

## Results From Spain's 2016 Report Card on Physical Activity for Children and Youth

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**Background:** The first Active Healthy Kids Spanish Report Card aims to gather the most robust information about physical activity (PA) and sedentary behavior of children and adolescents. **Methods:** A Research Working Group of experts on PA and sport sciences was convened. A comprehensive data search, based on a review of the literature, dissertations, gray literature, and experts' nonpublished data, was conducted to identify the best sources to grade each indicator following the procedures and methodology outlined by the Active Healthy Kids Canada Report Card model. **Results:** Overall PA (based on objective and self-reported methods) was graded as *D-*, Organized Sports Participation as *B*, Active Play as *C+*, Active Transportation as *C*, Sedentary Behavior as *D*, School as *C*, and Family and Peers as *Incomplete*, Community and the Built Environment as *Incomplete*, and Government as *Incomplete*. **Conclusions:** Spanish children and adolescents showed low levels of adherence to PA and sedentary behavior guidelines, especially females and adolescents. There is a need to achieve consensus and harmonize methods to evaluate PA and sedentary behavior to monitor changes over time and to evaluate the effectiveness of policies to promote PA.

**Keywords:** sedentary lifestyle, exercise, child health, adolescents, active transportation

In children and adolescents, adiposity, cardiovascular biomarkers, bone health, physical fitness, quality of life, motor skills development, and psychological distress have been associated with physical activity (PA), measured either in terms of minutes dedicated to total, light, moderate, and vigorous intensities<sup>1-4</sup> or sedentary time.<sup>1,5,6</sup> Current Spanish PA guidelines recommend that children and youth should accumulate at least 60 minutes of moderate-to-vigorous PA (MVPA) daily and reduce screen time to no more than 2 hours daily.<sup>7</sup> Nevertheless, Spanish children have PA habits that are far from fulfilling the recommendations. According to the ANIBES study conducted in 2013, 48.4% of children aged 9 to 12 years old and 62.6% of adolescents aged 13 to 17 years are not meeting the recommendations of at least 60 minutes of MVPA daily.<sup>8</sup>

Spain is a country of more than 45 million inhabitants made up of 17 autonomous regions with self-government in several areas, such as schools, universities, health, social services, etc. The overall

framework and guidelines of the education and health systems are defined at the national level and the ministries or departments of education and health from the 17 autonomous communities develop and manage their own systems based on these guidelines. As such, there are some differences throughout the country in terms of scholar curriculum application, promotion, and monitoring strategies of PA, etc. The Active Healthy Kids Spanish Report Card was developed following the procedures of the Active Healthy Kids Canada Report Card and represents an opportunity to gather the information for every key PA indicator, to identify gaps, and to make Spanish policy makers aware of the situation and the need to increase funds for promoting PA initiatives.

The purpose of this article is to describe the procedures and summarize the results of the findings from a review of the PA levels of Spanish children and adolescents conducted to develop the Active Healthy Kids Spanish Report Card.

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## Methods

Active Healthy Kids Report Cards have shown to be an effective and efficient method of summarizing the available literature,<sup>9</sup> which will hopefully aid in the adoption and creation of PA strategies and policies that are most appropriate for Spain. The Spanish Healthy Active Kids Report Card was coordinated and developed by the Nutrition Research Foundation. A research working group (RWG) of established experts on PA and health from 6 Spanish Universities (University of Las Palmas de Gran Canaria, University of Zaragoza, University of Castilla-La Mancha, Technical University of Madrid, University of Santiago de Compostela, and University of Alicante) and 2 research groups (Hospital del Mar Medical Research Institute, IMIM and Nutrition Research Foundation) was convened.

The RWG chair (BRV) was responsible for conducting the narrative review, identifying and gathering the key information, and collecting additional publications obtained from the RWG experts. The data were grouped in 9 indicators following the Active Healthy Kids Canada PA Report Card protocol<sup>10</sup> and extracted in a spreadsheet. The RWG experts were provided with the preliminary data and were instructed to include additional information. The members of the RWG met in February 2016 to agree on the key data to be included in the report and to assess the grade assigned to each indicator. The grade for each indicator was based on the percentage of children and youth meeting a defined benchmark: *A* is 81% to 100%; *B* is 61% to 80%; *C* is 41% to 60%, *D* is 21% to 40%; *F* is 0% to 20%; *INC* is incomplete data. When necessary, a “+” or “-” sign was included, for instance if data trends indicated an improvement (the “+” sign) or if gender differences were too big (the “-” sign).

