

López-López, E.; Navarro-Valdivielso, M.; Ojeda-García, R.; Brito-Ojeda, E.; Ruiz-Caballero, J.A. y Navarro-Hernández, C.M. (2015). Práctica de actividad física y actitudes en los adolescentes de Canarias / Physical Activity Practice and Attitudes in Canarian Teenagers. Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte. vol. 15 (58) pp. 211-222. [Http://cdeporte.rediris.es/revista/revista58/artpractica563.htm](http://cdeporte.rediris.es/revista/revista58/artpractica563.htm)  
DOI: <http://dx.doi.org/10.15366/rimcafd2015.58.002>

## ORIGINAL

### PHYSICAL ACTIVITY AND ATTITUDES IN CANARIAN TEENAGERS

### PRÁCTICA DE ACTIVIDAD FÍSICA Y ACTITUDES EN LOS ADOLESCENTES DE CANARIAS

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#### ACKNOWLEDGEMENTS OR FINANCING

The study that is part of this article is associated with the following research project: Development of training methods for the application of a programme that promotes Physical Activity, Health and Wellbeing in adolescence, R+ D + I National Plan, strategic action". Reference: DEP2006-56121-C04-04/ACTI.

**Código UNESCO / UNESCO Code:** 5899 Otras Especialidades Pedagógicas (Educación Física y Deporte) / Other pedagogical specialties (Physical Education and Sport)

**Clasificación Consejo de Europa / Council of Europe Classification:** 4. Educación Física y deporte comparado / Comparative Physical Education and Sport

**Recibido** 25 de marzo de 2012 **Received** March 25, 2012

**Aceptado** 16 de enero de 2013 **Accepted** January 16, 2013

## ABSTRACT

In this study of the teenage population of the Autonomous Region of the Canary Islands, we observed that teenagers who meet both the moderate and vigorous intensity Physical Activity recommendations compared with those who do not, display better values in their perception of the set of attitudes that influences the levels of practice: motor ability, enjoyment and perceived value-usefulness. We can therefore conclude that this set of factors may determine the type and degree of participation in physical-sports activities in this sector of the population.

**KEY WORDS:** physical activity, attitudes, enjoyment, motor ability, perceived value-usefulness, teenagers.

## RESUMEN

En el presente estudio de la población adolescente de la Comunidad Autónoma de Canarias, se evidencia que aquellos adolescentes que cumplen con las recomendaciones de práctica de Actividad Física tanto de intensidad moderada como vigorosa frente a los que no las cumplen, muestran a su vez mejores valores en la percepción del conjunto de actitudes que influyen en los niveles de práctica; competencia motriz, disfrute y valor-utilidad otorgada a la misma. Lo cual nos permite afirmar que este conjunto de factores pueden determinar el tipo y grado de participación en actividades físico-deportivas en este sector de la población.

**PALABRAS CLAVE:** actividad física, actitudes, disfrute, competencia motriz percibida, valor-utilidad percibido, adolescentes.

## 1. INTRODUCTION

There is currently a wide consensus among the scientific community that practising physical activity (PA) is of immense value from the earliest stages of life, upon observing the enormous benefits that it has on health, quality of life and the personal development of individuals compared with the detrimental effects that are associated with sedentary lifestyles. Nevertheless, various recent international, national and local studies have shown that the lifestyle of the teenage population in developed countries highlights an alarming pattern of sedentary behaviour and physical inactivity (Alimentación y Valoración del Estado Nutricional en Adolescentes "AVENA", Ortega et al., 2006; Fernández García et al., 2008; Hernández de Vera, 2008; Serra, 2008; La Actividad Física como Agente Preventivo del Desarrollo de Sobrepeso, Obesidad, Alergias, Infecciones y Factores de Riesgo Cardiovascular en Adolescentes "AFINOS", Martínez et al., 2009; World Health Organisation "WHO", 2010; Martínez, 2010; Healthy Lifestyle in Europe by Nutrition in Adolescence "HELENA", Martínez et al., 2011; López, 2011; Labrado, 2011).

Furthermore, a significant body of research has studied the different factors and reasons that may determine the type and degree of participation in physical-sports activities in the early stages of life, identifying as positive factors the feeling of enjoyment that is experienced when practising these activities (Prochaska et al., 2003; Fernández García et al., 2003, Macarro, 2008; López, 2011), along with the perception of self-efficacy and motor ability (Wu & Pender, 2002; Mico, Orona & Piéron, 2002; Gálvez, 2004; Nupponen, Piéron & Telama, 2005; Van der Horst et al., 2007; Serra, 2008; García Cantó, 2010; López, 2011), and the value-usefulness that teenagers attribute to them (Eccles and Harold, 1991; Gálvez, 2004; Simpkins and Davis-Kean, 2005; Nagy et al. 2006; García Cantó, 2010; López, 2011).

