

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

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**Background:** Physical activity (PA) is vital to the holistic development of young people. Regular participation in PA is associated with substantial benefits for health, cognitive function, and social inclusion. Recognizing the potential of PA in the context of the current peace process in Colombia, the purpose of this article is to present the methodology and results of Colombia's second Report Card on PA for children and youth. **Methods:** A group of experts on PA graded 14 PA indicators based on data from national surveys and policy documents. **Results:** National and departmental policy indicators received a grade of *B*, while organized sport participation, overweight, obesity, community influence, and nongovernment initiatives indicators received a grade of *C*. Overall PA levels, active transportation, sedentary behaviors, and school influence received a grade of *D*. Active play, low physical fitness, and family influence received an *Incomplete* grade. **Conclusion:** PA levels are low and sedentary behaviors are high in Colombian children and youth, with notable geographic differences. A broad policy framework translated into specific actions could provide unique opportunities to bridge the gap between knowledge and practice, and contribute to social integration goals in a postconflict setting.

**Keywords:** policy, advocacy, health promotion, social inclusion, peace process

Physical activity (PA) during childhood is vital to the holistic development of young people. Regular participation in PA is associated with substantial benefits for health, cognitive function, and social inclusion. In addition, PA, sports, and recreation have been recognized as catalysts for social development and peace building. Since 2012, Colombia has been advancing in negotiating a settlement for the longest armed conflict in the Western Hemisphere. In the context of the political and social transition resulting from a peace process, national policies and programs must be reoriented. In this regard, it is crucial to recognize the potential of PA, sports, and active play among children to drive social change in Colombia.

To join global efforts to drive social action to promote policy and behavior change relating to PA participation among children and youth through knowledge translation,<sup>7</sup> the Epidemiology Group at Universidad de los Andes (EpiAndes), with the guidance of Active Healthy Kids Canada, launched the first Report Card on PA for Colombia in 2014.8 This report card showed that despite the broad policy framework supporting PA promotion in Colombia, PA levels among adolescents were low and sedentary behaviors were high and above the global average.8 The first version of the report card also enabled the identification of research gaps in PA surveillance that will be covered in future national surveys.

The purpose of this article is to present the methodology and results of Colombia's second Report Card on PA for children and youth. The 2016 report card was informed by the best evidence available, between 2005 and 2015, for children and youth in Colombia and was built in the context of a peace-process and recent government changes at the local level.

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# **Methods**

The second Report Card for Colombia was developed and produced by EpiAndes with the guidance of the Active Healthy Kids Global Alliance. EpiAndes assembled a Research Work Group (RWG) comprised of 15 PA experts, including researchers, practitioners, and policymakers from diverse fields and sectors: the National Sports, Recreation, Physical Activity and Leisure Time Administrative Department (Coldeportes); the District Institute for Recreation and Sports (Instituto Distrital de Recreación y Deporte [IDRD]) from Bogotá; the Colombian Obesity Foundation (Fundación Colombiana de Obesidad [Funcobes]); and 5 universities from 3 different cities (Universidad de los Andes and Universidad del Rosario in Bogotá, Universidad Industrial de Santander and Universidad de Santander in Bucaramanga, and Universidad Simón Bolívar in Barranquilla). EpiAndes members (researchers and research assistants) gathered and synthesized the evidence, designed the final version of the report card, and prepared the dissemination strategy. The RWG reviewed the content of the report card, provided complementary data when available, and assigned the grades for the indicators.

The structure of the report card was designed based on the frameworks proposed by Canada, South Africa, Scotland and Kenya in their previous report cards. 9-13 These frameworks include 9 core indicators common to all the countries involved in the Global Matrix 2.0. These core indicators are 1) Overall PA Levels, 2) Organized Sports Participation, 3) Active Play, 4) Active Transportation, 5) Sedentary Behaviors, 6) Family and Peers, 7) School, 8) Community and Built Environment, and 9) Government. The RWG also proposed 5 additional indicators included in the report card: 10) Departmental Policies, 11) Nongovernment Initiatives and Strategies, 12) Overweight, 13) Obesity, and 14) Low Physical Fitness. In the report card, the indicators were classified into 3 categories: 1) behaviors and conditions contributing to PA, 2) factors associated with elevated cardiometabolic risk, and 3) settings and levels of influence. The 14 indicators were the same as those used in the 2014 Colombia Report Card.

