FINAL REPORT TO THE EUROPEAN COMMISSION
(DG SANCO F/3, HEALTH MONITORING PROGRAMME)

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European Physical Activity Surveillance System
(EUPASS)

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1) Progress and development towards stated aims of the project

The EUPASS project was designed to contribute to a European health monitoring system and its methodological foundations. It focussed on developing and testing a surveillance system[*] for physical activity as a major behavioural determinant of health by (1) providing a valid and cross-nationally applicable list of core indicators and optional indicators for health-enhancing physical activity, (2) testing selected physical activity indicators by employing different survey methodologies, and (3) investigating implementation structures of health monitoring in the EU.

In the period covered by this final report, the EUPASS-project has progressed towards its aims of contributing to the Community health monitoring system and providing concrete recommendations for physical activity surveillance by proceeding along the following lines.

a) *Inventory of national physical activity surveillance systems to contribute to the establishment of a list of core indicators and optional indicators for health-enhancing physical activity and its determinants*

To investigate which physical activity data sets and indicators are used in the Member States (MS), an inventory of indicators, surveys and policy environments for physical activity surveillance has been created in a first draft form (Annex A). For the 8 MS participating in EUPASS, this draft form assists in investigating the comparability of physical activity data sets and indicators between them. This analysis is being specified by an indicator test survey of selected indicators used in these MS (see *b)*).

b) *Monitoring quality of selected indicators by indicator testing with panel vs. time series data collection and comparing telephone survey with mail survey*

To investigate comparability of physical activity indicators existing in MS and at the same time improve indicator definitions to be used in a Community indicator set, indicator test surveys of existing and new indicators have been prepared and conducted in the countries participating in the project. A co-ordinated questionnaire has been developed (Annex B) which is compiled in a way to maximise comparability of physical activity indicators both between MS and the

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[*] According to the current discussion on global health monitoring, the term surveillance particularly refers to „the creation of a data system for changing the public health" (McQueen, 1999, in American Journal of Public Health, 89, 1313). Thus, surveillance can be described as a complex organised effort to (1) continuously collect data, e.g.

Community indicator set. It was used in a combined panel and time series design (Annex C) which includes a test of feasibility of indicators for employment in different surveillance methodologies, namely telephone and mail application (see also *c)*).

c) Analysis of indicator implementation in health monitoring and potentials for policy impact

Information both from the inventory (*a)*) - particularly on policy environment and characteristics of surveys - and the indicator test (*b)*) - particularly on panel vs. time series and interviewing vs. self-administered differences - informed proposals for indicator implementation. Availability of comparable data sets for the European "Health Information and Exchange System" (HIEMS) is being prepared by co-operation with responsible national surveillance institutes.

Details of work conducted and progress accomplished are further reported in the following (see, in particular, section on "Realisation of tasks", p. 5).

2) Relation of work carried out to what has been done in the field

The EUPASS network encompassed (1) the project group built by public health research institutions from 8 MS (Belgium, England, Finland, France, Germany, Italy, Netherlands, Spain), (2) counterparts within national surveillance institutes of participating countries, and (3) co-operation partners of MS not directly included in the project group. In addition, the EUPASS network has established co-operation with other relevant research activities. For example, close contact has been established with an international consensus group developing the International Physical Activity Questionnaire (IPAQ). Regarding surveillance systems, experts of the US Centers of Disease Control and Prevention (CDC) have been involved. Of course, the international group working on physical activity questions within the Health Interview Survey in Europe (EUROHIS) and the general health monitoring project on EUROHIS have been contacted as well. Information exchange also included the COMPASS project of the European Council which dealt with international comparison of sport activities. Thus, the EUPASS project has taken very seriously the approach of the Health Monitoring Program (HMP) that all new action must take into account the methodology and activities, which have been developed to date in other institutions.

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monitor long-term changes in behaviour risk factors, (2) to analyse these data, and (3) to feed back results of analysis to potential users, e.g. public health policy makers.

In preparing the inventory of national physical activity surveillance systems, EUPASS has taken as a starting point the study on "Coverage of health topics by surveys in the European Union" (Doc OS/E3/97/HIS/2 rev.1 EN by EUROSTAT). As an issue-specific product, the inventory updates and complements the physical activity-related information contained in that study and can be co-ordinated with the HMP-project *Health Surveys in the EU*. Also, information is gathered in co-operation with the institutions responsible for health monitoring on national levels as stated in the Grant Agreement.

In preparing the indicator test questionnaire used in EUPASS, results of the following on-going or prior work were integrated: (a) Key indicators used in existing national health monitoring systems; (b) the International Physical Activity Questionnaires (IPAQ) initiated at an international meeting in 1998 and suggested as instruments usable internationally to obtain physical activity surveillance data; (c) scales for determinants of physical activity identified by the Beneficiary in the BIOMED 2-project MAREPS (Methodology for the Analysis of Rationality and Effectiveness of Prevention and Health Promotion Strategies) such as environmental opportunities; (d) scales for self-efficacy for physical activity identified in precedent studies of health behaviour research. Regarding the European Health and Fitness Survey by the Institute for European Food Studies (IEFS), indicators tested in EUPASS (self-efficacy, social support, opportunities) may complement variables used in the IEFS study (among others: benefits/barriers, stages of change).

Findings of the EUPASS project already have been related to international public health discussion. For example, the Beneficiary was represented at an international conference on Global Surveillance in 1999, at a CDC meeting on "Analysis, interpretation and use of complex data sets from surveillance" in June 2000 which provided additional know-how in these areas and extended the collaboration of EUPASS with the CDC and its programmes such as the Behavioural Risk Factor Surveillance System (BRFSS). Concept and first results of EUPASS also have been presented at the annual meeting of the European Public Health Association in December 2000 in Paris. Most recently, an international consensus workshop have been organised in Stockholm (March 2001) in order to further co-ordinate the efforts of IPAQ, EUROHIS and EUPASS.

3) Realisation of tasks

A) Physical activity indicator list

Investigation of Physical Activity Surveillance in EU-Member States

The development of a comparable set of physical activity indicators for health monitoring at EU level must be based on detailed information from previous and ongoing physical activity surveillance activity throughout the Community. Thus, an inventory of physical activity surveillance was planned as a logical first step of EUPASS.

Experts report

The EUPASS project aimed at co-ordinating expertise and improving the quality of relevant information data. Therefore exploratory analysis and evaluation of the available physical activity data sets was conducted by surveillance experts to guide the work on the inventory. In this context, the EUPASS group developed four basic questions to gather information:

1. What institutions are involved in health surveillance, and in what function?
2. How long has physical activity been part of health surveillance, and how frequent is it?
3. How is the monitoring of physical activity conducted, i.e. survey and/or non-survey methods?
4. Which specific surveys are used for physical activity in the surveillance systems?

