

# Attitudes and Practices Regarding Physical Activity: Situation in Spain with Respect to the Rest of Europe

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**Aim.** To identify attitudes and practices in the Spanish population regarding physical activity, and to compare the situation in Spain with that of other member states of the European Union (EU).

**Design.** Descriptive, cross-sectional study.

**Setting.** European Union (representative samples of all 15 member states).

**Participants.** From each member state we obtained a representative sample of approximately 1000 subjects older than 15 years. A total of 15 239 individuals were asked to complete a questionnaire on attitudes regarding physical activity, body weight and health.

**Main measures.** We classified participants into 6 possible stages of change toward physical activity, and subsequently regrouped them into static («precontemplation» and «relapse») and dynamic stages («contemplation», «decision», «action» and «maintenance»). Multivariate analysis with unconditional logistic regression was used to determine which sociodemographic variables were related with static stages.

**Results.** Static stages of change were more prevalent in Spain than in the rest of the EU. Spanish participants of both sexes who had received primary education, were married, were smokers or were obese were more likely to be in a static stage with regard to physical activity.

**Conclusions.** The proportion of Spaniards with a poor attitude toward changing their level of physical activity was higher than in the rest of the EU, and Spanish citizens were less perseverant in achieving positive changes.

**Key words:** Exercise. Attitudes. European Union. Survey.

## ACTITUDES Y PRÁCTICAS EN ACTIVIDAD FÍSICA: SITUACIÓN EN ESPAÑA RESPECTO AL CONJUNTO EUROPEO

**Objetivo.** Identificar las actitudes y prácticas de la población española respecto a la actividad física, comparando la situación española con la del resto de los estados miembro de la Unión Europea (UE).

**Diseño.** Estudio descriptivo, transversal.

**Emplazamiento.** Unión Europea (muestras representativas de los 15 estados miembro).

**Participantes.** De cada estado miembro se obtuvo una muestra representativa de aproximadamente 1.000 sujetos mayores de 15 años, hasta un total de 15.239 individuos, para completar un cuestionario sobre actitudes hacia la actividad física, el peso corporal y la salud.

**Mediciones principales.** Se clasificó a los participantes en 6 posibles estados de cambio hacia la actividad física, reagrupándolos posteriormente en estados estáticos («precontemplación» y «recaída») y estados dinámicos («contemplación», «decisión», «acción» y «mantenimiento»). Se llevó a cabo un análisis multivariante de regresión logística no condicional, para determinar las variables sociodemográficas relacionadas con encontrarse en un estado estático.

**Resultados.** Los estados de cambio estáticos fueron más prevalentes en España que en el resto de la UE. En ambos sexos, los participantes españoles con estudios primarios, casados, fumadores y obesos presentaron mayor probabilidad de hallarse en un estado estático respecto a la actividad física.

**Conclusiones.** La proporción de españoles que presenta una mala actitud de cambio hacia la actividad física es superior a la del resto de la UE, y son además menos perseverantes en los cambios positivos.

**Palabras clave:** Ejercicio. Actitudes. Unión Europea. Encuesta.

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This project was financed by the Institute of European Food Studies (IEFS) and the European Union (DG-V), Project number 96 201705 05F03 (96CVVF3-429-0).

Manuscript received 17 July 2002.  
Manuscript accepted for publication 14 October 2002.

## Introduction

Lifestyle is one of the main determinants of health, and has considerable impact on morbidity and mortality at the population level.<sup>1,2</sup> In fact, a sedentary lifestyle and smoking are the principal causes of preventable death.<sup>3</sup>

The absence of physical activity has been related with overall mortality rates,<sup>1,2,4-6</sup> and is an important predictor of both life expectancy and quality of life.<sup>3,7-10</sup> Its etiological role in the appearance and maintenance of chronic diseases such as diabetes, hypertension, obesity, coronary disease and osteoporosis is well known,<sup>4,5,9,11-14</sup> and it is considered a risk factor for certain types of cancer, e.g., of the breast,<sup>15,16</sup> prostate<sup>17</sup> and colon.<sup>18</sup> A United States Surgeon General's report on physical activity recommends at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week.<sup>6,9</sup>

