

Stop Doping Swim Fair

Comprehensive Research Report (IO1)

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The ‘Stop Doping Swim Fair’ Project

“Stop Doping – Swim Fair!” is a European-wide strategic partnership between 8 Sport and Sport Research organisations, which aims to raise the knowledge and awareness of the doping use in the swimming world, by a conducted comprehensive research and selection of good practices; development of an innovative "Modular Doping-education Program“ and Guidelines for Swimming organisations and relevant stakeholders.
The objectives are be resumed as follows:

- Early prevention: educate 10-18 year old swimmers
- Fight disinformation: multiplier events
- Health preservation: protect 10-18 year old swimmers and guide sport organisations
- Doping elimination: create a safe sports environment for all

To reach the project objectives, a consortium of 8 organisations works together between January 2020 - December 2021: Bulgaria, Bulgarian Swimming Federation Partner: Sport Algés e Dafundo (Portugal) Partner: Turkish Sports Foundation (Turkey) Partner: Naoussa Swim Club (Greece) Partner: Otrè Triathlon Team Associazione Sportiva Dilettantistica (Italy) Partner: Fundación Universidad Isabel I (Spain) Partner: Swedish Sports Confederation Vasterbotten (Sweden) VasterbottensIdrottsforbund/ Partner: Champions Factory Ireland Limited



Introduction

The use of doping substances has been a major issue in professional and amateur sports in the last years for international and national regulator bodies in the field of sports and health, as it not only violates the ethic and the expectations of fair sport competition, but also because of the serious risks associated to its practice.

Within the Erasmus+ scheme, the European Commission has been supporting the development of international projects in the field of the sport since 2012 (López-Flores, Hong, & Botwina, 2021). Co-funding those Erasmus+ Sportsprojects aligned with the topic of *"Combat doping, notably in recreational environments; match-fixing; violence and tackle racism, discrimination and intolerance in sport,"*defined in their guidelines, institutions from the sport field, the academia, and public and private bodies, can contribute to the doping eradication by the design and implementation of international projects.

Psychologists and other professionals have studied the different perspectives on doping in elite athletes, including the incidence of in this population (Jalleh & Donovan, 2008) and the psychological characteristics of those athletes that are abusing substances (Gucciardi, Jalleh, & Donovan, 2011; Wiefferink, Detmar, Coumans, Vogels, & Paulussen, 2008). Recently, studies on attitudes toward doping based on different theories, like self-determination theory (SDT), have received extensive attention (Hodge, Hargreaves, Gerrard, & Lonsdale, 2013; Matosic, Ntoumanis, Boardley, et al., 2016; Mudrak, Slepicka, & Slepickova, 2018; Wang, Xu, Zhang, et al. 2020), considering that, too engage in an activity or task, the individual's motivation must be a continuum of self-determination (Ryan & Deci, 2000).

Moreover, it has been considered as controlled motivation both, external regulation and introjected regulation, and as autonomous motivation, identified regulation and integrated regulation (Lonsdale, Hodge & Rose, 2008). Expectancies are an important factor too. True or false, they can shape reality. This has long been recognized in the field of psychology (Merton, 1948; Rosenthal & Jacobson, 1968; Snyder, 1984), and the same principles apply in the field of sports and doping (Moston, Engelberg & Skinner, 2014). There is a belief that doping is highly extended in the sports community, but among young people, the normalisation has been questioned by Monton and co-authors (2014).

Therefore, changing athletes' attitudes toward doping and its risks has been suggested as an important strategy for dealing with this problem among athletes (Alaranta, Alaranta, Holmila, et al. 2006). In this sense, the psychological approach to doping has become a hot topic in the literature (Wang, Xu, Zhang, et al. 2020).

Studies of perceptions of doping are relatively scarce. Moreover, doping and substance use among young people is even less studied in the literature, and it is therefore not surprising that anti-doping interventions typically only target elite adult athletes. Nevertheless, providing accurate information on this population with the aim of designing appropriate anti-doping measures from the very beginning of the sports career is the best strategy for substance abuse eradication in the sport since it targets prevention at a young age instead of detection in adult athletes (Lippi, Franchini, & Guidi, 2007). Some previous survey-based studies have estimated the prevalence of doping in adolescents between 3-5%, without defining the substance (Laure, 2000). The results indicate a higher prevalence on boys and an increase in substance use with age and level of competition (Laure, Lecerf, Friser, et al. 2004; Melia, Pipe, Greenberg, 1996; Pillard, Groschlaude, Navaro, et al. 2002; Turblin, Grosclaude, Navarro, et al., 1995).

The present study

The study itself is part of the research project, “Stop Doping - Swim Fair! (SDOP)”, co-funded by the European Commission within the framework of the Erasmus+ Sport. The SDOP project is led by the Bulgarian Swimming Federation and seven other partner organizations, representing Bulgaria, Greece, Ireland, Italy, Portugal, Spain, Sweden, and Turkey.

Taken together, this study aimed to (1) investigate the state of the art of doping in relation to youth and swimming, (2) review the grey literature of best practices in the field of doping prevention, and (3) evaluate the prevalence and perceptions of the doping behavior in young European swimmers from the eight participant countries.

The results of the research, composed of three different studies, will constitute the cornerstone for the development of the SDOP project, in which partners, selected ambassadors, and young swimmers, will be educated on the potential health risks and ethic contradictions of the use of substances in competitions, as well as the social impact of doping in general.



Study 1: Review (Scientific literature review)

Methodology

Systematized review research process.

1. An initial screening of titles and abstracts complying with the inclusion criteria to identify relevant papers and collect them to your folders
2. Screening of the full papers identified as relevant during the initial screening.

Database search

EBSCO (include current databases)

Keywords
(("CHILDREN" OR "ADOLESCENT") AND ("DOPING " OR "DOPING

BEHAVIOUR" OR "ANTIDOPING ")) OR (("SWIMMERS" OR "SWIMMING") AND

("DOPING" OR "DOPING BEHAVIOUR" OR "ANTIDOPING"))

Inclusion criteria

- Scientific papers and official reports.
- English language.
- Both qualitative and quantitative studies (including systematic reviews).
- Sample: Youth of Children AND swimming OR Swimmers 10-18 years old.
- Articles should be selected only from European countries. We can consider also countries such as the USA, Australia, Canada, Asian countries if considered relevant.
- Published during the last 20 years
- Anti-doping good practices, Doping behavior, Sports, Health thematic areas
- The studies should have an abstract

Exclusion criteria

- Thesis and conference contributions and focus our efforts on scientific articles and official reports.
- Other languages
- Development

Results

The review was carried out by all the partners, following the research methodology established at the beginning of the project. The different years of publication were distributed among the different partners as follows:

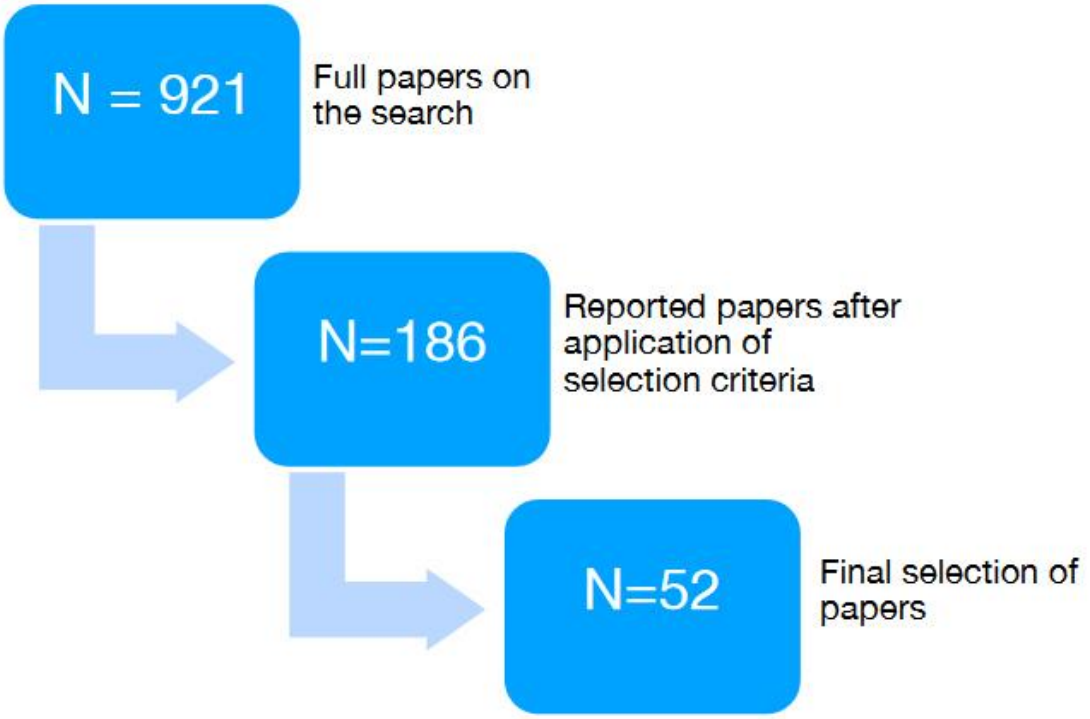


Figure 1. Research methodology and inclusion of results.

A total of 52 papers were found (see Table 1).

N°	Year	Authors	Topic
1	2000	Begley & Clifton, 2000	Use of EPO
2	2001	Birchard	Use of EPO
3	2001	Videman	Use of EPO
4	2002	Gomez	Use of creatine
5	2002	Koch	Use of dietary supplements; Use of anabolic-androgenic steroids
6	2002	Miller, Barnes, Sabo, Melnick, & Farrell	Use of anabolic steroids
7	2002	Pillard, Grosclaude, Navarro, Godeau & Riviere	Use of caffeine
8	2003	Michel, Purper-Ouakil, Leheuzey, Mourensimeoni	Attitudes about doping
9	2003	Zorzoli	Use of dietary supplements

10	2004	Bahrke & Yesalis	Use of anabolic-androgenic steroids
11	2004	Geyer, Parr, Mareck, Reinhart, Schader & Schader	Presence of illegal substances on dietary supplements
12	2004	Parr, Geyer, Reinhart & Schänzer	Presence of illegal substances on dietary supplements
13	2005	Gallagher	Use of gene doping
14	2005	Greydanus, & Patel	Use of ergogenic substances
15	2005	Gyuda	Use of dietary supplements
16	2005	Laura & Binsinger	Influence of relatives on doping behavior
17	2005	Maughan	Presence of illegal substances on dietary supplements
18	2005	Nilsson, Spak, Marklund, Baigi, & Allebeck	Use of anabolic androgenic steroids
19	2005	Rosenfield	Use of ergogenic substances
20	2006	Huang, Johnson & Pipe	Use of dietary supplements
21	2006	Lippi, Salvagno & Solero	Use of tourniquet
22	2007	Berglund, Ekblom, Ekblom, Berglund,Kallner, Reinebo & Lindeberg	Use of blood doping
23	2008	Alaranta, Alaranta, & Helenius	Use of illicit pharmacologic agents
24	2008	Holt, & Sönksen	Use of Human Growth Hormone; Illicit pharmacological substances
25	2008	Hua & Jomills	Use of anabolic steroids
26	2008	Lucidi, Zello, Mallia, Grano, Russo & Violani	Use of dietary supplements; Attitudes about doping
27	2012	Bloodworth, Petróczi, Bailey, Pearce, & McNamee	Attitudes about doping
28	2012	Diehl, Thiel, Zeipfel, Mayer, Litaker & Schneider	Use of alcohol and/or tobacco
29	2012	Koch	Use of illicit pharmacologic agents
30	2014	Barkoukis, Lazuras & Tsorbatzoudis	Use of anabolic steroids
31	2014	Yager & O'Dea	Use of dietary supplements; Use of anabolic steroids, Attitudes toward doping
32	2014	Zeratsion, Bjertness, Lien, Haavet, Dalsklev, Halvorsen, ... & Claussen	Attitudes about doping

33	2015	Franckowiak	Use of anabolic steroids; Use of Human Growth Hormone.
34	2015	Sagoe, Andreassen, Molde, Torsheim, & Pallesen	Use of anabolic androgenic steroids
35	2015	Wójtowicz, Jarek, Chajewska, Turek-Lepa & Kwiatkowska	Presence of illegal substances on dietary supplements
36	2016	Carlsohn, Heydenreich & Mayer	Use of dietary supplements
37	2016	Eichner & Tygart	Presence of illegal substances on dietary supplements
38	2016	Till, Jones, McKenna, Whitaker & Backhouse	Use of dietary supplements
39	2017	Gwizdek, Brzęk, Bąk-Sosnowska, Dittfeld, Knapik, & Ziaja	Use of anabolic androgenic steroids
40	2017	Nicholls, Cope, Bailey, Koenen, Dumon, Theodorou & Laurent	Presence of illegal substances on dietary supplements
41	2017	Silva, Maranhao, Figueiredo, Santos, Jacob, Rose & Costa	Use of dietary supplements; use of alcohol and/or tobacco; use of illicit drugs
42	2018	Al-Khelaifi, Diboun, Donati, Botré, Alsayrafi, Georgakopoulos...&Elrayess	Use of dietary supplements
43	2018	Devcic, Bednarik, Maric, Versic, Skulic, Kutlesa...&Liposek	Use of dietary supplements
44	2018	Devcid, Bednarik, Maric, Versic, Skulik, Jutlesa ,...& Liposek	Use of alcohol and/or tobacco;
45	2018	Mudrak, Slepicka, & Slepickova	Attitudes about doping
46	2018	Sandvik, Bakken, & Loland	Use of anabolic-androgenic steroids
47	2019	Baltazar-Martins, de Souza, Aguilar-Navarro, Muñoz-Guerra, del Mar Plata & del Coso	Use of dietary supplements
48	2019	Shah, Janssen, Le Nézet & Spilka	Use of dietary supplements
49	2020	Barkoukis, Lazouras, Ourda & Tsobatzoudis	Use of dietary supplements
50	2020	Nicholls, Levy, Meir, Sanctuary, Jones, Baghurst, & Perry	Attitudes about doping
51	2020	Nicholls, Levy, Meir, Sanctuary, Jones, Baghurst, & Perry, Nicholls, Levy, Meir, Sanctuary, Jones, Baghurst, & Perry	Attitudes about doping
52	2020	Tabata, Yamsawa, Torii, Manabe, Kamada, Namba... & Sato	Use of dietary supplements

Different authors found high use of **dietary supplements** on athletes, adults but also young athletes (Al-Khelaifi, Diboun, Donati, Botré, Alsayrafi, et al., 2018; Baltazar-Martins, de Souza, Aguilar-Navarro, Muñoz-Guerra, del Mar Plata & del Coso, 2019; Barkoukis, Lazouras, Ourda & Tsobatzoudis, 2019; Carlsohn, Heydenreich & Mayer, 2016; Devcic, Bednarik, Maric, Versic, Skulic, Kutlesa...& Liposek, 2018; Gyuda, 2005; Huang, Johnson & Pipe, 2006; Koch, 2002; Lucidi, Zello, Mallia, Grano, Russo & Violani, 2008; Shah, Janssen, Le Nézet & Spilka, 2019; Silva, Maranhao, Figueiredo, Santos, Jacob, Rose & Costa, 2017; Tabata,Yamsawa, Torii, Manabe, Kamada, Namba... & Sato, 2020; Till, Jones, McKenna, Whitaker & Backhouse, 2016; Yager & O'Dea, 2014; Zorzoli, 2003). Authors find the use of substances like vitamins, protein powder, minerals, and specific nutritional supplements. They raise awareness on the increasing use of this kind of supplements without supervision, necessity and knowledge about its negative outcomes on health.

In this line, other researchers found out that this kind of **dietary supplements can contain illegal substances** not declared on the label like anabolic androgenic steroids (Eichner & Tygart, 2016; Geyer, Parr, Mareck, Reinhart, Schader & Schader, 2004; Maughan, 2005; Nicholls, Cope, Bailey, Koenen, Dumon, Theodorou & Laurent, 2017; Parr, Geyer, Reinhart & Schänzer, 2004; Wójtowicz, Jarek, Chajewska, Turek-Lepa & Kwiatkowska, 2005).

In relation to the use of illegal substances, the literature shows numerous evidence of their use among athletes in the sport. Specifically, some of these substances are **illicit pharmacologic** agents (Alaranta, Alaranta, & Helenius, 2008; Holt, & Sönksen, 2008; Koch, 2012).

Other doping behaviors have been observed in a minority of athletes, for example, the use of **tourniquet** (Lippi, Salvagno & Solero, 2006), **blood doping** (Berglund, Ekblom, Ekblom, Berglund, Kallner, Reinebo, & Lindeberg, 2007), and **gene doping** (Gallagher, 2005). Furthermore, we must highlight the use of EPO doping (Begley & Clifton, 2000; Birchard, 2001; Videman, 2001)

The literature highlights the use of **licit drugs** among athletes but also **illicit drugs**. Specifically, researchers found the use of **alcohol, tobacco** (Devcid, Bednarik, Maric, Versic, Skulik, Jutlesa ,... & Liposek, 2018; Diehl, Thiel, Zeipfel, Mayer, Litaker & Schneider, 2012; Silva, Maranhao, Figueiredo, Santos, Jacob, Rose & Costa, 2017) or **caffeine** (Pillard, Grosclaude, Navarro, Godeau & Riviere, 2002). Some studies also identified the use of specific illicit drugs as **stimulants** (Silva et al, 2017) or **cannabis** (Pillard, Grosclaude, Navarro, Godeau & Riviere, 2002).

Other relevant doping behavior related to the use of **ergogenic substances** (Greydanus, & Patel, 2005). The use of creatine (Gomez, 2002) but also the **anabolic steroids** (Barkoukis, Lazuras & Tsorbatzoudis, 2014; Franckowiak, 2015; Gomez, 2002; Hua & Jomills, 2008; Miller, Barnes, Sabo, Melnick, & Farrell, 2002; Yager, & O'Dea, 2014), **anabolic androgenic steroids** (Bahrke & Yesalis, 2004; Gwizdek, Brzęk, Bąk-Sosnowska, Dittfeld, Knapik, & Ziaja, 2017; Koch, 2002; Nilsson, Spak, Marklund, Baigi, & Allebeck, 2005; Sagoe, Andreassen, Molde, Torsheim, & Pallesen, 2015; Sandvik, Bakken, & Loland, 2018; Silva, Maranhao, Figueiredo, Santos, Jacob, Rose & Costa, 2017) and **andostenodione** (Gomez, 2002). Barkoukis et al (2014) highlight the increase in the use of anabolic steroids. Other authors also discussed the use of other prohibited substances as the **Human Growth Hormone** (Franckowiak, 2015; Holt, & Sönksen, 2008).

In relation to the influence of the relatives in doping behavior, Laura & Binsinger (2005) showed that 10.3% of the adolescents received substances from an average of two different people, mostly a friend, their parents, and the family doctor. Also, they found out that students whose friends doped were more likely to make use of doping substances (Bloodworth, Petróczi, Bailey, Pearce, & McNamee, 2012).

- In the research, results on doping behavior and personal variables like **attitudes, beliefs, or personality characteristics** were found and included for its relevance to understanding the

risk factors on doping. In this line, the literature raised awareness about the fact that the acceptance of cheating and attitudes toward doping (Lucidi, Zello, Mallia, Grano, Russo & Violani, 2008; Mudrak, Slepicka, & Slepickova, 2018). However, it must be highlighted that athletes are generally against the use of doping substances to enhance their sport performance (Bloodworth, Petróczi, Bailey, Pearce, & McNamee, 2012).

Protective characteristics regarding doping and cheating:

- Males tended to express a more permissive attitude toward performance-enhancing methods than females (Bloodworth, Petróczi, Bailey, Pearce, & McNamee, 2012).
- Intrinsic enjoyment (Mudrak, Slepicka, & Slepickova, 2018).
- Self-referenced criteria of success (Mudrak, Slepicka, & Slepickova, 2018).
- Self-improvement (Mudrak, Slepicka, & Slepickova, 2018).
- Intrinsic motivation (Mudrak, Slepicka, & Slepickova, 2018).

