention du dopage (regional doping prevention entities recognized by the Ministry of Sport).</p> <p>Under the World Anti-Doping Code (transposed to the Sports Code in France), AFLD must develop and implement information and education programs aimed primarily at international- and national-level athletes.</p>

<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>20 km run in Paris</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>UNSS (Union Nationale du sport scolaire), the National School Sport Federation, put together a leaflet titled “Le Code du sportif sain” intended to raise awareness about anti-doping among the school population.</p> <p>The Ministry of Sport, in collaboration with the Pharmacists Association and its Council, launched a campaign for the prevention of accidental doping with medication aimed at athletes and pharmacists. An explanatory document was developed for the pharmacists, and brochures and posters were created and made available at no costs.</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
NADOs	✓
School /teachers	
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	✓
Police and crime prevention	
Sport federations club associations	✓
Sport Clubs (trainers and coaches)	
Other	Ministry of Sport
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
Code of conduct	
Digital and online resources	✓
Face to face group sessions	✓
Face to face individual sessions	
Hotline or chat services	

Outreach programmes (big events)	✓		
Social Media campaign			
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Please see above the examples		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention		✓	
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			✓
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Germany National Anti-Doping Agency Germany (NADA)

<https://www.nada.de/en/home/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	/				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	not defined benefit non-competitive not affiliated to any association				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	<p>Note: Also testpool athletes can be tested. Participation in competitions and being competitive is necessary to be targeted by in-competition testing.</p> <p>To be targeted by out-of-competition testing, it is necessary to belong to an official NADA Testpool.</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]		✓			

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓			
	<p>Note: As long as athletes are somewhat competitive, they belong directly to the core target group of prevention activities.</p> <p>Non-competitive athletes or club members are target group to us, but to reach the mass of recreational non-competitive athletes, it needs significantly more resources.</p>			
<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>“TOGETHER AGAINST” DOPING” (NADA) / “Sport ohne Doping” (German Sports Youth)</p>			
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>TOGETHER AGAINST DOPING (NADA) www.gemeinsam-gegen-doping.de</p> <p>“Sport ohne Doping” (German Sports Youth) www.dsj.de</p>			
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>				
NADOs	✓			
School /teachers	✓			
Exercise professionals				
EuropeActive National Partners				
Healthcare professionals				
Police and crime prevention				
Sport federations club associations	✓			
Sport Clubs (trainers and coaches)				
Other				
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>				
Code of conduct				
Digital and online resources	✓			
Face to face group sessions				
Face to face individual sessions				

Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	We deliver more than 250 face to face sessions per year, mostly for competitive athletes. In terms of recreational sports, we mainly use digital offers, such as our e-learning course.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES We are currently trying to embed a network with our partners, including a yearly face-to-face network event. The national program, run by NADA, belongs to everybody in this field, so we try to use participation for identification purposes.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES We can surely share our experience on working together with gyms or trying to more and more taking care of the field of recreational sports. Yet, it doesn't need to be a successful best-practice though. Looking forward to get in touch with you concerning this (thomas.berghoff@nada.de).		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)		✓	
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Greece Hellenic National Council for Combating Doping – ESKAN

<http://www.0069.syzefxis.gov.gr/>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	/				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	The usual definition that a recreational athlete is an athlete who performs sports not for competitive purposes				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓	✓	✓	
	<p>Note: Also testpool athletes can be tested. Participation in competitions and being competitive is necessary to be targeted by in-competition testing.</p> <p>To be targeted by out-of-competition testing, it is necessary to belong to an official NADA Testpool.</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓			
	Note: My opinion is that, the use of pharmaceuticals in sports, indifferent recreational or competitive, include severe dangers for health.			
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	Informative conferences about the dangers for health precluded in pharmaceutical use by athletes.			
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	An open conference about doping Meetings and Speeches in several high schools by members of ESKAN			
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?				
NADOs	✓			
School /teachers	✓			
Exercise professionals				
EuropeActive National Partners				
Healthcare professionals				
Police and crime prevention				
Sport federations club associations	✓			
Sport Clubs (trainers and coaches)				
Other				
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?				
Code of conduct				
Digital and online resources				
Face to face group sessions	✓			

Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)	✓		
Social Media campaign			
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES By signing memorandum with other NADOs and/or organising conferences for athletes and recreational sportsmen and women.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention		✓	
Difficulties in establishing a standardized approach to intervention		✓	
Lack of good practice			
Lack of financial and human resources			
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			

None of the above apply, please specify others.			
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Hungary Hungarian Anti-Doping Organisation (HUNADO)

<https://www.antidopping.hu>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	Organised anti-doping educational programs at the medical and sport universities, anti-doping lectures in secondary schools.				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Every athlete who is not registered by a National Sport Federation or who has not licence issued by a National Sport Federation or just takes part in competitions which are not registered in a National or International Sport Federation's sport schedule and who competes just in open categories.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: All athletes can be tested any time and any where who is registered by a National Sport Federation or who has licence issued by a National Sport Federation or takes part in a competition which is registered in a National or International Sport Federation's sport schedule				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]					✓
	Note: The recreational or non-competitive (hobby) athletes are in greater danger than the elite athletes are, because they have little information, they get the information via internet or from each other but it is easy to obtain the prohibited substances or the contaminated dietary supplements from the black market or to order from the internet. So the information sharing and raising awareness is very important.				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	<p>1. WADA Outreach Program; Organised anti-doping educational seminars in schools and in clubs.</p> <p>2. Educational lectures; round table discussion; free leaflets and posters on anti-doping issue</p> <p>3. Free leaflets and posters on anti-doping issue</p>				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>Anti-Doping Educational Information and Awareness-Raising booth for recreational athletes and for the public on the national sport day.</p> <p>Round table discussion (questions and answers) on anti-doping issues organised by the student government of the University of Economics and Law.</p>				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention	✓				
Sport federations club associations	✓				

Sport Clubs (trainers and coaches)			
Other			
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources			
Face to face group sessions	✓		
Face to face individual sessions	✓		
Hotline or chat services	✓		
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Media Campaign - giant posters on the streets, anti-doping presentation in the National TV -; organised educational programme for university and school students, anti-doping hotline, special telephone number for information of the prohibited list		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES The State Secretariat responsible for sport; Police Authorities - National Anti-Drug Programme; National Olympic Committee - Medical Committee; National Paralympic Committee; National Sport Federations.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention		✓	
Lack of good practice			✓

Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Ireland Sport Ireland

<https://www.sportireland.ie/Anti-Doping/>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	Sport Ireland is working with Ireland Active.				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	There is no definition of recreational sport used by Sport Ireland.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	Note: Only Members of Sport Ireland recognised National Governing Bodies of Sport				
	Not at all important	Not very important	Neutral	Somewhat important	Very important

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]			✓		
	Note: /				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	Clean Gym Initiative				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Clean Gym and safe selling of supplements initiatives with Ireland Active targets gym users and fitness professionals.				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs					
School /teachers					
Exercise professionals					
EuropeActive National Partners	✓				
Healthcare professionals					
Police and crime prevention					

Sport federations club associations			
Sport Clubs (trainers and coaches)			
Other			
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct	✓		
Digital and online resources	✓		
Face to face group sessions			
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	For recreational athletes we promote an e-learning programme and use posters in fitness facilities. Fitness facilities or gyms taking part in the clean gym initiative must have criteria in their gym membership stating that doping is prohibited in the facility.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES We share information on doping prevention work through the Council of Europe education group.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES The Clean Gym Initiative		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			

Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources			
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country		✓	
No provision or legal framework for doping control and prevention in this setting	✓		
None of the above apply, please specify others.			