Our study, based on the two abovementioned premises, aimed to assess whether teenagers who practice more PA than those who do not show higher values in their perception of the set of attitudes that influences levels of practice: enjoyment, motor ability and the value-usefulness they attribute to it.

## 2. MATERIAL AND METHOD

### Sample

The reference population comprised the total number of school students in the Autonomous Community of the Canary Islands for secondary school level in academic year 07-08: a total of 88 461 students, 45 295 boys and 43 166 girls.

To select the sample, we performed cluster sampling and a final unit of observation of the students, combined with stratified random sampling, in order to obtain a better representation of the population. The final sample consisted of 800 teenagers (413 boys and 387 girls) between the ages of 12 and 16, who were studying at secondary school level in public schools of thirteen

municipalities of the Autonomous Community of the Canary Islands, with a sample proportionally stratified by age and sex being chosen (Table 1).

**Table 1:** Distribution of the Sample by sex and age.

SEX	AGE	12	13	14	15	16	TOTAL
<b>Male</b>	n	70	69	96	117	61	<b>413</b>
	%	8.75	8.62	12	14.62	7.62	<b>51.6</b>
<b>Female</b>	n	73	86	81	105	42	<b>387</b>
	%	9.12	10.75	10.12	13.12	5.25	<b>48.4</b>

### Study variables

The following study variables were established: levels of PA practice and perception of the set of attitudes that influence the levels of practice: enjoyment, motor ability and value-usefulness attributed to the same. This allowed us to correlate both variables.

### Instruments

To measure levels of PA, the PA recommendations in our study were selected from the following: summaries by Cavill, Biddle and Sallis, 2001, Statement of the United Kingdom Expert Consensus Conference, Pediatric Exercise Science 13,12-25; and Corbin and Lindsey (2007:64), Fitness for Life, Human Kinetics.

1<sup>st</sup> Recommendation: At least 5 days per week and preferably every day of at least moderate intensity PA for a total of 60 or more minutes per day.

2<sup>nd</sup> Recommendation: At least 3 days per week of intense PA (vigorous) for 20 or more minutes per day.

To measure the perception of motor ability and usefulness-value, we partially used the Questionnaire on competence and beliefs about physical education (PE). The questionnaire employed was the “Competence and Value Beliefs in Sport” by Fredricks and Eccles (2002), which included a total of 12 items with three subscales on interest in PE, perceived competence in PE and the importance (perceived value-usefulness) of PE, consisting of a total of 13 items in Likert scale format with answers from 1 (minimum value) to 7 (maximum value).

This questionnaire had been used previously in the national study by Fernández García et al. (2008). However, from the aforementioned questionnaire, the following subscales were employed:

The competence subscale of the Questionnaire on Beliefs about competence, importance and interest attributed to PE by Fredricks and Eccles (2002), consisting of five items in a Likert format with a scale from 1 to 7.

The subscale of importance (value-usefulness) of the Questionnaire on Beliefs about competence, importance and interest attributed to PE by Fredricks and Eccles (2002), consisting of five items in a Likert format with a scale from 1 to 7.

To measure the degree of enjoyment that is experienced when practising PA, the Questionnaire "Physical Activity Enjoyment Scales (PACES)" by Kendzierski and Decarlo (1991) was used, which was converted to Spanish and adapted for the population of Spanish teenage girls with a shorter version of this questionnaire being produced.

As such, they carried out a reliability analysis and subsequently, the validity of the construct was confirmed in two steps, firstly through an exploratory factor analysis and later, by applying the structural equations model for a confirmatory factor analysis. The scale was administered to 2777 teenage girls of Secondary Education between 12 and 18 years of age, Fernández García et al. (2008), and as such, the results showed the reliability of the test and the validity of the construct, with a good adjustment to the model. The adapted scale was reduced to six items, providing a concise and efficient instrument for measuring enjoyment of physical activity.