Risk characteristics among doping and cheating:

- Less self-determined forms of motivation (Mudrak, Slepicka, & Slepickova, 2018).
- Stronger attitudes about doping (Lucidi, Zello, Mallia, Grano, Russo & Violani, 2008)
- Stronger beliefs that significant others would approve of their use (Lucidi,Zello, Mallia, Grano, Russo & Violani, 2008)
- Stronger conviction that doping use can be justified (Lucidi, Zello, Mallia, Grano, Russo & Violani, 2008)
- Lowered capacity to resist situational pressure or personal desires (Lucidi, Zello, Mallia, Grano, Russo & Violani, 2008).
- Moral disengagement (Lucidi, Zello, Mallia, Grano, Russo & Violani, 2008).
- Physical appearance dissatisfaction (yager &O'Dea, 2014; Yager& O'Dea, 2014).
- Experience the parental divorce (Zeratsion, Bjertness, Lien, Haavet, Dalsklev, Halvorsen, … & Claussen, (2014)
- A sensation-seeking personality (Michel, Purper-Ouakil, Leheuzey, Mouren-simeoni, 2003)

Recently, Nicholls, Levy, Meir, Sanctuary, Jones, Baghurst, & Perry, Nicholls, Levy, Meir, Sanctuary, Jones, Baghurst, & Perry, (2020) established a four **profiles** cluster which can predict athletes toward doping intentions. The profiles cluster consist of the susceptibles, the chancers, the pragmatists, and the fair players. This classification can be useful to detect personal characteristics and individualise the interventions.

Conclusion of the Study 1

It is concluded that it is necessary to work on the awareness of young people in the face of the consequences of doping and supplementation, as well as in the use of licit and illicit drugs, whether recreational or productive.

Given that friends, parents, and family doctors have been identified as facilitators of doping substances in more than 10% of cases, it is important to identify these roles as a target audience in anti-doping and awareness actions.

The behaviour and personal variables of young people should be more extensively studied, although generally athletes are against doping. In this sense, it is considered necessary to focus on the *protective characteristics regarding doping and cheating, risk characteristics among doping and cheating,* and the **four profiles of athletes** toward doping intentions

Study 2: Best Practices (Grey Literature Review)

Methodology

The aim of this review is to collect the relevant official reports, guidelines and strategies published by official organisations (including NGOs) about antidoping best practices and guidelines in the international context.

Each partner analyses the documents from their respective country and the leader of the work package will also collect the international information.

The narrative review has been carried out following the next steps:

1. An initial screening of titles and abstracts against the inclusion criteria to identify relevant documents.
2. Screening of the full documents of the papers judged as relevant in the initial screening.

Results
A sum of 102 documents were reviewed, 58 derived from national's contexts of the partner countries and 44 international documents. The whole contributions are exposed in the following tables:

National documents

Table 2. Results from the national reviews.

N°	Country	Year	Title	Author/Organization
1	Greece	2005	The Out of Competition Testing Program	National Council Against Doping (Ε.Σ.ΚΑ.Ν)
2	Greece	2005	Athlete Detection Information (whereabouts)	National Council Against Doping (Ε.Σ.ΚΑ.Ν)
3	Greece	2007	The National Anti-Doping Council (Ε.Σ.ΚΑ.Ν): Report of its work in 2007 and its programming activities in 2008	National Council Against Doping (Ε.Σ.ΚΑ.Ν)
4	Greece	2015	Exclusion of Use for Therapeutic purposes	National Council Against Doping (Ε.Σ.ΚΑ.Ν)
5	Greece	2018	AUTh (Aristotle University of Thessaloniki) is actively involved in doping prevention and doping control with the "Safe you +" program.	AUTh (Aristotle University of Thessaloniki)
6	Greece	2019	Game Project- The Greek Anti-Doping Organization And The 7Greek Association Of Exercise Biochemistry And Physiology	AUTh (Aristotle University of Thessaloniki)
7	Greece	2019 - 2020	Transformation of the Greek National Anti-Doping Council into a National Anti-Doping Organization	MINISTRY OF CULTURE AND SPORTS, General Secretariat of Sports, PRESS OFFICE

8	Ireland	2000	Eirpharm Medicines in Sports Database	Eirpharm Medicines
9	Ireland	2019	Sport Ireland's National AntiDoping Programme	Sport Ireland
10	Ireland	2013 - 2017	Northern Ireland's Clean Sport Strategy as a Model Strategy	UK AntiDoping and Sport Ireland
11	Italy	1988	directive n° 487/88	CONI
12	Italy	1993	Establishment of the Doping Scientific Commission and the Doping Investigation Commission Deliberations n. 674 e 675	CONI
13	Italy	2000	Discipline for the health protection of sports activities and the fight against doping LAW 14 December 2000, n. 376	Presidency of the Republic
14	Italy	2002	Approval of the list of drugs, biologically or pharmacologically active substances and medical practices, the use of which is considered doping, pursuant to the law of 15 December 2000, n. 376	Ministry of Health
15	Italy	2002	Granting of a contribution to the World Anti-Doping Agency LAW 13 October 2003, n. 281	Presidency of the Republic
16	Italy	2004	Procedural rules for carrying out anti-doping controls and for health protection, pursuant to art. 3, paragraph 1, of the law of 14 December 2000, n. 376. DECREE 30 December 2004	Ministry of Health
17	Italy	2004	Doping Anti-Doping	Ferrara
18	Italy	2005	Doping in youth and amateur contexts	Filidei
19	Italy	2005	Guideline 3/1: Medicines and Doping	Bernini, Mazzeo, & Merisi
20	Italy	2005	Doping and anti-doping in sports	Baccini, Bezzi, Conti, Tazzari

21	Italy	2005	Resolution of the National Council of CONI n. 1311 of 30/6/2005	CONI
22	Italy	2005	New version of the regulation and of the disciplinary for the exemption for therapeutic purposes contained in the antidoping sport's rules	CONI
23	Italy	2007	Resolution of the National Council of CONI n. 292 of 21/8/2007	CONI
24	Italy	2007	Training manual The protection of health in sports activities and the prevention of doping	Ministry of Health - Commission for the Supervision and Control of Doping and for the Protection of Health in Sports (CVD)
25	Italy	2008	The celebration of the human spirit" in the decisions of the national anti-doping court	Tortorella
26	Italy	2008	Training and recovery. Fight against doping by managing physical recovery	Chatard, Manno
27	Italy	2012	Systematic Doping Collection	Amato Colucci & D'Urzo
28	Italy	2016	Doping between sport (international and national) and state discipline	Verdi
29	Italy	2018	Anti-Doping Statistical Report	NADO ITALIA
30	Italy	2018	REPORTING SYSTEM DOPING ANTIDOPING 2018	Pacifici, Bacosi, De Luca, Di Carlo, Graziano, Martucci, Martucci, Solimini, Scaravelli, Palmi
31	Italy	2018	Determination and evaluation of the parameters of interest of the athlete's biological passport	
32	Italy	2018	PLAY TRUE DAY - prevention activities and promotion of the Play True Day at the World Junior Speed Skating Championships in Baselga di Piné	NADO ITALIA

33	Italy	2020	Nutritional and ergogenic supplements in sport. Ethical, medical, and performance aspects	Pigozzi, Lucidi, May
34	Italy	2020	SPORTING DOPING REGULATIONS (NSA)	NADO ITALIA
35	Italy	-	Doping between state and sport regulations	Crocetti
36	Portugal	2009	Ordinance 1123/2009	Portuguese Anti-Doping Authority
37	Portugal	2009	Legal Office and the Support Structure for the Anti-Doping Program	Portuguese Anti-Doping Authority
38	Portugal	-	Doping What the Coach Needs to Know	Portuguese Anti-Doping Authority
39	Portugal		Clean Sport" Project	Portuguese Anti-Doping Authority
40	Portugal		Sports Ethics for All	National plan of ethics in sport
41	Portugal		I run Clean	European Athletics
42	Spain	2014	App NoDopApp	AEPSAD
43	Spain	2015	The preventive campaign "Protect your health, say no to doping	AEPSAD
44	Spain	2017	Doping: what you need to know	AEPSAD
45	Spain	2017	Live without cheating	AEPSAD
46	Spain	2019	Antidoping Green Seal	AEPSAD
47	Spain	2020	Values and Fair Play program	AEPSAD
48	Sweden	2018	Vaccinera klubben (vaccinate the club)	Svensk Antidoping
49	Sweden	-	Doping control – your rights and obligations	Svensk Antidoping
50	Sweden	-	Real winner	Svensk Antidoping
51	Turkey	2010	Doping Control Process	Turkish Anti-Doping Commission & WADA
52	Turkey	2014	Strategic plan from 2015 to 2019	General Directorate of Sport Services
53	Turkey	2015	Fight against the doping	Turkish Anti-Doping Commission & WADA

54	Turkey	2015	Therapeutic Use Exemption (TUE)	Turkish Anti-Doping Commission
55	Turkey	2016	Handbook for parents for a clean sport	WADA & Turkish Anti-Doping Commission
56	Turkey	2019	Turkish Anti-Doping Regulations	Turkish Anti-Doping Commission
57	Turkey	2020	2019 Activity Report	Ministry of Youth and Sport of Republic of Turkey
58	Turkey	-	Dangers of doping	Turkish Anti-Doping Commission & WADA

Greece

With the existing infrastructure, the National Anti-Doping Council is considered to be able to manage approximately 250-300 individual athletes as members of the List of Registered Athletes. The difficulties in management mainly result from the need for constant updating of whereabouts information. In team sports, the administrative burden is lower because the whereabouts information concerns team sports' athletes. As far as the team sports are concerned, the Registered List principally includes national groups of men-women and adolescents – juveniles (Out Of Competition Testing Program, National Council Against Doping (Ε.Σ.ΚΑ.Ν), 2005) Athlete tracking information is one critical step in ensuring that competition in sports is on an equal footing. In the event of any discrepancy between this information and the World Anti-Doping Code, the Code prevails. This information is subject to change at any time. Always check with the International Federation, the National Anti-Doping Agency or National Federation for the most up-to-date anti-doping regulations (Athlete Detection Information, National Council Against Doping (Ε.Σ.ΚΑ.Ν), 2005)

The National Anti-Doping Agency set up application forms for exceptional use of prohibited substances for therapeutic purposes under the normal and concise procedure. Those were distributed among sports federations to be forwarded to clubs and athletes and posted on the website of the National Anti-Doping Agency (NADA) to facilitate their access for everyone interested in them (Exclusion of Use for Therapeutic purposes, Athlete Detection Information, National Council Against Doping (Ε.Σ.ΚΑ.Ν), 2015).

The report highlighted the importance of training and informing athletes on doping issues. The NADA cooperates with interested parties in order to increase the effectiveness of their anti-doping measures and their dissemination. Therefore, NADA representatives participated in a multitude of conferences, seminars, and meetings of different sports organizations. During 2007, the National Anti-Doping Agency repeatedly responded to invitations from sports and scientific bodies to participate in lectures during their events (The National Anti-Doping Council (Ε.Σ.ΚΑ.Ν): Report of its work in 2007 and its programming activities in 2008, The National Anti-Doping Council (Ε.Σ.ΚΑ.Ν), 2007).

The project SAFE YOU recognized the growing need for a better understanding of the reasons why young athletes engage in doping practices. The project "SAFE YOU" responds to the need for comprehensive strategies to prevent doping use in competitive and recreational sports, especially among younger populations, and adopted effective anti-doping interventions with the aim to

protect young athletes from doping use. With the data collected in the course of the "Safe you +" program, educational material that includes teaching modules, case studies, a mobile application, educational videos, and a series on educational dilemmas for the most effective education of young people athletes has been created. It can be used by teachers and coaches to promote clean sports both inside and outside of the European Union (Safe you + program, AUTh (Aristotle University of Thessaloniki), 2018) (Safe you + program, AUTh (Aristotle University of Thessaloniki), 2018)

Dr. Barkoukis presented the GAME project at the seminar organized by C.S.I. of the project, the Greek Anti-Doping Organization, and the Greek Association of Exercise Biochemistry and Physiology. The seminar held in Thessaloniki on the 18th of October 2019 was attended by sport federation representatives, academics, and students. The core deliverables of the project were presented and their usefulness for the education and training of athletes and stakeholders was illustrated. (Game Project- The Greek Anti-Doping Organization and The Greek Association of Exercise Biochemistry And Physiology, AUTh (Aristotle University of Thessaloniki), 2019)

The Pan-Hellenic Muaythai Federation organized a preventive and educational anti-doping program with the objective to protect the health of young athletes. The thematic sections of the program addressed doping control, where these substances are found by the athletes, the exemptions for therapeutic use, the procedures for managing results, medical and ethical reasons to avoid doping use. Finally, the program promoted practices that offer help in how to keep an athlete clean and resist the pressure of using such substances. In conclusion, with the completion of the program, the participation of the young athlete in the events was ensured (Electronic learning program for anti-doping, Pan-Hellenic Muaythai Federation, 2020)

From the end of 2019, when the change of the institutional framework for the Anti-Doping Organisations had begun, until 2020, the transformation of the Hellenic National Anti-Doping Council into the National Anti-Doping Organization took place. Within this process, more resources have been secured against doping, with new technologies and new preventive programs against doping coming to the forefront of the government's agenda for the next years. Thus, the support of the national anti-doping system for policymaking in Greece has been accepted. Nevertheless, government agencies are aware that this is an expensive activity, as technological and managerial demands are increasing. Anti-doping is the constant battle against new substances, methods, and practices used to falsify the essential athletic principle of fair play. In an ever-evolving globalization environment, the fight against doping must be generalised and coordinated, especially between WADA and national doping control organisations (Transformation of the Greek National Anti-Doping Council into a National Anti-Doping Organization, Ministry Of Culture And Sports, General Secretariat Of Sports, Press Office, 2019-2020).

Ireland

The AntiDoping program encourages a clean sport culture in Ireland through the ongoing implementation of numerous strategies: Anonymous Reporting, Education Resources, Amplifying athletes' voices, Test Distribution Plan (TDP), and Sport Ireland's Disciplinary Procedure (The AntiDoping program, Sport Ireland, 2019).

The AntiDoping programme offers an online AntiDoping eLearning programme which details the AntiDoping rule violation, the testing procedures of a suspected athlete's blood and urine, how to check medications, therapeutic use exemptions, risks associated with supplements and herbal remedies as well as the consequences of doping (The AntiDoping programme, Sport Ireland, 2019). Provide information: online resource for athletes curious about the medicines permitted and prohibited in their sport (Eirpharm Medicines, 2000). Promote clean sport culture: through an

education and awareness-based approach (Northern Ireland's Clean SportsStrategy as a Model Strategy, UK AntiDoping and Sport Ireland, 2013)

Italy

National objectives on the fight against doping have been established as:

A. avoiding the abuse of prescribed drugs by explaining its nature, composition, and effects;
B. accustoming the athlete to always question the "harmlessness" of a prescribed or recommended medicine before taking it, both in reference to the risk of doping and to the far more important health risks;
C. eliminating one of the possible causes of "involuntary doping" through direct and precise knowledge of the substances that are contained in the different medicines;
D. underlining the responsibilities and connivances in all cases in which an athlete can be induced by those around him to incur doping, and thus avoiding that only the athlete pays (Guideline 3/1: Medicines and Doping, Benini, Mazzeo & Merisi (2005).

The WADA Code appears substantially aimed at creating a condition of subjection necessary to discourage the use of doping practices, as well as constituting a litmus test, which serves to evaluate the degree of evolution of a legal system, the role of the Judge, the elasticity of interpretation (Tortorella, 2008)

There is a need for rigorous and numerous doping controls (Determination and evaluation of the parameters of interest of the athlete's biological passport, Section for the Supervision and control over Doping and for the protection of health in sports activities Ministry of Health, 2018). Implementation of and compliance with the WADA doping code (SPORTING DOPING REGULATIONS, NSA, NADO ITALIA, 2020).

Portugal

Antidoping strategies focus on three areas: doping controls, research and information, and education. Doping controls, research and information, and education (Portuguese Anti-Doping Authority, 2009).

ADoP's information and educational programs aim for the dissemination of information related to the fight against doping in sport, with a view to preventing the use of prohibited substances, thereby contributing to the preservation of the health of sportspeople and to the defence of sporting truth (Portuguese Anti- Doping Authority, 2009).

Involve in the program young people aged 10 to 18; federated sports practitioners in general; practitioners covered by the high-performance regime; leaders, coaches, and doctors of federations, associations, and sports clubs; doctors with a specialty in sports medicine; family medicine doctors in health centres belonging to the National Health System; users of weight training (Portuguese Anti-Doping Authority, 2009).

Also, in the Sport Ethic for all plan (National plan of ethics in sports) which sets the rules of conduct that should guide the action of different players in the sport, be it tutelary powers, practitioners, teachers, the school, coaches, judges and referees, managers, agents, parents and guardians, doctors and other health professionals, sports entities and organisations, spectators and the media.

Information: ADoP informative and educational materials to the sportsmen submitted to the control and are available to provide any clarifications regarding this procedure (Portuguese Anti-Doping Authority, 2009). The List of Prohibited Substances and Methods, the Therapeutic Use Authorization System for substances and prohibited methods (TUE), and the problem of nutritional supplements (Portuguese Anti-Doping Authority, 2009).

Contents of intervention programs(Doping What the Coach Needs to Know and Clear Sport): Spirit of Sport; Rights and Responsibilities of Sports Agents; Athletes' Location System; Doping Control Procedures; Consequences of Violations of the Anti-Doping Rules in force; Operation of National and International Anti-Doping Organisations; Prohibited Substances and their health consequences; Social consequences related to Doping in Sport (ADOP). “I run Clean” program is an adaptation of an international program addressing the Portuguese population. The program target is to fully educate 100% of the athletes regarding anti-doping behaviors (I run Clean, European Athletics)

ADoP also promotes international programs like: the Practical Guide on Fighting Doping in sport 2019, Pocket Card (Sports Authorization Therapeutic Use), WADA multimedia called The doping control step by step (WADA), The leaflet The dangers of doping (WADA), The leaflet about Nutritional Supplements (WADA), Genetic Doping (The Swiss Federal Office of Sports, SFOS).

Spain

The National Agency and the government, acting through the sports federations are still being the main actors in terms of fighting doping. Some of the most relevant topics and approaches have been detected among the following projects:

Digital applications to improve the knowledge about prohibited doping substances (NoDopApp, 2014)

Values and Fair Play programme addresses families and coaches regarding preventive actions (Values and Fair Play programme, AEPSAD, 2020). The programmes include all the sports federations as well as all types of sport competitions. Teachers, coaches, athletes and former athletes take part as participants in this programme.

Antidoping Green Seal (AEPSAD, 2180) is an international intervention which aims at the development of a global vision on different doping contexts and the implementation of an Ethic code to raise people’s awareness about the negative consequences of doping, especially focusing on the young population.

The programme “doping: what you need to know” (AESPED, 2017) works with athletes and coaches and sets its focus on doping knowledge, the prohibited substances list, the negative consequences of doping, the therapeutic use of certain substances, the specific risk of dietary supplements, the doping control process, and individual control planning.

The programme Live without cheating (AESPED, 2017) deals with sport values and the individual responsibility in the anti-doping combat.

Sweden

Online intervention programmes with the clubs about doping and their responsibility to prevent doping (Vaccinera klubben).

Information about rights and obligations to hand out in sports school and clubs.

Work with the contexts, with the clubs (and coaches) and the schools. In the content they include responsibilities and rights (Vaccinera Klubben, Real winner and Doping control – your rights and obligations flyers). They develop e-learning interventions successfully (Vaccinera Klubben, Real Winner) and a website for athletes and coaches called ren vinnare ("Real winner") e-learning progamme.

Turkey

The Turkish Anti-Doping Regulations present national anti-doping regulations and procedures. Turkish Anti-Doping Regulations have been prepared in accordance with the WADA Anti-Doping Code. Definition of doping, rules and procedures of doping tests, analyses and evolution of results, sanctions to individuals and teams are determined in this regulation. Only laboratories with WADA accreditation can conduct the official tests and send the results to the National Anti-Doping Commission. Turkish Anti-Doping Centre (TADC), a Hacettepe University unit, is the only authorised laboratory in Turkey with the WADA accreditation. The Turkish Anti-Doping Commission collected 3673 samples from different athletes for testing in TADC in 2017. This number increased to 4294 in 2018. All individuals have the right to appeal to the decision of WADA or national commission and bring the case to CAS. In each year, WADA declares a list of prohibited drugs and methods and Turkish Anti-Doping Regulations strictly respect this list. Individuals or teams have no right to appeal to this list.

In the international tournaments which are organised by Turkey, international federations and other authorised international bodies are responsible to do the doping tests and follow the results. The National anti-doping commission is responsible to run the tests and follow the process in the national tournaments in Turkey. International federations and WADA are the authorised bodies to run the doping tests in sport mega events, but WADA can appoint the national anti-doping commission for this task as well. There is no possibility to appeal to this decision of WADA. The principle of strict liability is a golden rule in regulations. It means that athletes are fully responsible for anything that can be found in their samples. Sanctions can change from 6 months to 10 years according to the situation, for instance if it is the first case of an athlete, if the athlete can prove that it was not intentional etc. About the sanctions, tests and appeal procedures, the national anti-doping commission respects and follows WADA regulations.