On this preliminary basis, experts, including the EUPASS participants as well as experts from other EU countries (see figure 1), provided information on physical activity surveys in 15 MS: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

Survey on physical activity surveillance

Taking the outcomes of the experts' reports as the starting point for further investigation, a survey was conducted in order to collect additional information about all EU countries by contacting a selection of institutions and non-governmental bodies directly involved in health surveillance. This survey was carried out between June and August 2000. All selected institutions were mailed a letter and a questionnaire. 26 institutions were contacted; 13

responded (see figure 1). Again, information exchange and document analysis formed the work

and led to the current inventory of physical activity surveillance for the 8 member states directly involved in the EUPASS project and for the 9 additional EU-countries.

Figure 1: Consulted Experts and Institutions

Country	Expert/Institution	Expert Report	Mail Survey	
			Response	Non-Response
Austria	Statistics Austria		X	
	Ludwig Boltzmann-Institut für Suchtforschung			X
	Dr. S. Tietze, University of Graz	X		
Belgium	Scientific Institute of Public Health		X	
	Dr. Y. Vanden Auweele et al, EUPASS	X		
Denmark	National Institute of Public Health		X	
	Danish National Institute of Social Research		X	
Finland	National Public Health Institute		X	
	STAKES		X	
	Dr. L. Kannas et al., EUPASS	X		
France	INSEE			X
	Institut de Veille Sanitaire		X	
	A. Vuillemin et al., EUPASS	X		
Germany	Robert-Koch Institute	X		
	Dr. A. Rütten et al., EUPASS	X		
Greece	Ministry of Health			X
	National Statistical Service of Greece			X
	Dr. A. Trichopoulou, University of Athens	X		
Iceland	Dr. I. Thorsdottir; I. Gunnarsdottir Icelandic Nutrition Council; University of Iceland	X		
Ireland	National University of Ireland		X	
	Department of Health and Children			X
Italy	ISTAT		X	
	Dr. F. Schena et al., EUPASS	X		
Luxembourg	Direction de la Santé		X	
	CEPS/INSTEAD			X
Netherlands	Statistics Netherlands	X		
	Dr. A. Dijkstra et al.EUPASS	X		
Norway	Statistics Norway	X		
	National Council on Nutrition and Physical Activity	X		
Portugal	Ministry of Health			X
	National Statistics Institute			X
	Ministry of Education			X
Spain	Ministry of Health			X
	National Statistics Institute			X
	Dr. J. Rodriguez-Diaz et al. EUPASS	X		
Sweden	National Board on Health and Welfare		X	
	Statistics Sweden		X	
	National Food Administration			X
United Kingdom	Office for National Statistics		X	
	Department of Health			X
	Dr. A. Gatrell et al., EUPASS	X		

Structure of inventory

The logic of the inventory can be described by a matrix in which ordered by MS information is included on policy environment for physical activity surveillance, surveys, and indicators. As first attempt of inventory development the following structure and categories have been used:

Inventory of <u>policy environment</u> for (physical activity) surveillance
- existence of relevant regulations and/or laws
- structure of public health system in which surveillance is embedded
- major goals of surveillance
- resources for surveillance

Inventory of <u>surveys</u>
- organising institution
- name of survey
- type (HIS and/or HES)
- years in which survey has been conducted
- to be conducted in 2000 and onwards? (If yes, when?)
- context of survey (independent p.a. survey or p.a. included in other surveys, e.g. complex health behaviour or general statistics)
- survey methodology / mode of data collection
- sampling (sampling sizes, procedures)
- response rates
- covered age groups
- definition of physical activity
- reference period of questions and items assessing physical activity behaviour
- dimensions covered in terms of context (sports/leisure time, work, transport, household)
- methods of surveillance others than questionnaire

Inventory of <u>indicators</u> *(for each survey):*
- number of questions
- number of items
- behavioural indicators
- other indicators

According to further discussion of the collected material on surveillance structures, surveys and physical activity indicators at the EUPASS workshop in Berlin in November 2000, the structure of the inventory have been elaborated. First of all, it distinguished the very precise and detailed information provided by MS directly participating in EUPASS, i.e. Belgium, England, Finland, France, Germany, Netherlands, Italy, Spain, from information gathered from other MS only by expert report and inventory survey as mentioned above. In addition, it also distinguished "Main Surveys", i.e. one or two *national* surveys which include physical activity items and are conducted on a more or less *regular basis* over time, and "Other Surveys" (e.g. based on cross-sectional designs). Thus, the inventory as presented in ANNEX A in part 1 (AA) fully concentrates on MS directly participating in EUPASS (EUPASS-MS). It starts with (1) the description of main surveys for physical activity surveillance in these countries followed by (2) physical activity indicators used in the main surveys (3) the description of other surveys and (4) finally reports on the policy environment for physical activity surveillance in EUPASS-MS. Part 2 (AB) more generally follows along the same lines for MS not directly participating in EUPASS.

Policy environments and surveys

The first notable feature concerning the policy environment for physical activity surveillance in EU countries is that public health institutions such as the national institutes of public health on one hand and statistical offices conducting programs such as micro-census surveys on the other hand are the key actors. Secondly, the data reveal a diversity of surveillance approaches and assessment instruments for physical activity, thus underlining the necessity for EUPASS to contribute to harmonisation in this context.

In almost all EU member states health behaviour surveillance is not prescribed explicitly by law or by governments. However, in most EU countries some specific agreements or regulations can be found with particular targets and resources that determine the conduct of regular health behaviour surveys. For example, in Finland an "Annual Agreement" between the Ministry of Social Affairs and Health and the National Public Health Institute has provided an appropriate framework for conducting regular studies on the health behaviour of the Finnish population over the last three decades. These studies included specific questions about physical activity. More recently, similar agreements have been developed e.g. in Belgium (since 1997 between the Federal authorities, Flemish and French Communities, Walloon and Brussels Regions with the Scientific Institute of Public Health – Louis Pasteur),

Germany (since 1997 by the Ministry of Health with the Robert Koch Institute), Italy (since the 1980s by the Ministry of Health with the Higher Institute of Health and the National Institute of Statistics), and Spain (since the 1980s by the Ministry of Health with the National Sociological Research Centre).

In some countries such regular health behaviour surveys included physical activity indicators have only started quite recently, while the general issue of physical activity has already been considered by other regular national surveys (e.g. micro-census surveys) for a much longer period of time. For example, in the UK the General Household Survey (conducted by the Office for National Statistics) started in 1971 on an annual basis, while the Health Survey for England (conducted by the Department of Health) only was established in 1991. Also in France, different approaches to develop a "Baromètre Santé" at national level have been co-ordinated by the Comité Francais d'Education pour la Santé since the mid 1990s but data on physical activity collected by general surveys on living conditions (conducted by the Institut National de la Statistique et des Etudes Economiques) were already available for the 1980s.