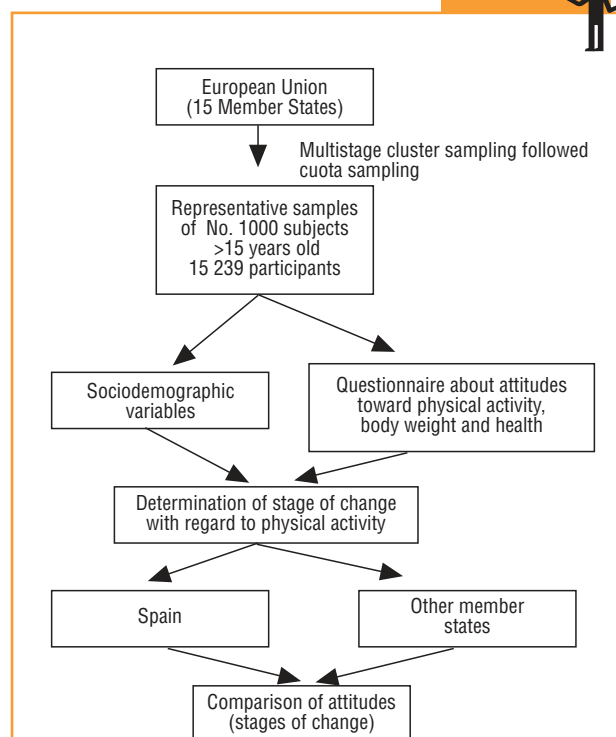
The need to educate the population about the health benefits to be obtained by increasing physical activity seems clear. However, this is a difficult task, as the recent increase in the prevalence of sedentary lifestyles had led to the appearance of many potential target groups for interventions aimed at promoting physical activity.<sup>19</sup> The approach used most frequently to fathom attitudes toward health-related behavioral changes is the transtheoretical model developed by Prochaska and others.<sup>20-22</sup> According to this theory, healthy behaviors can be classified into six stages or phases of readiness for change. Given the high prevalence of sedentary lifestyles in Spain and Europe,<sup>23</sup> new population-level strategies are urgently needed to identify the most highly exposed population groups. First, however, we should identify the most prevalent beliefs and attitudes in the population. The aim of this study was to identify attitudes and practices in the Spanish population regarding physical activity, and to compare the situation in Spain with that in the rest of the member states of the European Union (EU).

## Material and methods

This study arose from our participation in a multicenter project involving a survey of Europeans older than 15 years living in 15 member states. The survey investigated attitudes and beliefs regarding physical activity, body weight and health, with methods that have been described in detail previously.<sup>23-25</sup> The survey was overseen by the Institute of European Food Studies.

The sample for each participating country consisted of approximately 1000 individuals older than 15 years, who were asked to be interviewed; in all 15 239 subjects participated. Subjects were chosen by a multistage procedure with quotas to ensure representativeness on the national and European level, in accordance with sociodemographic factors based on the most recent census statistics available.

## Material and methods



## General scheme of the study

Cross-sectional study of attitudes and practices regarding physical activity in a sample of subjects over 15 years of age in member states of the European Union. Comparison of the results for Spain and other countries.

The questionnaire consisted of several closed items to determine patterns of physical activity and sedentary behavior, attitudes and beliefs toward body weight and physical activity, and other sociodemographic characteristics. Each participant was asked about his or her degree of participation (hours per week) in different physical activities, and about sedentary activities (number of hours per week spent sitting). We used the Compendium of Physical Activities and the Paffenbarger questionnaire<sup>26,27</sup> to assign levels of intensity of leisure time physical activity, and used the metabolic equivalents (METs) assigned to each activity to obtain weighted estimates of the total amount of physical activity.

Participants were classified into six possible stages of change by inquiring about their attitudes toward their own degree of leisure time physical activity<sup>22</sup>: precontemplation (*«I am not very active physically, I have no intention of being more active in the coming months»*); contemplation (*«I am not very active physically, but I intend to increase my activity during the coming month»*); decision (*«I am not very active physically, but I intend to increase my activity during the next month»*); action (*«I have been quite active physically,*

**TABLE 1** Distribution of the participants according to stage of change regarding physical activity. Percentages in Spain compared to other European Union countries for different sociodemographic and lifestyle variables (%)