Education, investigation, and responsibilities of local federations can be considered as more local strategies. Educating athletes, coaches, managers and even the families of the athletes take an important part in the strategy of the antidoping commission. The National anti-doping commission organises seminars with different federations, especially the ones which had numerous problems concerning doping for instance athleticism, wrestling, or weightlifting. These seminars aim to increase the awareness and knowledge of the athletes, trainers and even the directors of federations. In addition to face-to-face seminars, there is an online anti-doping education system for these actors. Athletes and trainers can register to this module and follow the recent announcement and seminars online. Random tests, biological passports and other developments can help to

detect more and more athletes who use doping, but it is also important to educate them and convince them to stay clean. The Turkish Anti-Doping Commission follows this strategy and tries to create a cleaner sport atmosphere by education as well as strengthen its doping control mechanism. (Turkish Anti-Doping Regulations, Turkish Anti-Doping Commission, 2019)

The Strategic plan from 2015 to 2019 is an official strategic plan of The General Directorate of Sport Services for the years 2015-2019. The document explains that in these years, Directorate plans to continue to follow the 'Zero tolerance to doping' policy as this policy gave significant results in recent years as a huge decrease in the numbers of athletes who use doping. Directorate defines its main goals for these years and policies to follow in order to realize these goals. Increasing the athletic success is one of these goals and giving education and increasing the awareness about the use of doping is one of these policies for reaching this goal. There is a visible decrease in the number of athletes who use doping in recent years but still there is a long way in this battle. Violence and doping are two big problems in the sport and fighting against these issues should take more place in the future policies (Strategic plan from 2015 to 2019, General Directorate of Sport Services, 2014).

The 2019 Activity Report summaries the activities of Ministry of Youth and Sport in 2019 and also gives advice and ideas for future projects and strategic planning's. As a part of 'Zero tolerance to doping' policy, 3,393 samples have been collected from different athletes to test. Results of 24 bodybuilders and 2 athletes were positive and they faced official sanctions. In addition to these tests, 637 male and 253 female national athletes passed performance and doping tests. The Ministry of Sport and Youth aims to increase the amount of these tests year by year. The document includes advice and precautions: Educating the athletes about the harmful side effects of doping and creating analysis centres and laboratories within the scope of the fight against doping (2019 Activity Report, Ministry of Youth and Sport of Republic of Turkey, 2020).

This Fight against the doping brochure is part the of the online education programme of Turkish Anti-Doping Commission. This document explains the important information and details about the definition of doping and doping control process in Turkey (Fight against doping, Turkish Anti-Doping Commission & WADA, 2015). This guide defines doping as practicing one or more of these actions:

- Identification of a banned substance in the athlete's example
- Using or attempting to use a banned substance or method
- Refusing to give an example after receiving the notification
- Not making athlete's availability notifications and missing doping controls
- Breaking the rules in any part of the doping control
- Having a banned substance or method
- Illegally trading a banned substance or method
- Applying or attempting to provide a banned substance or method to any athlete.
- To have complicity about any anti-doping rule
- Having a cooperation with an Athletic Support Staff who have been convicted

In addition to the definition of doping, it explains the 11 steps of the doping control mechanism. Starting with choosing the athlete, sending notification to this athlete than the athlete comes to the centre. The athlete can pick the material will be used in his test and gives the sample. It should be minimum 90 ml urine and it will be separated into two bottle, Sample A and B. Doping control stuff calculates the specific weight of the samples and seals them. The athlete fills out the doping control form and after this process samples are being sent to the laboratory which is accredited by WADA (Fight against the doping, Turkish Anti-Doping Commission & WADA, 2015).

The online education programme of the Turkish Anti-Doping Commission includes the document 'Doping Control Process'. This guide, exactly like the 'Fight against doping' brochure, clearly explains

the 11 steps of doping control mechanism. Starting with choosing the athlete, sending notification to this athlete than the athlete comes to the centre. The athlete can pick the material will be used in his test and gives the sample. It should be minimum 90 ml urine and it will be separated into two bottle, Sample A and B. Doping control staff calculates the specific weight of the samples and seals them. The athlete fills the doping control form and after this process samples are sent to the laboratory which is accredited by WADA. In addition to these, it also focuses on the rights and responsibilities of athletes in this process. Athletes have the right to have a representative and translator if they have and they can ask for more information about the process. They can ask the doping control staff for a permission to arrive later than planned if they have a valid reason. If the athlete is disabled, he or she can request a modification or arrangement for taking the sample. The athletes should have a valid identity card and follow the rules of the process exactly, otherwise it can cause a breach in the test. The athletes should be sight of doping control staff during all the process and should arrive to the centre on time if they have no valid reasons to be late. At the end of the paper, there is a link of a video made by WADA to show this process by an animation video.
(Doping Control Process, Turkish Anti-Doping Commission & WADA, 2010).

This Handbook for parents for a clean sport has been prepared by WADA and translated by the Turkish Anti-Doping Commission and takes part in the education programme of Turkish Anti-Doping Commission. The education programme of the Turkish Anti-Doping Commission aims to increase the knowledge about the doping and create awareness about it. They target different groups in these educations such as athletes, coaches, families of athletes, managers and staff members. This paper specifically focusses on the parents of young athletes in order to keep them away from doping. Parents play an important role in the athletic progress of their children but also, they should use their influence to encourage them to follow good values in sport and fair play. They should check if the coaches and trainers of their children are good, honest, and trustworthy. In early ages, coaches can have very good or bad influence, parents should be careful about it. Nutrition should be controlled by the parents, both for keeping them healthy and protecting them to use doping unintentionally. There should be a clear and healthy communication between parents and children. Use of doping should be defined as cheating. Stress, huge expectations, problems in personal life, changing a club or a trainer can be the factors for a young athlete to use doping. Parents should follow their children's behaviours, communicate with them, and not hesitate to contact with authorized bodies if they realize a problem (Handbook for parents for a clean sport, WADA & Turkish Anti-Doping Commission, 2016)

The ‘Dangers of doping’ document is part of the Turkish Anti-Doping Commission education programme and accessible in its website. In addition to its unethical and unfair part, doping also has some serious and dangerous side effects. For instance, use of steroid can cause shrinkage of testicles and decreased sperm production in men, serious damages on heart and liver, depression and sudden emotional changes. EPO can change the density of the blood and cause even a sudden death. The use of syringes increases the risk of contracting diseases such as aids and hepatitis. Turkish Anti-Doping Commission aims to increase the awareness about the dirty and dangerous side of use of doping and convince the young athletes to stay clean and fair. (Dangers of doping, Turkish Anti-Doping Commission & WADA)

The Therapeutic Use Exemption (TUE) has been prepared by the Turkish Anti-Doping Commission in order to explain the regulations and procedural process Therapeutic Use Exemption in a clear and understandable way. Therapeutic Use Exemption (TEU) can provide a permission to athletes to use a needed medicine and method, even if it is in the Prohibited List. An athlete who needs a TEU can apply to the National Anti-Doping Commission if it is an athlete who compete in national level or to the International Federation of its sport if it is an international athlete. Authorized body can give the TEU to the athlete if the health of the athlete will be in danger without this medicine, there is not another way of treatment or the medicine will only help the athlete to get back his/her form but not providing an extra increase in his/her performance. Athletes have the right to call an appeal in case

of a refusal. Athletes who have a TEU should present it to the control staff during the test (Therapeutic Use Exemption (TUE), Turkish Anti-Doping Commission, 2015).

The Turkish Anti-Doping Commission provides useful information about the possible random doping tests and responsibility of the athlete about these tests. These tests are very important for creating a more safe and clean sport atmosphere and athletes are fully responsible to provide correct information in this system. International Federations and National Anti-Doping Commissions can demand an athlete to provide them some information in order to be reachable and available for a random doping test. This athlete should give his permanent address, training programs and locations, competition schedule, schedule of regular activities such as working, going to school etc. In addition to this, if the athlete is registered to the national doping control pool, he/she should give a location and 60 minutes period each day that he/she will be available for a doping test. The athletes are responsible of the accuracy of all of this information. Providing wrong information or not being available on the time and place which is mentioned in the notification can cause serious problems. Athletes can update this information via the Anti-Doping Administration and Management System (ADAMS) of WADA (Athlete whereabouts information, Turkish Anti-Doping Commission, 201)

International

Table 3. Results from the international reviews.

A total of 52 papers were found (see Table 1).

N°	Year	Authors	Author/Organization
1	2021	The World Anti-Doping Code (Code)	WADA
2	2021	Code Implementation Support Program Guidelines for the International Standard for Education (ISE)	WADA
3	2016	Pocket Card	(Sports Authorization Therapeutic Use),
4	2016	The doping control step by step	WADA
5	2016	The leaflet the dangers of doping	WADA
6	2015	The leaflet about Nutritional Supplements	WADA
7	2010	Genetic Doping	The Swiss Federal Office of Sports (SFOS)
8	2008	Doping in fitness sports: estimated number of unreported cases and individual probability of doping	Simon, Striegel, Aust, Dietz & Ulrich
9	2008	Measuring explicit attitude toward doping: Review of the psychometric properties of the Performance Enhancement Attitude Scale	Petróczi & Aidman
10	2014	Beliefs about the causes of success in sports and susceptibility for doping use in	Barkoukis, Lazuras, & Tsorbatzoudis

		adolescent athletes.	
11	2012	Doping and supplementation: the attitudes of talented young athletes	Bloodworth, Petróczi, Bailey, Pearce, & McNamee
12	2014	Relationships between body image, nutritional supplement use, and attitudes towards doping in sport among adolescent boys: implications for prevention programs	Yager, & O'Dea
13	2014	Does parental divorce increase risk behaviors among 15/16 and 18/19 year old adolescents? A study from Oslo, Norway.	Zeratsion, Bjertness, Lien, Haavet, Dalsklev, Halvorsen & Claussen
14	2014	Doping prevention among young athletes: comparison of a health education-based intervention versus information-based intervention	Laure, & Lecerf
15	2002	Sports doping in the adolescent athlete: the hope, hype, and hyperbole	Greydanus, & Patel,
16	2002	Evaluation of a health promotion programme to prevent the misuse of androgenic anabolic steroids among Swedish adolescents	Nilsson, Allebeck, Marklund, Baigi, & Fridlund
17	2020	Examining the Current and Future Scientific Field of Antidoping: "Cheaters Should Never Win"	Faiss & Pavot
18	2005	The use of ergogenic agents in high school athletes. The Journal of school nursing	Rosenfield
19	2008	Institutionalization versus self regulation: a contextual analysis of responsibility among adolescent sportsmen	Long, Pantaléon, & Bruant
20	2009	Can we consider religiousness as a protective factor against doping behavior in sport?	Rodek, Sekulic, & Pasalic
21	2009	Attentional bias for doping words and its relation with physical self-esteem in young adolescents	Schirlin, Rey, Jouvent, Dubal, Komano, Perez-Diaz, & Soussignan
22	2001	The adverse effects of elite competition on health and well-being	Pipe
23	2001	Record sports: An ecological critique and a reconstruction	Loland
24	2020	Feasibility randomised controlled trial examining the effects of the Anti-Doping Values in Coach Education (ADVICE) mobile application on doping knowledge and attitudes towards doping among grassroots coaches.	Nicholls, Fairs, Plata-Andrés, Bailey, Cope, Madigan, & Chanal
25	2020	The effects of the iPlayClean education	Nicholls, Morley, Thompson,

		programme on doping attitudes and susceptibility to use banned substances among high-level adolescent athletes from the UK: a cluster-randomised controlled trial	Huang, Abt, Rothwell, & Ntoumanis
26	2020	How Efficient Are The Web-Based Learning Methods In Antidoping Education Of Romanian Elite Athletes	Berbecaru, Stănescu, & Micle
27	2020	An evaluation of prevention initiatives by 53 national anti-doping organizations: achievements and limitations.	Gatterer, Gumpenberger, Overbye, Streicher, Schobersberger, & Blank
28	2020	Performance profiling as an intelligence-led approach to antidoping in sports	Hopker, Griffin, Brookhouse, Peters, Schumacher, & Iljukov
29	2020	Study protocol for Goodform-a classroom-based intervention to enhance body image and prevent doping and supplement use in adolescent boys	Doley, McLean, Griffiths, & Yager
30	2019	Toward prevention of doping in youth sport: a cross-sectional analysis of correlates of doping tendency in swimming.	Sajber, Maric, Rodek, Sekulic, & Liposek
31	2019	Changing attitudes and intentions related to doping: An analysis of individual differences in need for cognition	Horcajo, Santos, Guyer, & Moreno
32	2019	Peer Education strategies for promoting prevention of doping in different populations	Fallace, Aiese, Bianco, Bolognini, Costa, Esposito, & WDPP
33	2019	Body image outcomes in a replication of the ATLAS program in Australia.	Yager, McLean, & Li
34	2019	Applying a health literacy lens to youth sport: A focus on doping prevention in Germany	Vamos, & Steinmann
35	2018	Identification of factors associated with potential doping behavior in sports: a cross-sectional analysis in high-level competitive swimmers.	Devcic, Bednarik, Maric, Versic, Sekulic, Kutlesa, & Liposek
36	2018	Ego involvement increases doping likelihood	Ring, & Kavussanu
37	2017	Linking coach interpersonal style with athlete doping intentions and doping use: A prospective study	Ntoumanis,Barkoukis, Gucciardi, & Chan
38	2017	The effectiveness of a new school based media literacy intervention on adolescents' doping attitudes and supplements use.	Lucidi, Mallia, Alivernini, Chirico, Manganelli, Galli, & Zelli
39	2016	Linking narcissism, motivation, and doping attitudes in sport: A multilevel investigation involving coaches and	Matosic, Ntoumanis, Boardley, Stenling & Sedikides

		athletes.	
40	2016	Health psychological constructs as predictors of doping susceptibility in adolescent athletes.	Blank, Schobersberger, Leichtfried & Duschek
41	2015	Role of parents as a protective factor against adolescent athletes' doping susceptibility.	Blank, Leichtfried, Müller & Schobersberger
42	2015	Toward an integrative model of doping use: an empirical study with adolescent athletes	Lazuras, Barkoukis & Tsorbatzoudis
43	2016	Doping prevention through anti-doping education and practical strength training: The Hercules program	Sagoea, Holdenb, Risec, Torgersenc, Paulsend, Krosshauge, Lauritzenc, & Pallesen

International principal guidelines.

The WADA antidoping code most highlighted contents:

- The Code: "The Code is the fundamental and universal document upon which the World Anti-Doping Program in sport is based. The purpose of the Code is to advance the anti-doping effort through universal harmonization of core anti-doping elements. It is intended to be specific enough to achieve complete harmonization on issues where uniformity is required, yet general enough in other areas to permit flexibility on how agreed-upon anti-doping principles are implemented. The Code has been drafted giving consideration to the principles of proportionality and human rights" (WADA, 2021, p.9).
- The World Anti-Doping Program "The World Anti-Doping Program encompasses all of the elements needed in order to ensure optimal harmonization and best practice in international and national anti-doping programs. The main elements are: Level 1: The Code, Level 2: International Standards and Technical Documents and Level 3: Models of Best Practice and Guidelines" (WADA, 2021, p.10).
- International Standards "International Standards for different technical and operational areas within the anti-doping program have been and will be developed in consultation with the Signatories and governments an approved by WADA. The purpose of the International Standards is harmonization among Anti-Doping Organizations responsible for specific technical and operational parts of antidoping programs. Adherence to the International Standards is mandatory for compliance with the Code. The International Standards may be revised from time to time by the WADA Executive Committee after reasonable consultation with Signatories, governments and other relevant stakeholders. International Standards and all revisions will be published on the WADA website and shall become effective on the date specified in the International Standard or revision" (WADA, 2021, p.11).
- Models of Best Practice and Guidelines: "Models of best practice and guidelines based on the Code and International Standards have been and will be developed to provide solutions in different areas of anti-doping. The models and guidelines will be recommended by WADA and made available to Signatories and other relevant stakeholders but will not be mandatory. In addition to providing models of anti-doping documentation, WADA will also make some training assistance available to Signatories" (WADA, 2021, p.12).

Code Implementation Support Program Guidelines for the International Standard for Education (ISE) (WADA, 2021)

The process of learning to install values and develop behaviours that foster and protect the spirit of sport, and to prevent intentional and unintentional doping.

1. Planning your education program
    1.1. ASSESSING THE CURRENT SITUATION
        1.1.1. Describe the context in which your education program exists
        1.1.2. Identify the target groups you plan to educate
        1.1.3. Identify your available resources
        1.1.4. Describe your current education activities
    1.2. ESTABLISHING AN EDUCATION POOL
        1.2.1. Educating along the athlete pathway.
        1.2.2. Who the minimum requirement includes?
        1.2.3. Who is a priority?
        1.2.4. Who you may not be able to reach and why?
        1.2.5. How you can plan to reach a wider audience in the future?
    1.3. HOW TO DEVELOP AN EDUCATION PLAN How to develop an education plan
        1.3.1. Setting objectives and activities
            1.3.1.1. Conducting a needs assessment
            1.3.1.2. Setting an overall aim
            1.3.1.3. Setting specific program objectives
            1.3.1.4. Identifying topics
            1.3.1.5. Setting learning objectives
            1.3.1.6. Planning education activities
            1.3.1.7. Planning monitoring and evaluation procedures
            1.3.1.8. Writing it down: What an education plan can look like
            1.3.1.9. Sharing aims, objectives, and expectations with your stakeholders
2. 2. Implementing your education program
    2.1. DESIGN THE LEARNING EXPERIENCE
    2.2. INCLUDE THE 4 COMPONENTS OF AN EDUCATION PROGRAM
        2.2.1. The 4 components
            2.2.1.1. Values-based education
            2.2.1.2. Awareness raising
            2.2.1.3. Information provision
            2.2.1.4. Anti-doping education
        2.2.2. Types of education activities
            2.2.2.1. Communications campaigns
            2.2.2.2. Branding and promotional activities
            2.2.2.3. Social media campaigns
            2.2.2.4. eLearning
            2.2.2.5. Face-to-face education
        2.2.3. Educational material to support education activities
            2.2.3.1. Printed material
            2.2.3.2. Digital material
    2.3. Educate along the athlete pathway
        2.3.1. pathway
            2.3.1.1. Children and school sports
            2.3.1.2. Youth athletes
            2.3.1.3. Talented athletes
            2.3.1.4. National-level athletes
            2.3.1.5. International-level athletes
        2.3.2. Educating athletes in an RTP
            2.3.2.1. Include all mandatory content
            2.3.2.2. Practical tasks on using ADAMS and providing whereabouts information
            2.3.2.3. Provide top-up education activities close to competition time
        2.3.3. Educating athletes returning from a sanction

2.3.3.1. Accessing athletes returning from a sanction
2.3.3.2. What athletes returning from a sanction should learn
2.3.4. Considerations for major games or major championships
2.3.4.1. Key dates including the period of the games/championship and when jurisdiction changes
2.3.4.2. In-competition and out-of-competition periods
2.3.4.3. Rules, including the List and any sport-specific additions
2.3.4.4. TUEs – what to do beforehand and how to get one if needed during the competition
2.3.4.5. Whereabouts requirements
2.3.4.6. Testing – the process, who can test, types of testing, testing equipment
2.3.4.7. Where to report intelligence or suspicions of doping
2.3.4.8. What happens if they break the anti-doping rules and potential consequences, including any specific consequences in team events
2.3.4.9. "Celebratory activities" to help remind athletes that they are still under the anti-doping rules and that they are always role Models
2.3.4.10. Values, such as winning with integrity
2.4. Embed values-based education
2.4.1. Identifying your values
2.4.2. Describing your values
2.4.3. Embedding your values
2.5. Monitor and evaluate
2.5.1. Monitoring
2.5.2. Evaluating learning
2.5.3. Program evaluation
2.5.4. Determining impact
2.5.4.1. Conducting surveys
2.5.4.2. Collecting qualitative data

Other papers related to best practices and interventions against doping:
Best practices

The development
The WADA antidoping code most highlighted contents:

The development of **systematic antidoping educational programs** in youth swimming in a need Sajber, Maric, Rodek, Sekulic, & Liposek, 2019). The **development of systematic antidoping educational programs** in youth swimming in a need Sajber, Maric, Rodek, Sekulic, & Liposek (2019) advice the prevention programs are more effective "the more they are addressed to young people and adolescents and provide interactive and action-oriented interventions". Sajber et al (2019) adds "Successful initiatives aim to emphasize the development of life skills and to influence numerous determinants of behavior, including individual attitudes, knowledge, motivations, interpersonal relationships and social norms. If the aim is to act on the change of behavior, the efforts will be more successful if the content of the intervention will give due consideration to the context in which it applies and the target population, involving it and addressing its specific **needs** and **values**"

Simon, Striegel, Aust, Dietz & Ulrich (2006) highlight the need of intensification of **educational activities** about doping control as most of knowledge about this issue comes from questionable sources (e.g. TV or the Internet) (Simon, Striegel, Aust, Dietz& Ulrich, 2006). Furthermore, the authors recommend the interventions should **follow the WADA antidoping code** and **include the psychological determinants of behaviour** and formation of attitudes about doping (Simon,

Striegel, Aust, Dietz& Ulrich, 2006). So, the interventions contents must include moral knowledge, moral reasoning, ethical values, and psychosocial consequences of doping.
Petróczi & Aidman (2008) recommend **focusing on risk** factors but also in **doping expectancies** (dual focus).

