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

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Background: The 2016 Report Card on Physical Activity for Children and Youth, the first of its kind, aims to set baseline physical activity (PA) indicators using the Active Healthy Kids Global Alliance grading system. **Methods:** A research work group analyzed and selected data for the grade assignment meeting (GAM). During the GAM, 17 leading researchers and policy experts from Estonia assessed the data and assigned grades for each of the 9 PA indicators. In addition, recommendations were provided for further actions to improve the grades. **Results:** Grades from A (highest) to F (lowest) were assigned as follows: 1) Overall PA (F); 2) Organized Sport (C); 3) Active Play [incomplete data (INC)]; 4) Active Transportation (INC); 5) Sedentary Behaviors (F); 6) Family and Peers (C); 7) School (C); 8) Community and the Built Environment (B); and 9) Government (C). An indicator was marked as incomplete (INC) when there was a lack of representative quality data. **Conclusion:** Evidence suggests that PA levels of Estonian children remain very low, despite moderately supportive social, environmental, and regulatory factors. There are many challenges to overcome in supporting and promoting PA of children and youth (eg, cross-sectional cooperation, implementing interventions, changing social norms, empowerment of parents and educational institutions).

Keywords: child, health, advocacy, communication, activity guidelines

The importance of physical activity (PA) during childhood and adolescence has been internationally accepted.¹ Children aged 5 to 17 years should accumulate at least 60 minutes of moderate-to-vigorous intensity enjoyable PA every day.¹ Despite the well-established physical, social, and mental health benefits of PA, a great proportion of children and adolescents are still not physically active enough.² Similarly to many other countries, the low level of PA of children and youth is of great concern also in Estonia, as less than one-quarter of children are meeting international PA recommendations.^{3–5} As sedentary behavior has been shown to be an independent health risk factor,⁶ it is important to limit the amount of sedentary time to < 1 to 2 hours per day.⁷ To increase PA levels and reduce sedentary time in children and youth, there is a need to gather and assess available research data and use it for advocacy, policy, and program development purposes. There are still few objective studies with a representative sample of participants to assess the level of PA in Estonian children and youth. The Physical Activity Report Card has been shown to be an effective tool for consolidating existing national scientific evidence and to promote cross-sectional cooperation for advocacy purposes.⁸

The Estonian 2016 Report Card on Physical Activity for Children and Youth was completed by following the methodology used in similar international report cards;^{9,10} in particular, the Canadian Report Card released by Active Healthy Kids Canada.^{11,12} The Estonian Report Card provides the best available evidence related to 9 indicators of PA levels of children and youth as well as factors affecting PA at policy, environment, and social levels. The aim of the Estonian 2016 Report Card is to use the available research knowledge to increase PA of Estonian children and youth, and

to reduce sedentary behavior through driving social actions and policy changes.

The purpose of this article is to summarize the results of the first Estonian 2016 Report Card on Physical Activity for Children and Youth. Data from different academic and nonacademic sources collected from 2008 to 2016 were analyzed to assign the grades for each of the Report Card indicators.

Methods

The development of the Report Card was coordinated by the Institute of Sport Sciences and Physiotherapy at the University of Tartu by the invitation of Active Healthy Kids Global Alliance. Original publications, database info, key surveillance data, and surveys were gathered and evaluated by the research work group (RWG), which consisted of 8 PA experts from the University of Tartu. First, all studies concerning children and youth PA in Estonia were mapped by the RWG. Second, the quality and the representativeness of mapped studies were assessed by the RWG and then the final selections of studies to be included in the Report Card was made. For the grade assignment meeting (GAM), 17 national leading researchers and policy experts from different national health agencies, ministries, nongovernmental institutions, and universities were involved. Group works and panel discussion about the current situation, future direction, and challenges took place. Main recommendations made in the GAM were also presented in the Report Card.

The Estonian 2016 Report Card presented 9 indicators related to PA in Estonian children and youth: 1) Overall Physical Activity Levels—fulfillment of recommendations; 2) Organized Sport Participation; 3) Active Play; 4) Active Transportation; 5) Sedentary Behaviors; 6) Family and Peers—infrastructure, support, and parental/peer behaviors; 7) School—infrastructure, policies, and programs; 8) Community and the Built Environment—infrastructure, policies, programs, and safety; and 9) Government—strategies,

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policies, and investments. Each PA indicator was assessed by the GAM following the Active Healthy Kids Canada PA Report Card protocol,¹¹ where letter grades were assigned according to the following grading system: A = 81% to 100%; B = 61% to 80%; C = 41% to 60%; D = 21% to 40%; and F = 0% to 20%. In the case of insufficient representative quality data, the indicator was marked as incomplete (INC). The factors that were considered in the grading process included the sample size, the representativeness of the data, the quality of data, and the data collection period. The data sources for the indicators are presented in Table 1, while the cover of the first Estonian Report Card is presented in Figure 1.