	Precontemplation		Contemplation/Decision/Action		Maintenance		Precontemplation	
	Spain	Other EU	Spain	Other EU	Spain	Other EU	Spain	Other EU
Total	32.9 <sup>b</sup>	29.1	27.7	28.2	26.7	32.6 <sup>b</sup>	12.7 <sup>b</sup>	10.1
Sex								
Men	29.6	27.5	28.2	24.8	31.4	37.8 <sup>b</sup>	10.7	9.9
Women	36.4 <sup>b</sup>	30.4	27.1	31.3	21.6	28.0 <sup>b</sup>	14.8 <sup>b</sup>	10.3
Age group, years								
15-24	14.5	15.1	36.9	36.0	34.6	37.5	14.0	11.4
25-34	25.5	25.8	30.0	32.8	33.5	30.7	11.0	10.8
35-44	35.5 <sup>a</sup>	27.9	27.7	31.0	27.1	32.6	9.7	8.5
45-54	39.1	32.6	27.8	27.0	21.7	31.2 <sup>a</sup>	11.3	9.3
55-64	41.2	37.8	27.2	21.0	21.9	32.9 <sup>a</sup>	9.6	8.2
> 65	52.0 <sup>b</sup>	41.8	14.1	14.5	15.3	30.7 <sup>b</sup>	18.6 <sup>a</sup>	13.0
Marital status								
Unmarried	19.9	20.4	32.6	31.2	34.8	37.7	12.7	10.6
Married	38.9 <sup>b</sup>	32.1	26.3	27.8	23.2	30.6 <sup>b</sup>	11.6	9.5
Separated/Widower	42.2	38.5	18.1	21.6	19.3	28.2	20.5 <sup>a</sup>	11.7
Educational level								
University	30.0	22.7	27.5	31.3	30.8	35.8	11.7	10.2
Secondary	18.5	25.7 <sup>a</sup>	33.3	29.3	33.3	34.3	14.8 <sup>a</sup>	10.7
Primary	39.2	39.5	25.5	24.3	23.2	27.5 <sup>a</sup>	12.1 <sup>b</sup>	8.7
Smoking habit								
Nonsmoker	32.7 <sup>b</sup>	27.1	28.5	28.4	26.2	35.3 <sup>b</sup>	12.5 <sup>a</sup>	9.2
Ex smoker	30.4	27.2	26.5	27.6	29.4	35.2	13.7	10.0
Smoker	34.0	32.9	26.8	28.2	26.5	27.5	12.7	11.5
Body mass index, kg/m <sup>2</sup>								
Underweight (<20)	27.8	25.3	31.7	28.2	20.3	33.9 <sup>a</sup>	20.3 <sup>a</sup>	12.5
Normal (20-24.99)	27.5	25.7	27.9	26.7	33.1	38.2 <sup>a</sup>	11.4	9.5
Overweight (25-29.99)	38.5 <sup>a</sup>	31.9	25.0	30.2	24.3	27.8	12.2	10.1
Obese (≥30)	43.0	41.7	34.0	29.8	12.0	18.4	11.0	10.2
Weight change in previous 6 months								
Weight maintained	33.2	30.2	25.9	24.5	29.4	36.5 <sup>b</sup>	11.6 <sup>a</sup>	8.8
Weight lost	32.3 <sup>a</sup>	25.1	29.4	33.4	26.9	31.0	11.4	10.6
Weight gained	30.3	27.5	32.9	34.9	20.4	24.4	16.4	13.2

<sup>a</sup>P<.05; <sup>b</sup>P<.01.

but only since less than six months ago»); maintenance («I have been quite active physically since more than six months ago») and relapse («I used to be active physically a year ago, but I've been less active in recent months»).

The stages of change were subsequently regrouped into two categories: static (precontemplation and relapse) and dynamic stages (contemplation, decision, action and maintenance).

Chi-squared tests were used to compare the stage of change with regard to physical activity in Spain and the rest of the EU. Multivariate analysis with unconditional logistic regression was used to determine, for men and women separately, which variables were independently related with each stage of change.

## Results

Table 1 shows the distribution of different sociodemographic and lifestyle variables in groups with different stages of change regarding physical activity in Spain and other EU countries. In Spain, 26.7% of the participants were in the maintenance stage, whereas this percentage was significantly higher (32.6%;  $P<.01$ ) in the rest of the EU. The precontemplation stage was more prevalent in Spain (32.9%) than in the rest of the EU (29.1%).