## **Procedure**

At the start of 2007, a pilot study was carried out with a questionnaire, developed from a thorough review of references, being administered to a sample of 232 students between the ages of 12 and 16 of a secondary school of the municipality of Las Palmas de Gran Canaria, which represented a significant sample of the population of secondary school level students, with the aim of testing the viability and effectiveness of the questionnaire proposed, determining the final sample and training test administrators to subsequently carry out the final field work.

During the months from June to September 2007 we organised the first contact with the schools, contacting the Director of each school and the Heads of departments of PE by an introduction letter detailing the main characteristics of the study that we aimed to carry out along with a parental authorisation request form for the participation of their child/children in the study.

The instruments were applied to students who brought parental consent. The application took place from October to December 2007 and was carried out by a team of test administrators who had previously completed a course of training and familiarisation with the instruments for standardisation and protocol in data compilation. A personal registration form was created for each of the schools, which included exactly the number of students participating in the data compilation, the course, the timetable and the potential observations and

incidents that may have occurred during data compilation.

### **Statistical analysis**

For analysis of mean differences with the aim of comparing the means of various groups defined by a categorical variable (independent variable or factor) in a quantitative variable (dependent variable), the variance analysis (ANOVA) for a single factor was used, which allowed contrast of the null hypothesis of whether the compared population measurements are equal. For this, homoscedasticity was previously tested with Levene's test and in the case of the latter not being verified, the T test was used for inequalities of the variances or Welch's ANOVA. Thus, if  $P > .05$  in the test or Levene's test, we used the F statistic of the ANOVA table and, in the contrary case, that specified in Welch's test, denoting the resulting statistic for W.

The internal consistency of the scales was also calculated using Cronbach's alpha, with adequate values for consistency and reliability being obtained: scale of motor ability with physical activity and sport (Cronbach's alpha: 0.880), scale of value-usefulness attributed to practising physical activity and sport (Cronbach's alpha: 0.856), scale of enjoyment experienced from practising physical-sports activities (Cronbach's alpha: 0.803).

All statistical calculations of this study were made with the SPSS software (version 14.0) and the Microsoft Excel 2007 mod function.

## **3. RESULTS**

### **Relationship between practising physical activity and the set of attitudes towards the latter in Canarian teenagers**

The results of our study show that the teenagers in the group that meets the recommendations for practising moderate intensity PA compared with the group that does not shows a better perception of their motor competency, in the value-usefulness that is attributed to the same and the perception of enjoyment that they experience when practising PA, with these differences being significant (Table 2).

**Table 2:** Differences in the means for scales of perceived motor ability, value-usefulness and enjoyment, by compliance of teenagers with the recommendation for practising moderate-intensity Physical Activity.

Mean of the Perceived Motor Ability scale in the practice of PA and sport.		N	Mean	Standard deviation	Minimum	Maximum	ANOVA	
							w	P value
Groups Regularity practising moderate intensity PA.	Non-compliance	477	4.46	1.199	1	7	111.576	0.000***
	Compliance	317	5.31	1.061	2	7		
	<b>Total</b>	<b>794</b>	<b>4.80</b>	<b>1.219</b>	<b>1</b>	<b>7</b>		
Mean of the scale for Value/Use of PA and sport.		N	Mean	Standard deviation	Minimum	Maximum	ANOVA	
							W	P value
Groups Regularity practising moderate intensity PA.	Non-compliance	474	5.08	1.274	1	7	86.86	0.000***
	Compliance	316	5.87	1.077	1	7		
	<b>Total</b>	<b>790</b>	<b>5.40</b>	<b>1.259</b>	<b>1</b>	<b>7</b>		
Mean of the Enjoyment scale in the practice of PA and sport.		N	Mean	Standard deviation	Minimum	Maximum	ANOVA	
							W	P value
Groups Regularity practising moderate intensity PA.	Non-compliance	479	5.15	.854	1	7	62.891	0.000***
	Compliance	321	5.58	.668	3	7		
	<b>Total</b>	<b>800</b>	<b>5.32</b>	<b>.812</b>	<b>1</b>	<b>7</b>		

This same trend is observed in the practice of vigorous-intensity PA, where again the results of our study demonstrate that teenagers of the group that meets the recommendations for practising vigorous intensity PA against those of the group that does not meet them, show a better perception of their motor ability in the value-usefulness that they attribute to the same and in the perception of enjoyment that they experience when practising it, with these differences being significant (Table 3).

**Table 3:** Differences in the means for scales of perceived motor competence, value-usefulness and enjoyment, by compliance of teenagers with the recommendation for practising vigorous intensity Physical Activity.

