



# **ACTIVE HEALTHY KIDS SWEDEN 2016**

On Physical Activity for  
Children and Youth



**Karolinska  
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# Active Healthy Kids Sweden 2016

## On Physical Activity for Children and Youth

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# Background

The Nordic Nutrient Recommendations (NNR) provides guidelines for both children and adults regarding dietary composition and recommended nutrient intakes as well as levels of physical activity.<sup>1</sup> In the NNR, based on the physical activity guidelines from WHO, 60 minutes a day of moderate to vigorous physical activity (MVPA) is recommended for children and adolescents,<sup>1,2</sup> however no specific recommendation is provided for sedentary behavior, it is just stated to reduce these activities.


Worldwide, trends in the number of children who are overweight or obese have been increasing since the 1970s<sup>3</sup> and Sweden is no exception. Although there has been some Swedish reports indicating that the prevalence is levelling off, or stabilising in children,<sup>4,5</sup> in the past 30 years the number of overweight children has doubled.<sup>6</sup> As a combination of low physical activity and large amounts of sedentary behavior are related to overweight and obesity,<sup>7</sup> the compilation of this data is important for policy makers, researchers, and various stakeholders in order to assess problem areas and intervene in appropriate ways. The Active Healthy Kids Report Cards from Canada<sup>8-10</sup> and Scotland<sup>11</sup> have shown to be an effective and efficient method to summarize the available literature, which will hopefully aid in the adoption and creation of physical activity strategies and policies that are most appropriate for Swedish children and adolescents.

The Active Healthy Kids Swedish working group was established in 2015 to review and compile the most recent available literature for Swedish children and youth, and assign grades to 11 indicators:

- overall physical activity
- sedentary behavior
- organized sport participation
- active transportation
- school
- community and the built environment
- government strategies and investments
- active play
- family and peers
- diet
- overweight and obesity







## Grading system

Each of the 11 indicators were assigned a grade representing the percentage of children and adolescents meeting a defined benchmark. If there was no data or insufficient data for an indicator it was marked as incomplete (INC). A plus (+) or minus (-) was assigned if an indicator was not clearly within a defined letter value.

A:	81-100%
B:	61-80%
C:	41-60%
D:	21-40%
F:	0-20%
INC:	Incomplete



# Overall physical activity

## D

Due to differences found within the number of children reaching the goal of 60 minutes of moderate to vigorous physical activity (MVPA) per day, throughout childhood and adolescence, three age groups were created and a subsequent grade was given to each age group. In pre-schoolers, when using accelerometers, 12% of girls and 22% of boys reached 60 minutes of MVPA per day.<sup>12</sup> For school aged children, when using self-report in this age group, 13% of girls and 21% of boys aged 11 years reached 60 minutes of MVPA.<sup>13</sup> When using objective measures for this age group, the results are inconsistent with the most recent study, the IDEFICS study (Sweden), showing that 43% of boys and 18% of girls aged 8-9 years met the MVPA recommendation.<sup>12</sup> Three older reports in this age group used lower cut-points for MVPA and reported that as many as 93-100% of 8-11 year old children (boys and girls) fulfilled the recommendation.<sup>14-16</sup> For adolescents, 10% and 15% of 13 and 15 year olds reached the allotted 60 minutes.<sup>13</sup>