Results and Discussion

The Estonian 2016 Report Card is the first annual assessment of PA for Estonian children and youth. It provides a synthesis of the available evidence on PA among children and youth, and sets the baseline for regular monitoring using report card methodology. Table 2 summarizes the letter grades for the 9 indicators of the report card. In the case of overall PA, Estonia has much to improve in order to promote a physically active lifestyle for children and youth. Each of the following sections will examine one of the indicators related to PA, the grade that was allocated, and the evidence which supported the grade. In addition, recommendations were proposed for further actions to improve the PA levels.

Overall Physical Activity Levels: F

The assigned grade for the Overall Physical Activity Levels indicator was *F*, indicating that the majority of Estonian children and youth do not meet the PA recommendations of a minimum of 60 minutes of daily moderate-to-vigorous physical activity (MVPA).¹ According to the HBSC 2014 study, only 16.4% of Estonians aged 11 to 15 years met the daily PA recommendations, with boys having higher PA levels (21%) compared with girls (12%).³ Objectively measured PA showed that 27% of 2- to 11-year-old boys and 13% of girls had at least 60 minutes MVPA per day on average.¹³ These findings are supported by more recent studies with accelerometers showing that only 11% of 7- to 9-year-old Estonian children fulfilled the PA recommendation every day^{4,14} and 24% of 7- to 13-year-old children had at least 60 minutes MVPA per day on schooldays.^{5,14}

These results clearly indicate that a contribution from the whole Estonian society is needed to promote the PA of children and youth. Recommendations made in the Report Card emphasized the importance of increased awareness about the PA recommendations in the whole society, and cooperation with different partners and organizations (eg, families, schools, local communities). Everyone needs to be held accountable and work together with the goal to provide children and youth with endless opportunities to be physically active, and to ensure that they are aware why being physically active is important for their health and well-being. Representative studies reporting objectively measured PA in different age groups (including preschoolers) should be performed. More importantly, intervention studies to increase the level of daily PA in children and youth should be prioritized.

Organized Sport Participation: C

The Organized Sport Participation indicator was graded *C* as approximately one-half of Estonian children and youth participated in organized sport. Based on the Estonian Sports Register database, 37% of Estonian children aged 0 to 19 years were engaged

in organized sport.¹⁵ However, as the Estonian Sports Register provided data only as 1 age group (0–19 years),¹⁵ 37% is probably underestimating the real situation. This opinion is also supported by a few studies looking at the frequency of sport participation where 60% to 64% of 7- to 14-year-old children and youth participated in organized sport at least once or twice per week^{14,16} and only 26% at least 3 times per week.¹⁴ In addition, notable gender differences appeared: 45% of boys but only 28% of girls were engaged in organized sport.¹⁵ These findings highlight the need to increase participation in organized sport. Special focus on supporting girls' participation in organized sport is needed. Report Card recommendations pointed out that it is important to offer alternatives to traditional competitive and 1-sport specific training groups with the purpose to enable children to be familiarized with different sport disciplines and just enjoy being physically active with peers. In addition, accessibility and affordability are important factors influencing participation in PA and should be addressed. Further research should focus on the quality, motivational aspects, and drop-out reasons of organized sport.

Active Play: INC

The Active Play indicator was graded *INC* due to a lack of data. According to 1 survey, one-third of sixth-grade children reported being never or rarely active outdoors during leisure time.¹⁶ This indicates that more effort should be made in promoting and supporting active play in families, educational facilities, and communities. One important aspect is creating an environment that favors active play. More thorough research is needed about the current situation concerning active play, barriers, and supporting factors in different environments at home and in school. Estonian specific conditions like the Nordic climate should be also addressed.

Active Transportation: INC

The Active Transportation indicator was graded *INC* owing to the lack of data. Active transportation was studied only in 1 survey showing that less than one-half of first-graders and one-third of preschoolers went to school or kindergarten on foot.¹⁷ The average distance for those children who used bicycle or walked to and from school was 1 to 1.5 km.¹⁷ More research is needed to describe the current situation. Based on this inconsistent data, it seems that parents' education and changing social norms are important challenges to develop this area. In addition, safe and supportive environment should be promoted. School surroundings, environment, and urban planning should offer active transport opportunities.