Italy Italian Anti-Doping Department – NADO Italia

<http://www.nadoitalia.it>

Are you aware of the 2014 Study on Doping Prevention?	Yes
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>Starting from January 2018 NADO Italia has put in place an education program in partnership with many National Sport Federation that includes specific anti-doping information and education session with athletes, athlete's support personnel and trainer. At the moment the National Federations involved in the project are:</p> <ul style="list-style-type: none"> Athletics Canoe and Kajak Cycling Dance Sport Football Handball Judo-Karate-Martial Arts Rugby <p>NADO Italia participated to the 2018 WADA's Play True Day.</p> <p>NADO Italia is purchasing the ADEL e-learning platform that will be operative on the institutional website approximately within four months.</p>

What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	<p>No specific definition of recreational athlete.</p> <p>A general definition of “recreational athlete” encompasses all the athletes who participate in non-competitive sport event and/or are not registered for National Sport Federations, Associated Sports Disciplines, Sports Promotion Entities.</p> <p>NADO Italia has the jurisdiction over all the athletes registered for a National Sport Federation, Associated Sports Disciplines, Sports Promotion Entities or compete in a sport discipline or event organised or under Aegis of the aforementioned entities</p>				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	<p>Note: Any Person who are registered and competes in sport under the aegis of the relevant International Federation and/or the Italian National Olympic Committee and Italian Paralympic Committee fall under the jurisdiction of NADO Italia and shall be required to comply with the Italian Anti-Doping Sport Rules provisions.</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]		✓			
	Note: See Above				

In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	See Above
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	See Above
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?	
NADOs	✓
School /teachers	✓
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	✓
Police and crime prevention	✓
Sport federations club associations	
Sport Clubs (trainers and coaches)	
Other	
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?	
Code of conduct	✓
Digital and online resources	✓
Face to face group sessions	✓
Face to face individual sessions	
Hotline or chat services	✓
Outreach programmes (big events)	✓
Social Media campaign	
Print media	✓

other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			✓
Difficulties in establishing a standardized approach to intervention			✓
Lack of good practice		✓	
Lack of financial and human resources		✓	
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			✓
Not a priority for our country			✓
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Latvia Anti Doping Bureau of Latvia

<http://www.antidopings.gov.lv/>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	When making new "Anti-doping Rules" new policies regarding recreational sports will be implemented.				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	At the moment Lat-NADO working a new "Anti-doping Rules", and the recreational athlete will be defined in it.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: We can tested all the athletes within competing for Latvian Recognized Sport Federation.				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]				✓	
	Note: /				

<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>1. Lecture, seminars</p> <p>2. Outreach</p> <p>3. Outreach</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
NADOs	✓
School /teachers	
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	
Police and crime prevention	
Sport federations club associations	
Sport Clubs (trainers and coaches)	
Other	
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
Code of conduct	
Digital and online resources	
Face to face group sessions	✓
Face to face individual sessions	
Hotline or chat services	
Outreach programmes (big events)	✓
Social Media campaign	✓
Print media	✓

other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Facebook project - a quiz where the correct answers was divided two bottles with the inscription "I am for clean sport"		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Cooperation with the Latvian Federation Council, Latvian Olympic Unit and the Latvian Academy of Sport Education. And also other Baltic States (Lithuania, Estonia).		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention		✓	
Difficulties in establishing a standardized approach to intervention		✓	
Lack of good practice	✓		
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)		✓	
Not a priority for our country		✓	
No provision or legal framework for doping control and prevention in this setting	✓		
None of the above apply, please specify others.			

Lithuania Lithuania Anti-Doping Agency

<http://www.antidopingas.lt/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	An athlete who is not professional, but loves sport and spends his free time practicing, having an aim to be healthy.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓				
	Note: Lithuanian antidoping agency is testing high level, elite level athlete. it's because of low budget				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]	✓				
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓				
	Note: it is important, because people from low level may do progress and become high level athletes.				
	It matters how much they know about antidoping rules and dangers.				

<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>1. education programs</p> <p>2. education for coaches</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>lessons and seminars and outreach programs</p> <p>prevention programs at school, university</p> <p>sharing information with police department and customers</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
NADOs	
School /teachers	✓
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	
Police and crime prevention	✓
Sport federations club associations	✓
Sport Clubs (trainers and coaches)	✓
Other	
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
Code of conduct	
Digital and online resources	✓
Face to face group sessions	✓
Face to face individual sessions	✓
Hotline or chat services	✓
Outreach programmes (big events)	✓
Social Media campaign	✓
Print media	✓

other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	<p>Digital and online resources (e.g. e-learning, Apps) we have e-learning platform www.bedopingo.it and use Apps for checking medicine and other information.</p> <p>Face to face group sessions. Seminars and lessons at schools are organized very often.</p> <p>Face to face individual sessions- we help athlete if they need.</p> <p>Hotline or chat services - we answered question as fast if we can.</p> <p>Outreach programmes (e.g. mass participation events)- we take part in big sport festivals, big events.</p> <p>Social Media campaign - facebook, our website.</p> <p>Print media (e.g. pamphlets)- we use posters, leaflets, booklets, stickers.</p>		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	<p>YES</p> <p>share information and experience that was given during seminars and lessons with public bodies, sport bodies and/or anti-doping organisations</p>		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			✓
Lack of financial and human resources		✓	

Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)	✓		
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Luxembourg Luxembourg Agency for the Fight Against Doping – ALAD

<http://www.alad.lu/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?					
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓				
	Note: Low level competitive athletes				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]			✓		
	Note: /				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes					
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.					
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs					
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other					

If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources			
Face to face group sessions			
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Olympic Committee Ministry of Sports/ Ministry of Health in relation with competitive athletes at different levels		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources			

Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Malta NADO Malta

<https://nadamalta.org/>

Are you aware of the 2014 Study on Doping Prevention?	Yes
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	All athletes (competitive and recreational) are included in anti-doping education programmes.
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	<p>Our anti-doping legislation does not give a definition for 'recreational' athlete.</p> <p>It only provides rules for athletes registered with a sporting organisation. Quoting:</p> <p>"athlete" means any person who competes in sport at the international level as defined by each international federation or at the national level as defined by each national anti-doping organisation. The ADC has discretion to apply anti-doping regulations to an athlete who is neither an international-level nor a national-level athlete, and thus to bring them within the definition of "Athlete." In relation to athletes who are neither international-level nor national-level athletes, the ADC may elect to: conduct limited testing or no testing at all; analyse samples for less than the full menu of prohibited substances; require limited or no whereabouts</p>

	<p>Information; or not require advance TUEs. However, if an anti-doping rule violation under regulations 3(2)(a), (c), or (e) is committed by any athlete over whom the ADC has authority who competes below the international or national level, then the consequences set forth in these regulations must be applied. For the purposes of regulations 3(2)(i) and (j) (except regulation 15(7)), and for the purposes of antidoping information and education, any person who participates in</p> <p>sport under the authority of any signatory, government, or other sports organisation accepting the Code, is an athlete;</p>				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	<p>Note: All athletes registered with a sporting organisation (competitive) may be tested by the NADO. Non-competitive eg. gym users do not fall under the jurisdiction of NADO as defined by our Laws.</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]		✓			

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓				
	Note: Our limited funding is concentrated on competitive athletes, although all level of athletes is included in anti-doping education programmes.				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1.2.3. Education Programmes				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>Social media education. Regular posts on Facebook page on many aspects of Anti-doping related issues are posted regularly. The page reaches a wide variety of people including non-athletes.</p> <p>Website information. Anti-doping related information is available to everybody that access the page. The page reaches a wide variety of people including non-athletes.</p> <p>Outreach activities at sporting events. All persons visiting the stand are engaged in the education being presented.</p>				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations					
Sport Clubs (trainers and coaches)					
Other	Maltese Olympic Committee				
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					
Code of conduct					

Digital and online resources			
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	<ol style="list-style-type: none"> 1. Web site information: www.nadomalta.org 2. Social Media. Facebook page has a reach of 2-3,000 persons 3. Regular informative talks to sports clubs, national federations 4. Lectures to Law and PE students 5. Outreach activities in sporting events 6. Activities with school children 7. Training for PE teachers to include anti-doping education in their lessons 		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	<p>YES</p> <p>All requests from sporting bodies requesting informative/educational activities with their athletes are accepted and delivered.</p>		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	<p>YES</p> <p>prePLAY project which the Maltese Olympic Committee was a partner: www.preplay.si</p>		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			

Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)		✓	
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Netherlands Doping Authority Netherlands

<https://www.dopingautoriteit.nl/>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	Nothing really concrete: most measures were already in place, or in progress. More collaboration with municipalities and addiction clinics may have resulted partly from the study.				
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	We use the (informal) definition that a recreational athlete is an athlete who works out in fitness centers without participation in sports competition.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: To be able to test an athlete, the athlete must be legally bound to the rules of a sport federations (by membership, agreement or license).				
	Not at all important	Not very important	Neutral	Somewhat important	Very important

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]		✓			
	Note: The first and last category receive less attention because of budgetary restrictions				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1. Campaign 100percentdopefree (to be renamed as BE PROUD). 2. Campaign Eigen Kracht 3. Campaign Eigen Kracht				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	See: www.dopefree.nl/ See: www.eigenkracht.nl See: www.eigenkracht.nl				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals	✓				
EuropeActive National Partners					
Healthcare professionals	✓				
Police and crime prevention					

Sport federations club associations			
Sport Clubs (trainers and coaches)			
Other			
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services	✓		
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media			
other	Books, apps		
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	See: www.eigenkracht.nl ; this is an elaborate campaign, including the production of books, the maintenance of a large dedicated website, the launce of a supplement checker app, and many more.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES We cooperate with the Ministry for Health, with the organization of Fitness professionals and with European partners.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES We are willing to share whatever may be helpful. A concrete project is the development of the Supplement Checker app in other (European) languages.		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			

Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)		✓	
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Norway Anti Doping Norway

<https://www.antidoping.no/>

Are you aware of the 2014 Study on Doping Prevention?	No			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	/			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	We don't use the term "recreational athlete", but when talking about these athletes, we include all athletes competing at a lower level. Gym members. Men/women exercising on their own. Men/women participating in marathons, local cycling contests etc.			
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes
Which of these types of athletes can be tested by your NADO?	✓	✓	✓	
	Note: All members of a sports club can be tested, but also gym members under some circumstances. There are strict rules for testing a gym member. The gym must follow ADNO's "Clean gym" programme, and the gym member have to sign a form saying he/she is willing to be tested.			

	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]			✓		
	Note: Our prevention and public health department focus on preventing doping both in sports and the society, and the focus is therefore both on low level athletes, non-competitive sports club related athletes and non-competitive non sports club related athletes. The focus is mostly on the two first mentioned.				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	<p>1. The program Clean Sports Club focus on youth and lower level athletes. E-learning Real Winner. Face-to-face lectures all over the country. Anti-doping Norway held about 630 face-to-face presentations in 2017, the majority targeted towards lower level athletes and youth in sports clubs and in high schools.</p> <p>2. Clean Fitness center, an anti-doping certification program for fitness centres. Fitness centres pay an annual fee to be part of the program. The program consists of access to e-learning, info material, and counselling. Clean Fitness centres may also order doping controls and lecture/outreach by pay-for service (not included in annual fee). About 500 fitness club out of a total of 1150 fitness clubs have joined the program. // Anti-doping hotline // Inter-disciplinary preventive program for counties and municipalities.</p> <p>3. Group sessions, "Clean student". Out of about 630 face to face presentations, about 50 % are held in high schools. There we meet all kind of participants, including competitive athletes, gym users and non-competitive non sport-club related athletes</p>				

<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>“Mobilization against doping for counties and municipalities”. Counties: 4 in program. Project coordinator hired in 40-60 % position. 2-year project period with optional renewal. Regional steering group. Develop regional action plan. Much activity towards high schools, health personnel, teacher and parents. Municipalities: 14 in program. Local steering group. 2-year project period with optional renewal. Action plan. Educational seminar for public employees (health, police, social workers, teachers etc).</p> <p>“Clean Sports Club”: Certification program for sport clubs. 1200 in program. Actionplan. Select a minimum of two preventive activities during a two-year period. We give them access to lectures, material, e-learning and more.</p> <p>Clean fitness centre Certification program for fitness centres. About 500 fitness centres have joined the program. E-learning for staff and members. Information material. Focus on increasing awareness and promoting clean exercise.</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
NADOs	✓
School /teachers	
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	
Police and crime prevention	
Sport federations club associations	
Sport Clubs (trainers and coaches)	✓
Other	Virke Trening
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
Code of conduct	
Digital and online resources	✓
Face to face group sessions	✓
Face to face individual sessions	
Hotline or chat services	✓
Outreach programmes (big events)	
Social Media campaign	✓
Print media	✓
other	

Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Website, e-learning (real winner and clean fitness centre), learning platform with ppt, videos and other resources for high schools (Clean student), print media, face-to-face presentations, seminars and conferences. We're on schools, gyms, sports clubs and other areas, focusing on good attitudes and good and healthy workout environments. We also focus on increasing the competence of those working with youth, and especially those who focus on prevention.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Current bilateral collaboration with NADOs in Kenya, China, Turkey. Nordic collaboration. Collaboration with NOC and National federation of sports, collaboration with National directorate of health and national police directorate, Virke trening, Oslo University Hospital, several universities and sport high-schools.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES "Local mobilization towards doping" is a programme involving the municipality, where the goal is to implement good routines for prevention of doping. As a world leading NADO, in general terms, we are positive to share our experience and programs with other countries. Details must be discussed in each case and for each program. Clean fitness centre available in English. Other programs are not currently available in english.		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources			
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			

None of the above apply, please specify others.			
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Poland Polish Anti-Doping Agency (POLADA)

<http://www.anty doping.pl/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	There is no definition of recreational athlete in Polish law				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: POLADA can conduct tests on elite athletes and athletes who participate in competitions (such as street races)				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]					✓
	Note: We can observe increase of use of PEDs by users of fitness clubs and gyms				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1. Anti-Doping education for low level athletes and organizers of events for low level athletes 2. Information campaigns 3. Information campaigns				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	We play Fair - information campaign based on elite sport				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers	✓				
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations	✓				
Sport Clubs (trainers and coaches)					
Other					
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					
Code of conduct					
Digital and online resources	✓				
Face to face group sessions	✓				
Face to face individual sessions					

Hotline or chat services	✓		
Outreach programmes (big events)	✓		
Social Media campaign	✓		
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES Exchange of knowledge on expert forums		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES We are not exactly sure what could be innovative good practice.		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			✓
Difficulties in establishing a standardized approach to intervention			✓
Lack of good practice			✓
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)	✓		
Not a priority for our country		✓	
No provision or legal framework for doping control and prevention in this setting			✓

None of the above apply, please specify others.			
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Portugal Autoridade Antidopagem de Portugal (ADoP)

<http://www.adop.pt/>

Are you aware of the 2014 Study on Doping Prevention?	Yes
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>Information and education on the fight against doping has a well-defined legal basis in our national legislation, under the terms of letter g) of article 18 of Law no. 38/2012, of August 28, it is incumbent upon ADoP :</p> <p>“To study, in collaboration with the entities responsible for the education system, sports and health, educational programs, such as information and education campaigns, in order to sensitize sportspeople, their support staff and young people in general for the dangers and disloyalty of doping. “</p> <p>It should be noted that ADoP in the field of education and information has made a huge effort both financially and in terms of human resources, trying to give greater visibility together of sports agents on the importance of the fight against doping and also the harms that it has for the health of athletes.</p> <p>To that extent, the ADoP determined that this area should have priority in our policy, having carried out numerous training actions with sports practitioners, coaches and directors and other agents linked to the sports movement.</p> <p>Therefore, the Portuguese Anti-Doping Authority intended to reinforce the awareness of all those involved in the sporting phenomenon of the importance of the fight against doping in sport, considering that it is not a task that only falls to ADoP, but must be a concern at all, as sports and educational agents.</p>
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	<p>In the Anti-Doping Law there is no definition for athletes who practice sport in a recreational way, but only for athletes enrolled in Sports Federations. However, this Authority understands that people who practice recreational sports do so for the sake of sports, to have a higher quality of life, to adopt healthier life practices, allowing the individual to relax and forget at times the pressure and responsibilities of day-to-day and in this way to relax and minimize stress levels.</p>
Does your NADO have jurisdiction in recreational sport as defined in your country?	No

	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓				
	<p>Note: The Portuguese Anti-Doping Authority (ADoP) is the national anti-doping organization with a role in controlling and combating doping in sport, in particular as an entity responsible for adopting rules to trigger, implement or apply any phase of the doping control procedure to all sports practitioners who are part of a sports federation with a public sporting purpose</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]					✓
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]				✓	
	<p>Note: Doping in sport in Portugal is very focused on federated or competitive sport, and less on recreational sports.</p> <p>The legislation on doping in Portugal focuses on sports practitioners who are federated in a sporting federation with public sporting utility, where sanctions applied to anti-doping rule violations are effective.</p> <p>Regarding recreational sports, there are policies to combat doping in sport, especially prevention policies, but these are very difficult to apply, taking into account the difficulty of applying the “repression” factor in sport considered as recreational.</p> <p>Prevention and repression are two distinct components, but they interconnect, that is, they have to move in parallel, since they do not function without each other.</p>				
	<p>However, in Portugal, the State has public entities, other than ADoP, whose mission is to control Substances in gymnasiums, as is the case with the Food and Economic Security Authorities (ASAE).</p>				

<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>The 'Clean Sport' project aims to raise awareness, educate and guide future sportspeople in the search for an increasingly clean sport, thus contributing to the preservation of health, ethics and sporting truth.</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>"Doping What the Coach Needs to Know" is the dissemination of information related to the Fight against Doping in Sport, aiming to educate, educate and educate future coaches in the pursuit of an increasingly clean sport, thus promoting equality, ethics and health among all.</p> <p>"Clean Sport" aims to sensitize, educate and direct future sportspeople in the search for an increasingly clean sport, thus contributing to the preservation of health, ethics and sporting truth.</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
NADOs	✓
School /teachers	✓
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	
Police and crime prevention	✓
Sport federations club associations	
Sport Clubs (trainers and coaches)	
Other	
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
Code of conduct	✓
Digital and online resources	✓
Face to face group sessions	✓
Face to face individual sessions	✓
Hotline or chat services	

Outreach programmes (big events)			
Social Media campaign	✓		
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	The ADoP is the only state entity with competence to define and establish the subjects and the programmatic contents related to training on doping in federated sport.		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	<p>YES</p> <p>Family medicine doctors in the health centers belonging to the National Health System;</p> <p>Young people between the ages of 10 and 18;</p> <p>Users of weight training gyms.</p>		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	<p>YES</p> <p>The Portuguese Anti-Doping Authority is a good example of the prevention of the use of doping substances in recreational sports through its “Clean Sport” project, which aims to raise awareness, educate and direct future sportspeople in the pursuit of an increasingly clean sport, thus contributing to the preservation of health, ethics and sporting truth.</p> <p>https://www.asae.gov.pt/</p>		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention		✓	
Difficulties in establishing a standardized approach to intervention		✓	
Lack of good practice		✓	
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)	✓		
Not a priority for our country		✓	

No provision or legal framework for doping control and prevention in this setting		✓	
None of the above apply, please specify others.			