### Age specific grades:

Age 2-5: D  
Age 6-11: C+  
Age 12-15: F





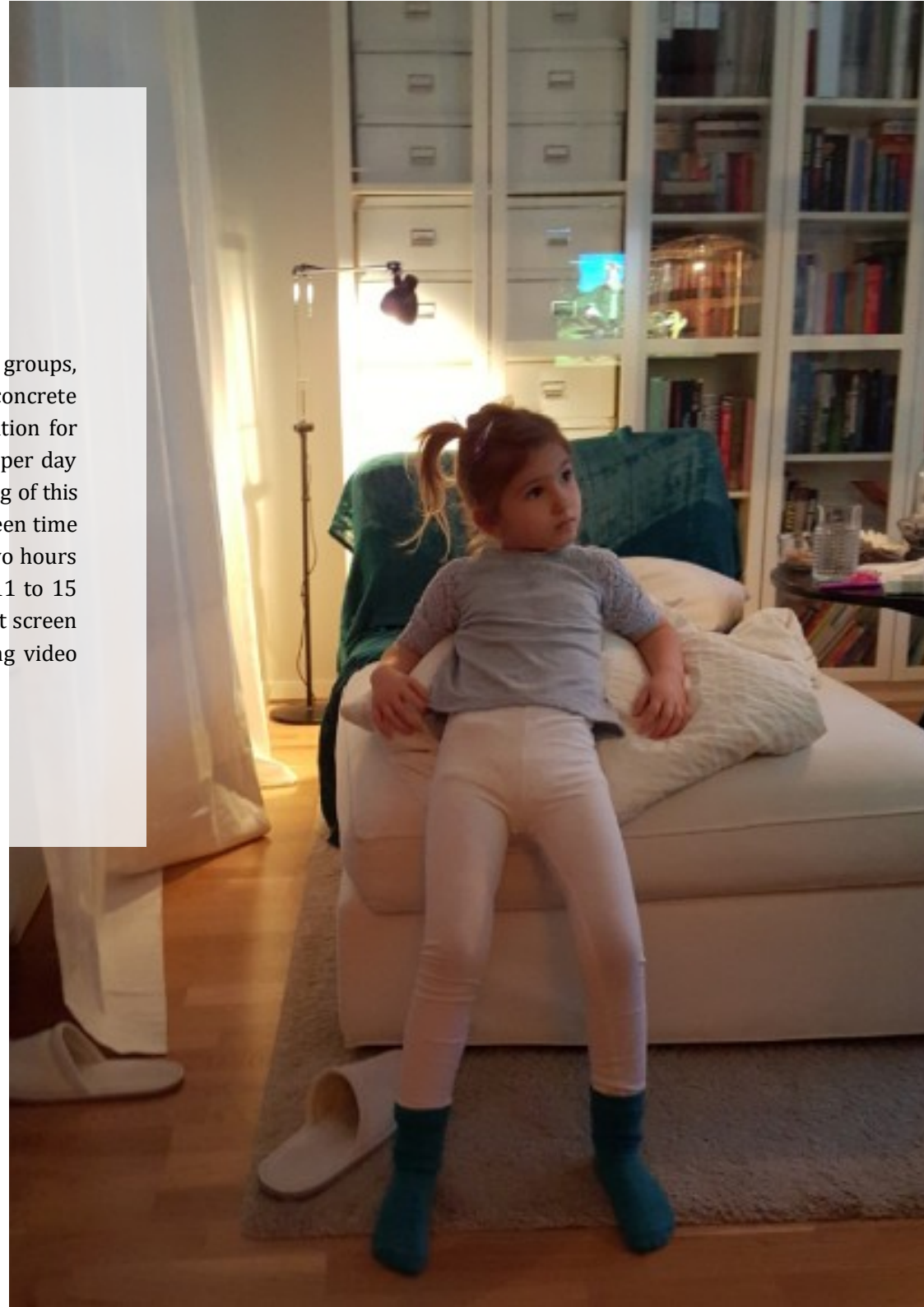
# Sedentary behavior

## C

Similar to overall physical activity there were differences seen between the age groups, therefore a grade was assigned to each age group. As Sweden does not have a concrete recommendation for sedentary behaviour, we applied the Canadian recommendation for sedentary behavior which is no more than two hours of recreational screen time per day for children aged 5-17<sup>12</sup>, and one hour for children aged 2-4 years<sup>12</sup> in the grading of this indicator. For pre-schoolers, between 33% and 40% had less than one hour of screen time per day.<sup>12</sup> For school aged children, 47% of boys and 71% of girls had less than two hours of screen time per day.<sup>12</sup> According to the HBSC survey<sup>13</sup> approximately 62% of 11 to 15 year olds had less than two hours of screen time per day. It is important to note that screen time in both studies included questions regarding TV or DVD viewing and playing video games.

### Age specific grades:

Age 2-5:	D
Age 6-11:	C+
Age 12-15:	C







## Organized sport participation

Due to a lack of data in this area, only children and adolescents aged 11 to 15 were included. According to the HBSC survey<sup>13</sup> approximately 75% of 11 to 15 year olds participate in organized sport at least two times per week. The highest participation was seen in 11 year old boys at 82% and lowest in 15 year old girls at 70%.