Beyond general household surveys and comprehensive health behaviour surveys, several countries such as Finland, France and England have conducted specific surveys on health-related physical activity. However, these surveys generally have employed cross-sectional designs and did not collect data on a regular basis. Only The Netherlands (TNO Prevention and Health in co-operation with Interview International and with financial support from the Ministry of Public Health, Welfare and Sport) has established a specific physical activity surveillance system based on continuous data collection, which commenced in 1999.

To summarise, in all of the 8 MS participating in the EUPASS project (as well as in most of the other 9 MS considered in the inventory), a variety of more or less regularly collected data on physical activity of the national population are available. However, even at the level of individual countries these data are quite heterogeneous. In particular, there are three crucial problems regarding the issue of continuous data collection for the purpose of monitoring long-term changes in physical activity of the population over time: First of all, the different institutions involved in surveying physical activity (e.g. public health or general statistics institutions) often used different indicators to measure physical activity. Thus, in most cases the different data sets are not directly comparable. Second, even in regular health behaviour surveys the issue of physical activity has not always been considered on a regularly basis. For example, the Health Surveys for England have been conducted every year since 1991, but physical activity indicators were only included in1991-1994 and 1997. Finally, even in health

behaviour surveys or more general surveys that regularly considered physical activity issues, the indicators used may have changed. For example, in France and Italy such changes occurred during the last few years making it quite difficult to define the right indicators for international comparison because most of the available data from the past were based on previous indicators while the most recent data collection used the newer indicators.

Comparison of indicators

Due to the diversity of surveys and physical activity indicators at the national level, the EUPASS project had to define one or two main national surveys or sets of indicators for international comparison. While in the cases of Belgium, Germany, Spain (each with only one adequate national survey available) and Finland (with one annual survey since 1978) the selection turned out to be quite easy, in the cases of The Netherlands and UK a selection of at least two relevant surveys appeared to be necessary. In contrast, due to the recent changes in physical indicators used in national health behaviour surveys in France and Italy, a decision was made to include the physical activity items from the latest version of the barométre santé in the case of France. And in the case of Italy, to use the physical activity items from the more general survey on aspects of everyday life (continuous since 1993) instead of the indicators of the national health survey.

Similarities and differences between the physical activity indicators used in the various MS appear in figure 2. It shows questions and items from the 8 countries participating in the EUPASS project selected from the main national surveys on physical activity. Four dimensions which can be considered fundamental for physical activity measurement, i.e. (1) type, (2) frequency, (3) duration, and (4) intensity of activity are presented.

Figure 2 reveals the diversity of approaches used to measure physical activity in MS so far. First of all, no single dimension is covered by all EUPASS participants to date. Thus, any comparison of the 8 countries e.g. regarding the average frequency or duration of physical activity of the national population at this time would fail due to this lack of comparable information. Second, according to use of divergent concepts of physical activity the focus of questions varies considerably between countries even when related to the same dimension. For example, in Italy frequency questions very much relate to sporting activities while in The Netherlands e.g. the frequency of stair climbing is asked for. Other countries, such as Spain, investigate the frequency of physical activity related to different forms of intensity (light,

moderate, vigorous). Third, in most cases different reference periods are used to report the frequency of physical activity (e.g. last 7 days, usual week, last 14 days, last 12 months).

Figure 2: Comparison of indicators

Country / Dimension	Belgium[1]	Finland[2]	France[3]	Germany[4]	Netherlands[5]	Italy[6]	Spain[7]	UK[8]
Type of activity			Which type of physical activity during last 7 days?		What kind of physical activity?	What sporting activities?	During last 12 months: What kind of activity? (*1* sitting - *4* heavy work)	Walking (1/4mile) within the past 4 weeks? Gardening, DIY, building work in the past 4 weeks? (yes/no)
Frequency	How many days of physical activity intense enough to sweat in last 7 days?	How often leisure time physical activity with light sweating for 1/2 hour? (*1* daily – *7* no pa because ill)		How often participate in sports? (*1* regularly > four Hours/week - *5* no physical activity) How often engaged in sports/other strenuous activities to sweat? (*1* daily - *4* seldom)	Participation in physical activity in last 14 days? (number of times) How often climb stairs? (times/day)	How many months of sporting activities last year? With what consistency sporting activities over last 12 months? (*1* 1 to 5 times - *6* over 120 times)	How often/week: Light, moderate, vigorous physical activity?	On how many days walking? On how many days gardening , DIY, building work?
Duration		How many minutes spend walking, running, cycling to work? (*1* not working - *6* > 1 hour /day)	During last 7 days: How many hours spend on physical activity - in club? - at school? - at work? - alone/with friends?	How much time/day spend on activities on average? Monday to Friday (*1* sleeping, resting - *5* strenuous activities) Weekend (*1* sleeping, resting – *5* strenuous activities) Engaged in sports/ other strenuous activities in min.? (<10, 10-20, 20-30, >30)	Physical activity participation in average? (hours/min.) How many hours (in ordinary week) of participation - in leisure time activities? - in housekeeping activities? - at work/ school?		Time per day spent on physical activity at work and in leisure time?	How long usually spend walking? How long usually spend on gardening, DIY, building work?
Intensity	Activity during free time? (*1* physical training - *6* mostly sitting)	How demanding is job physically? (*1* mainly sitting - *4* physically very demanding) How much exercise in free time? (*1* little movement - *4* training)					Activity during free time? (*1* practically inactive - *4* physical training)	Was the effort of physical activity sufficient to get out of breath or sweat? (yes/no)

1) Belgian Health Interview Survey (1997); 2) Health Behaviour among Finnish Adults (since 1978); 3) Baromètre Santé (1999); 4) German Health Survey (1997); 5) Quality of Life Survey (since 1990); 6) MULTISCOPO/Aspects of Everyday Life (since 1993); 7) Spanish National Health Survey (since 1985); 8) Health Survey for England (since 1991)

Fourth, many different types of measurement scales have been applied in the surveys we examined (e.g. nominal scales in Health Survey of England, ordinal scales in German Health Survey, interval scales in The Netherlands Quality of Life Survey). In conclusion, the physical activity data in the different MS collected by the main surveys and indicators are not comparable. Moreover, the diversity of physical activity concepts and indicators applied raises the question of how valid and how reliable these indicators are.

B) Physical activity indicator test

Investigating the quality and comparability of existing national indicators as well as of new indicators developed by co-ordinated international efforts (e.g. IPAQ) is a crucial step for improving the health monitoring structure in the Community. Thus, the primary aims of EUPASS were:

1. Testing the validity and reliability of (a) physical activity indicators used in surveillance systems in the MS to date, (b) new, comparable indicators of physical activity behaviour (IPAQ), and (c) new comparable sets of psycho-social determinants of physical activity.
2. Testing the comparability of existing and new indicators.
3. Testing the predictive power of the different sets of physical activity indicators with regard to health status.