Sedentary Behaviors: F

The Sedentary Behaviors indicator was graded *F*. According to the HBSC study, only 17% of Estonian 11- to 15-year-old children spent less than 2 hours per day watching TV or using a computer on weekdays and 9% on weekend days.³ Only 7% children had < 2 hours screen time daily.³ As for objectively measured sedentary time, 7- to 9-year-old and 10- to 13-year-old children spent more than one-half of their awake hours as sedentary (54% and 62%, respectively).¹⁴ Reducing sedentary time is a serious challenge which needs a multicomponent approach: parent education and role models, rules at home and school, and exciting and active alternatives during leisure time. Further research is needed for objectively measured context-specific sedentary behavior and to provide interventions for reducing sedentary time during the school day and free time.

Table 1 Main Data Sources

Data source	Methods, subjects' age, year of measurement and sample size	Variables and their contribution to PA indicators (1–9)*
Health Behavior in School-aged Children (HBSC) Study	Survey of children aged 11, 13, and 15 years, Estonian data, 2013/2014 (n = 4057) ³	<ul style="list-style-type: none"> - Fulfillment of recommendation related to PA (60 mins of MVPA/day, 7 days per week) (1) - Screen time (5)
Health Promotion Effectiveness in Schools in Estonia 2012–2015	Survey of sixth grade school children aged 11–14 years, 2012–2015 (n = 1033) ¹⁶	<ul style="list-style-type: none"> - Fulfillment of recommendation related to PA (60 mins of MVPA/day, 7 days per week) (1) - Participation in organized sports at least twice a week (2) - Active outdoor leisure time after school hours (rarely or never) (3) - Doing sport with friends. Parental praise for being physically active and parental support for transporting children to training sessions (6) - Possibilities to be physically active during in-school break times. Teachers speaking about the benefits of PA. Opportunities for PA during after-school hours at school (7) - Having a neighborhood playground or other suitable place for playing outdoors. Perceiving the neighborhood as safe (8)
Children's Physical Activity Study	Objectively measured PA of children aged 7–13 years, 2015 (n = 636) ¹⁴	<ul style="list-style-type: none"> - Fulfillment of recommendation related to PA (60 min of MVPA/day, on school days) (1) - Participation in organized sports at least once a week (2) - Participation in organized sports at least 3 times a week (2)
Estonian Sports Register Database, records for the year 2014	Database inquiry for children and youth aged 0–19 years, 2014 (n = 269,386) ¹⁵	<ul style="list-style-type: none"> - Participating in a sports club or a sports school (2)

(continued)

Table 1 (continued)

Data source	Methods, subjects' age, year of measurement and sample size	Variables and their contribution to PA indicators (1–9)*
Identification and prevention of Dietary- and lifestyle-induced health EFfects In Children and infantS (IDEFICS Study)	Objectively measured PA in 2007–2008 and 2010–2011 in children aged 2–11 years (n = 1398) ¹³	- Objectively measured MVPA (average of 60 mins of MVPA/day, 7 days per week) (1)
	Survey of children aged 2–11 years in 2007–2008 (n = 1840) ¹⁷	- Walking to and from school or kindergarten (4)
		- Distance for walking or bicycling (4)
Study about Health Determinants in Community 2011	Survey of adults, aged 15–70 years, 2011 (n = 9668) ¹⁸	- PA of parents with children for more than 30 mins at least once week (6)
		- Adults perceiving their neighborhood as safe (8)
Learning Environment of Physical Education in Estonian Schools	Survey among Estonian schools, 2008 (n = 344) ²¹	- Evaluation of the learning environment for physical education (7)
Resources for Sporting in Schools 2013	Survey among Estonian schools, 2013 (n = 621) ²²	- Participation in after-school PA at school (7)
Sport and Physical Activity, Special Euro-barometer 412	Survey among European Union countries, Estonian data, 2013 (n = 1012) ²³	- Adults perceiving their neighborhood as safe (8)

* Indicators: 1) Overall Physical Activity, 2) Organized Sport Participation, 3) Active Play, 4) Active Transportation, 5) Sedentary Behaviors, 6) Family and Peers, 7) School, 8) Community and the Built Environment, 9) Government.

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

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

Indicator	Grades
Overall Physical Activity Levels	<i>F</i>
Organized Sport	<i>C</i>
Active Play	<i>INC</i>
Active Transportation	<i>INC</i>
Sedentary Behaviors	<i>F</i>
Family and Peers	<i>C</i>
School	<i>C</i>
Community and the Built Environment	<i>B</i>
Government Strategies and Investments	<i>C</i>

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

Family and Peers—Infrastructure, Support, Parental/Peer Behaviors: *C*

The Family and Peers indicator was graded *C*. Based on a survey among sixth-grade schoolchildren, 61% had friends to do sport with and 64% had friends who invited them to play outdoors or to

do sport together.¹⁶ About three-quarters of sixth graders got praise from their parents for being physically active and had parents who acknowledged the importance of daily PA.¹⁶ One-third of children reported that parents provided them support by transporting them to the training sessions.¹⁶ Almost one-half of adults with children were physically active at least once a week for more than 30 minutes.¹⁸ Recommendations presented in the Report Card highlighted the need for parental empowerment in supporting the PA of children and to be physically active as a family. There is a lack of information concerning the frequency and type of PA that children do with their peers and family.