EpiAndes research assistants conducted 2 systematic reviews using PubMed and Scielo databases to gather the best nationally representative published evidence, and reviewed official reports and policy documents from governmental institutions and other agencies. The main source of data were the National Nutrition Survey (Encuesta Nacional de la Situación Nutricional en Colombia [ENSIN]) from 2005<sup>14</sup> and 2010.<sup>15</sup> ENSIN is a national survey conducted every 5 years by the Colombian Institute of Family Welfare. ENSIN collects data on anthropometric indicators, biochemical indicators of nutritional status, food safety, physical activity, and screen time. 14,15 Other sources of data included current policy documents and programs' annual reports. For some of the indicators, new data had not been released since the first report card; in which case, the strongest and most recent data available were used. Data from local studies conducted in different cities or regions of Colombia were also considered. However, the grades were based mainly on national data.

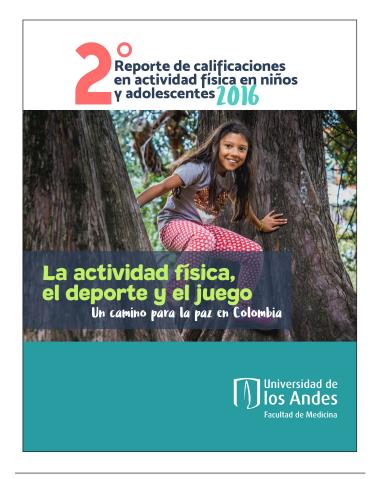
After data gathering and the evidence synthesis process, the RWG assigned grades to each one of the indicators according to the proposed grading scheme. The grading scheme used in the report card was based on a numerical grading scale (1 to 5), equivalent to the academic grading system used in most Colombian schools (Table 1). Based on the Global Matrix 1.0<sup>16</sup> letter grading scheme, the corresponding letters for each grade were included in this article to facilitate comparisons. The grades were defined according to benchmarks for desirable conditions (Table 1). For indicators 1 to 8 and 12 to 14, the grades reflect the proportion of children involved in desirable conditions falling within the boundaries established in previous report cards  $^{16}$ . A is 80% to 100%; B is 60% to 79%; C is 40% to 59%, *D* is 20% to 39%; *F* is <20%; and *INC* (incomplete). For indicators 9 to 11, the grades reflect the degree of implementation of programs and policies. The RWG also considered behaviors, environments, practices and policies for each indicator in terms of potential reach, adoption and impact, following the proposed grading schemes from Canada, South Africa and Scotland in previous report cards<sup>10-12,17,18</sup> (Table 1). Quality of evidence, trends over

Table 1 Colombia's Report Card Grading Scheme

Gradea	Benchmark	Criteria <sup>b</sup>		
A	80–100%	Reflects behaviors, environments and policies that place children and youth at lowest risk for future noncommunicable diseases. Denotes the best practice to promote health and prevent chronic disease and/or in multiple settings with excellent potential for reach, impact and/or adoption.		
В	60–79%	Reflects behaviors, environments and policies that place children and youth at relative lower risk for future noncommunicable diseases. Denotes the best practice to promote health and prevent disease and/or in multiple settings with moderate potential for reach, impact and/or adoption		
С	40–59%	Reflects behaviors, environments and policies that place children and youth at moderate risk for future noncommunicable diseases. Denotes good practice to promote health and prevent chronic disease and/or in multiple settings with limited potential for reach, impact and/or adoption		
D	20–39%	Reflects behaviors, environments and policies that place children and youth at higher risk for future disease. Denotes insufficient practices to adequately promote health and prevent chronic diseases, which may be due, in part, to lack of reach or adoption and impact.		
F	<20%	Reflects behaviors, environments and policies that place children and youth at greatest risk for future disease. Either where no interventions, infrastructure or practices exist OR where these have been shown to be ineffective.		
INC		Categories of behaviors, environments and policies for which there are no data or where evidence is insufficient to interpret. OR promising initiatives but for which there is no evaluation.		

<sup>&</sup>lt;sup>a</sup> A numerical grading system equivalent to the academic grading system used in most of the schools in Colombia was used in the Colombian report card. The equivalents in numbers for the letter grading system used in this paper are: A = 5, B = 4, C = 3, D = 2, F = 1, INC = incomplete/inconclusive.