B+



# Active transportation

For children aged 6 to 15 about 48% and 58% use active transportation to and from school, in the winter and summer months respectively.<sup>17</sup> A difference in the proportion of children walking and cycling was observed between the winter months (November to March), and the summer months (April to October). More children walk during the winter and cycle during the summer.<sup>17</sup>

C+







## School

The Education Act<sup>18</sup> includes pre-school and after school childcare and emphasizes the promotion of a healthy lifestyle among children. Physical education is mandatory in both primary and secondary schools in Sweden (a minimum of 90 and 115 minutes a week respectively).<sup>19</sup> Furthermore, home and consumer studies is mandatory for all children aged 13 years and older.<sup>19</sup> Finally, all schools have to provide a nutritious lunch to every child throughout the compulsory nine years of school, free of charge.<sup>18</sup> The free school lunch program became mandatory for all municipalities in 1997, but has existed since 1948.

C+



# Community and the built environment

A large proportion of children and youth feel safe in their neighborhood. Approximately 98% and 88% of children and adolescents between 10 and 18 years of age report feeling safe outside where they live during the day and at night, respectively.<sup>20</sup> The distance between home and school is within walking or cycling distance for most children. In Sweden, 59% of school aged children have less than two kilometers between their home and their school. This proportion has remained relatively constant since 2003.<sup>17</sup> The traffic safety along children's school routes is an area where improvements can be made, as only 51% of parents perceive that their child's route to school is safe.<sup>17</sup> Furthermore, all Swedish municipalities have a master plan for their long-term urban planning, and 29% report having sustainable urban mobility plans to help design safe and supportive environments for sustainable transportation modes, such as walking and cycling.<sup>21</sup> Finally, the proportion of children between 0 and 15 years of age living in urban areas (with at least 30 000 inhabitants) and having access to greens pace within 300m from their home varies between 94% and 100%.<sup>22</sup>



B







## Government strategies and investments

Physical activity and a healthy diet are two out of eleven objective domains of the national public health policy. National policy documents have a life-course approach and increase accountability through cross-sectional approaches.<sup>23</sup> These include “Sports for Life”<sup>24</sup> and “Sports Wants”<sup>25</sup> as well as a strategic plan for the collaboration between the Sports Confederation and schools in order to promote sports in schools.<sup>26</sup> The agencies responsible for transportation and urban planning have policies and guidelines addressing physical activity and active transportation. Furthermore, in Sweden there is “The Right of Common Access” which is guaranteed in the Swedish Constitution since 1994 and allows everyone to move around freely in the countryside.<sup>27</sup>



B



# Active play Family and peers

INC

Currently, in Sweden there is insufficient data for these two indicators, therefore a grade of incomplete was assigned.







## Diet C-

We split the diet into three domains: fruits and vegetables, fish and sugar sweetened beverages, that represent healthy and unhealthy eating behaviours respectively. Fruits and vegetables received an F because less than 20% of four-year-olds consumed the recommended 400g per day.<sup>28</sup> Furthermore, the frequencies of fruit and vegetable consumption in the NFFQ<sup>29</sup> and the HBSC survey<sup>13</sup> demonstrate that few children are fulfilling the recommendation (500g per day for children older than ten years). In regards to fish consumption, approximately 43% of children ate fish for lunch or dinner twice per week.<sup>29</sup> When comparing the Swedish Dietary Survey 2003<sup>28</sup> and the NFFQ<sup>29</sup> (2011) there is some evidence suggesting that sugar sweetened beverage consumption is decreasing. Finally, based on questions regarding sugar sweetened beverages and sweets the NFFQ<sup>29</sup> concluded that approximately 50% of children fulfill the recommendation of less than 10% of their total energy from added sugar. Therefore, an overall grade of C- was assigned to the diet indicator.