Yager an O'Dea (2014) recommend including **knowledge about the risk of anabolic use contains on the antidoping programs.**

Nilsson, et al. (2004) refers that health **promotion activities** can decrease the use of drugs on adolescents. In this line (McCarthy, 2005) said that educating athletes and also the public can solve the doping problem in sport.

Different authors (Laure, & Lecerf; 2002; Vamos, & Steinmann, 2019) highlight the effective approach of **health-based educational intervention** to the prevention of doping in the young population.

Authors like Greydanus, & Patel (2002) advise that **nutritional counselling** should be "an essential part of anticipatory guidance, Clinicians providing sports medicine care to youth should educate their young patients about the hype and hyperbole of these ergogenic products". In this line, DesJardins aware that research shows that demonstrated **effective education programmes** can reduce the intentions to use **dietary supplements** on adolescents (DesJardins, 2002).

Rosenfield (2005) advice that prevention among athletes can be focused only on banned drugs, they must include other **psychosocial variables**. In the same line, Lazuras, Barkoukis, & Tsorbatzoudis (2015) highlight this need to include **socio-cognitive** aspects to the research and interventions.

The Anti-Doping Values in Coach Education (ADVICE) is a mobile application against doping focus on coaches. Its contents included **fair play, substances, nutritional supplements, rules** and **leadership**. Nicholls, Fairs, Plata-Andrés, Bailey, Cope, Madigan& Chanal (2020). The result shows that the coaches' knowledge about doping increases and the favourable doping attitudes were reduced.

The iPlayClean education programme (Nicholls, Morley, Thompson., Huang, Abt, Rothwell, & Ntoumanis (2020) is focused on doping attitudes and susceptibility to use banned substances among young athletes. The results show that **doping attitudes can be changed** and maintained 8 weeks later the intervention.

The prevention action must include **concrete guidelines** defining **multifaceted**, **values**-based **education**, and **best practice examples** (Gatterer, Gumpenberger, Overbye, Streicher, Schobersberger, & Blank, 2020).

Risk factors

Petróczi & Aidman (2008) research shows that "participants who declared they would consider using doping showed significantly **less implicit negativity** towards banned substances (…) Similarly, those who reported more **lenient explicit attitudes** towards doping or expressly supported legalizing it, showed less implicit negativity towards doping in the sample" Furthermore "**competitive sport participants** scored significantly lower than non-competitive ones on the PEAS".

The study of Petróczi & Aidman (2008) found that young athletes who defines success as the result of **external factors** attributions may adopt deceptive strategies, making them more likely to doping. Barkoukis, Lazuras, & Tsorbatzoudis (2014) analysis the impact of attributional beliefs about success

on the susceptibility for doping use in adolescents. They found that the **external factor attributions of success** (like cheating and deception attitudes) predict doping susceptibility.

In other hand, Bloodworth, Petróczi, Bailey, Pearce, & McNamee (2012), found that the **perceived behaviour of friends and competitors** can influence the decision to dope. Also, they find that the decision to dope may be influenced by **social norms, individual morality/ethics and social influences** have a decisive role in doping use among youth athletes.

The use of substances like **dietary supplements** and **protein powders** increase the risk of use other kind of illegal substances and drugs to improve the performance in young population (Yager, & O'Dea, 2014)

The **physical self-esteem** (psychological feature) is linked to doping knowledge in young athletes in **competitive sports** and is a risk factor on doping behaviours (Schirlin, O., Rey, G., Jouvent, R., Dubal, S., Komano, O., Perez-Diaz, F., & Soussignan, R., 2009).

The **pressure** on the athletes can deteriorate their well-being and increase the risk of unethical or illegal behaviour (Pipe, 2001). In this line, Loland (2001) advises that **pushing the limits** (to break the records, to become better and the feeling of 'enough is never enough) increases the risk of drug use and illegal behaviours.

The risk of doping is higher in **males**, in swimmers with **higher alcohol consumption**, and use of **dietary supplements** (Devcic, Bednarik, Maric., Versic, Sekulic, Kutlesa, & Liposek, 2018).

Ring, & Kavussanu, (2018) found that **ego** involvement can increase the risk of doping. In this line, the doping risk increase in the population with **negative motivation, depressive mood, fear of failure** and **ego-oriented** athletes (Blank, Schobersberger, Leichtfried & Duschek, 2016).

Protective factors

A **healthy body image** and satisfaction acts like a protective factor against doping. Different authors (Doley, McLean, Griffiths, & Yager, 2020; Yager and O'Dea, 2014) recommends work in the prevention of body dissatisfaction.

Long, Pantaléon, & Bruant, (2008) recommends including the **promotion of social and moral development** in the young population.

Rodek, Sekulic and Pasalic (2009) found that **religiousness** can act like a protective factor against doping.

Competitive achievement in Olympic and non-olympic disciplines was a protective factor against doping behaviours. Also, the risk of doping decrease on swimmers concerned about **doping negative social consequences** (Devcic, Bednarik, Maric., Versic, Sekulic, Kutlesa, & Liposek, 2018).

The **social environment** may impact the athletes' intentions and decisions to engage in doping and can increase the success of future antidoping interventions (Ntoumanis, Barkoukis, Gucciardi, & Chan, 2017).

In relation to coaches, Matosic, Ntoumanis, Boardley, Stenling, & Sedikides, (2016) found that "**Coach narcissism** was directly and positively associated with the athletes' perceptions of controlling behaviours and was indirectly and positively associated with the athletes' reports of needs frustration. In addition,the athletes' perceptions of coach behaviours were positively associated directly and indirectly-with attitudes toward doping".

In relation to the **parents**, they can act like a protective factor but "only if their level of belief is moderate" (Blank, Leichtfried, Müller, & Schobersberger, 2015). In this sense, the authors recommend to include the parents in the prevention strategies by focusing on their behaviour and communication skills (Blank, Leichtfried, Müller, & Schobersberger, 2015).

Conclusions

This narrative review can be helpful to get a better understanding of the national and international policies in the field of Doping prevention and education. The review, composed by brief national and international screening, including the best practices, projects and regulations affecting the participant countries on the SDOP project. Internationally, policies and projects are mainly led by WADA, the world-wide umbrella organisation for international and national anti-doping agencies.

The purpose of this brief review was to obtain key documents and resources that could provide an overview of the implementation of the antidoping regulations and projects. As a result, we could summarise that the WADA Code and NADO's recommendations could be considered the fundamental documentation on the fight against doping at schools, clubs or in the family context. Secondly, the work on values, responsibilities and attitudes towards doping and substances consumption in the context of sports. Finally, this work confirms the need for more research and information, and more directly, the need of educational programmes and divulgating/preventive campaigns about doping and its negative consequences, as well as the risks of switching from dietary supplements consumption to doping substances in youngsters.

Study 3: Survey Methodology

thodology

Participants

The sample consisted of 545 young swimmers, 245 boys (45%) and 290 girls (53%); with a birth year range from 2000 to 2009 (M= 2004; SD=1.48).

Measures

We created an online self-report survey. The survey includes the following measures.

Sociodemographic variables:

- Age (year of birth)
- Country (Bulgaria, Greece, Italy, Portugal, Spain, Sweden, Turkey).
- Gender (Male, Female, and response option "Prefer not to say"),
- Education Level (highest grade of regular school completed: elementary school, high school, college, graduate school/university)
- Cohabitation situation (multiple selection: mother, father, legal guardian, brother, sister, other)
- Parents civil status (together, separated/divorced)
- Parents highest grade of regular school completed (I don't know, elementary school, high school, college, graduate school)
- Family socioeconomic situacion (very bad, bad, normal, good, very good).

Swimming practice. The survey includes the following questions on the swimming practice:

- Currently practising swimming (yes/no)
- Years practising swimming (Less than 1 year, 1 year, 2 years, 3 years, 4 years, 5 years, 6 years, 7 years, 8 years. 9 years, 10 years or more).
- Training days per week (1 day, 2 dyas, 3 days, 4 days, 5 days, 6 days, 7 days)
- Hours per training session (1 hour, 1-2 hours, 2-3 hours, 3-4 hours, 4-5 hours, more than 5 hour).
- Competition level (no competition, club, provincial, interprovincial, national, international)
- Family members which practice/have practiced swimming (yes/no; who)

The Attitudes to Moral Decision-Making in Youth Sport Questionnaire-2 (AMDYSQ-2) (Whitehead and Ntoumanis 2013). This scale of 15 items measures attitudes on sport toward cheating and moral decision-making with a 5-Likert answers type. The scale global consistency is higher than to 0.80 (Gürpınar, 2014). The scale includes 3 factors: gamesmanship; cheating and keeping winning in proportion.

The Performance Enhancement Attitude Scale (PEAS) (Petróczi and Aidman, 2009). This scale measures self-declared attitudes toward doping. It is composed of 17 items with a Likert answer style ranging from 1 to 6 (1= I strongly disagree; 6= I strongly agree). The scale has a consistency range between 0.71 to 0.91 (Petróczi and Aidman, 2009).

Use of substances

The survey includes questions about substances use practice as follows:

- Alcohol consumption: (Yes/no)
- Consumption of tobacco products: (Yes/no)
- Other kinds of substances (Yes/no); frequency (never, once, occassionally, frequently, always); which (open question: name it); who recommended ir or where do you receive the information (multiple selection: friends, teammates, coach, parent, doctor, other); need covered with its use (open question: name it).
- Eat or drink something related to improve your swimming performance: use (Yes/no); frequency (never, once, occassionally, frequently, always); which (open question: name it);who recommended ir or where do you receive the information (multiple selection: friends, teammates, coach, parent, doctor, other); need covered with its use (open question: name it).

Bulgaria

Socio-demographic information

A total number of 110 young swimmers from Bulgaria participated in our survey, which corresponds to around 20% of the participants from all partner countries. Regarding the gender of the participants, a relatively equal participation of both sexes can be observed: Little more than half of the participants from Bulgariaare female (57%) (Figure 2). The participants were born between 2002 and 2006, with almost 70% being born in the years 2005 and 2006 (Figure 3).

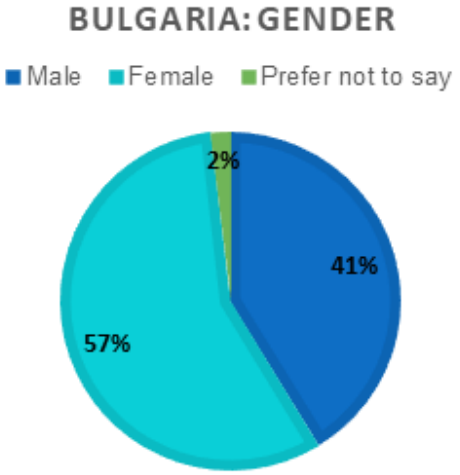


Figure 2. Gender of Bulgarian survey participants.

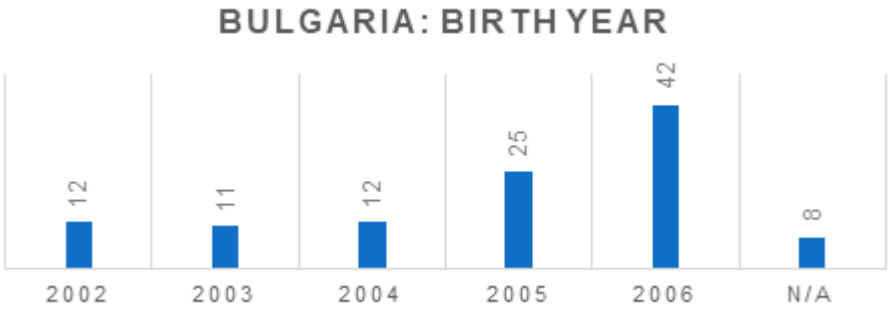


Figure 3. Birth year of Bulgarian survey participants.

Regarding their highest education level, the results reflect the assumptions made in advance of the analysis due to the age group of the survey participants. The majority of the Bulgarian participants finished primary school (67%) while 27.5% stated secondary school as their highest education level. Only 3% have already finished college (Figure 4).

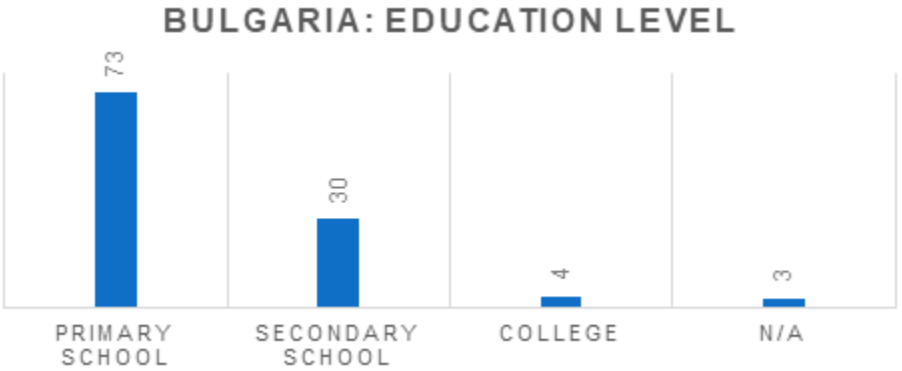


Figure 4. Highest education level of Bulgarian survey participants.

Having a look at the parents' civil status, the results show that in 80% of the cases the parents of our survey participants are together and only 18% answered that their parents are separated or divorced (Figure 5).

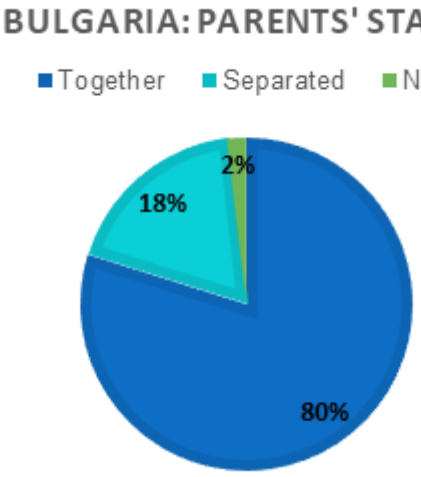


Figure 5. Parents' civil status of Bulgarian survey participants.

Information on swimming practice

Concerning the descriptive results of the items on the swimming practice, we found a certain heterogeneity among the Bulgarian participants. The years of swimming practice range from less than one year to more than ten years, while most of the participants practice swimming for more

than five years, and actually 22% for 10 years or more. Only 15.6% of the Bulgarian participants practice swimming for less than 5 years (Figure 6).

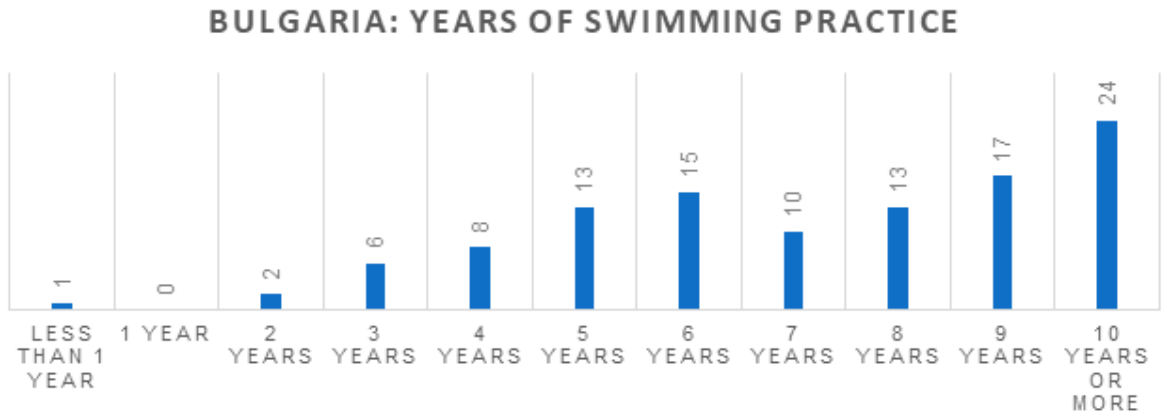


Figure 6. Years of swimming practice of Bulgarian survey participants.

The level of competition in swimming varies a lot among the Bulgarian participants. While only one participant does not compete at all, 48 compete on club level (44%), three on provincial level (2.8%), 43 on national level (39.4%) and 14 on international level (12.8%) (Figure 7).

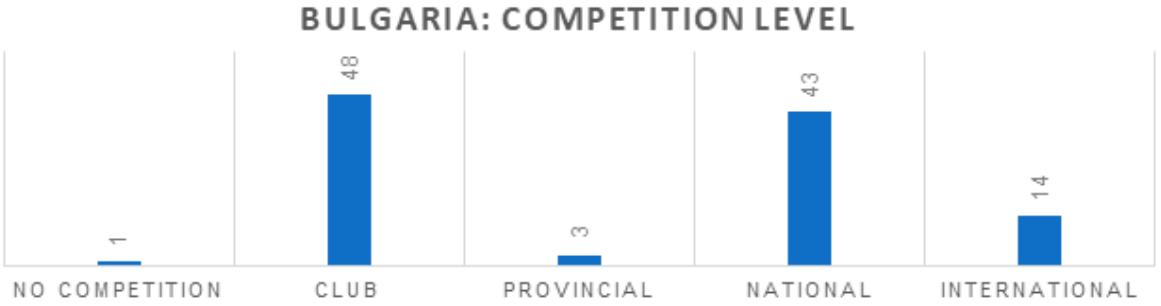


Figure 7. Competition level in swimming of Bulgarian survey participants.

Respective their weekly swimming training, the majority of our Bulgarian participants usually trains six days (65.1%) or five days weekly (22%). Only 11.9% practice their swimming training between two and four days per week (Figure 8).



Figure 8. Days of swimming practice per week of Bulgarian survey participants.

At the same time, the hours the Bulgarian swimmers spend per training session vary. While only one participant trains 1 hour, 44 participants train between one and two hours (40.4%), and 34 participants between three and four hours (31.2%). Nevertheless, 27.5% of the Bulgarian participants usually train more than three hours and six swimmers report that they train even more than five hours per training session (5.5%) (Figure 9).



Figure 9. Hours of swimming practice per training session of Bulgarian survey participants.

Greece

Socio-demographic information

In our online survey participated 193 young swimmers from Greece representing around 35.5% of the total number of participants. The proportion of female participants (63%) from Greece extends the proportion of male participants (34%) (Figure 10).

The sample of the young swimmers from Greece reveals variation in terms of their age. The years of birth range from 2002 to 2006: 16 participants were born in 2002 (8.3%), 19 in 2003 (9.8%), 49 in 2004 (25.4%), 51 in 2005 (26.4%), and 45 in 2006 (23.3%) (Figure 11).

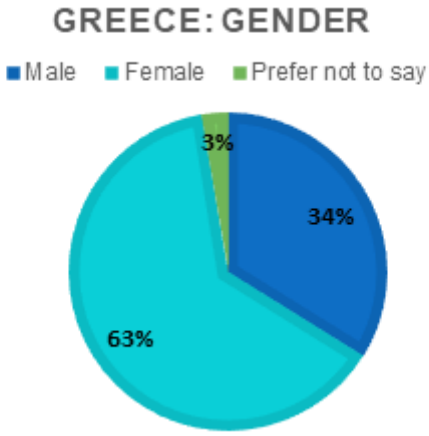


Figure 10. Gender of Greek survey participants.



Figure 11. Birth year of Greek survey participants.

Regarding their education level, the majority of Greek swimmers indicated that their highest education grade is secondary school (77.7%), while 33 participants declared primary school (17.1%) and ten participants 'college' (5.2%) as their highest education level (Table 12).