Romania Romanian Anti-Doping Agency (ANAD)

<http://anad.gov.ro/web/ro/>

Are you aware of the 2014 Study on Doping Prevention?	Yes			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>By establishing an appropriate national legislation on anti-doping policies in recreational sport in our country, NADO Romania has been signed protocols with the National Authority of Customs, the General Inspectorate of Romanian Police and the National Authority for Consumer Protection to prevent and combat the illicit traffic of doping substances.</p> <p>Also, in 2014 Romania NADO launched the project "Anti-doping education strategies designated to reduce the use of doping substances in the bodybuilding and fitness gyms", financed by UNESCO.</p>			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	<p>Athlete - any Person who competes in sport at international level, as defined by each International Federation, or any Person who competes in sport at national level, affiliated with a sport club or a national sports federation and any other person who participates in sport activities at a lower level. The current definition also refers to the recreational-level competitors. However, they are not required to provide whereabouts information or to ask for therapeutic use exemption (TUEs) granting. - as is defined at Article 3, paragraph 49 of the Law 227/2006 regarding the prevention and fight against doping in sport.</p>			
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes

Which of these types of athletes can be tested by your NADO?	✓	✓	✓		
	<p>Note: Pursuant to the Article 8, paragraphs 2 and 3 of the Law 104/2008 regarding the prevention and fight against the manufacture and the illicit traffic of the high-risk doping substances Romania NADO Agency has the right to conduct doping tests among the persons practicing bodybuilding and fitness, in order to determine the proportions of the use of high-risk doping substances within the recreational sport. The doping testing set forth in paragraph (2) shall be conducted only upon the written consent of the person involved and in compliance with the principle of the confidentiality of the personal data.</p>				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	<p>Note: Our Agency organizes educational campaigns and projects in recreational sport, but we focus on the elite athletes.</p> <p>One of the Agency initiatives is the anti-doping training courses for bodybuilding and fitness gyms representatives.</p>				
<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>1.2.3. Education Campaigns</p>				

If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	<p>The project "Anti-doping education strategies designated to reduce the use of doping substances in the bodybuilding and fitness gyms".</p> <p>The project "Awareness of students regarding the potential risks of the use of food supplements containing pro-hormones and prohibited substances"</p>
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?	
NADOs	✓
School /teachers	✓
Exercise professionals	✓
EuropeActive National Partners	
Healthcare professionals	✓
Police and crime prevention	
Sport federations club associations	✓
Sport Clubs (trainers and coaches)	✓
Other	
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?	
Code of conduct	
Digital and online resources	
Face to face group sessions	✓
Face to face individual sessions	
Hotline or chat services	
Outreach programmes (big events)	✓
Social Media campaign	✓
Print media	✓
other	
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	Education Campaigns
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	<p>/</p> <p>We collaborate and share our expertise with other NADO.</p> <p>Our Agency participates in Symposiums, International Conferences.</p>

In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	<p>YES</p> <p>Our Agency participates in International conferences and Symposiums where are presented essays on recreational sport.</p> <p>In 2015, our Agency was invited at the UNESCO International Exposition, where the Agency presented its projects and education campaigns.</p>		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice	✓		
Lack of financial and human resources		✓	
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms		✓	
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Slovakia Slovak Anti-Doping Agency

<https://www.antidoping.sk/>

Are you aware of the 2014 Study on Doping Prevention?	Yes
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>New Sport Act No.440/2015</p> <p>Criminal Law No.397/2015</p> <p>Our policy is to promote fair-play and clean sport to everybody under our jurisdiction</p>

What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	There is definition of athlete as a member of registered sport association, specially defined are talented athletes and top team				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: Other Athletes as well - any person who competes in any event organised in our country				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]			✓		
	Note: We provide educational and prevention activities to any subject on demand.				

<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>1. Cooperation with MEOs</p> <p>2. no interest from their side</p> <p>3. we have no information</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>e-learning "Together against Doping"</p> <p>Workshops and sessions</p> <p>Campaigns: 2016 - It's up to you and 2018 - Win clean</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
NADOs	✓
School /teachers	✓
Exercise professionals	
EuropeActive National Partners	
Healthcare professionals	
Police and crime prevention	
Sport federations club associations	✓
Sport Clubs (trainers and coaches)	
Other	
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	
Code of conduct	
Digital and online resources	✓
Face to face group sessions	✓
Face to face individual sessions	
Hotline or chat services	
Outreach programmes (big events)	✓
Social Media campaign	✓
Print media	

other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	<p>YES</p> <p>Cooperation with criminal police - consultations about prohibited list substances.</p> <p>workshops for coaches and other ASP (eg. psychotheraputists, physicians)</p> <p>bilateral agreements with universities and Sport centres</p>		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	<p>NO</p> <p>Studies are not finished yet</p>		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources	✓		
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			✓
None of the above apply, please specify others.			

Slovenia Slovenian Anti-Doping Organisation

<http://www.sloado.si/>

Are you aware of the 2014 Study on Doping Prevention?	Yes				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	There is not exact definition of recreational athlete in our NADO or country. The one official definition would be: people of all ages who do sport but only compete maybe a couple of times a year at mass sport events. We can test all participants at mass sport events organised by national sport federations.				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: We can test all athletes that are members of national sport federations (sport clubs) and we can do testing at all events organised by national sport federation and/or its members.				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]			✓		

<p>In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]</p>	<p style="text-align: center;">✓</p> <p>Note: Our primary target groups are young athletes which most of them can be treated as low level athletes. we reach them through high school, NSFs and sport clubs. we do lectures and outreach programs.</p> <p>we also do some prevention for recreational athletes (participants at mass sport events) - usually in the form of outreach programs. We tried to do some seminars for them as well but the response was pretty bad. we are planning on preparing some kind of media awareness campaign for recreational athletes in the future.</p>
<p>In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for:</p> <p>1. Low level / Recreational level competitive athletes]</p> <p>2. Non-competitive sport club related athlete, gym users included</p> <p>3. Non-competitive non sport club related athletes</p>	<p>1. Prevention programs for young athletes (lectures and outreach programs)</p> <p>2. Outreach programs, occasionally seminars</p> <p>3. outreach programs at sport events for general public</p>
<p>If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.</p>	<p>Prevention programs in primary schools (posters and booklets for children age 6 and 9)</p> <p>Lectures for athletes a high schools with sport departments (age 16)</p> <p>Lectures for athletes at sport clubs (for example playing in junior leagues in team sports such as football, handball and volleyball)</p>
<p>If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?</p>	
<p>NADOs</p>	<p style="text-align: center;">✓</p>
<p>School /teachers</p>	
<p>Exercise professionals</p>	
<p>EuropeActive National Partners</p>	
<p>Healthcare professionals</p>	
<p>Police and crime prevention</p>	
<p>Sport federations club associations</p>	
<p>Sport Clubs (trainers and coaches)</p>	
<p>Other</p>	
<p>If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?</p>	


Code of conduct			
Digital and online resources			
Face to face group sessions			
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)	✓		
Social Media campaign			
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	most common way are outreach programs and informational leaflets - at some events leaflets are part of the “gift” bag that participants receive by organisers		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES we report annually to Ministry for education, science and sport, to Foundation for Sport and to National Olympic Committee. We are sharing our programs and experiences with the NADOs worldwide.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO Studies are not finished yet		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			✓
Lack of financial and human resources		✓	
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)	✓		

Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.			