<sup>&</sup>lt;sup>b</sup> Based on criteria set by South Africa Scientific Advisory Panel for 2007 and 2010 Report Cards.



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

time, and disparities were also taken into account for the grading process. For the indicators 2, 7, and 11 with updated information, the grades were assigned after comparing the indicators with the 2014 report card for Colombia.

The cover story for Colombia's 2016 report card was defined in the context of Colombia's longest peace process, which aims to find a political resolution to the armed conflict in the country (see Figure 1). 19,20 The process started in November 2012 and has reached important milestones, making academics and citizens feel that peace is closer on the horizon than it has ever been. 19 Considering the potential of PA, recreation, and sports to contribute to a nation's social development, EpiAndes and the RWG agreed on the following report card theme: "Physical activity, active play, and sports: a pathway to peace in Colombia." This theme represents an opportunity to highlight the role of PA beyond the public health policy agenda.

# **Results and Discussion**

The 2016 Colombia Report Card is the second assessment of how the nation is performing on 14 indicators related to PA in children and youth. Table 2 summarizes the grades assigned by the RWG to each indicator on 2014 and 2016 to allow comparisons.

# Overall Physical Activity Levels: D

The World Health Organization recommends that children and adolescents accumulate 60 minutes or more of moderate-to-vigorous PA (MVPA) each day and engage in vigorous activities to strengthen muscle and bone, at least 3 times per week. <sup>21</sup> For preschool children, the Canadian Society for Exercise Physiology recommends the accumulation of at least 180 minutes of PA at any intensity, spread throughout the day. <sup>22</sup>

Table 2 Grades According to Physical Activity Indicators in the 2014 and 2016 Colombia Report Cards on Physical Activity for Children and Youth

	Grades	2014a	Grades 2016a	
Indicator	Colombia's grading system (1–5)	International letter grading system	Colombia's grading system (1–5)	International letter grading system
Overall Physical Activity Levels	2	D	2	$D^{\mathrm{b}}$
Organized Sport Participation	2	D	3	C
Active Play	INC	INC	INC	INC
Active Transportation	INC	INC	2	D
Sedentary Behaviors	2	D	2	$D^{\mathrm{b}}$
Family and Peers	INC	INC	INC	INC
School	1	F	2	D
Community and Built Environment	INC	INC	3	C
Government	4	В	4	B
Departmental Policy	3	C	4	B
Nongovernment Initiatives	2	D	3	C
Overweight	3	C	3	$C^b$
Obesity	4	В	3	C
Low Physical Fitness	INC	INC	INC	INC

<sup>&</sup>lt;sup>a</sup> The equivalents in numbers for the letter grading system used in this paper are: A = 5, B = 4, C = 3, D = 2, F = 1, INC = incomplete/inconclusive.

<sup>&</sup>lt;sup>b</sup> The grade remained the same as in 2014 report card due to the absence of newer data, rather than an observed lack of change in the data.

Since ENSIN 2005, there have been no new nationally representative studies, which assessed PA levels among children and adolescents. For this reason, the grade of D remained from the first report card. This grade was assigned considering: 1) that only 26% of adolescents meet WHO guidelines for PA at the national level, ranging from 16.2% in the subregion of Bolívar, Córdoba, and Sucre, to 37.2% in the subregion of Meta;<sup>14</sup> 2) the sex disparity in PA, whereby there is a significantly lower prevalence of meeting PA guidelines among females than males  $(24.2\% \text{ vs. } 27.6\%, P < .001);^{14} 3)$  the lack of nationally representative data on PA for children younger than 13 years of age; and 4) the absence of program evaluations to assess the effectiveness of current initiatives aimed at increasing PA. Despite not having newer evidence, the RWG identified that new programs and initiatives to promote PA have emerged during the last 2 years, and these programs have the potential to contribute to PA behavior change in Colombia.

# Organized Sports Participation: C

The grade of *C* assigned to Organized Sports Participation was informed mainly by the annual report from the *Supérate con el Deporte* program. Compared with 2014, the grade increased considering the increased reach of the program to all of the departments in Colombia, and the inclusion of a wider age range (from 12–17 in 2014, to 7–17 in 2015).<sup>23</sup> Although the grade has improved, the program has not been evaluated, and data on the level of participation in organized sports at the national level is lacking.