**TABLE 2** Distribution of subjects according to stage of change regarding physical activity. Prevalence of each stage of change in different European Union population groups

	Precontemplation				Contemplation/Decision/Action				Maintenance				Relapse			
	Spain	O.M.	Central <sup>a</sup>	North <sup>b</sup>	Spain	O.M.	Central <sup>a</sup>	North <sup>b</sup>	Spain	O.M.	Central <sup>a</sup>	North <sup>b</sup>	Spain	O.M.	Central <sup>a</sup>	North <sup>b</sup>
Total	32.9	39.7	27.3	20.9	27.7	22.2	26.8	38.2	26.7	25.4	35.9	33.6	12.7	12.7	10.0	7.2
Men	29.6	35.3	26.1	21.6	28.2	20.0	23.0	34.6	31.4	32.1	41.4	36.7	10.7	12.6	9.6	7.2
Women	36.4	43.6	28.3	20.4	27.1	24.1	30.3	41.4	21.6	19.5	31.0	31.0	14.8	12.8	10.4	7.2

O.M. indicates other Mediterranean countries (Portugal, France, Italy and Greece).

<sup>a</sup>Central European countries: Germany, United Kingdom, Ireland, Austria, Luxembourg, Belgium, The Netherlands.

<sup>b</sup>Northern European countries: Finland, Denmark, Sweden.

The percentage of participants in the relapse stage was higher in Spain (12.7%) than in the rest of the EU (10.1%). This stage was also more prevalent in Spanish women (14.8%) than in women living in other EU countries (10.3%;  $P < .01$ ).

The precontemplation stage was more prevalent among subjects older than 65 years and aged 35 to 44 years in Spain (52%) than in the rest of the EU (41.8%;  $P < .01$ ). Prevalence of the maintenance stage in these age groups was 15.3% in Spain and 30.7% in the rest of the EU ( $P < .01$ ). Among married persons the precontemplation stage was more prevalent in Spain (38.9%) than in the rest of the EU (32.1%;  $P < .01$ ).

When we analyzed the findings across groups of countries, we found that the precontemplation stage was most prevalent in the «other Mediterranean countries» group (Portugal, France, Italy and Greece), followed by Spain. The relapse stage was most prevalent in Spain and in other Mediterranean countries (Table 2). The contemplation, decision and action stages were more prevalent in Northern Europe than in Mediterranean countries including Spain (Table 2).

Tables 3 and 4 show the results of the multivariate analysis, expressed as odd ratios (OR)<sup>28</sup> for being in a static stage (precontemplation or relapse) regarding physical activity.

Greece had the highest prevalence of stages resistant to change, and we therefore decided to analyze this country separately. In Greek men the OR for static stage was 2.55 (95% CI, 1.92-3.39) in comparison to Spanish men. Men older than 45 years were more likely to be in a static stage than men aged 15 to 24 years (OR, 1.88 for men aged 45-54 years, OR, 1.97 for men aged 55-64 years, and OR, 2.96 for men aged 65 years and older).

Men with primary school education, who were married, who smoked, or who were overweight or obese, were more likely to be in the static stage group rather than the active stage group.

The findings for women were similar. Women in Greece and other Mediterranean countries were more likely than Spanish women to be in a static stage for physical activity, whereas static stages were less prevalent in women living in northern and central Europe.

Interestingly, in persons older than 25 years we noted an inverse relationship with age, and an increase in the prevalence of static stages. This association remained approximately constant and did not increase further until past the age of 65 years.

Being unmarried and having a normal body mass index (20-25 kg/m<sup>2</sup>) was associated with a lower probability of being in a static stage of change rather than an active stage. The likelihood of being in a static stage regarding change in attitude toward physical activity was greater in women with a primary school education and among smokers in comparison to women with university-level education and nonsmokers.

## Discussion

This study set out to identify attitudes and practices regarding physical activity, and to compare the findings for Spain with other EU countries. To our knowledge this is the first study that provides a global analysis of attitudes toward change regarding physical activity in a representative sample of the Spanish population, and that compare the findings in Spain with the situation in the rest of the EU. Our analysis is part of a pan-European project with a common design and uniform methods for all participating countries, features that allow comparisons to be drawn between countries. We determined attitudes in the population toward changes in the level of physical activity, and classified participants according to their stage of change. The validity of this classification has been widely recognized in previous studies.<sup>20,30,32</sup> This has made it possible to identify the population groups most highly exposed to sedentary lifestyles, so that interventions can be developed specifically for these groups. Analysis of the stages of change regarding physical activity in the general population has thus far taken a back seat in research on physical activity, with the result that we currently know which behaviors ought to be changed, but know less about the means needed to change them.<sup>32</sup>