In addition, the EUPASS project also intended to test the quality and feasibility of different survey methods in participating countries. In particular, the effects of telephone interview vs. mail questionnaire designs on sampling procedures; response rates etc. have been investigated.

Design of indicator test study

For indicator and survey method testing, three surveys were conducted in each of the EUPASS countries (see figure 3). First, a panel study based on computer-aided telephone interview (CATI) was designed to report physical activity data of a representative selected group of about 100 persons in each country at three points in time (T1-T3). Data from T1 and T2 were especially used for reliability testing. Second, a CATI time series survey was carried out over six consecutive months with the goal of realising about 100 interviews per month (i.e. a total of ca. 600) per country. These data have been used to investigate the validity and comparability of the national indicators used to date by comparing them to the IPAQ indicators as internationally tested frame of reference for physical activity measurement. The

data also provided   an empirical basis to test the predictive power of different sets of indicators (national indicators vs. IPAQ indicators vs. psycho-social indicators). Third, a mail survey (n=100) was conducted in each country to control for effects of different survey methods (telephone vs. mail).

Figure 3: Design of the study

	T1 June 2000	T2 1-3 weeks after T1			T3 Oct./Nov. 2000	
CATI Panel survey (repeated measures)	N=100	N=100			N=100	
	S1 Jun 2000	S2 Jul. 2000	S3 Aug. 2000	S4 Sep. 2000	S5 Oct. 2000	S6 Nov. 2000
CATI Time series ("continuous") survey	N=100	N=100	N=100	N=100	N=100	N=100
					Oct./Nov. 2000	
Mail method control survey					N=100	

Figure 4 summarises the results of the field work in the different countries. It reveals major differences in overall response rates for telephone and mail surveys between countries as well as in specific response rates for the telephone versus the mail survey. For example, Finland reported the highest response rates for all three types of surveys (panel 51.6%, continuous 54.5% and mail 58.3%), while the lowest response rates for all surveys are reported for United Kingdom (panel 14.5%, continuous 25.5%, mail 18.6%). In Germany response rates for the continuous telephone survey was comparably high (50.5%) while mail responses were very low (19.1%). In contrast, France did much better on the mail survey (52.4%) than on the continuous telephone survey (29.1%).

As the EUPASS project made major efforts to standardise sampling procedures and fieldwork in the participating countries as much as possible, these huge differences in response rates may indicate specific challenges for conducting telephone or mail surveys in different MS. These should be considered in the further process of developing a European health monitoring system. Moreover, as the actual response rates from different countries are rather low, the

results of the indicator analyses have to be interpreted with caution. However, for the explorative purposes of the study the current data appeared to be sufficient.

Figure 4: Sample description

		Panel				Conti-nuous	Mail
		T1	T2	T3	All		
Belgium	Net sample	622	200	102	622	1577	588
	Realised sample	202	102	79	79	611	206
	Response rate (%)	*32.5*	*51.0*	*77.5*	*12.7*	*38.7*	*35.0*
Finland	Net sample	217	151	127	217	1107	230
	Realised sample	151	127	112	112	603	134
	Response rate (%)	*69.6*	*84.1*	*88.2*	*51.6*	*54.5*	*58.3*
France	Net sample	482	140	91	482	2060	250
	Realised sample	140	91	67	67	599	131
	Response rate (%)	*29.0*	*65.0*	*73.6*	*13.9*	*29.1*	*52.4*
Germany	Net sample	951	382	202	951	1293	350
	Realised sample	389	223	145	145	653	67
	Response rate (%)	*40.9*	*58.4*	*71.8*	*15.2*	*50.5*	*19.1*
Italy	Net sample	608	219	121	608	1892	500
	Realised sample	219	121	91	91	600	148
	Response rate (%)	*36.0*	*55.3*	*75.2*	*14.9*	*31.7*	*29.6*
Netherlands	Net sample	324	124	95	324	1400	426
	Realised sample	124	95	76	76	606	108
	Response rate (%)	*38.3*	*76.6*	*80.0*	*23.5*	*43.3*	*25.4*
Spain	Net sample	276	158	128	276	1284	300
	Realised sample	158	128	100	100	600	22
	Response rate (%)	*57.2*	*81.0*	*78.1*	*36.2*	*46.7*	*7.3*
United Kingdom	Net sample	546	148	120	546	2838	377
	Realised sample	148	120	79	79	723	70
	Response rate (%)	*27.1*	*81.1*	*65.8*	*14.5*	*25.5*	*18.6*
All Nations	Net sample	4026	1522	986	4026	13451	3021
	Realised sample	1531	1007	749	749	4995	886
	Response rate (%)	*38.0*	*66.2*	*75.9*	*18.6*	*37.1*	*29.3*

Questionnaire

By methods of indicator establishment of measures for physical activity behaviour and its determinants, a list of indicators has been selected from the material gathered in the context of the inventory and the co-operations of EUPASS to other work groups on assessment of physical activity and its determinants. On this basis, a questionnaire has been compiled as shown in

Annex B. It has been used in all three surveys (panel, continuous, mail) and contained four sections including the following groups of indicators:

- indicators of physical activity behaviour from relevant national health monitoring systems (A-Section of questionnaire)
- indicators of physical activity behaviour developed by the IPAQ-group (B-Section of questionnaire)
- indicators of environmental, social and individual determinants of physical activity behaviour
  (C-Section of the questionnaire)
- socio-demographic information (D-Section of the questionnaire)

Section A was different for each participating country as it only included physical activity indicators used in the main surveys for that respective country. For example, in Finland the four questions from the National Survey on Health Behaviour among Finnish Adults formed section A of the questionnaire; in Italy the nine questions from the National Survey on Aspects of Everyday Life were used and so on.

Sections B, C, and D of the EUPASS questionnaire used the same indicators in all countries. In section B, in collaboration with the IPAQ-group, indicators from the International Physical Activity Questionnaires (IPAQ) have been included. From existing IPAQ versions, which vary along the dimensions of length (long, short), recall period (usual week, last 7 days), and mode of administration (self-administered, telephone) and in the long versions consider physical activity related to job, transportation, housework / house maintenance / caring for family, recreation/ sports/leisure, and time spent sitting, the *short version* was chosen for the indicator test in EUPASS for feasibility reasons. Also, it was decided to use the *last 7 days-* rather than the usual week-version for 2 reasons. First, the 7 days-time frame was considered not to encourage respondents to simplify and generalise their physical activity behaviour as much as the usual week frame; second, and more importantly, it was considered to be more sensitive to changes made possible to monitor by the time series data collection approach.

The questions in this version (IPAQS7T) concern the frequency and duration of (1) vigorous and (2) moderate physical activity, (3) walking and (4) sitting. The answers to these single indicators are summed up to produce an overall indicator of physical activity-related energy expenditure (MET). Furthermore, items asking directly for physical activity in the context of job, transportation, housework / house maintenance / caring for family, and recreation/sports/leisure were added to the IPAQ short version.