# Active Play: INC

Active Play is the principal means of PA among young children<sup>24</sup> and depends on the child developmental stage, the nature of, and capacity for the activity, as well as different aspects of play and the contextual factors that promote it. The family is an important factor, with active parents as key determinants of PA levels of their children.<sup>25</sup> However, there was not enough evidence on the current situation of active play in Colombia to be able to assign a grade. Therefore an *INC* was assigned to this indicator. More research is needed to assess the active play situation in Colombia. Local studies conducted in the city of Bucaramanga<sup>26</sup> may provide a guide for developing surveillance mechanisms to assess active play at the national level.

# Active Transportation: D

Active Transportation provides substantial health benefits via increased PA.<sup>27–29</sup> The grade of *D* for active transportation was assigned based on 2 contrasting reasons: 1) the low proportion of adolescents walking or cycling for transportation according to ENSIN 2005 (7.8% and 3.3%, respectively)<sup>14</sup> and 2) the increase in the number of strategies to promote active transportation among children and adults in Colombia's main cities in the last 2 years.<sup>30</sup> Despite the low prevalence, the rise in the number of initiatives to promote active transportation led the RWG to assign a grade of *D*. Specifically, the National Development Plan 2014–2018 establishes that the Ministries of Transport, Education, and Housing will develop plans toward promoting active transport to school. The experts highlighted that the topic of PA has reached other sectors, such as transportation and education, leading to active transportation initiatives.

# Sedentary Behaviors: D

The main source of data on sedentary behaviors for children and youth at the national level is ENSIN 2010. For this reason, the grade of D assigned in the first report card remained. The rationale for maintaining this grade was based on: 1) the high prevalence of excessive screen time in children (57.9%) and adolescents (67%)<sup>15</sup> at the national level; 2) the trend of increasing sedentary behaviors between 2005 and 2010 (from 56.3% to 57.9%);  $^{14,15}$  3) the extremely high prevalence of excessive screen time among children in particular departments, such as Vaupés (76.9%), Risaralda (71.7%), and Cundinamarca (70.9%);<sup>31</sup> 4) the extremely high prevalence of excessive screen time among adolescents in departments, such as Vaupés (78.4%), Bogotá (76.6%), Risaralda (75.6%), Quindio (75.3%), and Sucre (74.7%);<sup>31</sup> 5) the comparison with global data that showed an above average prevalence of screen time in Colombian adolescents; 15,32 and 6) the absence of national strategies to reduce screen time and other sedentary behaviors in children and adolescents.

# Family and Peer Influence: INC

A grade of *INC* was assigned to the Family and Peer Influence indicator due to the limited amount of national data. The RWG recognized that the country has policies and programs that promote family involvement in PA, such as the *Ciclovías*, a program that closes lanes on major streets to motor vehicles and opens them for recreational and community activities, providing opportunities for health-enhancing PA;<sup>33</sup> and the Healthy Habits and Lifestyle Program of *Coldeportes* (*Programa de Hábitos y Estilos de Vida Saludable*), a program which offers a variety of PA sessions and educational activities in community settings, schools, health services, and work sites, nationally.<sup>34</sup> However, data on PA parenting practices is critical to help inform this indicator.

#### School: D

The grade for the School indicator increased from an F in 2014 to a D in the 2016 report card. Compared with 2014, the grade increased as a result of the evidence on school-based strategies to promote PA. The main sources of information used to grade this indicator were policy documents, such as the National Development Plan, the Ministry of Education website, and local policy reports from major cities. A new policy extending the school day from 5 to 8 hours is being implemented gradually in the country. This initiative could contribute to increasing the time for PA and sports participation in the school setting.

Despite the lack of regulation of physical education in schools, the RWG highlighted the experiences of cities, such as Bogotá, which are implementing different strategies to promote PA in the school environment. Since 2012, Bogotá has implemented the policy "Curriculum for academic excellence and comprehensive education  $40 \times 40$ " (*Currículo para la excelencia académica y la formación integral 40 × 40*), which extends the school day in public schools, creating opportunities for arts, sports, and PA practice. <sup>35</sup> By 2015, around 254,991 students were involved in this initiative. <sup>35</sup> An effectiveness evaluation of this initiative showed that a higher proportion of children from schools with the "40 × 40 program" reported meeting PA guidelines compared with those from schools without the program (63% vs. 50%). <sup>36</sup> Furthermore, Bogotá has a policy on school transport that promotes active transportation—walking or biking—among children and youth who live within 2 km from the

school. The component that promotes biking is called "Al colegio en bici" and comprises bicycle loans to the students, training in basic cycling skills, and participatory design of the routes to arrive to school.<sup>37</sup> Finally, another promising strategy is "Muévete Escolar," a program that promotes PA in the school setting through information, education, and communication strategies, curriculum integration, and recess-time interventions. The active recess component was evaluated through a natural experiment with accelerometry. The results of the study suggested that the recess intervention increased MVPA by 6 minutes among those children who attended the program, compared with the controls (P = .0049).<sup>38</sup>

