Is our youth cycling to health?

Dutch 2016 Report card on Physical Activity for Children & Youth

ACTIVE HEALTHY KIDS the Netherlands

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Results from the Dutch 2016 Report Card on:
Physical Activity for Children and Youth.

Wilhelmina Kinderziekenhuis

SPORT & SOCIETY

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the Netherlands

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Contents


Mountainbike
Buitenspoor Noord

Methodology & Data Sources

The principal investigator and project manager formed an research working group together with six researchers of the University Medical Centre Utrecht, Utrecht University and Utrecht University of Applied Sciences.

An expert group was formed with inclusion of the National Institute for Public Health and the Environment (RIVM), Mulier Institute, Dutch Olympic Committee* Dutch Sports Federation (NOC*NSF), Windesheim University of Applied Sciences, Maastricht University, Knowledge Centre for Sports Netherlands (KSC), and advising roles for the Dutch Society for Physical Education (KVLO), Primary Education Board (PO-Raad), Vocational Education and Training Board (MBO Raad) and Municipality of Utrecht (Dept. of Public Health) (see page 2).

Both the research group and expert group were responsible for the interpretation and evaluation of the data sources and evidence and decided on definitions and benchmarks of the indicators for the grading. Both groups were also responsible for the final grading. The principal investigator, project manager and the research assistants formulated the recommendations. The research working group evaluated these recommendations in their review of the report. It was decided to only include the required nine indicators from the Active Healthy Kids Global Alliance framework (www.activehealthykids.org) with no additional indicators. The process followed that of Active Healthy Kids Canada.[1]

For the evaluation of the indicators, data for the period 2010 up to 2014 were included. When available, we used data from national surveys conducted by Statistics Netherlands (CBS) and the RIVM as primary data sources. If these sources could not provide the required data to grade an indicator, data from other (semi) government sources were used (e.g. Dutch Organization for Scientific Research (TNO), Netherlands Institute for Social Research (SCP), Mulier Institute) or data from non-governmental organizations (Jantje Beton, Maastricht University and Institute for Health and Care Research EMGO+).

Grades were based on examination of the current data and literature for each indicator against a benchmark (see summary of indicators & grades) or optimal scenario, assessing the indicator to be poor, adequate, good or excellent:

Grades

A = We are succeeding with a **large majority** (81-100%) of children and youth.

B = We are succeeding with well **over half** (61-80%) of children and youth.

C = We are succeeding with **about half** (41-60%) of children and youth.

D = We are succeeding with **less than half** (21-40%), but some, children and youth.

F = We are succeeding with **very few** (0-20%) children and youth.

INC = Incomplete. **Not enough available evidence** to assign a grade to the indicator or absence of clear well-established criteria.

Some indicators are stand-alone, while others are comprised of several components (see summary of indicators & grades).

Table 1 gives an overview of the primary data sources used to inform the grades assigned to each indicator and describes specific survey characteristics.*

The report card gives an overview of the most recent relevant key findings on which the grading was based and gives an overview of relevant overall key findings as additional information/background in relation to the indicator.

* Note: Several documents have been used for (non-) government strategies and investments. The majority of documents are descriptive and it would be too elaborate to present these documents in this table.

Name of survey and institution	Survey description	Year/s data collected, concerning Report Card	Sampling method		N	Ages	Indicators informed	Survey Questions /components related to indicators
Lifestyle Monitor (National Health Survey) CBS & RIVM [9,13]	Several lifestyles themes are gathered annually: smoking, alcohol, drugs, exercise, nutrition, weight status, sexual health, accidents	2010-2014	Annually Sample size from Basic Person Registration spread over the year		2010 n = 408 2011 n = 365 2012 n = 437 2013 n= 486 2014 n = 706* *Numbers correspond to the sub selection of participants with age 12-17 years.	≥12 years	Overall Physical Activity Levels Organized Sport Participation Active Transportation Family and Peers	> Consider a normal week in the past month. Could you indicate how many days per week you participated in these activities and how much time on average you were engaged in these activities? * Walking to/from school or work Days, hours, minutes * Cycling to/from school or work Days, hours, minutes *Physical activity at work or school * work of low and moderate intensity (sitting/standing work, with occasional walking, for example office work or a walking job with light loads * work of high intensity (walking job or work in which heavy loads have to be lifted regularly) Hours per week *Household activities *Household activities of low and moderate intensity (standing activities, for example cooking, doing dishes, ironing, feeding/bathing child. Walking activities for example vacuuming, doing groceries). *Household activities of high intensity (scrubbing floors, carpet beating, walking with heavy loading). Days per week, average time per day > Consider a normal week in the past months. Could you indicate how many hours on average you were engaged in this activity? * Physical activity at work or school Number of hours per week *Leisure time * hobby * walking * cycling * gardening * home repairs Days per week, average time per day > How many days per week you engage in [selected sports]? > How much time on average are you engaged in that sport [selected sport]? > How many weeks per year are you engaged in that sport [selected sport]?
TNO OBiN (Accidents and Movements in the Netherlands) [5]	OBiN monitors sports injuries, sports participation, exercise behavior and sedentary behavior; a continuous national survey	2010-2014	Continuous national annual survey		2010 n = 1683 2011 n = 1441 2012 n = 1780 2013 n = 1702 2014 n = 1497 *Numbers correspond to the sub selection of participants with age 4-17 years.	≥ 4 years	Sedentary Behaviors	> Could you estimate how many hours you sit/lie on a regular work/ school day after work or school, including the evening (excluding sleep time)? > Could you estimate how many hours you sit/lie on a normal day off (excluding sleeping, vacation and holidays)?
TNO Monitor Covenant Healthy Weight [32]	OBiN questions and additional module in which determinants of exercise, eating behavior and sports participation were collected in a subsample	2010-2013	Continuous national annual survey		4-11 years (parent report) 2010 n = 568 2011 n = 478 2012 n=644 2013n = 592	4-11 years	Active Play* Family and Peers *This survey only asked for active play behavior in the youngest age group	> How many days per week does your child play outside (outside school hours)? Consider last week. a) Never of less than 1 day per week b) 1 day per week c) 2 days per week d) 3 days per week e) 4 days per week f) 5 days per week g) 6 days per week h) 7 days per week i) My child did not engage in outside play last week, but does so in a normal week