Our data show worrying proportions of Spanish participants with the poorest attitude toward physical activity

**TABLE 3** Odds ratios (OR) for being in a static (precontemplation or relapse) stage of change regarding physical activity in men (Multivariate logistic regression analysis)

Variables	No.	OR <sup>a</sup>	95% CI	P
Country				
Spain	474	1 (ref.)		
Greece	411	2.55	1.92-3.39	<.001
Other Mediterranean countries	1187	1.46	1.16-1.84	.001
Central European countries <sup>b</sup>	3088	0.97	0.79-1.20	.778
Northern European countries <sup>c</sup>	1404	0.63	0.51-0.80	<.001
Age groups, years				
15-24	1227	1 (ref.)		
25-34	1352	1.30	1.08-1.57	.006
35-44	1215	1.35	1.10-1.65	.004
45-54	1007	1.88	1.52-2.33	<.001
55-64	958	1.97	1.58-2.45	<.001
>65	805	2.96	2.35-3.72	<.001
Marital status				
Unmarried	2356	1 (ref.)		
Married	3773	1.21	1.06-1.39	.005
Separated/Widower	435	1.35	1.07-1.70	.012
Educational level				
University	1261	1 (ref.)		
Secondary	3303	1.08	0.93-1.25	.304
Primary	2000	1.50	1.28-1.77	<.001
Smoking habit				
Nonsmoker	2993	1 (ref.)		
Smoker	2551	1.70	1.52-1.91	<.001
Ex smoker	1020	1.07	0.93-1.25	.304
Body mass index, kg/m <sup>2</sup>				
Normal (20-24.99)	3.206	1 (ref.)		
Underweight (< 20)	406	1.27	1.01-1.60	.040
Overweight (25-29.99)	2370	1.12	1.00-1.27	.058
Obese (≥30)	582	1.57	1.29-1.90	<.001
Weight change in the previous 6 months				
Weight maintained	4386	1 (ref.)		
Weight lost	900	0.94	0.80-1.10	.407
Weight gained	1278	1.10	0.96-1.26	.169

OR indicates odds ratio.

The higher the OR, the greater the probability (odds) of being in a static stage.

<sup>a</sup>Adjusted for all variables that appear in the table (unconditional multivariate logistic regression model).

<sup>b</sup>Central European countries: Germany, United Kingdom, Ireland, Austria, Luxembourg, Belgium, The Netherlands.

<sup>c</sup>Northern European countries: Finland, Denmark, Sweden.

(precontemplation stage). The figures are higher than in other countries in our setting, with significant differences appearing for women, persons aged 35 to 44 years, and those older than 65 years, married persons, nonsmokers, persons who are overweight, and those who had lost weight in the previous six months. These results regarding attitudes toward physical activity are consistent with the

data for the actual prevalence of physical activity (i.e., practices) we obtained in a pan-European study.<sup>23</sup> Not only is there a high percentage of Spaniards with a sedentary lifestyle, but in addition, they show little inclination to change.

Higher levels of education are associated, in general, with healthier behaviors which tend to be imitated after a time

**TABLE 4** Odds ratios (OR) for being in a static (precontemplation or relapse) stage of change regarding physical activity in women (multivariate logistic regression analysis)

Variables	No.	OR <sup>a</sup>	95% CI	P
Países				
Spain	447	1 (ref.)		
Greece	513	2.50	1.90-3.29	< 0.001
Other Mediterranean countries	1274	1.49	1.18-1.87	0.001
Central European countries <sup>b</sup>	3399	0.75	0.60-0.92	0.007
Northern European countries <sup>c</sup>	1617	0.40	0.32-0.50	< 0.001
Age group, years				
15-24	1221	1 (ref.)		
25-34	1491	1.62	1.35-1.94	< 0.001
35-44	1449	1.42	1.17-1.73	< 0.001
45-54	1252	1.65	1.35-2.02	< 0.001
55-64	982	1.87	1.51-2.31	< 0.001
> 65	855	3.30	2.63-4.14	< 0.001
Marital status				
Unmarried	2064	1 (ref.)		
Married	4135	1.27	1.11-1.45	< 0.001
Separated/Widower	1051	1.36	1.13-1.63	0.001
Educational level				
University	1205	1 (ref.)		
Secondary	3792	1.15	1.00-1.33	0.058
Primary	2253	1.78	1.51-2.10	< 0.001
Smoking habit				
Nonsmoker	4339	1 (ref.)		
Smoker	2175	1.41	1.26-1.58	< 0.001
Ex smoker	736	0.86	0.72-1.02	0.082
Body mass index, kg/m <sup>2</sup>				
Normal (20-24.99)	3566	1 (ref.)		
Underweight (<20)	1133	1.31	1.13-1.52	< 0.001
Overweight (25-29.99)	1.861	1.20	1.06-1.36	0.004
Obese (≥30)	690	1.75	1.46-2.09	< 0.001
Weight change in the previous 6 months				
Weight maintained	4059	1 (ref.)		
Weight lost	1334	0.78	0.70-0.89	< 0.001
Weight gained	1857	1.01	0.90-1.14	0.819