# Community and Built Environment: C

A grade of C was assigned to the community indicator. The RWG considered that the grade could increase from *INC* in 2014 to *C* in 2016, based on policy documents and reports on the existing programs at the community level. The main criteria to assign the grade were 1) an important increase in the number of *Ciclovía* programs in Colombia from 110 in 2014 to 135 in 2015.<sup>23</sup> Ciclovías promote PA, recreation, and leisure time activities using public spaces, and create opportunities for being active, for all ages and all SES groups.<sup>33</sup> Ciclovía users have higher PA levels, higher quality of life scores, and better perceptions of safety than nonusers; 33,39,40 and 2) the national program of Healthy Habits and Lifestyle run by *Coldeportes*, which offers regular sessions of PA led by trained instructors in public spaces, for all ages. During 2015 the program was implemented in 20 out of the 32 departments of Colombia, and in 6 capital cities, involving around 350,500 children and 1400 schools. Therefore, the RWG considered that the environments and policies in Colombia are supporting PA promotion; however, these initiatives require more evaluation to better understand their impact on children's PA.

#### Government: B

A grade of *B* was assigned to the national policies indicator. The grade remained from the first report card considering 1) the broad policy framework supporting PA from a multisector perspective, including social development, sports, education, transport, and health sectors in Colombia; <sup>30,41–44</sup> 2) a new policy line for sports and social development was included in the 2014–2018 National Development Plan, to establish government commitment to providing access to PA programs as a means of building social cohesion in the postconflict era; and 3) despite gaining a place in the political agenda, the national investment in PA and sports for 2016 was reduced by 50% compared with the budget for 2014. As evidenced in the first report card, there remains a significant gap between written policies and specific actions.<sup>8</sup>

## Departmental Policies: B

A grade of *B* was assigned to the departmental and local policies indicator. The RWG based the grades on the most recent policy documents released by the new governments at the departmental level in Colombia. In 2016 the new governments released their Development Plans, and most of them maintain PA initiatives, mainly in leisure and transport domains. The experts considered that this represents an advance in a context where these initiatives depend on the political will of the new governments, and this advance is reflected on an increase in the grade from a *C* in the previous report card.

# Nongovernment Initiatives and Strategies: C

A grade of *C* was assigned to nongovernment initiatives and strategies. This grade improved from a *D* in 2014, taking into account an increase in the amount of initiatives and strategies to promote sports among children, as perceived by the experts. Most of these programs use soccer to engage at-risk populations to participate in community welfare programs. Some of the programs that aim to contribute to social change through soccer are *Golombiao*, *Tiempo de juego*, *Fútbol con corazón*, *Goles para una vida mejor*. However, evaluation of the impact of these initiatives on specific outcomes is necessary.

# Overweight: C

Since ENSIN 2010, there have been no recent nationally representative studies that assessed the prevalence of overweight among children and adolescents in Colombia. For this reason, the data source for this indicator is the same used for the first version of the report card and the grade of C remained, considering: 1) the apparently low, but not negligible, prevalence of overweight among children and youth (13.7% and 13.2%, respectively); 15 2) the sex disparity in the prevalence of overweight, indicating a higher prevalence among females than males (14.7% vs. 12.2%, P < .001); 15 3) the differences in the prevalence of overweight according to socioeconomic status (SES), indicating a higher prevalence of overweight among children from higher SES families (16.6% vs. 11.4%, P < .001);<sup>15</sup> 4) the substantially above average prevalence of overweight in particular departments, such as San Andres (19.1%), Cauca (18.7%), Vaupés (18.1%), Bogotá (16.4%), and Guaviare (15.9%); 15 and 5) the limited number of strategies that have been specifically implemented to prevent overweight among children and youth.