### Specific grades:

Fruits & Vegetables: **F**

Fish: **C**

Sugar sweetened beverages: **C**



# Overweight and obesity

In four year olds in Sweden, approximately 10%-15% are overweight or obese as defined by BMI.<sup>30,31</sup> A recent study in 8 and 12 year olds found that 12% of boys and 11% of girls at eight years of age, and 16% of boys and 13% of girls at 12 years of age were overweight or obese.<sup>32</sup> According to the HBSC international report<sup>33</sup> 11% of 11 year olds, 13% of 13 year olds, and 16% of 15 year olds were overweight or obese. Even though recent studies indicate that the prevalence of overweight and obesity has decreased in 8 year old children, and remained approximately the same in 12 year olds, it is still far too high.<sup>32</sup>

A close-up photograph of a child's hand holding a white bowl filled with pink ice cream. The bowl has a colorful fruit pattern. The child is wearing a blue shirt. A large teal circle with a white letter 'D' is overlaid on the bottom right of the image.

D





## Comments

Although the grades for the 11 indicators were based on the best available data, there were several limitations for this report. First of all, many of the Swedish studies regarding physical activity and sedentary behavior only reported the average amount of time that children spent in each physical activity category, and were therefore excluded from this report. Due to lack of time it was not possible to contact each research group to find out this information, but this will be possible for future report cards.

## Future research and actions

Sweden needs to use objective measures in national level surveillance.

In regards to active transportation and the built environment, collaboration between the health and the urban planning sectors is one possible way to improve the environment for physical activity. There is also a need for more national data on supportive environments for active transportation for children. Even though many policies exist, further work needs to be conducted to evaluate the implementation of those policies.

More research within the school environment also needs to be conducted to investigate if the policies are being fulfilled.

A specific recommendation for sedentary behavior would be very helpful in order to appropriately assess Swedish children.

Finally, two indicators, active play and family and peers are two areas in which gaps in the research were found, and where research needs to be performed.



# Conclusion

The included data provides some support that overall physical activity is too low and sedentary behavior is too high for almost all age groups investigated in the Sweden Report Card 2016 on Physical Activity for Children and Youth. These grades should be interpreted cautiously due to the limited number of included studies and the limitations involved in both self-reported and objective measures. However, this report card shows that many national level policies as well as the community and some features of the built environment are favorable in promoting physical activity in children and adolescents.

**For further information please visit our website:** <http://ki.se/activehealthykids-sweden>

At the website, information about our network (AHKGA) as well as the scientific article that this report is based on, is provided.







# Summary

**Table 1.** Summary of Indicator grades

Indicator	Grade
Overall physical activity	D
Sedentary behavior	C
Organized sport participation	B+
Active transportation	C+
School	C+
Community and the built environment	B
Government strategies and investments	B
Active play	INC
Family and peers	INC
Diet	C-
Overweight and obesity	D

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. A plus (+) or minus (-) was assigned if an indicator was not clearly within a defined letter value.



# Main data sources

**Table 2.** Relevant data between 2005 and 2015 was included in this report card for children and adolescents aged 0-18 years. For overall physical activity and sedentary behavior, only studies that provided estimates of the percentage of children and adolescents meeting the recommendations were included. Besides the studies included in the table below, relevant policy documents were also used when applicable.

Data source	Description
Kovacs et al. (2014) <sup>12</sup>	ActiGraph GT1M, 2-9 years (n=553, PA and n=1750, SB)
Pagels et al. (2014) <sup>14</sup>	ActiGraph GT3x+, 7-14 years (n=196)
Lofgren et al. (2010) <sup>15</sup>	MTI accelerometer model 7164, 7-9 years (n=232)
Dencker et al. (2006) <sup>16</sup>	MTI accelerometer model 7164, 8-11 years (n=229)
De Munter et al. (2016) <sup>32</sup>	Population based cross-sectional survey investigating obesity prevalence
Health Behavior in School-aged Children <sup>13</sup>	Questionnaire for children aged 11, 13, and 15 years (n=8000)
The National Dietary Survey <sup>28</sup>	Questionnaire for children aged 4, 8, and 11 year olds (n=2500)
Nordic Monitoring Survey of Food <sup>29</sup>	Questionnaire for 7-12 year olds (n=499)
Children's Routes to School <sup>17</sup>	Questionnaire for parents of children aged 6-15 (n=1730)





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