The IPAQ has been developed by an international consensus group in order to provide an internationally comparable physical activity measurement tool. Just recently, this new instrument has been tested for its validity and reliability. Of course, as the development of the IPAQ instrument is still in the pilot-phase, the validity and reliability of the current version can not be taken for granted (see also reliability test results below). Nevertheless, the IPAQ appeared to be the best physical activity survey measurement currently available in terms of international testing and comparability. We note that several MS are considering the use of this instrument for their national physical activity surveillance efforts in the future.

For Section C of the EUPASS questionnaire, existing instruments for environmental, social and individual determinants of physical activity were assessed. Items chosen for environmental opportunities and support by various policy and other social agents from a previous EU-study (MAREPS) were revised on theoretical grounds in order to shorten the questionnaire and fit monitoring purposes. As individual-level parameter, physical activity-related self-efficacy was specified in form of a scale from precedent health behaviour research (short version of the scale developed at San Diego State University and Ghent University), including adaptations of the measures necessary for the EUPASS protocol.

For cultural adaptation and translation of questions and items, a procedure proposed by the IPAQ-group was agreed upon in an form adapted as follows:

- Make translation from original English version.
- Have the instrument translated into the second language by one, preferably two independent translators. Ask to make concepts understandable by people in the second culture. It may be useful to employ translator(s) with some knowledge about physical activity.
- Have translations reviewed by a group of preferably bilingual people similar to the intended users. Ask the group to ensure that the translation will be acceptable to monolingual people.
- Have a native speaker translate the new version back into English.
- A group of bilingual people meets again to review the back-translation and decide on the final version. It is most important that the meanings of the two versions be comparable; the back-translation does not need to produce the exact original wording.

In sum, to prepare the indicator test, national versions of the questionnaire have been constructed (including any necessary national adaptation of instruments), and survey infrastructures were set up (staff, sampling procedures, hardware). Interviewer training including information about the purpose of the study, arguments in order to prevent refusals (set of statements referring to typical arguments on the side of the people to be interviewed), and discussions

among interviewers was organised. Best times for interviewing was decided on country specific. To increase the quality of interviews and interviewers, supervisors have been trained to listen in on an interview and give the interviewer advise.

Reliability

After testing the distribution of the data from panel surveys T1 and T2, among other things, a non-parametric measure (Spearman's Rank Correlation) was used to examine the reliability of the different physical activity indicators (for details see ANNEX CB). As an example, Figure 5 reports test-retest correlation coefficients for the IPAQ for the 8 participating MS.

In general, most item correlation coefficients range between .3 and .5 which appears to be rather low for a reliability test. Only the question related to the duration (sum of minutes) of sitting during weekdays provided slightly better results (most coefficients were .6 or .7). The coefficients for the overall indicator of physical activity (energy expenditure score, MET) differs from .2 for France to about .6 for Spain.

Both the generally rather low test-retest reliability scores for the IPAQS7T instrument and the reliability scores reported for most indicators among MS in the EUPASS study may refer to particular methodological issues. First of all, the IPAQS7T refers explicitly to the last 7 days as the time period to consider when answering the questions. Thus, differences in frequency or duration of physical activity found for one respondent between T1 and T2 (i.e. about two weeks later) could reflect real differences in the physical activities this person conducted (e.g. 3 times vigorously active in the week before T1; 1 time vigorously active in the week before T2). Second, the original English version of the IPAQS7T had to be translated into the languages of the participating countries. This also may have influenced the understanding of single questions in some countries but would not explain the rather low coefficients for United Kingdom where no translation had to be made. Finally, it should be noted that results of international reliability tests of IPAQS7T conducted by the IPAQ-group itself showed comparably higher test-retest reliability. Since most aspects of the methodology developed and used by the IPAQ group for the application of the instrument were also applied in the EUPASS project (e.g. translation procedures as well as statistical procedures for reliability testing, see B15-20), differences in test-retest reliability may also be due to sample issues. For example, in EUPASS the respondents were randomly selected on a nation-wide basis while in the international tests by the IPAQ group the instruments were given to samples with rather specific geographical and social-demographic characteristics, including convenience samples.

Figure 5: Test-retest reliability of IPAQS7T

Nation	Bel-gium	Fin-land	France	Ger-many	Italy	Nether lands	Spain	UK	All Nations
N Variables (IPAQ)	100	127	91	223	98	86	128	98	951
Vigorous PA (days)	.553	.477	.278	.508	.414	.344	.540	.469	.494
Vigorous PA (total minutes)	.442	.590	.359	.536	.530	.413	.616	.345	.509
Moderate PA (days)	.365	.283	.181	.430	.208	.402	.381	.254	.364
Moderate PA (total minutes)	.385	.553	.352	.536	.221	.338	.322	.431	.389
Walking (days)	.310	.550	.358	.540	.471	.292	.372	.495	.468
Walking (total minutes)	.703	.440	.504	.328	.408	.297	.721	.310	.461
Walking (pace)	.399	.339	.453	.223	.274	.422	.679	.560	.441
Sitting (weekdays) (total minutes)	.521	.701	.422	.642	.726	.633	.618	.552	.623
Sitting (weekend) (total minutes)	.338	.640	.370	.407	.333	.454	.431	.435	.461
SumMET p.a.[1]	.531	.405	.294	.388	.135	.341	.576	.499	.446
SumMET sitting[2]	.418	.582	.417	.523	.567	.497	.504	.536	.527
SumMET total[3]	.561	.423	.225	.293	.297	.376	.563	.400	.419

1) MET: Energy expenditure score (1 MET=1kcal / kg / hour); SumMET p.a.: Sum of METs (vigorous, moderate and walking last 7 days)
2) SumMET sitting: Sum of METs (sitting weekdays and weekend)
3) SumMET total: Sum of METs (SumMET p.a. + SumMET sitting)

As a further step in the reliability analysis, the test-retest from the IPAQS7T were compared with the test-retest coefficients for the national indicators used in the different countries, as well as with the psycho-social determinants indicators (for details see ANNEX C). To summarise these results, test-retest coefficients for the national indicators turned out to be similar (e.g. Germany: .3 to .6; UK: .3-.7) or even better (e.g. Finland: .5 to .9; Italy: .5 to .8) than the IPAQS7T; the coefficients for the psycho-social indicators also were slightly better

for all nations ranging from .5 to .6 for the self-efficacy scale and the social support scale and .6 to .7 for the supportive environment scale.

Comparability and validity

On one hand, the present European Health Monitoring Program aims at supporting the collection of comparable health data at the European level. Several MS are considering using scientifically tested and internationally comparable indicators such as the IPAQ instrument for their national surveillance efforts. On the other hand, neither the European Commission nor the individual MS want to lose any information on health data that was collected in the past. Thus, the question of the comparability of the old and the new indicators was a crucial issue for the conduct of the EUPASS indicator test survey.