# Obesity: C

The Obesity indicator grade decreased from a *B* in 2014 to a *C* in the 2016 Report Card. The main source of data for this indicator was ENSIN 2010. According to ENSIN, the obesity prevalence rates among children (5–12 years) and adolescents (13–17 years) were 5.2% and 3.4%, respectively. Higher prevalence rates of obesity in departments, such as San Andres (12.0%), Guaviare (6.5%), Valle del Cauca (6.1%), Santander (5.7%), and Guainía (5.5%), were also considered. The experts also considered the limited implementation of the Obesity Law. For that reason, the grade decreased compared with the previous report card. We did not follow the standard procedure on this indicator because this is not part of the core indicators. The experts also considered that despite having one of the lowest obesity prevalence rates in Latin America, timely interventions to promote PA and improve Colombians' dietary habits are needed to prevent an increase in obesity among children.

# Low Physical Fitness: INC

Physical fitness is a powerful indicator of cardiometabolic health status, which also tracks more strongly than PA from childhood into adulthood. A grade of *INC* was assigned to the fitness indicator considering the limited data available for the country. However, the RWG highlighted the surveillance efforts from cities, such as Bogotá, A Bucaramanga, and Cali, to measure the cardiorespiratory fitness of children and youth. A recommended healthy fitness zone for cardiorespiratory fitness, below which the risk of chronic diseases is elevated, was used to assess the local data for

Colombia. Local evidence from the cities of Bogotá showed that 55% of the children and adolescents from Bogotá were under the healthy fitness zone. AT Similarly, studies from Cali and Bucaramanga showed that  $60\%^{50}$  and  $73\%^{49}$  of girls and  $52\%^{50}$  and  $72\%^{49}$  of boys did not achieve the healthy fitness zone, respectively.

The theme for the 2016 Colombia Report Card was the role of PA, active play, and sports in the context of peace-building processes and social development (Figure 1). Promoting PA in Colombia has been a main concern in the country's political agenda to improve public health and recently, sports and other forms of PA have been considered as catalysts for peace-building processes.<sup>20,30</sup> In a postconflict setting, strategies to support social inclusion, peaceful coexistence, and strengthening of human capabilities, will be needed to achieve sustainable peace. Among those strategies, PA and sport-related initiatives targeted at children and youth will have an important role. PA and involvement in sports from an early age may contribute to preventing drug consumption and delinquency, strengthening civic engagement, promoting youth empowerment and social cohesion,<sup>52</sup> and developing skills, such as discipline and leadership.<sup>52</sup> Adding the "peace" topic to advocacy tools, such as the report card, may serve as a means of bringing policymakers, researchers, practitioners, and the community's attention to the nation's current situation of PA in a context where PA represents an opportunity to drive social change.

# Strengths and Limitations

The 2016 Report Card was developed by a RWG with participation from the main sectors related to children and youth PA. The systematic search of literature allowed the identification of local evidence on some of the indicators that could guide the national surveillance mechanisms to improve the data on PA at the national level. The participation of policymakers in the group of experts allowed the RWG to obtain gray literature and data on participation and the reach of the current programs. The inclusion of specific estimations on PA, sedentary behaviors, and overweight and obesity for the departments with extreme prevalence rates could contribute to guide policies at the local level.

Although grades are based on the best available data, there were significant research gaps and limitations. First, there is sparse national surveillance data for children and youth for PA levels, active transportation, active play, and fitness measures; nonetheless, data from ENSIN will be updated for future reports. Second, considering that the last sources of information are from 2005 and 2010, recent data for most of the indicators are needed to better understand the current PA situation. Third, considering that several policies and programs have been implemented, evaluation of the effectiveness of those policies and programs is necessary. Finally, in the context of social development, research on PA participation and social outcomes is needed.

#### Conclusion

The Report Card highlights the indicators where Colombia is improving as a nation and those in which more action or more evidence is needed to guide programs for PA promotion. Physical activity levels among Colombian adolescents are low, while sedentary behaviors are high. However, a strengthening of public policy programs to promote PA from diverse sectors (transport, education, and sports) is evident. In a political context where PA, sports, and play are seen as important contributors to peace building in both

urban and rural contexts, the promotion of policies and programs must continue. The potential benefits of PA programs for children and youth in the context of the political and social transition resultant of a peace process must be measured to guide government and nongovernmental efforts.

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