Mean of the Perceived Motor Competence scale in the practice of PA and sport.		N	Mean	Standard deviation	Minimum	Maximum	ANOVA	
							F	P value
Groups Regularity practising vigorous intensity PA.	Non-compliance	255	4.19	1.21	1	7	106.364	0.000***
	Compliance	539	5.09	1.11	1	7		
	<b>Total</b>	<b>794</b>	<b>4.80</b>	<b>1.22</b>	<b>1</b>	<b>7</b>		
Mean of the scale for Value/Use of PA and sport.		N	Mean	Standard deviation	Minimum	Maximum	ANOVA	
							W	P value
Groups Regularity practising vigorous intensity PA.	Non-compliance	254	4.88	1.34	1	7	60.894	0.000***
	Compliance	536	5.64	1.14	1	7		
	<b>Total</b>	<b>790</b>	<b>5.40</b>	<b>1.26</b>	<b>1</b>	<b>7</b>		
Mean of the Enjoyment scale in the practice of PA and sport.		N	Mean	Standard deviation	Minimum	Maximum	ANOVA	
							W	P value
Groups Regularity practising vigorous intensity PA.	Non-compliance	256	5.01	0.83	2	7	58.695	0.000***
	Compliance	544	5.47	0.76	1	7		
	<b>Total</b>	<b>800</b>	<b>5.32</b>	<b>0.81</b>	<b>1</b>	<b>7</b>		

#### 4. DISCUSSION

The results of our study coincide with the findings of various international and national studies that in relation to the various factors and reasons that may determine the type and degree of participation in physical-sports activities have identified as positive factors the feeling of enjoyment experienced in practising it, the perception of motor competence and the value-usefulness that teenagers attribute to it.

In relation to the degree of enjoyment that teenagers experience when practising PA, the results of our study also coincide with other studies carried out both internationally and nationally, in which a positive link has been noted between this variable and the practice of PA (Prochaska et al., 2003; Fernández García et al., 2003, Macarro, 2008).

With regard to the perception of self-efficacy, which in the context of PA is associated with the perception of motor ability, for many authors it is one of the most powerful and consistent influences in the performance of PA in any age group, and is linked to physically active lifestyles (Nupponen, Piéron & Telama, 2005; Van der Horst et al., 2007), and it is even suggested that it could be the most important predictor of the intention to practice PA (Wu & Pender, 2002). We observed in our study that teenagers who carry out higher levels of PA also have a better perception of their motor ability.



In the context of our country, the results of our study are congruent with those obtained in the study by Gálvez (2004), which found that the perception of motor ability significantly increases levels of PA in teenagers of both sexes. They are also congruent with the results of the study carried out by García Cantó (2010), which noted that the majority of young people had an acceptable perception of their own motor ability, which directly influenced overall levels of normal PA, with this effect being appreciated with greater intensity in the subscale that represents activity during leisure time. As such, subjects with a better perception in this variable decided more to reproduce their physical-sports models repeatedly.

Furthermore, in relation to the positive association between the practice of PA and the value-usefulness that teenagers attribute to it, the results of our study coincide with the study carried out by Gálvez (2004), in which it was demonstrated that the positive opinion about the usefulness of the PA sessions significantly increases the regular practice of PA in both sexes. This is also the case for the study carried out by García Cantó (2010), which demonstrated that the perception of usefulness of the PA sessions is a variable that increased the overall levels of PA significantly in both sexes.

## **5. CONCLUSIONS**

Through our study, we have noted that teenagers who meet the recommendations for the practice of moderate and vigorous intensity PA show better values in the perception of the set of attitudes that influence the levels of practice: motor ability, enjoyment and value-usefulness attributed to it.

Lastly, although they were not obtained directly in this research, this set of findings allows us to suggest the implementation of a set of actions whose objective is the increase of levels of PA both in and out of school, through the establishing of programmes promoting PA and health aimed at this sector of the population, preceded by the designing of a non-exclusive list of motor activities and tasks that also provide an increase in the perception of the set of attitudes that have an influence on levels of practice.

### **Limitations and planning**

As with all research studies, this study has its limitations. Among them, it is necessary to highlight its cross-sectional nature, which displays a reality at one point in time of the behaviour of the variables studied.

As such, with regard to future research, it is suggested to carry out longitudinal studies that allow for a more detailed study of the factors that influence the levels of practice of PA beyond this specific stage in their lives, with the aim of consolidating and completing knowledge of a reality at one point in time provided by cross-sectional studies.

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