As has been shown in figure 2, the comparability of physical activity indicators used in participating countries to date is very low. Generally, in their surveys the various MS have used different concepts of physical activity, focussed on different dimensions, used different scales and reference periods. Accordingly, most of the national instruments show little comparability with the IPAQ instrument regarding these criteria as well.

To further investigate the validity and comparability of each of the individual indicators, for each country all of the items from section A (national indicators) and section B (IPAQS7T) have been correlated (for details see ANNEX D). In sum, the results are not very encouraging regarding the double challenge of necessary change (use more comparable indicators) and desirable continuation (not losing information from data collected in the past). For example, by reporting only correlation coefficients of at least .3, in Belgium one item (physical activity that was intense enough to make you sweat) correlates (.3) with one item of IPAQS7T (days of vigorous activity per week). In Finland also one item out of four questions (how demanding is job physically) correlates (.3, .4) with two items of IPAQS7T (duration of moderate activity and of sitting during weekdays). In Italy, correlation of the national indicators and the IPAQS7T indicators produce no coefficients above .3 at all. Slightly better are the results for the UK (3 old items correlate with 3 IPAQS7T items), Germany (4 correlations above .3) and The Netherlands (5 correlation above .3). However, there is only one single item with a correlation between the old and new indicators which is above .5, i.e. a question about the duration of sitting from Monday to Friday in Germany which correlates .6 with the sitting question item (duration weekdays) in IPAQS7T.

Predictive power

The creation of a data system for changing public health has been defined as the key issue for health surveillance (see footnote page 2). Accordingly, indicators used in surveillance should be related to major determinants of health. Behavioural determinants such as physical activity have been considered to be those determinants which are closest to health outcomes, e.g. compared to social, environmental or policy determinants which only may indirectly affect health status through behavioural change. However, as has been demonstrated by a previous EU-project (MAREPS), policy and environmental determinants such as good opportunities and political support for physical activity by the general public may have an independent main effect on subjective health status besides the effect of physical activity behaviour itself. Moreover, a significant interaction effect between "opportunities" and physical activity on subjective health has also been reported in this context.

Following up on this background, the EUPASS project also tested a group of selected new indicators which are especially related to psycho-social and environmental determinants of health. For the investigation of the predictive power of the different sets of indicators used in the study, (i.e. (1) national indicators, (2) IPAQ indicators and (3) psycho-social and environmental indicators), hierarchical regression analyses were conducted for each country with subjective health status as the dependent variable. This variable was self-rated by respondents who selected one of the following response categories "very good/good/satisfactory/not so good/bad" to a single item "In general, how would you rate your health?" This type of operationalisation has been shown to be valid and predictive of health indicators in numerous studies.

Figure 6 shows the results of hierarchical regression analysis for one country, in this case Finland, as an example (for details see ANNEX E). To control for potential social-demographic effects, indicators such as age, gender, education and income were included in the first step of the regression equation. Only age turned out to be a significant predictor of subjective health. From the national indicators used in the Finnish physical activity surveillance so far, two items out of four (How often did you do leisure time physical activity with at least light sweating for at least half an hour? & How much exercise or physical exertion in leisure time?) are significant. By including IPAQS7T items in the third step, age and one item of the Finnish national indicators (exercise in leisure time) remain significant predictors.

Figure 6: Subjective health status regressed on different sets of indicators (Finland)

Step / Indicators Predictor		Subjective health status (1 very good – 5 bad)											
		β#	R²	F change	β#	R²	F change	β#	R²	F change	β#	R²	F change
1. demo-graphic	Age	.200**	.052	4.27**	.152*			.164*			.125(*)		
	Gender				-.107(*)								
2. national	Leisure time PA at least 30 min.				.125(*)	.164	6.87***						
	Exercise / physical exertion in free time				-.273***			-.301***			-.278***		
3. IPAQ (S7T)	Vigorous PA (min.)							.172*	.199	3.82***	.154*		
	Walking (min.)							-.127(*)					
	Sitting (weekdays; min.)							.184*			.197*		
	Sitting (weekend; min.)							-.140*			-.185**		
4. psycho-social and envi-ronmen-tal	How certain... mod. PA if tired or sad										.301***	.329	4.66***
	My city does enough ...										.150*		

β = standardized correlation coefficient   (*)p<.10 * p < .05 ** p < .01 *** p < .001

In addition, four out of nine IPAQ indicators are significant. Finally, by including psycho-social and environmental indicators at the fourth step, the one national item on intensity of physical activity, about exercise or exertion in leisure time (response options ranged from "little movement" to "training for sports competition") turned out to be the strongest behavioural predictor (β=-.278) followed by three IPAQS7T indicators, the most important being duration of sitting. However, the strongest of all indicators tested is a psycho-social one, i.e. an item about self-efficacy related to physical activity ("How certain are you that you could do 30 minutes of moderate physical activity if you were sad or tired", responses 5= "I'm sure I could" to 1="I'm sure I could not"; β=.301). In addition, one environmental and policy-oriented indicator ("My municipality/city does enough for its citizens concerning their physical activities", responses 5= "definitely true" to 1= "not true at all") was found to be a

significant predictor of subjective health. The particular predictive power of psycho-social and environmental determinants is underlined by the R^2 changes in the different steps of the hierarchical regression analysis. Including the respective indicators at step 4 in the hierarchical regression procedure increases the explained variance of the overall model from about 20% to about 33% (13% increase, significant F change of 4.66).

The results of the regression analysis presented here for Finland have been observed for other participating countries as well (for details see Annex E). For example, for Germany Netherlands and UK indicators of self-efficacy (I could do physical activity if sad or tired; ... most days a week) turned out to be the strongest predictors of subjective health. Moreover, in most countries R^2 changes were highest from step 3 to step 4, i.e. when including the psycho-social and environmental indicators related to physical activity.

C) Physical activity indicator implementation

Information both from the inventory particularly on policy environment and characteristics of surveys and the physical activity indicator test particularly on panel vs. time series and telephone interviewing vs. mail differences may be used for implementation of physical activity indicators both on national and international level.

First of all, some of the MS participating in EUPASS have developed rather specific and sustainable surveillance structures for monitoring physical activity behaviour of the population but most of the investigated countries have not. For example, "best practises" for implementing such arrangements can be found in Finland (continuous monitoring of physical activity since 1978) and in the Netherlands (establishment of a specific physical activity surveillance system).

Second, almost all participating countries had some major problems with the panel survey. In particular, overall response rates from T1 to T3 were insufficient. In contrast, a time series of sampling and telephone interviewing as applied in the EUPASS continuous survey (see. figure 2) turned out to be a more feasible approach of surveying physical activity behaviour.

Third, no general recommendation can be made concerning the telephone vs. mail interviewing. In some countries higher response rates are related to telephone survey; in others the mail survey turned out to be more successful. Thus, MS may use different procedures of data collection according to their specific communication cultures and infrastructures.