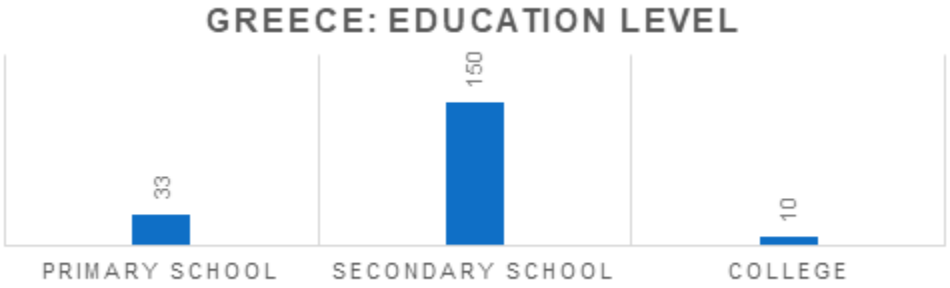


Figure 12. Highest level of education of Greek survey participants.

Concerning the item of the socio-economic status, the responses of the young swimmers from Greece cover all options of the scale, ranging from 'very bad' to 'very good'. Only 1% defines the socio-economic situation of his or her family as 'very bad' and 2% as 'bad'. Almost half of the Greek participants rate their socio-economic level as 'normal' and 36% as 'good. Another 13% evaluates their socio-economic status as 'very good' (Figure 13). Despite the fact that the sample includes participants from very different socio-economic backgrounds, the proportion of Greek participants rating their socio-economic status as 'good' or 'very good' is relatively high (49%).

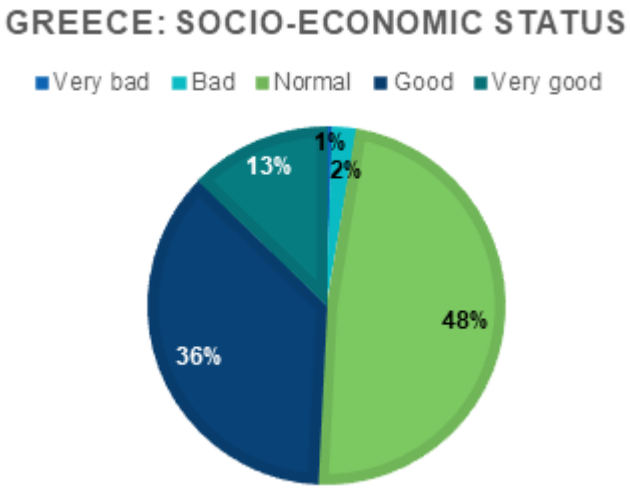


Figure 12. Highest level of education of Greek survey participants.

When asked for the civil status of their parents, the majority of the survey participants from Greece indicated that their parents are together (89%) and a relatively small number of participants stated that their parents are separated or divorced (11%) (Figure 14).

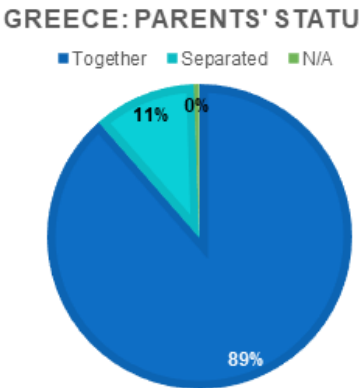


Figure 14. Parents' civil status of Greek survey participants.

Information on swimming practice

As shows table 2.6, most of the participants from Greece practice swimming for ten years or more (58%) and in general, only a few Greek survey participants practice swimming for less than five years (4.7%). Six participants swim for five years (3.1%), nine for six years (4.7%), 15 for seven years (7.8%), 17 for eight years (8.8%) and 21 for nine years (10.9%) (Figure 15).

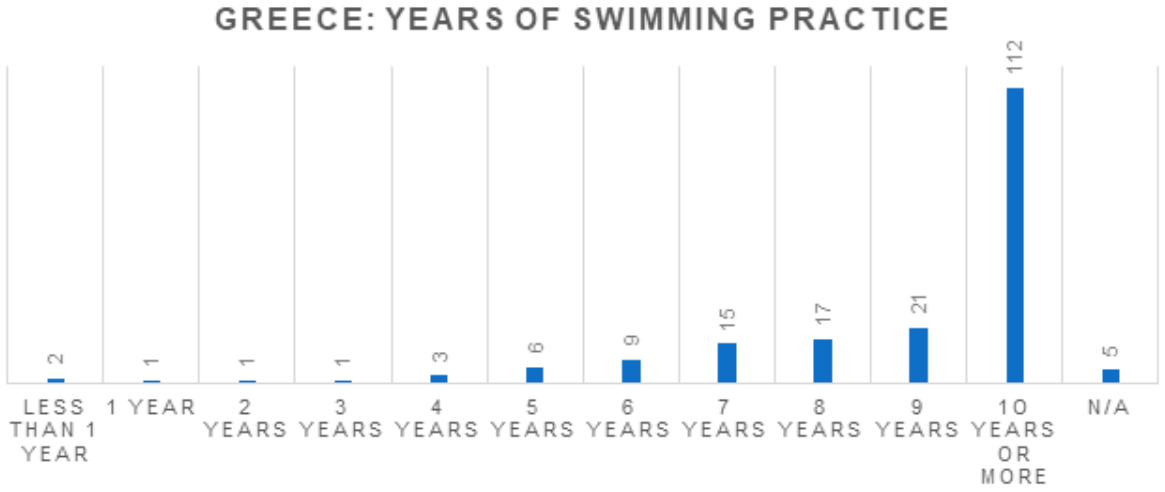


Figure 15. Years of swimming practice of Greek survey participants.

Most of the survey participants from Greece compete in swimming on different levels, only 5.2% do not compete at all. 18 swimmers compete on club level (9.3%), 23 on provincial level (11.9%), 20 on interprovincial level (10.4%), the majority of 103 participants competes national-wide (53.4%) and 19 compete on international level (9.8%) (Figure 16).

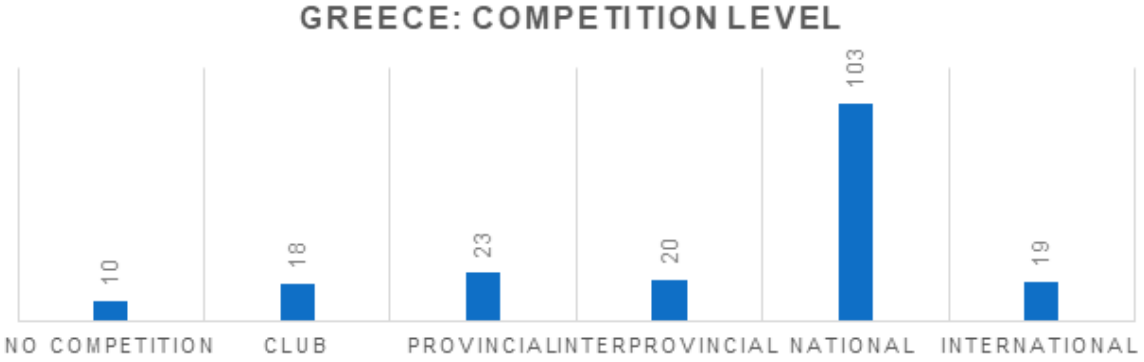


Figure 16. Competition level in swimming of Greek survey participants.

As many of the young swimmers from Greece compete on national level, a high number of training days per week was expected for most of the participants. In fact, the majority trains six days weekly (56%) and still many even use to train every day of the week (23.3%). Only 29 Greek swimmers train between two and four days per week (15%) (Figure 17).



Figure 17. Days of swimming practice per week of Greek survey participants.

The training hours that Greek swimmers invest in their training vary between one hour and more than five hours per training session while the majority usually trains between one and two hours (33.2%) or between two and three hours (49.7%). Only 11.4% of the swimmers from Greece use to train more than three hours and 4.7% usually spend one hour on their training (Figure 18).

Italy

Socio-demographic information

The sample of online survey participants from Italy includes the information of 37 young swimmers (6.8% of the total number of survey participants). In the case of the Italian participants, we can observe a higher participation rate of male swimmers (86% compared to 14% female swimmers) (Figure 19). Regarding their age, this sample



Figure 18. Hours of swimming practice per training session of Greek survey participants

can be described as varied, as shows the distribution of birth years in Table 3.2. Those range from one participant being born in 2003 (2.7%), ten participants being born in 2004 (27%), seven in 2005 (18.9%), five in 2006 (13.5%), four in 2007 (10.8%), and nine in 2008 (24.3%) (Figure 20).

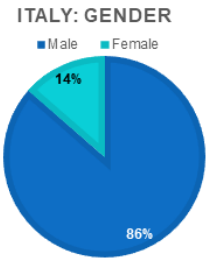


Figure 19. Gender of Italian survey participants.



Figure 20. Birth year of Italian survey participants.

Looking at the results of the education levels of our survey participants, the differences between Italy and the other participant countries in terms of the school system needed to be considered. In the case of Italy, secondary school is stratified in middle school education and upper secondary school education (here labelled as 'Secondary school'), which is why our results show relatively little rates for participants stating that primary school is their highest level of education (8.1%) as it is the case of the survey participants from the other partner countries. Figure 21 shows that about half of the Italian participants finished the first stage of secondary education, called 'Middle school' (51.4%) while fifteen participants already finished their whole secondary school education (40.5%).

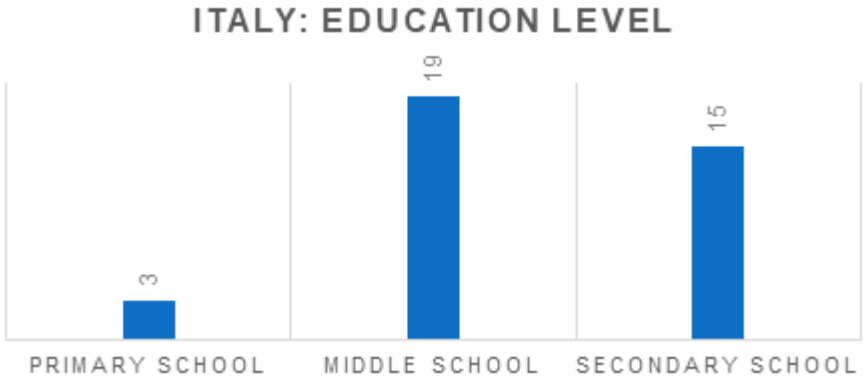


Figure 21. Level of education of Italian survey participants.

With respect to the question on how the participants would rate the socioeconomic situation of their families, more than half of the participants from Italy evaluate their socio-economic status as normal, 30% as 'good' and 8% as 'very good'. Only one participant rated his/her socio-economic status as 'bad' (Figure 22).

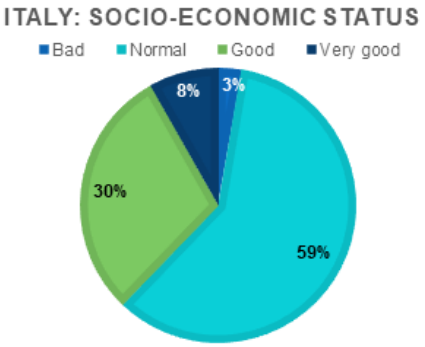


Figure 22. Socio-economic status of Italian survey participants.

In relation to the civil status of the parents of our participants, almost all young swimmers stated that their parents are together (97%). In fact, only one participant indicated that his/her parents are separated or divorced (Figure 23).

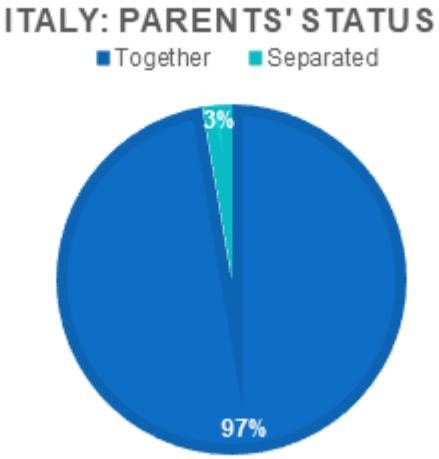


Figure 23. Parents' civil status of Italian survey participants

Information on swimming practice

In terms of the years of swimming practice, the results of our sample of Italian participants shows that the majority practices swimming for at least seven years. Actually, only 21.6% of the Italian participants practice swimming for less than seven years. Almost a third practices swimming for seven years (29.7%), eight participants for eight years (21.6%), six for nine years (16.2%) and four for 10 years or more (10.8%) (Figure 24).

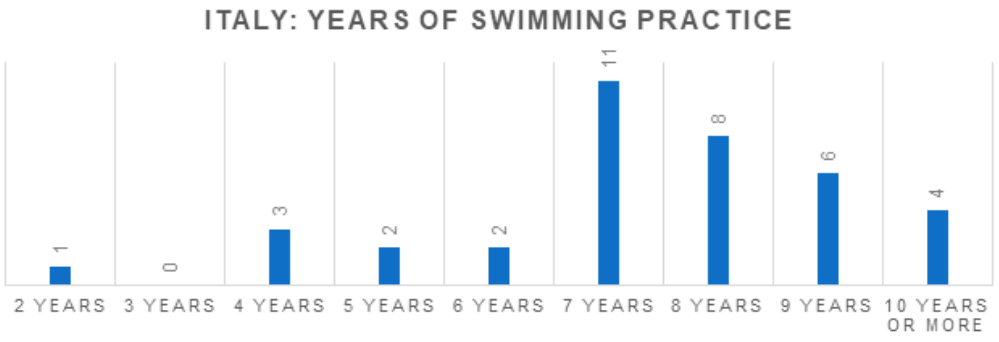


Figure 24. Years of swimming practice of Italian survey participants.

Focusing on the level of competition of the Italian swimmers, the results show that all participants do compete on some level. While five participants compete on club level, 14 participate in provincial swimming competitions, 17 compete on interprovincial level and one on national level (Figure 25).

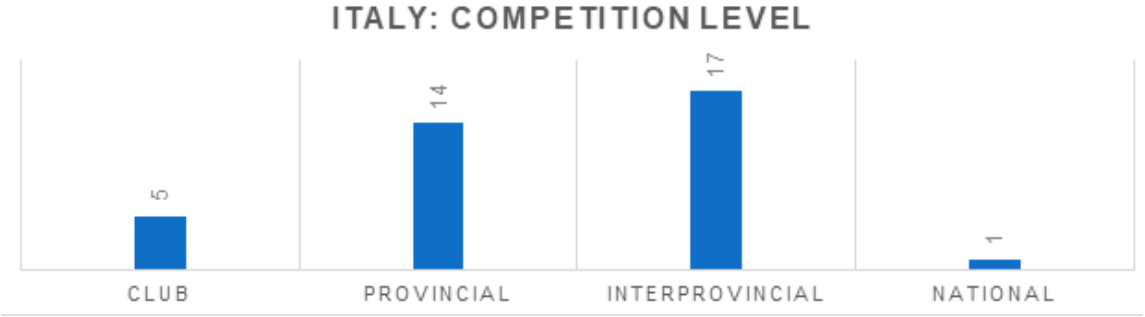


Figure 25. Competition level in swimming of Italian survey participants.

Concerning the swimming training, it can be observed that the majority of the Italian participants train six days per week (86.5%), while only one participant trains three days weekly and four use to train four days per week (Table 26).

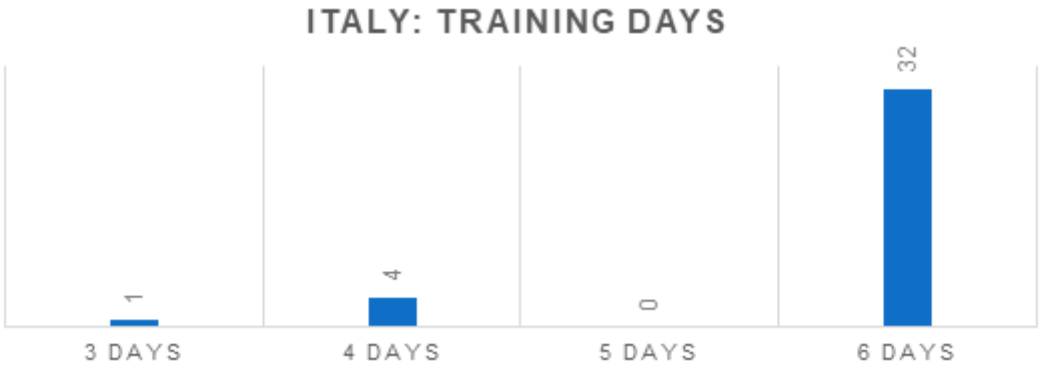


Figure 26. Days of swimming practice per week of Italian survey participants.

In terms of the hours the participants spend on their swim training, we see that the vast majority trains between one and two hours per training session (94.6%) and only two participants train between two and three hours (5.4%) (Figure 27).



Figure 27. Hours of swimming practice per training session of Italian survey participants.

Portugal

Socio-demographic information

The number of Portuguese young swimmers participating in our survey amounts to 84, representing around 15.4% of the survey participants in total. The distribution of gender shows that 58% are male and 41% are female swimmers (Figure 28).
The age among the Portuguese participants varies as shows Figure 29: 15 participants were born in 2002 (17.9%), eleven in 2003 (13.1%), ten in 2004 (11.9%), 17 in 2005 (20.2%) and 20 in 2006 (23.8%).

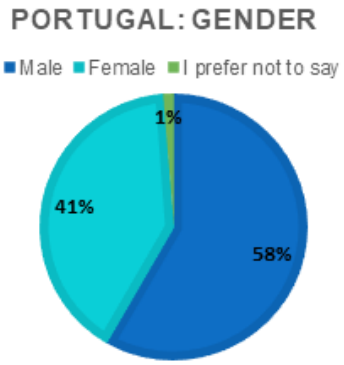


Figure 28. Gender of Portuguese survey participants

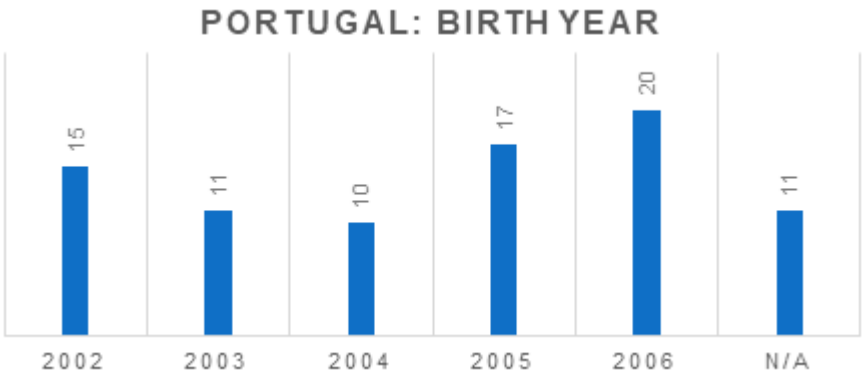


Figure 29. Birth year of Portuguese survey participants.

The level of education corresponds to the distribution of age groups of the participants from Portugal. Primary school is stated as highest education level by more than the half of the participants (56%) and 33 participants named the secondary school as their highest grade of education (39.3%) (Figure 30).

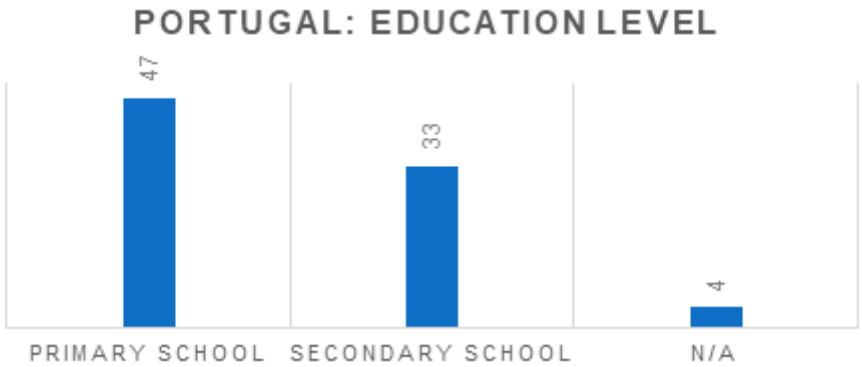


Figure 30. Highest level of education of Portuguese survey participants.