Spain Spanish Agency for Health Protection in Sport (AEPSAD)

<https://aepsad.culturaydeporte.gob.es/inicio.html>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	A not licensed sportman/woman				
Does your NADO have jurisdiction in recreational sport as defined in your country?	No				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓			
	Note: Athletes with a national level sports license				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]		✓			
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]					✓

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]					
Note:					
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1. See: https://aepsad.culturaydeporte.gob.es/inicio.html 2. GREEN SEAL ERASMUS+SPORT PROJECT 3. GREEN SEAL ERASMUS+SPORT PROJECT				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	DOPAJE LO QUE DEBES SABER A basic program on doping education and prebvention open to all citizens VIVE SIN TRAMPAS A educational program for Physical Education teachers to trasmit antidoping prevention to all the students 13-18 years SPORTPLUS A specific program for multisport clubs adressed to sport schools.				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers	✓				
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations	✓				
Sport Clubs (trainers and coaches)	✓				
Other	Association of Gym Owners				
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?					
Code of conduct					

Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)	✓		
Social Media campaign			
Print media	✓		
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery	<p>AEPSAD online platform: "Aula Virtual"</p> <p>Meetings organized by regional sport authorities and AEPSAD</p>		
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	<p>YES</p> <p>Meetings organized by regional sport authorities and AEPSAD</p> <p>Meetings organised by sport federation and AEPSAD</p>		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	<p>YES</p> <p>GREEN-SEAL Erasmus+Project.</p> <p>Website with documents in Spanish, Italian, French, English, Polish and Croatian.</p> <p>Will be open to public in September 2018.</p>		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice		✓	
Lack of financial and human resources			✓
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			
Not a priority for our country			

No provision or legal framework for doping control and prevention in this setting	✓		
None of the above apply, please specify others.			

Sweden Svensk Anti-Doping

<https://www.rf.se/Arbetsrum/SvenskAntidoping/>

Are you aware of the 2014 Study on Doping Prevention?	No				
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?					
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	Member of a sports club affiliated to SSC, and Not competing at any level				
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes				
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes	
Which of these types of athletes can be tested by your NADO?	✓	✓	✓		
	Note: Only gym that are runned by a club inside the SSC				
	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	

In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]	✓				
	Note:				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1. National Project 2. Dopingjouren(hot line) 3. Dopingjouren(hot line)				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	Vaccinera klubben Rena Vinnare Prodis				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					
Exercise professionals					
EuropeActive National Partners					
Healthcare professionals					
Police and crime prevention					
Sport federations club associations	✓				
Sport Clubs (trainers and coaches)					
Other	Prodis				

If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services	✓		
Outreach programmes (big events)			
Social Media campaign			
Print media			
other			
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES In a national Project financed by the government		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	NO		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3
Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources		✓	

Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms)			✓
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting	✓		
None of the above apply, please specify others.			

United Kingdom UK Anti-Doping (UKAD)

<https://www.ukad.org.uk/>

Are you aware of the 2014 Study on Doping Prevention?	Yes			
What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?	<p>Limited resources or capacity to undertake much work in this area at the time of the research.</p> <p>* Education workshops delivered by UKAD or sports continues, as does some event-based education for school-based competitions, some amateur sport competitions and information available on our website.</p> <p>More recently and post a Government initiated review of UKAD, further recommendations have been made and resources provided to support an increase of activity in this area, including possible education interventions in gyms/fitness industry as per UKADs new strategic plan 2018-2022.</p>			
What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?	<p>An athlete is defined as anyone who comes under the jurisdiction of the anti-doping rules; therefore this largely relates to any athlete who is a member/affiliated to a national federation who has a compliant set of anti-doping rules in place.</p> <p>We do not currently have a specific definition for recreational athletes.</p>			
Does your NADO have jurisdiction in recreational sport as defined in your country?	Yes			
	High level / Elite level competitive athletes	Low level / Recreational level competitive athletes	Non-competitive sport club related athletes (including gym users)	Non-competitive non sport club related athletes
Which of these types of athletes can be tested by your NADO?	✓	✓		
Note: As per definition of athlete - any athlete (as defined) can be tested any time any place.				

	Not at all important	Not very important	Neutral	Somewhat important	Very important
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Low level / Recreational level competitive athletes]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive sport club related athletes (including gym users)]				✓	
In your country, how important is doping prevention when compared to High level / Elite level competitive athletes? [Non-competitive non sport club related athletes]			✓		
	Note:				
In your country, are there any prevention initiatives in recreational sport (others than testing,)? If so, please specify the programmes for: 1. Low level / Recreational level competitive athletes] 2. Non-competitive sport club related athlete, gym users included 3. Non-competitive non sport club related athletes	1. Education, Event-based education (Outreach), Testing, Intelligence gathering and investigations 2. / 3. /				
If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.	100% me athlete education programme 'Clean Club' - initiative for sports clubs to adopt clean sport (anti-doping) policies, educate club members and have codes of conduct and wider policies that include provisions that relate to anti-doping. This includes reference to and promotion of core anti-doping tools such as Global DRO and Informed Sport. Report doping in sport hotline.				
If doping prevention in recreational sport is taking place in your country, please select the organizations/ professions significantly leading on these activities?					
NADOs	✓				
School /teachers					

Exercise professionals			
EuropeActive National Partners	✓		
Healthcare professionals	✓		
Police and crime prevention	✓		
Sport federations club associations	✓		
Sport Clubs (trainers and coaches)	✓		
Other	This is the range of organisations who could assist in doping prevention in recreational sport.		
If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?			
Code of conduct			
Digital and online resources	✓		
Face to face group sessions	✓		
Face to face individual sessions			
Hotline or chat services			
Outreach programmes (big events)			
Social Media campaign			
Print media			
other	Information available on our website		
Please specify more in detail, the doping prevention taking place in your country and the mode of delivery			
Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations? If yes, please explain how.	YES we have presented at conference on IPEDs, work with a range of sports partners on schools-based programme (healthy training) and in the process of building more closer relationships with law enforcement and public health agencies.		
In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries? If yes, please provide further details.	YES Subject to the necessary contractual agreements being in place where required.		
Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?	1	2	3