School—Infrastructure, Policies, and Programs: *C*

The School indicator was graded a *C*. According to Estonian national curriculum, physical education (PE) classes are compulsory for all students (90–135 minutes per week depending on age) and also in kindergarten.^{19,20} One-half of Estonian schools considered the learning environment for PE to be good and 10% very good.²¹ Alarming, less than one-half of sixth-grade schoolchildren reported that they had the possibility to be physically active during in-school break times.¹⁶ At the same time, 51% found that there were enough PA opportunities after-school hours at school¹⁶ and 13% of students participated in PA clubs during after-school hours at school.²² As children with different socioeconomic backgrounds can be reached in school, supporting the PA of children and youth in school should be one of the national priorities considering the health perspectives and the goal of lifelong PA. From a research perspective, the focus on intervention studies should be prioritized.

Community and the Built Environment—Infrastructure, Policies, Programs, and Safety: *B*

The Community and the Built Environment indicator was graded a *B*. The majority of respondents believed that their neighborhood was safe (85% of adults¹⁸ and 69% of children¹⁶) and offered them opportunities for PA (78% of adults and 71% of children).²³ These findings are somewhat contradicting when considering very low overall PA rates. At the same time, a safe environment is not the only factor that supports PA. There is also a need for accessible sporting facilities. Unfortunately, in some regions in Estonia the sporting facilities do exist but their accessibility is limited—they are not open throughout the day or are not free of charge. Also in some regions the infrastructure does not support active transport. When developing existing and building new environments, it is necessary to take into account peoples' different needs for PA (eg, special needs, rural areas, different age and socioeconomic groups).

Government—Strategies, Policies, and Investments: *C*

The Government indicator was graded a *C*. The Estonian government approved in 2015 “The General Principles of the Estonian Sports Policy until 2030,”²⁴ which states main developmental directions and aims for PA with emphasis on lifelong PA. Steps have been taken to support the PA of children (eg, increasing in-school PA, financially supporting youth sport systems, developing sport centers and recreation tracks in collaboration with the private sector). Currently under discussion is the development of PE curriculum emphasizing more physical literacy focusing on motivation and lifelong PA. A number of campaigns have been carried out to support PA, like “Movement year 2014,” “Let’s move!,” and Europe-wide

sports week at schools in 2015. One of the challenges of the Estonian government is to improve cooperation between different ministries and the cross-sectorial networking focused on supporting the PA of the whole population, especially of children. Hopefully the fact that Estonia is a small country (approximately 1.3 million inhabitants) can support the within-Estonian cooperation, networking, and efforts. The first steps have been promising; a national pilot program to increase school-time PA is being developed and tested by an initiative from the University of Tartu in cooperation with the Ministry of Education and Science and the Ministry of Social Affairs. The Estonian national pilot program is based on a whole-school approach including PE lessons, recesses, academic lessons, and active school transport. School networking, the involvement of school personnel, and the involvement of students are important components of the program. This practice-based approach is supported by a monitoring and evaluation of the process and effectiveness of the intervention.

Strengths and Limitations

The strength of the Estonian 2016 Report Card is a truly representative GAM group that consisted of 17 national leading researchers and policy experts. Although the grades in the Estonian Report Card are based on the best available data, several research gaps remain. There was incomplete data for 2 indicators: active play and active transportation. In the case of several indicators, there was a lack of data for different age groups.

Conclusion

The Estonian 2016 Physical Activity Report Card is the first consolidated overview of the PA situation among Estonian children and youth. The Report Card shows that the overall PA levels are very low among Estonian children and youth. Although there are some indicators which demonstrate promising results, a grade of *F* was assigned to overall PA and sedentary behaviors. Therefore, there are many challenges to overcome in supporting and promoting the PA of Estonian children and youth. In addition, there is a need for a more thorough research concerning active play and active transportation indicators. The results of the present Report Card emphasize the need for cross-sectorial cooperation between governmental and nongovernmental organizations to develop intervention strategies and programs in different settings (school, family and peers, community, and built environment) contributing to PA behavior of children and youth.

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