Among the participants from Portugal a high proportion rates the socioeconomic situation of their family as 'good' or 'very good' (58%). The majority of the Portuguese participants describes their socio-economic status as 'normal' (41%) or 'good' (40%). Around 18% stated that the socio-economic situation of their family is 'very good' whereas one participant indicated his/her socioeconomic status as 'very bad' (1%) (Figure 31).

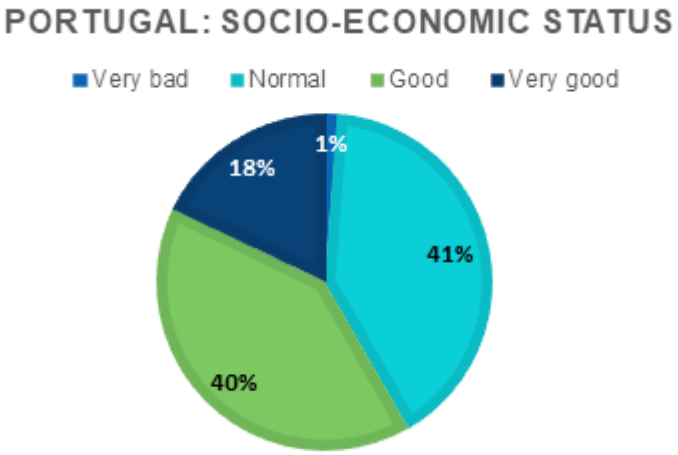


Figure 31. Socio-economic status of Portuguese survey participants.

In the case of the young swimmers from Portugal, the majority of their parents are together (94%). Only five participants answered that their parents are separated or divorced (6%) (Figure 32).

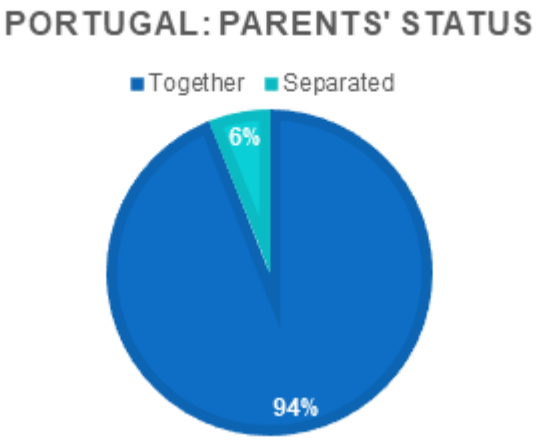


Figure 32. Parents' civil status of Portuguese participants.

Information on swimming practice

The Portuguese participants practice swimming no less than three years and many of them for even ten years or more (40.5%). Three Portuguese participants practice swimming for three years (3.6%), eight for four years (9.5%), nine for five years (10.7%), one for six years (1.2%), eleven for seven years (13.1%), 13 for eight years (15.5%) and three for nine years (3.6%) (Figure 33).

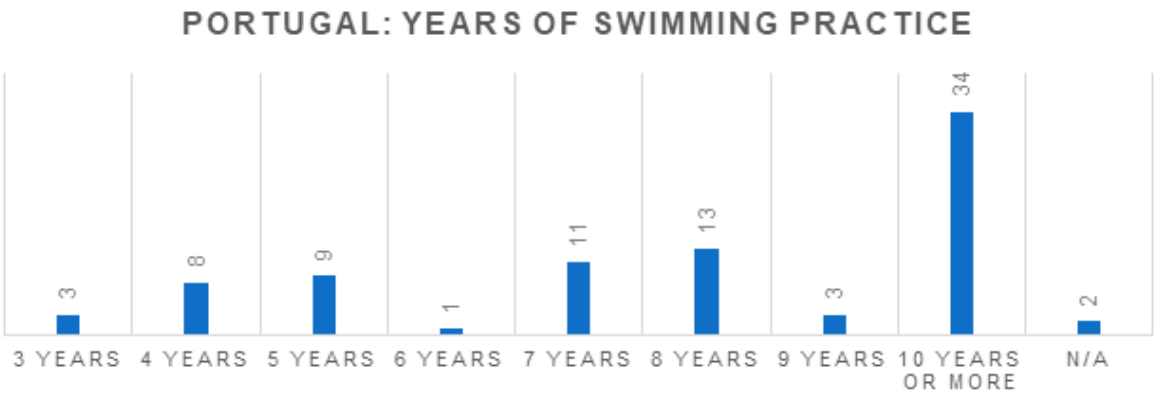


Figure 33. Years of swimming practice of Portuguese participants.

Concerning the level of competition in swimming, three of the Portuguese young swimmers do not compete at all (3.6%), twelve on club level (14.3%), 13 on interprovincial level (15.5%), 52 on national level (61.9%) and four on international level (4.8%) (Figure 34).

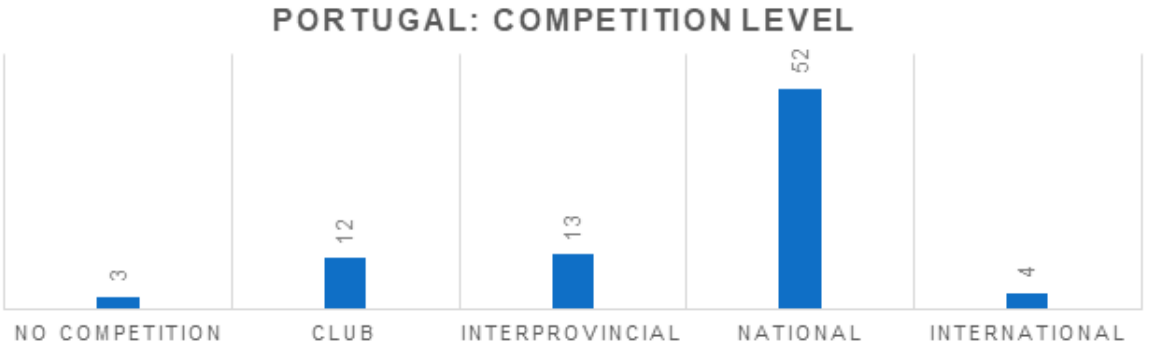


Figure 34. Competition level in swimming of Portuguese survey participants.

In terms of their training habits, the majority of the Portuguese swimmers use to train six days per week (69%). Seven participants train three days per week (8.3%), one trains four days per week (1.2%) and 16 train five days per week (19%) (Figure 35).



Figure 35. Days of swimming practice per week of Portuguese survey participants.

Regarding their hours of swimming practice, most Portuguese swimmers train between one and two hours per training session (48.8%) whereas 27 train two to three hours (32.1%) and 15 three to four hours per training session (17.9%) (Figure 36).

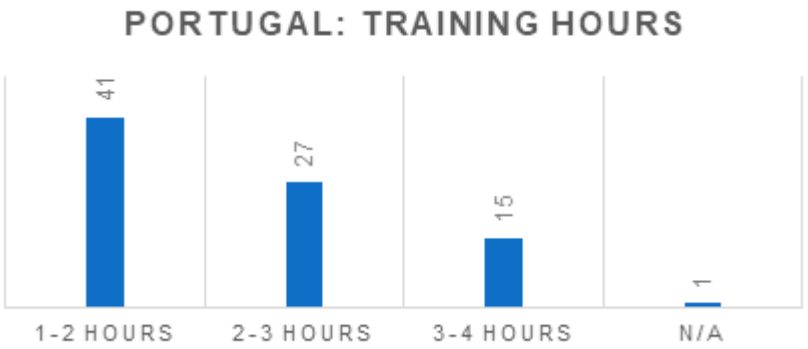


Figure 36. Hours of swimming practice per training session of Portuguese survey participants.

Spain

Socio-demographic information

The participation rate of Spanish young swimmers for this online survey accounts for 3.7% of the total number of survey participants. At the same time, a relatively equal participation of both sexes can be observed with 55% being male and 45% being female swimmers (Figure 37).

Further, the Spanish participants are of different ages with the youngest participant being born in 2009 and the oldest participant in 2002. The majority of the young swimmers from Spain were born between 2003 and 2006 (65%) (Figure 38).

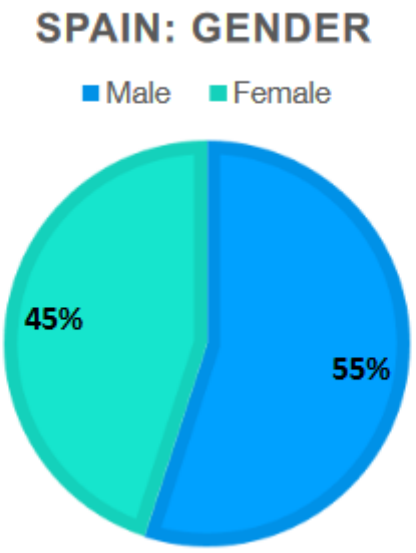


Figure 37. Gender of Spanish survey participants.

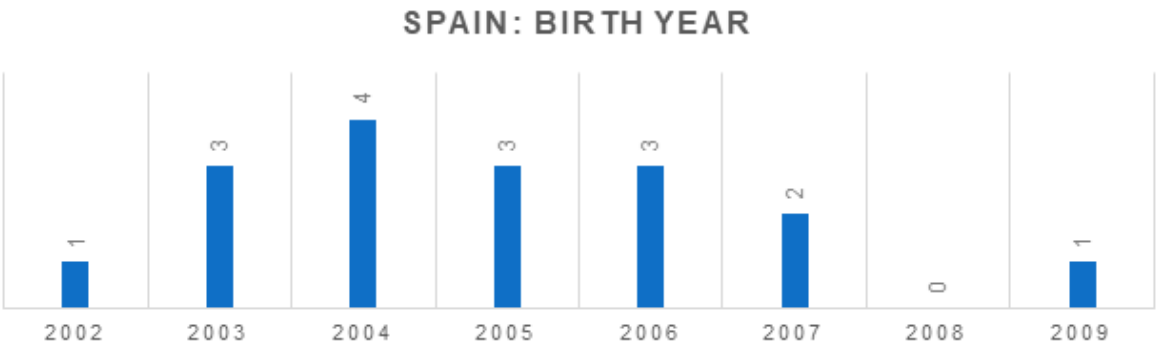


Figure 38. Birth year of Spanish participants.

In the case of the Spanish young swimmers, eight participants finished primary school (40%) and ten stated that secondary school is their highest level of education (50%). One participant named 'University' as his or her highest education level (5%) (Figure 39).

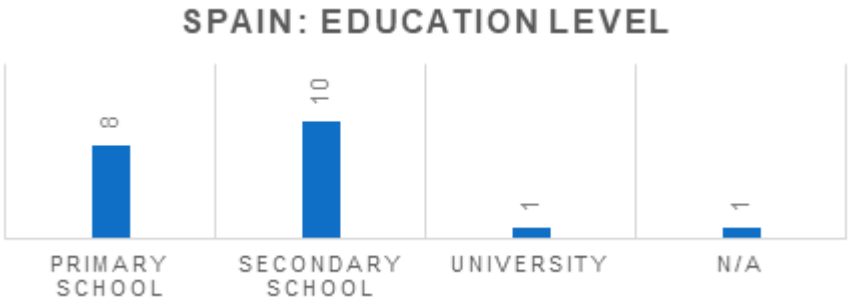


Figure 39. Highest level of education of Spanish survey participants.

Almost half of the Spanish survey participants describes the socio-economic situation of their family as 'normal' (47%) and 32% as 'good'. 16% rate their socio-economic status as 'very good' and 5% as 'bad', a percentage that corresponds to only one participant (Figure 40).

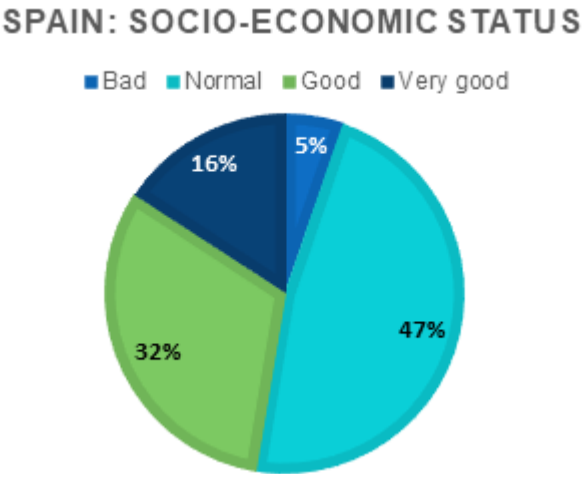


Figure 40. Socio-economic status of Spanish survey participants.

Concerning the civil status of their parents, 80% of the participants from Spain answered that their parents are together while the parents of three of the participants are separated or divorced (15%) (Figure 41).

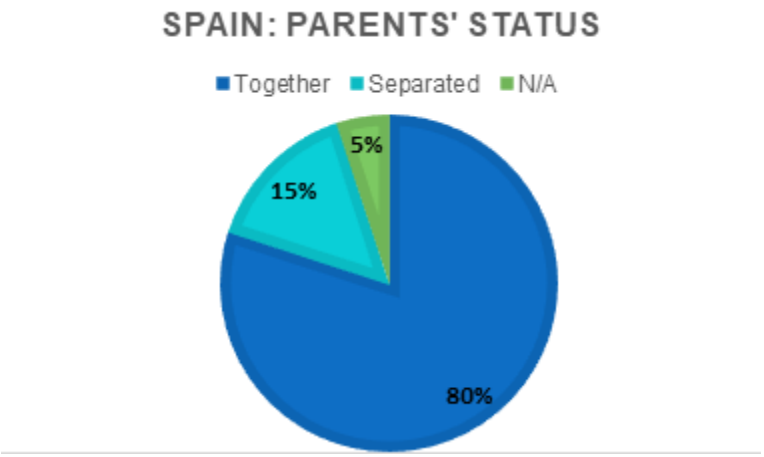


Figure 41. Parents' civil status of Spanish survey participants.

Information on swimming practice

The time of swimming practice varies a lot among the Spanish participants. Three participants practice swimming for three years or less (15%), half of the participants practice swimming for a time period of four to six years (50%), three participants swim for seven or eight years (15%) and another three participants for ten years or more (15%) (Figure 42).

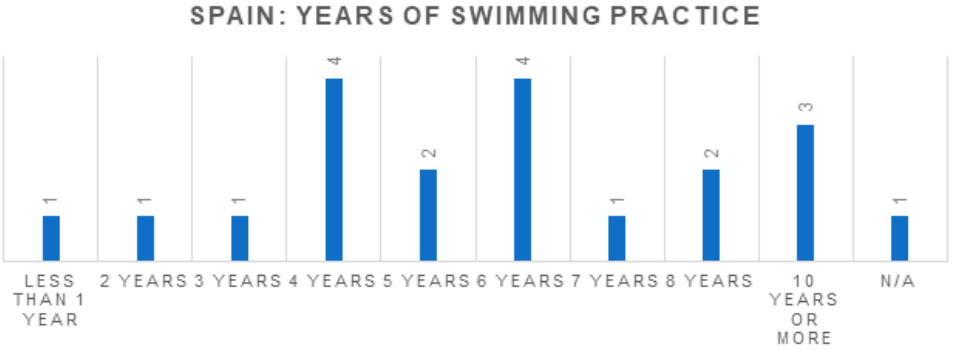


Figure 42. Years of swimming practice of Spanish participants.

The Spanish swimmers compete on different levels. One participant does not compete at all, three compete on club level (15%), another three on provincial level (15%), five on interprovincial level (25%) and four on national level (20%) (Figure 43).

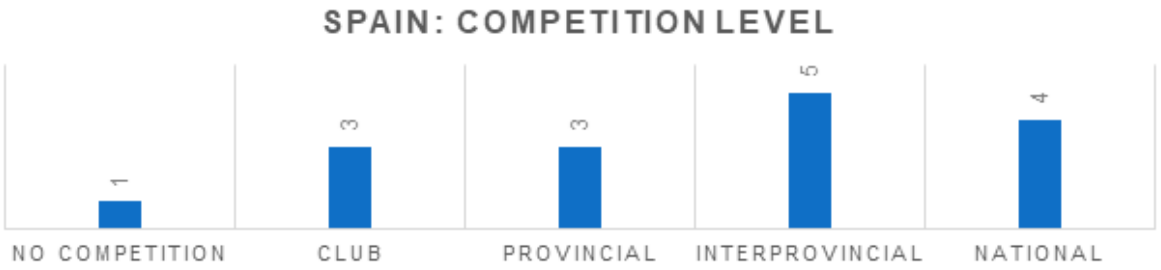


Figure 43. Competition level in swimming of Spanish participants.

Regarding their weekly swim training, most of the Spanish participants train three or four days per week (50%). Three swimmers train five days per week (15%) and two six days per week (10%). Another 10% trains two days and only one participant trains one day per week (5%) (Figure 44).



Figure 44. Days of swimming practice per week of Spanish survey participants.

The majority of young swimmers from Spain who participated in our survey trains between one and two hours per training (60%), three participants train one hour (15%) and four participants train between three and four hours per training session (20%) (Figure 45).



Figure 45. Hours of swimming practice per training session of Spanish survey participants.

Spain

Socio-demographic information

With 50 participants in total, the Swedish young swimmers constituted around 9.2% of the total amount of survey participants with an equal distribution of participation in terms of gender: 25 participants are male and 25 are female (Figure 46).

The participants from Sweden were born between 2001 and 2006 with the highest numbers of participants being born in 2003 and 2005 (40%). Eleven participants were born before 2003 (22%), five in 2004 (10%) and another five in 2006 (10%) (Figure 47)

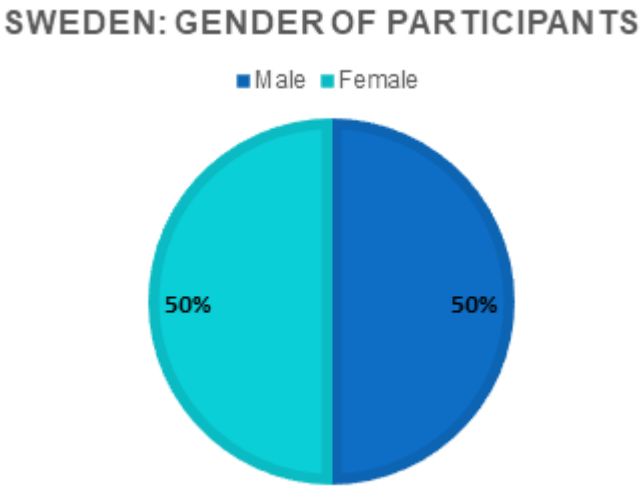


Figure 46. Gender of Swedish survey participants.

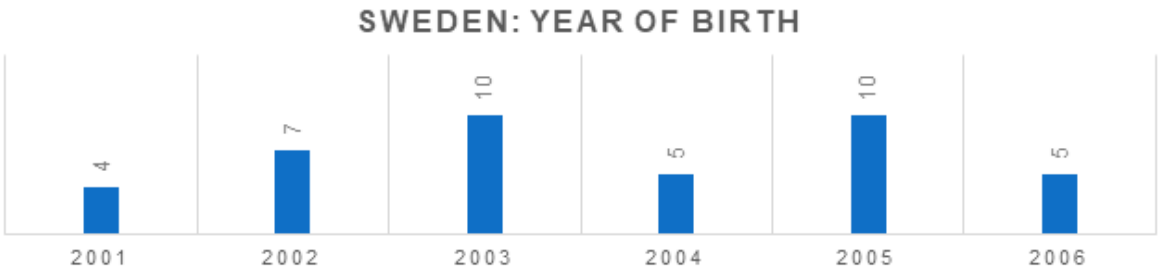


Figure 47. Birth year of Swedish survey participants.

In terms of their highest level of education, 18 participants from Sweden finished primary school (36%), 28 secondary school (56%), three college (6%) and one participant indicated 'graduate school' as highest level of education (2%) (Figure 48).

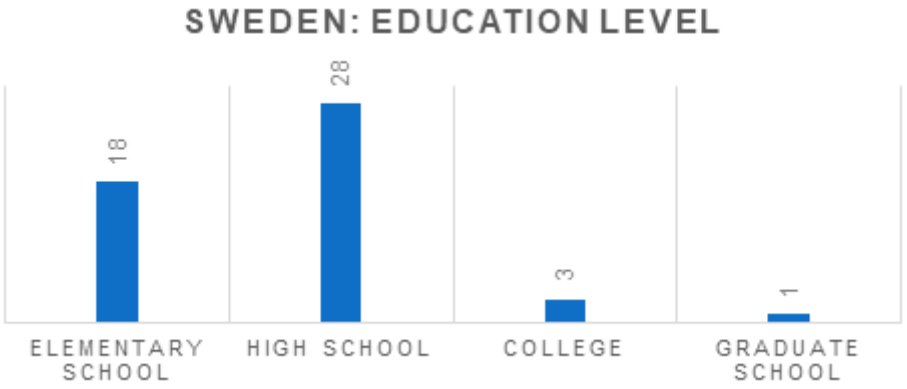


Figure 48. Highest level of education of Swedish survey participants.