Difficulties in establishing a clear aim or purpose for the intervention prevention			
Difficulties in establishing a standardized approach to intervention			
Lack of good practice			
Lack of financial and human resources			
Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms			
Not a priority for our country			
No provision or legal framework for doping control and prevention in this setting			
None of the above apply, please specify others.	<p>No one agency in the UK has full responsibility for doping prevention in recreational sport, therefore cross-organisational strategic coordination is required.</p> <p>There are potential conflicts of messages - as a NADO clear that prohibited substances are banned, however that may r may not be the case in all activities defined as 'recreational', some public health agencies therefore approach this from a harm reduction perspective. How both types of messaging co-exist in recreational sport needs to be further explored.</p>		

Appendix 1 - Questionnaire

Brussels, May 2018

EU 28 NADOs SURVEY

THE FORUM FOR ANTI-DOPING IN RECREATIONAL SPORT (FAIR)
UPDATE ON THE STUDY ON DOPING PREVENTION 2014 - EU28 MEMBER STATE FACT SHEETS

Dear Sir / Madam

We are coordinating an Erasmus+ funded project by the European Commission (Agreement Number 2016 – 3637 / 001 – 001), and part of the activity is to update the EU28 fact sheets which were developed in the Study on Doping Prevention (SoDP) in recreational sport (2014). The published SoDP can be found here

Your name has been proposed to be the contact for the purposes of our research, and we hope that you feel able to assist with completing this short questionnaire. This important work aims to identify and describe existing work, programmes, studies, examples, legislation and policies on doping prevention in recreational sport across the EU that have changed in the past 4 years.

Owing to the short duration of this project, it is also important that we receive your responses to the questionnaire no later than 18 June 2018, and we hope that you are able to respect this timeline.

The information that we receive will be compiled into a review of the position Study on Doping Prevention and will be presented at the next annual Forum for Anti-Doping in Recreational Sport which will take place in Brussels on 22nd November 2018 to which you are cordially invited.

The data and information we collect can be used by other researchers, academics and policy makers. Should you have any questions, or wish for clarification you can contact us at EuropeActive (Francesco Capuani francesco.capuani@europeactive.eu). You can find more information on the FAIR project and the annual Forum here.

Thank you for your kind attention.

For the purpose of this survey we are using an established definition for recreational sport which has been agreed with the European Commission:

Sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.

2. Which NADO are you representing?

3. What is your position in your organization?

4. Are you aware of the 2014 Study on Doping Prevention?

Yes No

5. What, if any, developments in your country's anti-doping policies and practice in recreational sport resulted from the findings of that report?

6. What definition, if any, of a recreational athlete is used in your NADO/COUNTRY?**7. Does your NADO have jurisdiction in recreational sport as defined in your country?**

- Yes No

8. Which of these types of athletes can be tested by your NADO?

- 3.1 High level / Elite level competitive athletes
3.2a Low level / Recreational level competitive athletes
3.2b Non-competitive sport club related athletes (including fitness and gym users)
3.2c Non-competitive non sport club related athletes

Please comment and/or elaborate your answer

9. In this question, we ask you to assess the importance of doping prevention in recreational sport in your country.

Scale of importance (5 Very important, 4 Somewhat important, 3 Neutral, 2 Not very important, 1, Not at all important)

In your country, how important is doping prevention for 3.2a (Low level / Recreational level competitive athletes), compared to 3.1 (High level / Elite level competitive athletes)?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

In your country, how important is doping prevention for 3.2b (Non-competitive sport club related athletes) compared to 3.1?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

In your country, how important is doping prevention for 3.2c (Non-competitive non sport club related athletes) compared to 3.1?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please elaborate on your answer:

10. In your country, are there any prevention initiatives in recreational sport (others than testing, if so indicated in Question 7)?**11. If so, please specify the programmes for 3.2 a, b, and c:****12. If appropriate, please provide up to three examples of doping prevention programmes implemented specifically for non-elite athletes in your country.****13. If doping prevention in recreational sport is taking place in your country, please select the organizations/professions significantly leading on these activities?**

Please tick up to three boxes

- NADOs
 Social Workers
 School /teachers
 Exercise professionals

- EuropeActive National Partners
- Healthcare professionals (including doctors)
- Police and crime prevention
- Practitioners/researchers in social and human sciences
- Sport science practitioners
- Sport federations club associations
- Sport Clubs, including sport trainers and coaches
- Others, please specify:

14. If doping prevention in recreational sport is taking place in your country, what is the main mode of delivery?

- Code of conduct
- Digital and online resources (e.g. e-learning, Apps)
- Face to face group sessions
- Face to face individual sessions
- Hotline or chat services
- Outreach programmes (e.g. mass participation events)
- Social Media campaign
- Print media (e.g. pamphlets)

Please specify more in detail, the doping prevention taking place in your country and the mode of delivery:

15. Does your NADO share expertise involving doping prevention work with public bodies, sport bodies and/or anti-doping organisations?

- Yes

Please explain how:

- No

Please explain why not:

16. In your country, do you have examples of good practice in doping prevention in recreational sport that you are prepared to share with other EU countries?

- Yes
- No

If Yes, please provide further details below. If this good practice is accessible in ENGLISH, please include links to websites

17. Please rate up to three barriers (by scoring them 1 to 3, where 1 is the most important) on doping prevention in recreational sport in your country?

- Difficulties in establishing a clear aim or purpose for the intervention prevention
- Difficulties in establishing a standardized approach to intervention
- Lack of good practice
- Lack of financial and human resources
- Lack of cooperation between key stakeholders (i.e. federations, clubs and athletes / gyms and fitness centres)
- Not a priority for our country

- No provision or legal framework for doping control and prevention in this setting
- None of the above apply, please specify others:

Appendix 2 - Question Schedule for Interviews (TEG 1)

Interview Schedule:

Introductory Questions:

- What are the main roles/responsibilities of your organisation?
- What is your role within the organisation?
- What are your responsibilities?

Good/Emerging Practice

- How do you talk about this issue in your organization? Doping, IPEDs, something else?
- Is your organisation active in trying to reduce the use of Image or Performance Enhancing Drugs in recreational sport?
- Can you describe these activities further?
- How did they come about?
- Who are they aimed at?
- Population/Age?
- What do you consider the window of opportunity for this group?
 - How is this mirrored in your project(s)
 - Ad sub-questions
- Is this group your main priority?
- Are they aimed at the reduction of a particular substance or method?
- Why/Why not?
- What are the limiting factors that you experience in trying to reduce doping or use of IPED in this context?
- What other factors have proved helpful in addressing IPED use in these contexts (legal basis? resources increase?)
- Do you work closely with other organisations to achieve these aims?
- Does this have any advantages or indeed raise any difficulties?
- Do you evaluate these programmes or interventions in anyway? How?
- Do you think they work/are effective?
- What could be done to better address the problem of doping IPED use in recreational sport?

Appendix 3 - Survey and interview schedule used in the study (TEG 2)

Reducing the risk of inadvertent doping: A review of practice across the European landscape

Short-Survey for National Anti-Doping Organisations and International Federations

Instructions: Thank you for agreeing to participate in this survey. The survey has been developed to gather stakeholder policy and practice in relation to the risk of inadvertent doping through food supplement use.