OR indicates odds ratio.

The higher the OR, the greater the probability (odds) of being in a static stage.

<sup>a</sup>Adjusted for all variables that appear in the table (unconditional multivariate logistic regression model).<sup>b</sup>Central European countries: Germany, United Kingdom, Ireland, Austria, Luxembourg, Belgium, The Netherlands.<sup>c</sup>Northern European countries: Finland, Denmark, Sweden.

by persons with lower levels of education.<sup>33</sup> The present study also found this to be the case.

Generally speaking, the number of individuals in the maintenance stage was higher in the EU than in Spain. In other words, once they decide to increase their physical activity, other Europeans tend to be more perseverant than Spaniards. It was also worrying to find that

the relapse stage was more prevalent in Spain than in the rest of the EU, with an especially large difference for women.

This study also confirms the well-known association between smoking and a sedentary lifestyle.<sup>3,4,18</sup> Interestingly, we identified this association in relation not only with practices,<sup>23</sup> but also with attitudes, which may well ac-



Discussion  
Key points



## What is known about the subject

- The prevalence of sedentary lifestyles has increased in recent years.
- Persons' attitudes toward changing their level of physical activity are unknown.

## What this study contributes

- This study identifies attitudes in the European population regarding physical activity.
- Static stages of change were more prevalent in Spain than in other countries.
- In Spain, participants with primary level schooling, married persons, smokers and obese persons were more likely to be in a static stage of change.

count for the coexistence of different unhealthy lifestyles in different population groups.

There may have been classification bias owing to translation of the questionnaire into different languages, but this is unlikely given the considerable effort devoted to back-translation of the instrument as a quality check, and given that a small pilot study was done in each participating country to ensure that the original meaning of each item had been preserved. The possibility of selection bias as a result of selective participation was negligible given that response rates were better than 80% in all countries, and that the study was designed with particular attention toward ensuring representativeness of the sample in each country and for the EU in general. Although residual confounders cannot be ruled out completely, the main confounders were controlled for in the multivariate analysis, as shown in Tables 3 and 4.

The results of this study pose a challenge to all health professionals as well as to others responsible for health promotion, inasmuch as they show that the Spanish population is one of the worst in the EU with regard to attitudes toward changes in the level of physical activity.

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## COMMENTARY

## Physical Activity Should be Promoted More Effectively to Catch Up with the Rest of Europe

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According to a recent meta-analysis<sup>1</sup> of physical activity and fitness as separate risk factors for cardiovascular disease, the relative risk of cardiovascular disease declines as the percentile of both activity and fitness increases, with the greatest reduction in risk appearing in association with increases in physical fitness. This means that leisure time physical activity needs to reach a certain threshold in order to improve physical fitness and avoid cardiovascular disease. Data from a study by the Institute for Aerobics Research (in Dallas)<sup>2</sup> show that for fitness to be attained, this threshold could occur at a maximum oxygen consumption of 35 ml/kg/min (10 METs) in men, and 31.5 ml/kg/min (9 METs) for women. For physical activity, a study of Harvard students<sup>3</sup> found that the threshold occurs at a leisure time calorie expenditure of 1500 kilocalories/week or more.

### Key points

- The prevention of cardiovascular disease requires exercise at appropriate levels of intensity, duration and frequency to increase physical fitness.
- Lifestyle changes go through a series of stages that require different types of health counseling.
- Research is needed to determine the most effective types of counseling for each stage in lifestyle change.