The evaluation of their socio-economic situation varies among the Swedish participants to a certain extent. 20 Swedish swimmers rated the socio-economic status of their family as 'normal' (40%) and 12 as 'good' (24%). A relatively high number of participants (16) rated their socio-economic situation as 'very good' (32%) and two participants evaluated their socio-economic status as 'bad' (4%) (Figure 49).

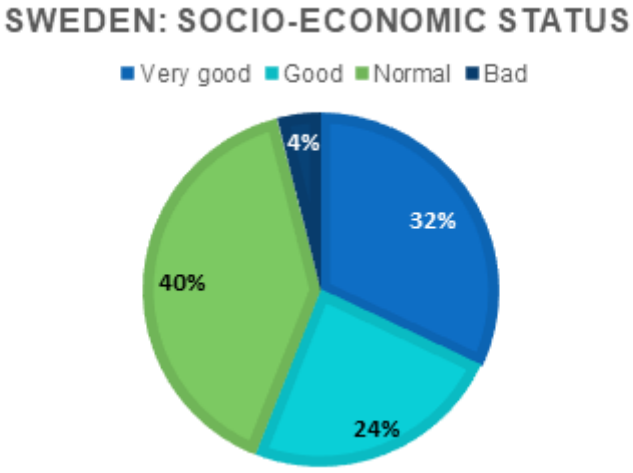


Figure 49. Socio-economic status of Swedish survey participants.

Information on swimming practice

The number of years during which the Swedish participants practice swimming varies between only one year (one participant) and ten years or more (15 participants = 30%). Four participants practice swimming for four years (8%), nine for five years (18%), three for six years (6%), five for seven years (10%), eleven for eight years (22%) and two for nine years (4%) (Figure 50).

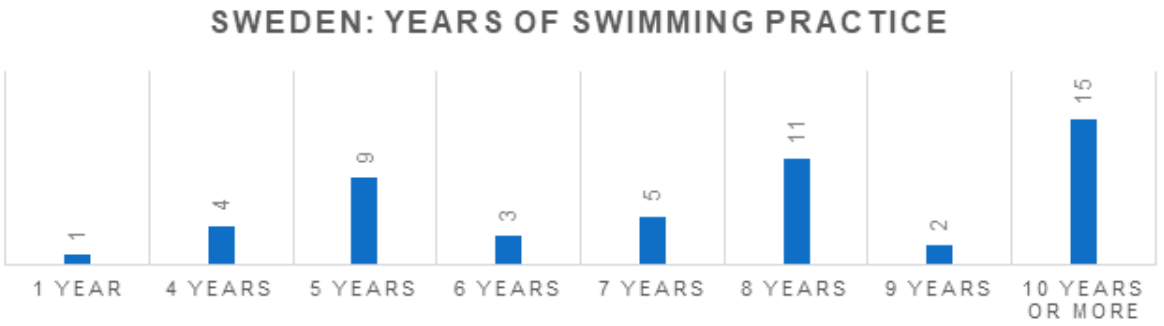


Figure 50. Years of swimming practice of Swedish survey participants.

All survey participants from Sweden do compete in swimming even though on different competition levels. Almost half of the Swedish young swimmers compete on national level (48%) and four compete internationally (8%). Eight participants participate in competitions on interprovincial level (16%), three on provincial level (6%) and nine on club level (18%) (Figure 51).

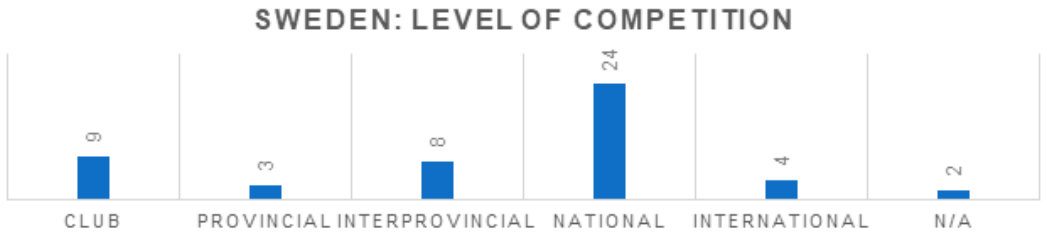


Figure 51. Competition level in swimming of Swedish survey participants.

Respective the time that the Swedish participants invest in their swimming training, more than the half use to train six days per week (66%) and eight participants from Sweden even train every day of the week (16%). Only nine participants train four days or less (18%) (Figure 52).



Figure 52. Days of swimming practice per week of Swedish survey participants.

Regarding their training hours, most Swedish participants train between one and two hours (36%) or two and three hours (34%). Twelve participants train between three and four hours (24%), only two between four and five hours (4%) and one usually spends more than five hours on his/her training session (2%) (Figure 53).

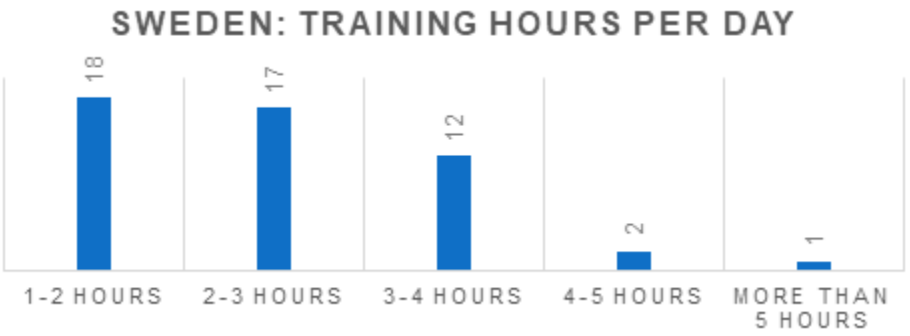


Figure 53. Hours of swimming practice per training session of Swedish survey participants.

Turkey

Socio-demographic information

The sample of Turkish survey participants also comprises 50 young swimmers constituting 9.2% of the total number of online survey participants from all partner countries. In this case, more female (62%) than male (38%) swimmers participated in the survey (Figure 54).

Figure 55 shows the variety among the age of the Turkish participants, ranging from eight participants who were born in 2002 (16%) to twelve participants being born in 2006 (24%). Four participants were born in 2003 (8%), six in 2004 (12%) and 14 in 2005 (28%).

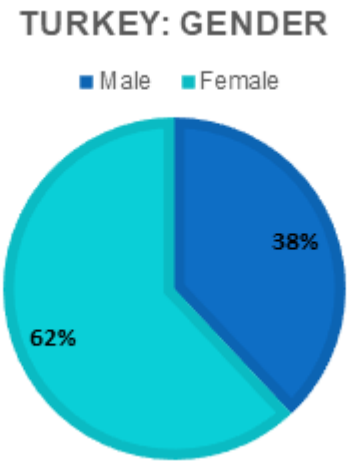


Figure 54. Gender of Turkish survey participants.

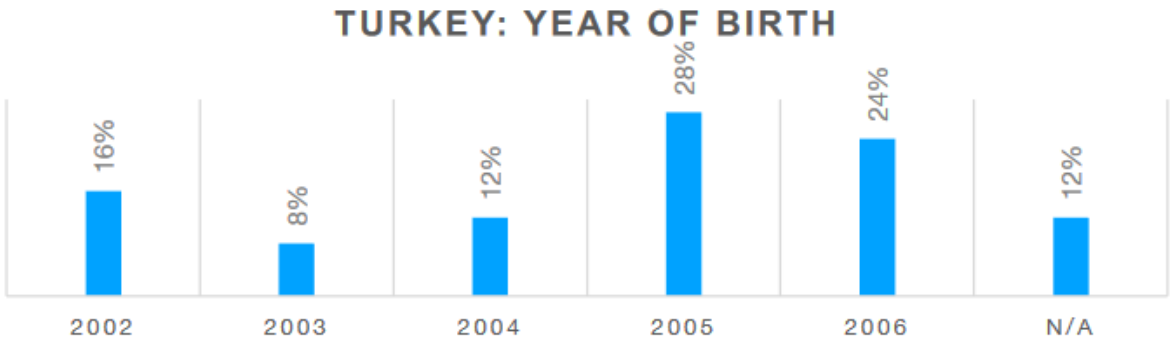


Figure 55. Birth year of Turkish survey participants.

Concerning their level of education, the majority of the Turkish young swimmers indicated primary school as their highest level of education (84%) and six participants already finished secondary school (12%). One participant stated university as highest level of education (2%) (Figure 56).

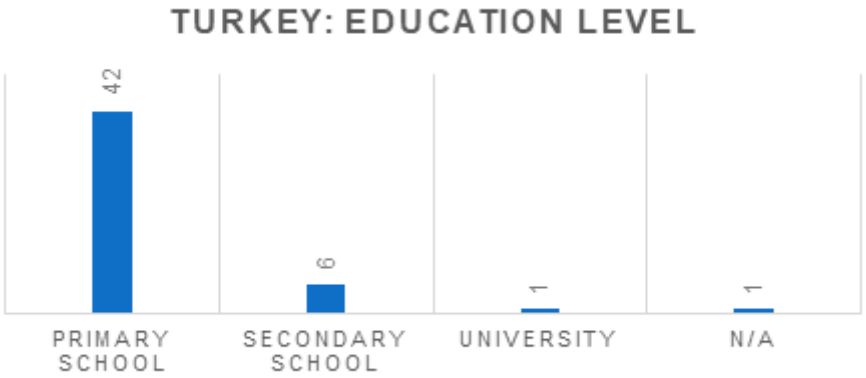


Figure 56. Highest level of education of Turkish survey participants.

With respect to the socio-economic situation of their families, we find differences between the responses of the Turkish participants and the participants of the other partner countries: 64% of the Turkish young swimmers rate their socioeconomic status as 'good' which corresponds to almost two thirds of the participants from Turkey. 26% said that the socio-economic level of their families was 'normal' and 10% even stated to have a 'very good' socio-economic status. According to that, the participants from Turkey stand out by having the highest percentage regarding a 'good' or 'very good' socio-economic status (90%) in comparison to the one from the participants of the other partner countries (Figure 57).



Figure 57. Socio-economic status of Turkish survey participants.

Looking at the civil status of the Turkish participants' parents, Figure 58 shows that the parents of 94% of our Turkish survey participants are together. Only two participants indicated that their parents are separated or divorced (4%) (Figure 58).

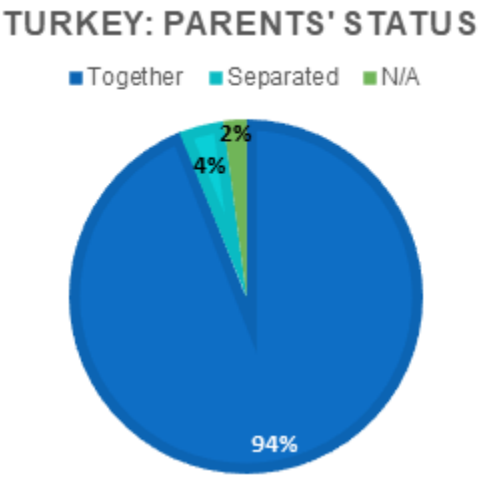


Figure 58. Parents' civil status of Turkish survey participants.

Information on swimming practice

In the case of the Turkish swimmers, all participants practice swimming for at least five years. Concretely, five participants already swim for five years (10%), one for six years (2%), seven for seven years (14%), ten for eight years (20%), eleven for nine years (22%) and 16 for ten years or more (32%) (Figure 59).

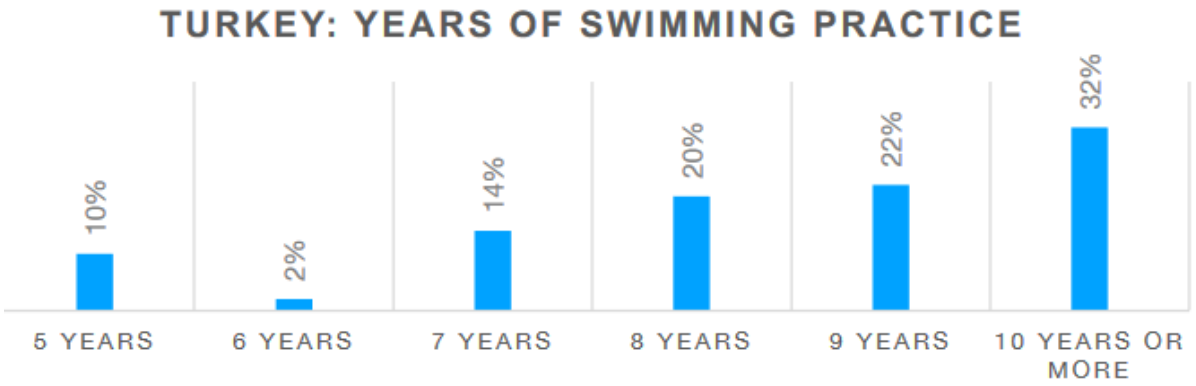


Figure 59. Years of swimming practice of Turkish survey participants.

A great number of the Turkish survey participants practices swimming on a high level of competition. While only two Turkish swimmers do not compete and another two compete on provincial level, ten participants compete on interprovincial level, 15 on national level and 21 on international level (Figure 60). From all partner countries represented in this study, the data from Turkey includes by far the highest number of young swimmers who compete internationally.

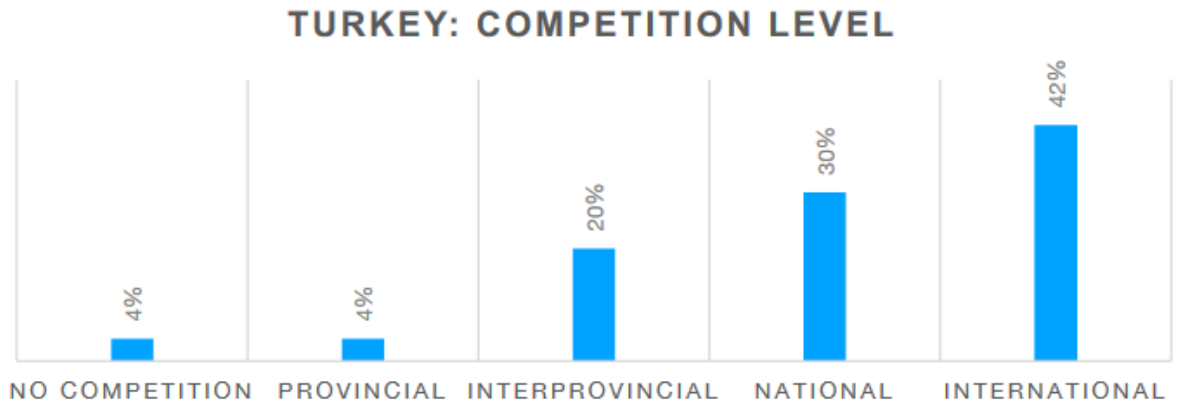


Figure 60. Competition level in swimming of Turkish survey participants.

The high level on which the Turkish survey participants compete is also reflected in the time they spend with swim training. The vast majority trains everyday (78%), while eight participants train six days (16%) and two train five days per week (4%) (Figure 61).



Figure 61. Training days per week of Turkish survey participants.

Whereas most of the survey participants from the other partner countries indicated that they spend between one and two hours with swim training, the majority of young swimmers from Turkey train between two and three hours (74%) (Figure 62).

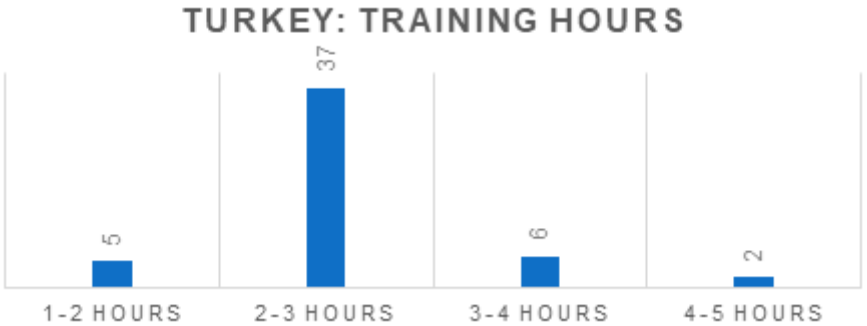


Figure 62. Hours of swimming practice per training session of Turkish survey participants.

International Results

Socio-demographic information

The results of our online survey consist of data from seven partner countries in different regions and with different socio-cultural backgrounds: Bulgaria, Greece, Italy, Portugal, Spain, Sweden, and Turkey. The total number of survey participants is 545. As shows Figure 63 the number of participants from Greece is the highest (36%), followed by the ones from Bulgaria (20%), Portugal (15%), Sweden and Turkey (9% each), and Spain (4%).

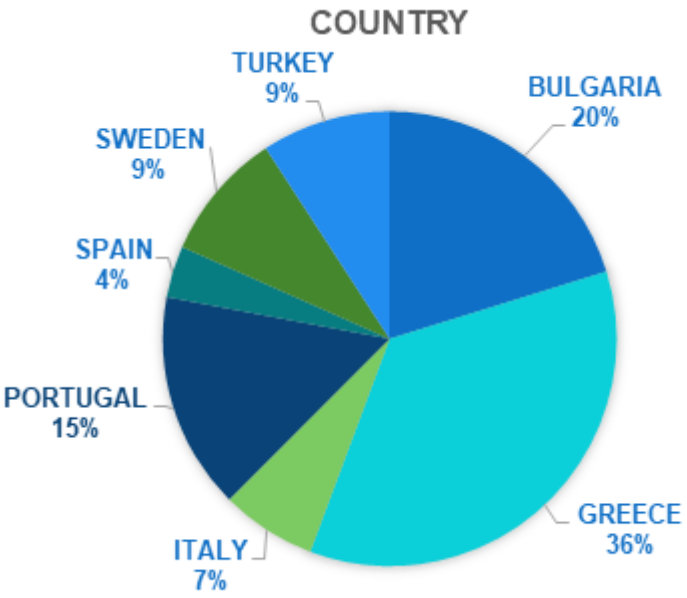


Figure 63. Country of residence of all survey participants.

The distribution of gender of our participants shows a higher participation of female swimmers who constitute 54% of the participants while the number of male swimmers amounts to 45% (Figure 64).

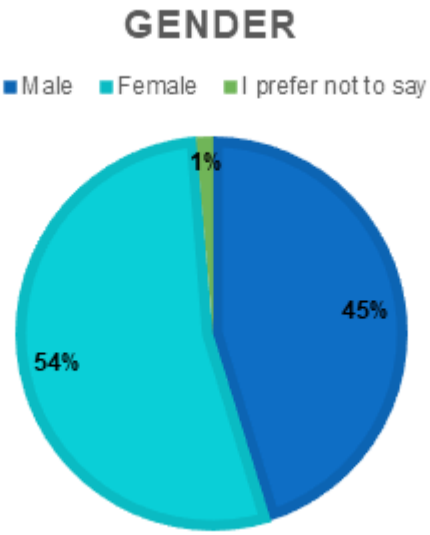


Figure 64. Gender of all survey participants.

Concerning the age of the participants, the majority was born between the years 2004 and 2006 (65.1%). 118 participants were born in 2002 and 2003 (21.7%). Only 16 participants were born between 2007 and 2009 (2.9%) (Figure 65).



Figure 65. Birth year of all survey participants.

In correspondence with the age of the participants, with respect to their education level 224 participants indicated primary school (41.1%) and 291 secondary school (includes Italian data for 'Middle school') (53.4%) as their highest educational grade. 18 participants already visited a college (3.3%) and two a university (0.6%) (Figure 66).

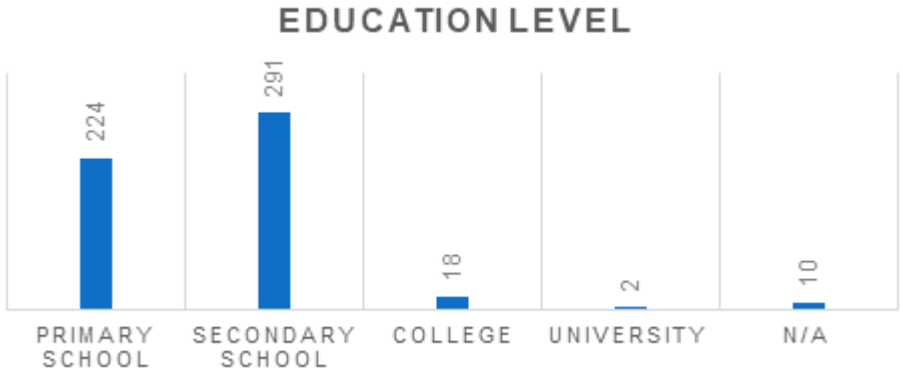


Figure 66. Highest level of education of all survey participants.