The survey results will be summarized in the “Report on Stakeholders Views”, where the different stakeholder approaches and perspectives will be synthesised.

Organisation Information

This section helps us to understand you and your background. In completing this survey, please respond on behalf of the organisation.

1. Name of organisation:
2. Type of organisation: NADO __ IF ____
3. Website address:
4. Name of individual(s) completing the survey:
5. Role of the individual completing the survey on behalf of the organization:

Below are five questions relating to your current policy and practice to reduce inadvertent doping from sports food and sports supplements. Please feel free to offer further details as you see fit.

1. What guidance does your organisation currently give athletes and athlete support personnel to reduce the risk of inadvertent doping from sports food and sports supplements? (Please be as specific as possible and feel free to link to relevant documents/guidance materials. If the guidance differs between athletes and athlete support personnel, please detail the information provided for each separately)
2. Does your organisation endorse and/or recommend athletes/athlete support personnel to a supplement risk minimisation process? If yes, please list the certification programme and detail your reasons for signposting this programme. If no, please outline your reason(s) against this.
3. Does your organisation alert athletes/athlete support personnel to the latest supplement contamination/adulteration risks? If yes, please provide details on how you obtain this information (i.e. what is your source for supplement risk notifications) and how you disseminate this information to athletes/athlete support personnel.
4. Does your organisation produce athletes/ athlete support personnel with product-specific risks? If yes, please provide details on how you obtain this information and how you disseminate this information to athletes/athlete support personnel.
5. Please provide any further information that you feel is relevant to describe your organisation’s approach to reducing the risk of inadvertent doping in sport.

Appendix 4 - Indicative Interview schedule for stakeholders (TEG 2)

General background questions

- a. Please describe the sector that you represent.
- b. Please describe your expertise and experience.

Context questions

1. In your view, what are the driving forces for the growth in the sports food and food supplement industry?
2. In your view, what are the major issues facing users of food supplements?

Inadvertent doping

3. What first comes to mind when you hear the phrase 'inadvertent doping'?
4. What factors do you think explain supplement contamination & adulteration?
5. What factors do you think explain athletes testing positive for prohibited substances through supplement use?

Risk minimisation

6. Thinking of the current situation, what do you consider to be good practice in reducing the risk of inadvertent doping from food supplements?
7. Thinking of the future, what could be done in policy or practice to further reduce any risk of inadvertent doping from food supplements?

What would better practice look like?

Appendix 5 - Code of Conduct for Anti-Doping in Recreational Sport

Recreational sport is defined as sport, exercise and physical activity which takes place in low-level competitive or non-competitive environments and engages participants/individuals at sport events, fitness centres, sport and leisure clubs, and outdoor-based activities.

Doping remains an important threat to sport, and the use of doping substances by amateur athletes poses serious public health hazards that requires preventive action. The European recreational sport sector needs to establish a socially responsible position to promote doping-free environments, that are without any form of intimidation, or criminal activities or witness to people who are causing physical harm to themselves by taking doping substances.

This European Code of Conduct in Anti-doping is based on the principle that recreational sport is an opportunity for people to come together to compete, play, have fun and be socially connected. Playing recreational sport also helps to increase levels of physical activity and in doing so to improve the health of citizens of Europe. Therefore, any level of doping or recreational drug use is counter-productive and the perceived motivations of “doping users”, such as “to improve physical appearance or sporting performance”, are not consistent with the aim of individuals who engage in recreational sport and the whole spirit of playing sport.

This Code is not prescriptive – it is a voluntary commitment for the recreational sport sector to abide by the recommendations and principles stated here. The European Code of Conduct in Anti-doping aims to promote a standardised approach across Europe in the fight against doping through 4 recommendations.

In 2014 the European Commission published the Study on Doping Prevention, which developed an evidence-base for policies designed to combat doping in recreational sport. The Study proposed 7 recommendations and summarised the regulatory and legal framework of the 28 Member States concerning doping and preventative actions in recreational sport. This Code has been developed in the FAIR project which was co-funded by the European Commission.

In particular it is recognised that doping practices in recreational sporting environments:

- Can be harmful to the integrity and perception of recreational sport;
- Is often linked to criminal activities such as drug trafficking;
- Can particularly affect young people and other vulnerable people;
- Can threaten the health of individuals who use doping substances;
- Be threatening to other people in a doping users' immediate environment;

This Code focuses on four main themes and is for the attention of sport federations, clubs, associations, sporting facilities, individual coaches, trainers and instructors and policymakers across Europe:

- Education and research to combat and reject doping
- Social responsibility
- Food and supplements for sportspeople
- Cooperation in anti-doping actions

1. Education and research to combat and reject doping

Better education for sport coaches, trainers and instructors, together with managers and the athletes themselves is as important as any enforcements, controls, sanctions or even criminalisation if there is to be a realistic reduction of doping activities. Everybody across recreational sport should understand that effective participation in sport does not require any stimulants or performance-enhancing substances. Education programmes on sport ethics, behavioural change and/or information campaigns on health consequences of doping will not change the scenario in the short term, but it will help to establish a long term solution.

Stakeholders across recreational sport should commit to include doping awareness and intervention strategies within the education and training of its coaches, instructors and trainers to ensure it becomes part of the culture of promoting the benefits of participation in sport without the need to take any performance or image enhancing substances. This training should provide the knowledge and understanding to be able to “spot the signs” of doping practices and how to intervene to proscribe alternative approaches to training.

Managers and administrators of recreational sport facilities should include an anti-doping condition in contracts for the use and participation of athletes’ which prohibits the use of any banned, performance or image enhancing substances.

Stakeholders in recreational sport should commit to work with European Agencies and other bodies in anti-doping networks to provide clear information to educate consumers on the harmful effects on the risks and dangers to their health by taking doping substances.

A copy of this Code should be displayed in all sport facilities and locations.

2. Social Responsibility

The European recreational sport sector should have a commitment to act in a socially responsible manner in promoting doping-free environments which are safe for use by all users and athletes without fear from any intimidation, criminal activities, or witness to people who are causing physical harm to themselves by taking doping substances.

3. Food and Supplements Intended for Sportspeople

The recreational sport sector should collaborate with all stakeholders in relation to developing a European framework for the testing and labelling of food and food supplements intended for use by sportspeople. The intention is to ensure, as far as possible, that these products are free from doping substances.

4. Cooperation in Anti-doping actions

At the national level sporting federations, associations and stakeholders will be encouraged to cooperate with their national anti-doping organisations, Government departments, their agencies and NGOs to coordinate actions to reduce the prevalence of doping practices at a recreational sport level.

At the European level stakeholders with an interest in reducing the prevalence of doping in recreational sport should coordinate actions with the European Institutions to develop methodologies and evidence-based actions.



fair

forum for anti-doping
in recreational sport

European Code of Conduct in Anti-doping for Recreational Sport

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