To determine the prevalence of sedentary lifestyles for a given population, it is not enough to find out who is active and who is inactive. Instead, activity needs to be quantified, and a cutoff point which reflects this threshold needs to be determined. Recent studies of physical activity and cardiovascular or coronary disease in women<sup>4</sup> and men<sup>5</sup> have shown that the intensity of exercise, which guarantees improved physical fitness, is important to prevent cardiovascular problems.

To increase activity levels or physical fitness, groups of experts in prevention in developed countries began to propose that health counseling be provided in the course of visits to the doctor. The year 1995 saw the start of the PACE project in the USA (Physician-based Assessment and Counseling for Exercise).<sup>6</sup> This program postulated that changes toward healthier behaviors take place in stages (Pochaska's transtheoretical model) that require different interventions depending on which stage the patient is in. The study titled «Attitudes and practices regarding physical activity: situation in Spain with respect to the rest of Europe» provides valuable information on the size of the population that we might expect to find in each stage of change. However, it differs from the PACE study in a fundamental way regarding the number of stages in the process of change. The PACE project considered only three stages: precontemplation (not active or with no intention of becoming active), contemplation (little or no activity but with the intention of becoming more active) and activity (regular physical activity in an amount and intensity sufficient to prevent cardiovascular disease). These stages reflect three situations that physicians can encounter in their practice: sedentary patients, partially active patients whose level of activity is insufficient to promote health or prevent disease, and patients who are sufficiently active. Interventions were thus reduced to advice to think about changing lifestyle (precontemplators), advice to increase levels of physical activity above no activity or above the level of activity currently being practiced (contemplators), or advice aimed at reinforcing and maintaining the behavior (active patients). In the above mentioned study of attitudes and practices, however, a larger number of stages of change was used; this would necessitate more types of intervention or simplification by combining stages for which the same type of advice could be given.

The usefulness of this study for primary care can be distilled in the following points. The results constitute a call to primary care health professionals to use patients' visits as an opportunity to encourage patients to progress through successive stages in the process of changing their physical activity habits, so that Spain can catch up with and surpass other European Union countries. This enterprise, however, will also require population-targeted media campaigns sponsored by local and national health administrations. Also needed are data that will: *a)* give primary care health professionals an idea of which segment of the population

they should direct their health counseling efforts to with the aim of increasing levels of physical activity, and *b)* enable them to estimate how much time they will need. Finally, information is needed about the stages in the process of change where Spain lags furthest behind other EU countries, so that efforts can be targeted to favoring progress through successive stages.

One of the main conclusions of the study is that the proportion of individuals with a poor attitude toward changing their level of physical activity is greater in Spain than the mean for the entire EU. Possible reasons for this may be found in a doctoral dissertation titled «Promoting physical activity in Catalanian primary care centers»,<sup>7</sup> prepared for a PhD degree in physical education and sports. The main conclusions of this study bear repeating here: *a)* health personnel lack formal training in the promotion of physical activity, and circumstances surrounding visits to the health center are not conducive to efforts to promote exercise; *b)* efforts to promote physical activity do not take into account differences between patients in their individual needs and circumstances; *c)* institutional support for the promotion of physical activity is inadequate, because it is not perceived to be cost-effective; *d)* research on the promotion of physical activity is scarce because funding agencies do not consider this an area of high priority; *e)* lack of coordination hampers efforts by health professionals and physical activity specialists to work together; *f)* physical activity specialists have yet to find their own space in the professional interface between health care and physical activity; *g)* undergraduate training for the health professions includes no formal teaching in the promotion of physical activity, and *h)* messages transmitted via the media center on «performing better than the rest» or «being the best», rather than on promoting increased physical activity for the population as a whole.

Lines of research that should be pursued in the light of this study might aim to test different types of counseling adapted to different stages of change, to show whether such counseling helps patients progress toward the maintenance of adequate levels of leisure-time physical activity. The PREPAF project (*Programa Experimental de Promoción de la Actividad Física*, or Experimental Program for the Promotion of Physical Activity), now in progress in the province of Biscayne (Northern Spain), will attempt to show that under the usual conditions of visits to primary care physician, two different types of counseling — for patients who are «unprepared» (i.e., in the precontemplative state) or «prepared» (i.e., in the contemplative state) — are sufficient to increase levels of physical activity or enable patients to progress to the next stage of change. This project has been presented to the Preventive Activities and Health Promotion Research Network, and other participating centers in the network are expected to join the project.

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