One week before the meeting the RWG members were provided with all the data collected in a spreadsheet. They were asked to check the data, decide what data was most relevant, and grade the

indicators. During the meeting the researchers convened the quality of the data and proposed a grading. The criteria for qualifying the data was based on the representativeness of the sample, the sample size, the year of the study, and the methods used to assess the information on PA.

The indicators included in the Spanish report were: Overall Physical Activity Levels, Organized Sport Participation, Active Play, Active Transportation, Sedentary Behaviors, Family and Peers (infrastructure, support, parental/peer behaviors), School (infrastructure, policies, and programs), Community and the Built Environment (infrastructure, policies, programs, safety), and Government (strategies, policies, investments).

The data sources included for the analysis are shown in Table 1.

## Results and Discussion

The 2016 Spanish Report Card is the first assessment of PA according to the 9 indicators suggested by Active Healthy Kids Canada. The grades assigned to each indicator are included in Table 2. Figure 1 shows the front cover of the 2016 Spanish Report Card.

### Overall Physical Activity: *D-*

The score of *D-* was obtained based on the percentage of children and youth achieving the recommendation of 60 minutes of MVPA daily. The negative sign (“-”) was assigned to emphasize the differences between genders, with females being less active than males in all the age groups. Data obtained from the IDEFICS study using objective methods indicated that only 30% males and 12% of females (2 to 10 years old), respectively, achieved the recommendations.<sup>22</sup> For children aged 9 years old and adolescents aged 15 years old, the achievement of the PA guidelines was the following: 60%

**Table 1 Main Data Sources**

Study name	Study year	Study type	Age (years)	Method to assess physical activity
ALADINO (ALimentación, Actividad Física, Desarrollo Infantil y Obesidad—Food, Physical Activity, Child development and Obesity) <sup>11,12</sup>	2011–2013	Cross-sectional	6–9	Self-reported questionnaire
IDEFICS (Identification and prevention of Dietary- and lifestyle-induced health EFfects In Children and infantS) <sup>13</sup>	2007–2008	Community intervention study	2–10	Accelerometer/self-reported questionnaire
HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) <sup>14</sup>	2006–2008	Cross-sectional	15	Accelerometer
Spanish National Health Survey (Encuesta Nacional de Salud) <sup>15</sup>	2011	Cross-sectional	1–14	Self-reported questionnaire
European Youth Heart Study (EYHS) <sup>16</sup>	2008–2010	Cross-sectional	9 and 15	Accelerometer
Health Behavior in School-aged Children (HBSC) <sup>17</sup>	2010	Cross-sectional	11, 13, 15	Self-reported questionnaire
ANIBES (Anthropometry, Intake and Energy Balance in Spain) <sup>18</sup>	2013	Cross-sectional	9–17	Accelerometer
THAO-Child Health Program <sup>19</sup>	2012	Community-based intervention	6–18	Self-reported questionnaire
Sporting habits in Spain <sup>20</sup>	2015	Cross-sectional	6–18	Self-reported questionnaire
FRESC <sup>21</sup>	2012	Cross-sectional	14, 16, and 18	Self-reported questionnaire

and 34.1% for boys and girls, respectively, and 28.8% and 8.9% for male and female adolescents, respectively.<sup>23</sup> For the adolescents group (HELENA study), 58% of males and 24% of females aged 15 years met the guidelines.<sup>24</sup> Based on self-reported data obtained

**Table 2 Grades According to Physical Activity Indicator in the 2016 Spanish Report Card on Physical Activity for Children and Youth**

Indicator	Grades
Overall Physical Activity Levels	D-
Organized Sport Participation	B
Active Play	C+
Active Transportation	C
Sedentary Behaviors	D
Family and Peers	INC
School	C
Community and the Built Environment	INC
Government Strategies and Investments	INC

Note. The grade for each indicator is based on the percentage of children and youth meeting a defined benchmark: A is 81% to 100%; B is 61% to 80%; C is 41% to 60%; D is 21% to 40%; F is 0% to 20%; INC is Incomplete data.



**Figure 1** — Front cover of the 2016 Spanish Physical Activity Report Card on Physical Activity for Children and Youth.

from a large sample of Spanish participants of the HBSC for 2010, 32% of 11- to 12-year-old children and 15% of older adolescents (17 to 18 years old) were adequately active.<sup>25</sup> Data from the ANIBES study collected in 2013 also showed big differences between ages and genders;<sup>8</sup> the guidelines were met by 52% of 9- to 12-year-old adolescents and by 37% of 13- to 17-year-old adolescents. Regarding gender differences, 56% of males and 27% of females were sufficiently active.