Regarding their socio-economic status, almost the half of the participants evaluated their situation as 'normal' (44%), followed by 38% who rated their socio-economic level as 'good' and 15% even as 'very good'. Only a few participants consider their socio-economic as 'bad' (2%) or even 'very bad' (1%) (Figure 67).

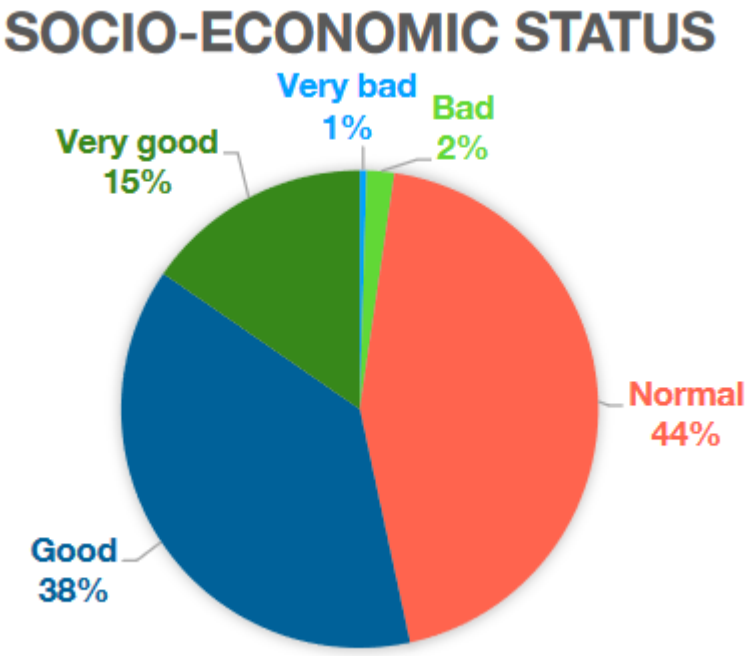


Figure 67. Socio-economic status of all survey participants.

In most cases, the parents of our survey participants are together (80%) while 19% stated that their parents are separated or divorced (Figure 68).

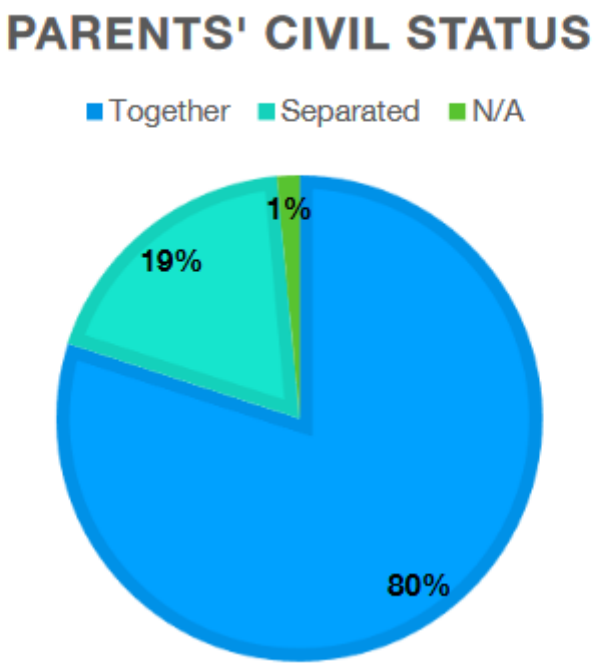


Figure 68. Parents' civil status of all survey participants.

Information on swimming practice

The years during which the survey participants practice swimming range from less than one year to ten years or more. Only 52 of the 545 survey participants practice swimming for less than 5 years (9.5%), while 275 already practice swimming for a time period of between five and nine years (50.5%). A high number of participants swims for ten years or more (38.3%) (Figure 69*).*

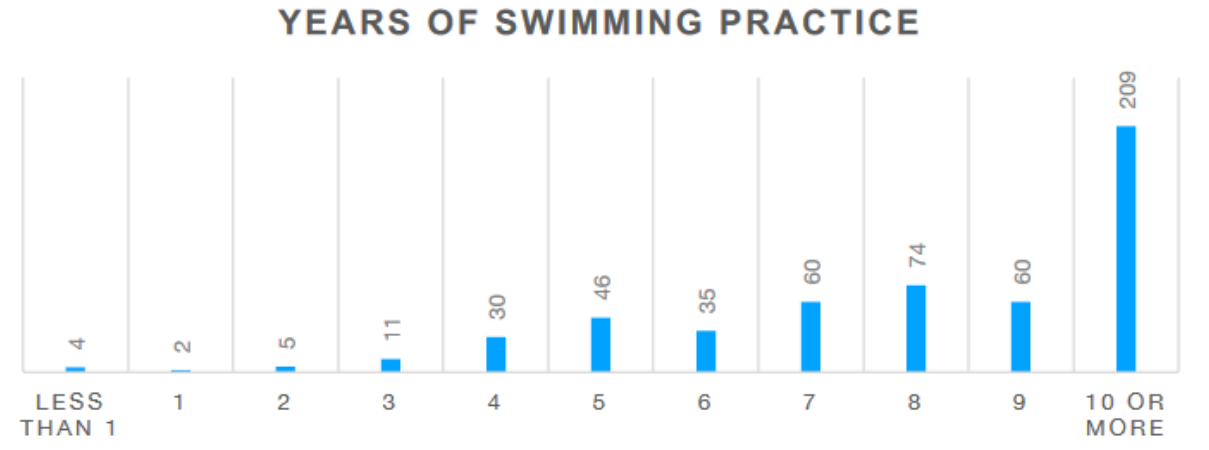


Figure 69. Years of swimming practice of all survey participants.

The levels on which the participants compete in swimming range from club level to international competitions, although some of the survey participants do not compete at all (2.9%). On the local and regional level, 95 young swimmers compete on club level (17.4%), 48 on provincial level (8.8%), and 73 on interprovincial level (13.4%). Nearly the half of participants compete on national level (44.4%) and 62 participate in international competitions (11.4%) (Figure 70).

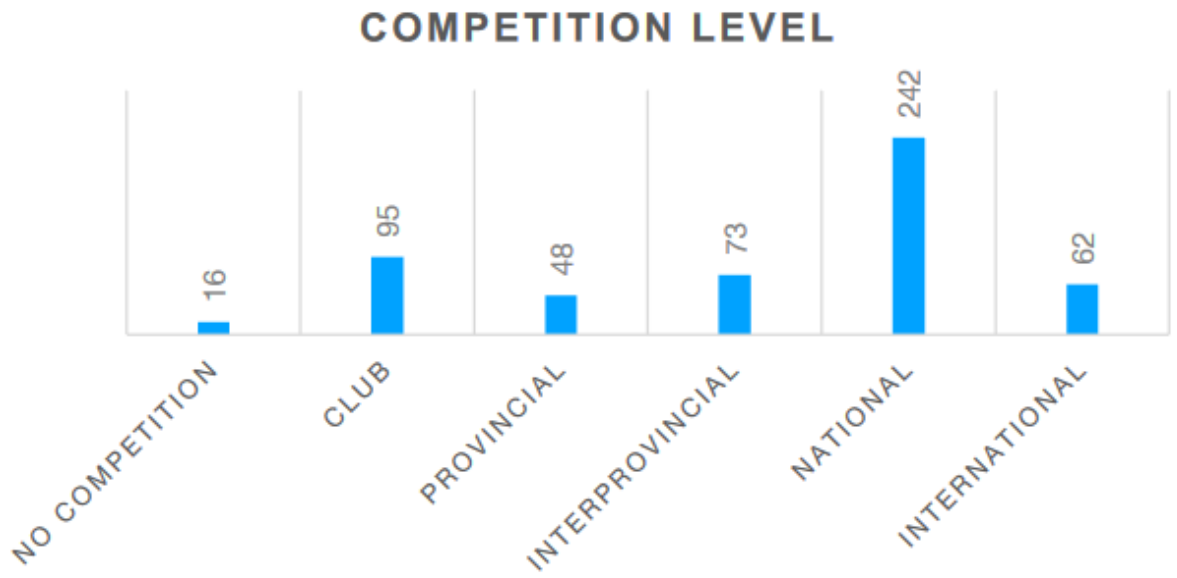


Figure 70. Competition level in swimming of all survey participants.

The fact that many of our survey participants compete on a relatively high level in swimming is also reflected by the time they invest in training. More than half of the young swimmers train six days per week (57.2%) and 92 even train all days of the week (16.9%). Another 45 swimmers train five days weekly (8.3%) and 43 four days (7.9%). 32 use to train three times (5.9%) and eleven two times per week (2%). Only one participant trains one day weekly (0.2%) (Figure 71).

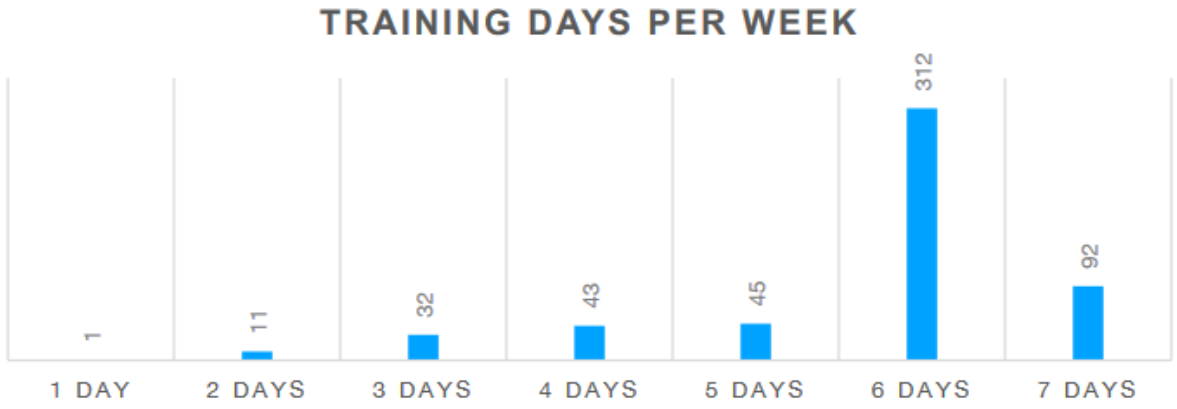


Figure 71. Training days per week of all survey participants.

With respect to the hours our participants spend on each training session, they mostly train between one and three hours (79.3%). From 545 survey participants, 13 usually train one hour (2.4%), 219 between one and two hours (40.2%), 213 between two and three hours (39.1%), 67 between three and four hours (12.3%), 19 between four and five hours (3.5%) and 9 even use to train more than five hours (1.7%) (Figure 72).

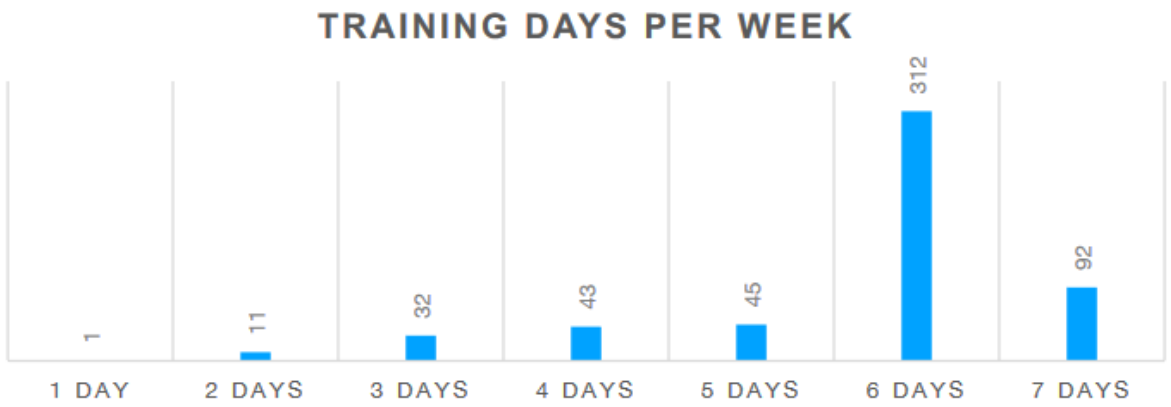


Figure 72. Hours of swimming practice per training session of all survey participants.

Statistical Analysis

With the objective of obtaining information on how the young swimmer's attitudes and behaviours towards doping and fairness in sports are related to their socio-demographic background and swimming practice, inferential statistical analyses have been conducted. For this purpose, we analysed two relevant scale indicators: first, the Performance Enhancement Attitude Scale (PEAS), and second, the Attitudes to Moral Decision Making in Youth Sport Questionnaire-2 (AMDYSQ-2). The first one measures self-declared attitudes toward doping and the second one measures attitudes on sport toward cheating and moral decision-making. The following part of this chapter includes the statistical analysis and results of the data from the survey participants from all partner countries.

The Performance Enhancement Attitude Scale (PEAS) (Petróczi and Aidman, 2009). shows a mean of 33.58 (SD=10.70) and 1.97 (SD=0.63) in the standardized scores.

The Attitudes to Moral Decision-Making in Youth Sport Questionnaire-2 (AMDYSQ-2) shows a mean of 1.72 (SD=0.85) for gamesmanship, 1.37(SD=0.68) for cheating and 4.33 (SD=0.79) for keeping winning in proportion.

Gender

The results do not show significant differences by gender on PEAS and the factor 'Keeping winning' in proportion. In contrast, significant differences can be observed for the relation of gender and 'Gamesmanship' as well as gender and 'Cheating', showing higher results for male participants (see Table 4).

Table 4. Scale results by gender

	Male mean (n)	**Female mean (n)**	**t**
PEAS	2.015 (218)	1.93 (256)	1.501
Gamesmanship	1.92 (239)	1.55 (285)	4.918***
Cheating	1.45 (241)	1.30 (288)	2.343**
Keep winning in proportion	4.27 (243)	4.39 (289)	-1.706

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

Swimming practice

The results do not indicate significant differences in proportion concerning swimming practice on PEAS and the factors 'Keeping winning' and 'Gamesmanship'. On the contrary, our data reveals significant differences for the relation of current swimming practice and 'Cheating' with higher results on those participants that currently do practice swimming (see Table 5).

Table 5. Scale results by swimming practice.

	No mean (n)	Yes mean (n)	t
PEAS	2.05 (94)	1.95 (380)	1.256
Gamesmanship	1.61 (104)	1.75 (419)	-1.600
Cheating	1.26 (104)	1.40 (424)	-2.402*
Keep winning in proportion	1.45 (105)	4.32 (426)	1.558

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

Parents' civil status

Significant differences in proportion cannot be observed for the influence of the parents' status on PEAS and the factors 'Keeping winning' and 'Gamesmanship'. In contrast, the results show significant differences regarding parents' status on 'Cheating' with higher results for children whose parents are separated or divorced (see Table 6).

Table 6. Scale results by parents' civil status.

	No mean (n)	Yes mean (n)	t
PEAS	1.98 (390)	1.97 (87)	0.194
Gamesmanship	1.75 (429)	1.62 (99)	1.282
Cheating	1.34 (432)	1.53 (100)	-2.026*
Keep winning in proportion	4.36 (435)	4.20 (100)	1.942

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

Alcohol and tobacco consumption and use of substances.

The descriptive results show that more than 70% of our survey participants do not drink alcohol more than 95% do not smoke. The vast majority of the young swimmers does not use other kind of substances (95%), but around a third occasionally drinks or eats something to improve their sports performance (see Table 7).

Table 7. Descriptive data about alcohol and tobacco consumption and use of substances.

	No	Yes

	N	%	N	%
Drink alcohol	381	71.2	154	28.8
Use tobacco products	516	95.4	25	4.6
Use other kinds of substances	515	95.0	27	5.0
Drink or eat something related to improve your performance	361	67.1	177	32.9

With regard to the inductive statistical results, significant differences in proportion for drinking alcohol on PEAS and the factors 'Keeping winning' and 'Gamesmanship' can be observed. However, the data demonstrates significant differences for drinking alcohol on 'Cheating' with higher results on participants who drink alcohol (see table 1.5).

At the same time, the results do not show significant differences on full scores for the relation between drinking alcohol and PEAS and the factors 'Keeping winning' in proportion, 'Cheating' and 'Gamesmanship' with higher results on participants who drink alcohol (see Table 8).

Table 8. Scale results by alcohol consumption.

	No mean (n)	Yes mean (n)	t
PEAS	1.91 (342)	2.12 (134)	-2.950*
Gamesmanship	1.67 (373)	1.87 (153)	-2.387*
Cheating	1.29 (379)	1.59 (152)	-3.881***
Keep winning in proportion	4.39 (380)	4.21 (154)	2.332*

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

The results do not indicate significant differences on full scores for the relation of tobacco consumption and PEAS and the factors 'Keeping winning' in proportion, 'Cheating' and 'Gamesmanship' with higher results for those young swimmers who do consume tobacco products (see Table 9).

Table 9. Scale results by tobacco consumption..

	No mean (n)	Yes mean (n)	t
PEAS	1.93 (458)	2.74 (23)	-4.328***
Gamesmanship	1.68 (507)	2.71 (25)	-4.102***
Cheating	1.32 (512)	2.40 (25)	-4.498***
Keep winning in proportion	4.37 (515)	3.72 (25)	-4.498***

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

From our analysis we did not obtain significant differences for the relation of substances use and PEAS on full scores and the factors 'Keeping winning' in proportion, 'Cheating' and 'Gamesmanship' with higher results for those participants who make use of other substances (see Table 10).

Table 10. Scale results by use of substances.

	No mean (n)	**Yes mean (n)**	**t**
PEAS	1.94 (457)	2.55 (25)	-4.756***
Gamesmanship	1.70 (506)	2.20 (27)	-2.209*
Cheating	1.34 (511)	1.92 (27)	-2.543*
Keep winning in proportion	4.35 (514)	4.02 (27)	-2.110*

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

The results show significant differences by drinking or eating substances to improve enhancement on full scores of PEAS and factor cheating. In contrast, data show significant differences by swimming practice on cheating with higher results on participants who (occasionally) consume performance-enhancing drinks or food (see Table 11).

Table 11. Scale results by drinking or eating something to improve sports performance

	No mean (n)	**Yes mean (n)**	**t**
PEAS	1.89 (324)	2.15 (156)	-4.153***
Gamesmanship	1.69 (355))	1.80 (174)	-1.341
Cheating	1.69 (355)	1.47 (175)	-1.981*
Keep winning in proportion	4.31 (360)	4.37 (177)	-0.695

*Note: *=p<0.05, **p<0.01 ***p< 0.001*

Conclusions

The national and international screening detected different risks factors that predispose to doping, such as substance use (dietary supplements, protein powders, alcohol), cognitive aspects (external and internal pressure, negative motivation, depressive mood, fear of failure, ego-oriented attitudes, or) social influences (values, social moral developing, and community, including the coaches), physical image (self-esteem and body image).

These results highlight the importance of detecting and changing attitudes toward doping, since they are directly related to a increase the risk of doping. Moreover, the importance of having effective education programs but also nutritional counselling and health-based programs can be highlighted based on the same result.

Complementary to this, fair play and the close circle (family, coaches and supporters), should be worked on to instill knowledge and prevent doping in young athletes.

Regarding the statistical analysis on the attitudes towards doping, the results showed that male young athletes are more prone to cheating in sports, different to the level of practice, which does not correlate with stronger attitudes towards doping but toward cheating. In addition, our analysis shows that parental divorce might also increase the cheating tendency.

It is considered necessary to highlight how the substances consumption, mainly alcohol and tobacco, increases the attitudes towards doping in all variables, showing itself as a key factor in the doping attitude.

In sum, the cheating factor is the most sensitive to changes between groups, increasing in men, as well as swimming practitioners, who have experienced the divorce of their parents, or who consume substances (illicit or to enhance their performance).

Limitations

The main limitations observed are related to the size of the sample, making it necessary to continue investigating the factors related to attitudes and behaviours that predict doping.

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This document would not be possible without the support and cooperation of all the project consortium, the participant clubs and the swimmers that have facilitated the information to our data collection process. We truly hope they could find this brief and simple Comprehensive Report interesting, and that this could be one more step on the long fight against doping.
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