General Assessment and Actualised Time-table

In sum, the sequence of Work as stated in the Grant Agreement has been essentially met, and eventual alterations in the time-table are in full accordance with it.

Actualised Time-table

1999

Oct 01	• Commencement Date
Oct-Nov	• Preparatory Tasks and Set-up of Network Infrastructures
Dec 17	• Receipt of Grant Agreement from Commission by Beneficiary

2000

Jan 01-27	• Preparation of Workshop 1
Jan 28-29	• Workshop 1: Presentation of National Physical Activity Surveillance Systems, Development of First Draft of Inventory Structure, Presentation of International Physical Activity Questionnaire (IPAQ), Methodological and Methodical Issues of Indicator Testing, Specification of Implementation Details of Indicator Test Surveys, Update of EUPASS Timeline, Allocation of Responsibilities, Outlook, Administrative Issues
Feb-May	• Development of Inventory of National Physical Activity Surveillance Systems (first draft)
Feb-Mar	• Development of Indicators and Questionnaire
Mar-May	• Development of Surveillance Methodology and Infrastructure
Apr-May	• Cultural Adaptation and Translation of Indicators and Instruments
May	• Preparation of Fieldwork: Design, Sampling, Organisation
May 31	• Submission of Interim Report to European Commission
Jun-Nov	• Test of Indicator List Fieldwork Panel survey: June: T1, July: T2; October: T3; Time series survey: Jun, Jul, Aug, Sep, Oct, Nov: S1, S2, S3, S4, S5, S6 Mail control survey: October, November
May-Nov 28	• Development of Inventory of National Physical Activity Surveillance Systems
Jul-Sep	• Data Processing Panel Survey T1-T2
Jul-Dec	• Data Processing Time Series
Oct	• Analysis of Potential Policy Implications of Indicators
Nov	• Data Processing Time Series T3
Nov	• Analysis of Indicator Implementation and Surveillance Methodology
Nov 19-20	Workshop 2: Presentation/Discussion of Inventory, Presentation/Discussion of Results of Inventory Test Surveys, Discussion of Finalisation of Project and of Further Steps of Development
Dec	• Finalisation of Project, Preparation of Final Report to European Commission
Dec 31	• Closure Date

2001

March	• Submission of Final Report to European Commission

4) Community dimension and Community added value of the project

Tasks and operations in EUPASS were conducted in 8 MS simultaneously, i.e. using the same approach, methodology and procedure. This co-operation has been institutionalised by sub-contracts on the subject of EUPASS between the Beneficiary (Chemnitz University of Technology, Germany) and the following partners (see also EUPASS proposal): Katholiek Universiteit Leuven, Leuven, Belgium; Jyväskylän Yliopisto, Jyväskylä, Finland; University Henri Poincaré-Nancy 1, Nancy, France; Centro Interuniversitario Europeo per le Scienze Sportive ECUS, Rovereto, Italy; TNO Prevention and Health, Leiden, The Netherlands; Universitat de Barcelona, Barcelona, Spain; Lancaster University, Lancaster, United Kingdom. Scientific and technical collaboration has been ensured with institutions responsible for health monitoring in the participating member states, among others: Scientific Institute of Public Health - Louis Pasteur, Belgium; National Institute of Public Health, Finland; National Institute of Health Monitoring IVS and Ministry of Health, France; Robert Koch-Institute, Germany; Ministry of Health, Italy; Ministry of Health, Spain; Ministry of Health, The Netherlands; Department of Health, United Kingdom.

5) Progress and development towards expected results of the project

In sum, the project's contribution to improve the comparability of data sets between MS rests on the investigation of physical activity surveillance, surveys, data sets, and indicators used in MS (*inventory of national physical activity surveillance systems;* see Annex A) and the empirical comparison of indicators used in the existing national health monitoring systems of the participating countries against those of the International Physical Activity Questionnaires (IPAQ, short version) as a common standard (see Annex B-E). The project's contribution to improve indicator definitions to be used in an EU indicator set rests on the indicator test surveys in the participating MS which as noted included new indicators for physical activity behaviour (IPAQ) and determinants of physical activity, and provided opportunities for cross-national compa-risons. The project's contribution to improving availability of comparable data from MS for use in the HIEM-System rests on existing MS data conversed to community indicators by comparison with IPAQ and data gathered in the indicator test surveys in the participating MS that can be combined into a data set made available to HIEMS.

6) Conclusions

The findings of EUPASS underline the need for co-ordinating public health and surveillance activities within the European Community. As has been demonstrated by the comparative inventory of physical activity indicators, surveys, and surveillance structures of all EU countries which we prepared, the diversity of approaches to measure the population's physical activity in national surveys is enormous. Existing indicators neither relate to the same concept of health-related physical activity, nor focus on comparable dimensions, nor do they apply similar reference periods or scales. As a consequence, available data sets on physical activity at the country level are not directly comparable at the European level.

One major approach to overcome this situation is related to the efforts of the international consensus group for developing an International Physical Activity Questionnaire (IPAQ). However, before one could recommend that EU countries to use the IPAQ as a comparable instrument for national physical activity surveillance two key issues have to be dealt with. First of all, the validity and reliability of the IPAQ instrument as well as its international and intercultural applicability and adequacy have to be further tested. For example, as a general result of the EUPASS indicator test survey, reliability coefficients on the "short, last seven day, telephone version" (IPAQS7T) are generally quite low for all 8 participating countries (see figure 5). Second, the comparability of the old indicators and the IPAQ indicators appears to be a particularly important issue for countries such as Finland which already has had a well-established physical activity surveillance system since the late 1970s. These countries do not want to lose the possibility of monitoring long-term physical activity changes in their population over time by substituting their present national indicators with IPAQ indicators. Especially if the information provided by the new indicators is no longer comparable to the existing data. In this regard, the results of the current analysis are also not very encouraging. As has been outlined in chapter 4, the correlation coefficients between old indicators and indicators of IPAQS7T are generally quite low in all the countries investigated in this study.

Countries with a longer tradition in physical activity may not wish to substitute their national indicators but instead to add IPAQ indicators to their system (e.g. Finland, USA). In other cases, such as Belgium, where the main national health survey with two physical activity items has been conducted only once, or in France and Italy where physical activity items have been changed and no continuous data are yet available, adoption of an internationally comparable set of indicators (e.g. IPAQ) may be easier.

At least three conclusions can be drawn from the EUPASS study to guide further activities towards the development of valid, reliable, comparable and health predictive physical activity data at EU level:

(1) the value of the data on physical activity already available at country level should not be underestimated. For example, as has been shown in figure 6, one of the old indicators used in the national Finnish health survey for many years (physical activity in leisure time) turned out to be a stronger predictor of subjective health status than the IPAQS7T indicators. Of course, this indicator has not been used in other EU countries. Therefore, no internationally comparable data are available. However, new methods of data conversion may be used at the EU level in the future to make such national data sets internationally comparable as well (see utilisation of results and follow-up of the project; chapter 8 and 9).