### Organized Sports Participation: B

The data were obtained from 3 large sample size studies conducted in children and adolescents<sup>11,12,20</sup> and a large study conducted in young children (IDEFICS).<sup>26</sup> The score was assigned according to the percentage of children and youth participating in some type of sport out-of-school at least once a week. Seven percent of males and 6% of females aged 2 to 5 years met the recommendation; the percentage increased to 46% and 28% for males and females aged 6 to 9 years, respectively.<sup>26</sup> For older children, data from the 2013 ALADINO study indicated that 71% of males and 61% of females aged 7 and 8 years did some type of sport at least once a week.<sup>11</sup> Adolescents' data referred to the percentage of individuals doing some type of organized PA, with 64% of young adolescents meeting the guidelines (74% male and 54% female) and only 50% of 16- to 18-year-old adolescents achieving the recommendations (64% male and 35% female).<sup>20</sup>

### Active Play: C+

The indicator was graded C+ according to the percentage of children and youth who spent 2 or more hours playing outdoors daily. The positive sign (“+”) was added to stress the higher adherence to the recommendations during the weekends compared with weekdays. Data from the ALADINO study showed that during the week, 44% of males and 33% of females aged 7 and 8 years met the recommendations, whereas during the weekend the percentage increased to 85% both in males and females.<sup>11</sup>

### Active Transportation: C

Data for young children from the IDEFICS study indicated that 54% of those aged 2 to 5 years commuted actively to school, with no differences between genders.<sup>26</sup> Data for children aged 6 to 9 years indicated that 73% of children walked on the way to school and 77% walked on the way home from school when the distance to school was less than 1km. The percentage declined when the distance increased to 1 to 2 km (26% and 31%, respectively), to 3 to 4 km or more (6% and 8%).<sup>27</sup> Data from the THAO study corresponding to children aged 8 to 13 years showed that 68% of them walked to/from school.<sup>19</sup> The percentage of adolescents that reported walking or cycling as a means of transport to/from school was 54% for males and 57% for females aged 14 years and 38% of males and 40% of females aged 18 years.<sup>21</sup>

### Sedentary Behaviors: D

According the National Health Survey 2011 data, the guideline of less than 2 hours per day of sedentary time was met by 43% of males and 54% of females younger than 2 years, 38% of males and 40% of females from 2 to 4 years, and 45% of males and 50% of females from 5 to 14 years (this data refers to weekdays only).<sup>15</sup> Available data from adolescents indicated that during the week only 17% of males and 26% of females aged 16 years met the guidelines.



During the weekend the percentage decreased to 3% of males and 5% of females.<sup>15</sup>

### Family and Peers: *INC*

There are no national data indicating parental support for PA.

### School: *C*

According to the 2013 ALADINO study, the percentage of schools that offer access to facilities out-of-school time was 69%. The percentage of schools that offered 2 or more hours of physical education per week was 68% for the second grade of primary education (7–8 years old), 55% for the third grade (8–9 years old), and 33% for the fourth grade (9–10 years old).<sup>11</sup>

### Community and the Built Environment: *INC*

No data were available for this indicator.

### Government: *INC*

There is 1 national policy, the Integral Plan for Physical Activity and Sport 2010–20, that has been developed with the aim of promoting universal access to sport for the entire population. The National Sports Council is the coordinating administrative body in the area of PA promotion, along with the Ministry of Health, Social Services, and Equality; the Ministry of Education, Culture, and Sports; and representatives of the autonomous regions and the Spanish Olympic Committee, among others. Within the Integral plan there are specific policies to promote PA at school, the workplace, the health sector, and the private sector.<sup>28</sup> Although the policy and the strategies included are promising, a grade was not awarded because their impact on increasing PA levels in the population was not clear.

### Strengths and Limitations

This is the first report that gathers information about several indicators of PA and sedentary behaviors in Spain. The results are based on a strong RWG with representation from across the country, which is a strength of this study.

Although grades are based on the best available data, there are significant research gaps. First of all, there is a need for a large national representative sample evaluating PA and sedentary behaviors according to the indicators evaluated. Second, it is necessary to harmonize the methodology to evaluate PA and time spent on sedentary behaviors. Comparing adherence to PA guidelines that have been traditionally defined based on self-report methods against PA survey data collected by objective methods can result in substantial overestimation.<sup>29</sup>

### Conclusion

Spanish children and adolescents have low adherence to PA recommendations and their sedentary behavior is high. There are several gaps of information regarding key PA indicators that should be addressed by harmonizing measurement instruments, as well as establishing monitoring and evaluation systems. Lastly and most importantly, there is an urgent need to increase the levels of PA and reduce sedentary time among children and adolescents, focusing on females and adolescents.

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