(2) the validity and reliability tests of the IPAQ instrument conducted by the IPAQ groups itself have provided more promising results than the EUPASS study. As has been mentioned before, only one of the different IPAQ versions have been tested in EUPASS. Further refinement may help to overcome current deficiencies shown by the reliability tests in the current study. Thus, IPAQ still appears to be the first choice when searching for internationally comparable indicators of physical activity.

(3) The importance of psycho-social and environmental determinants for public health have been increasingly recognised in the last few years. In this context, the EUPASS indicator test survey investigated the predictive power of such indicators on subjective health in comparison to old and new (IPAQ) behavioural indicators. As a main result, such psycho-social and environmental indicators turned out to be stronger predictors of subjective health than their behavioural counterparts. Thus, health surveillance which is especially interested in creating a data system for changing public health at least should include a focus on psycho-social and environmental determinants in the future. A European health monitoring system also may consider using such indicators related to self-efficacy and opportunities for physical activity as tested in the present study.

7) Recommendations

Indicators

First of all, the major results of the EUPASS project strongly underline the need for a common list of physical activity indicators which should be part of the European Community Health Indicator List provided by the ECHI project of the Health Monitoring Programme. EUPASS participants agreed that a set of core indicators for measuring health-enhancing physical activity should encompass four key dimensions:

(1) type of activity

(2) frequency

(3) duration

(4) intensity

Moreover, present efforts in developing global surveillance as well as the results of the EUPASS project strongly suggest also to consider determinants of physical activity and health in health monitoring at national and international level. In particular, three key dimensions has been tested and should be considered as additional physical activity related indicators in the European Community Health Indicator List:

(5) physical activity related self-efficacy

(6) physical activity related social support

(7) physical activity related opportunities (through policy and environment)

Instruments

The International Physical Activity Questionnaire (IPAQ) is considered as the most advanced international approach to operationalise the first four dimensions of physical activity mentioned above. Although this instrument still need some further elaboration as noted before, it already is be considered for use and will increasingly be applied in health monitoring activities of EU countries. Similarly, the three instruments referring to psycho-social and environmental determinants applied in the EUPASS project has been tested in previous international study and appear to be quite robust instruments to measure physical activity in that context. Thus, the EUPASS questionnaire which encompasses both the IPAQ and the determinants questions may be recommended as a useful integrated approach for physical activity surveillance in the future.

Data

The EUPASS indicator test survey has produced an international comparable data set on physical activity behaviour and determinants in 8 MS which could be used for analyses and monitoring purposes of the EU as well as of MS. In particular, EUPASS data should be prepared for use in the HIEM-System. In addition, some EUPASS participants already decided to continue data collection beyond the closure date of the project. Thus, continuous EUPASS data collection may indeed become the starting point for a broader development of continuous physical activity surveillance in Europe.

Further Research

In order to support the implementation of recommendations regarding indicators, instruments and data, present research activities to improve the validity and reliability of international comparable physical activity indicators should be continued. Moreover, international co-operation on developing international consensus on adequate physical activity measurement must be strengthened. Finally, more research is needed to assure the comparability among data sets on physical activity already available in different EU countries as well as among available data and new data to be collected in the future.

8) Utilisation and dissemination of results

As a basic step in creating a system of comparable health-related data for changing public health at EU level, the European Health Monitoring Programme aims at making the best use of existing data by putting this information into the HIEM-System. Of course, it must be sure that data from different countries (e.g. on health-related behaviour such as physical activity) put into the system are valid, reliable and comparable. The EUPASS project can support this aim of the European programme in two ways: On the one hand, the EUPASS data itself can be used as a comparable international data set for the HIEM-System. On the other, the EUPASS indicator test survey can provide all the necessary information for data conversion using the Rasch method, i.e. creating a comparable international data set out of the diverse data sets on physical activity available at the national level of participating countries.

Further developmental steps are related to the health data collection at the EU level in the future. In this regard, the Health Monitoring Programme and other international efforts in the field of surveillance (e.g. IPAQ) already had some impact on different MS to use more

internationally comparable indicators for their national health surveillance. In particular, the results of the EUPASS project already have been considered as potential tool for future physical activity surveillance in Belgium, France and Italy. In the long run, the EU Commission may also want to set up its own European health surveillance system (e.g. related to a European Health Observatory). In this context, the experience gained from the EUPASS project may provide key information on both surveillance methodology in general (e.g. challenges for continuous data collection in different member states) and, in particular, on adequate international physical activity indicators to use in such a system.

Several publications are planned to disseminate the results of the EUPASS project. First of all, the general approach towards a EU health monitoring system using EUPASS as a pilot study will be published in a book on Global Surveillance edited by D. McQueen (CDC) and P. Puska (WHO). Second, several EUPASS project centres plan to use the EUPASS international data for analyses and publications in international public health journals. Third, at a consensus workshop in March 2001 in Stockholm a joint publication of IPAQ, EUROHIS and EUPASS results has been planned as well.

9) Assessment and follow-up of the project

Evaluation of EUPASS is possible by assessing its results and feeding its outcome into a European health monitoring system in terms of indicators, instruments, data and monitoring methodology. In the case of adoption or adaptation of EUPASS' physical activity indicators and methodological results in European health monitoring, an empirical assessment and evaluation of the quality of surveillance implementation might be accessible by follow-up policy maker surveys.

Finally, three specific follow-ups of the project should be mentioned:

(1) the continuation of the EUPASS data collection in several participating countries and its potential impact on national health monitoring systems,

(2) a new proposal for the health monitoring programme intending to apply the EUPASS indicator test survey as "bridging study" for the conversion of MS physical activity data via Rasch method,

(3) planned joint grant applications of EUPASS, IPAQ and EUROHIS participants to deal with the future research issues on international comparable physical activity monitoring mentioned above.

Documents produced in the framework of the Agreement (Annexes)

As a major document produced in the EUPASS project, Appendix A relate to the inventory of physical activity indicators, surveys, and surveillance structures. The first part (AA) deals with the EUPASS countries, the second part (AB) refers to MS not directly participating in EUPASS.

Appendix B presents the EUPASS questionnaire, divided in section BA with the parts (IPAQ, psycho-social and environmental determinants, demographics) commonly investigated in all participating countries and section BB related to the specific national indicators.

Appendixes C-E present major results of EUPASS indicator test analyses: CA, CB, CC refer to the reliability testing of the different parts of the EUPASS questionnaire, D to the comparability of IPAQ and national indicators and E focuses on the predictive power of the different instruments applied in the EUPASS questionnaire with regard to subjective health status as dependent variable in hierarchical regression analysis.