***Table 1**. Overview of primary data sources (1/4).*

2								Questions for the parents of children < 12 years > Consider the children with whom your child interacts a lot, for example classmates, neighbor boys/girls, friends. To what degree do those children exercise? a) (Very) much b) Not much/ not little c) (Very) few d) Don't know > Do those children stimulate your child a lot, a little or not to exercise more? a) Much b) A little c) Not d) No answer Questions for children > 12-17 years > Consider the people with who you interact a lot, for example¬ your partner, family members, relatives, colleagues. To what degree do those people exercise? a) Very) much b) Not much/ not little c) (Very) few d) Don't know > Do those people stimulate you a lot, a little or not to exercise more? a) Much b) A little c) Not d) No answer > How many days per week does your child watches TV/Video/DVD? Consider last week a) Never of less than 1 day per week b) 2 days per week c) 3 days per week d) 4 days per week e) 5 days per week f) 6 days per week g) 7 days per week > How long does your child watches TV/Video/DVD per day? Consider last week a) less than half an hour per day b) half an hour till 1 hour per day c) 1 to 2 hours per day d) 2 to 3 hours per day e) 3 or more hours per day > How many days per week does your child sit in front of the computer, internet or game boy (outside school hours)? Consider last week. a) a Never of less than 1 day per week b) 2 days per week c) 3 days per week d) 4 days per week e) 5 days per week f) 6 days per week g) 7 days per week > How long does your child sit in front of the computer or the internet (outside school hours) per day? Consider last week a) less than half an hour per day b) half an hour till 1 hour per day c) 1 to 2 hours per day d) 2 to 3 hours per day e) 3 or more hours per day
Leisure Time Omnibus (VTO) [82] SCP and CBS	Survey, complemented with registery data from Stateline, Basic Community Administration & integral CBS income stocks Sports and cultural behavior and participation is area of research	2012 2014			2012 n = 306 2014 n = 305	≥12 years	Community and the Built Environment	1) There are enough sports facilities available in my neighborhood a) I strongly agree b) I agree c) I don't disagree nor agree d) I disagree e) I strongly disagree 2) I have sufficient choice of various sports in my neighborhood a) I strongly agree b) I agree c) I don't disagree nor agree d) I disagree e) I strongly disagree

***Table 1**. Overview of primary data sources (2/4).*

								3) There are sufficient sidewalks, cycle tracks or other public areas to be physical active in my neighborhood a) I strongly agree b) I agree c) I don't disagree nor agree d) I disagree e) I strongly disagree
Mulier Institute Baseline measurement Physical Education. Reijgersberg N, van der Werff H, Lucassen J. [62]	To gain insight in lesson time and qualification of PE teachers in primary education. Focus areas were scheduled lesson time per group, effective lesson time, use of PE specialists and PE teachers	2012	Cross-sectional study		1083 primary schools	not applicable	School	Would you like to fill in the scheme for the PE lesson time at your school? Divided for groups 1-2, and 3 to 8 separately *Number of PE lessons per week *Scheduled lesson time per lesson in minutes Are other sport- and exercise activities scheduled, which are provided by qualified teachers? More answers possible a) No b) School swimming c) Dance and expression d) Sportive activities during recess e) Other, namely…. f) Don't know Can the students of your school participate in sport-and exercise activities outside school hours, organized at /by your school in collaboration with the community, sports clubs or other institutes? a) No b) Yes, a few times per year c) Yes, (almost) monthly d) Yes, (almost) weekly e) Yes, (almost) daily f) Don't know Which functions or combinations of functions provide generally PE at your school? Divided for groups 1-2, and 3 to 8 separately. a) PE specialist b) Group teacher c) Different d) Don't know Is student progress of PE at individual level present, with the use of a student tracking system? a) No b) Yes c) Don't know Could you indicate whether you agree or disagree with the following statements: * Our school uses continuous curricula for PE * At our school an annual planning for PE is present *At our school, they work with a method for the PE lessons a) Totally agree b) Agree c) Neutral d) Disagree e) Totally disagree f) Don't know
Mulier Institute Baseline measurement Physical Education in Secondary School. Reijgersberg N, Lucassen J, Beth J, van der Werff H. [63]	Research aim: To gather data about physical education in secondary school. Focus areas were duration of lesson time PE, used resources, methods of PE and sport-and exercise offer next to PE.	2013	Cross-sectional study		n = 455 section leaders PE n = 343 school leaders	not applicable	School	Used methods within course sections PE *Annual planning *Continuous curriculum Frequency of sports offer outside school hours (sporting against students of own/other school, sports introduction lessons, sport clinics, school fitness, sport clubs) a) 1 or a few times a year b) Monthly or more often Collaboration of other organizations related to sports offer in or outside school hours (fitness center, sport club(s), community, health institute, business) a) 1 or a few times a year b) Monthly or more often Lesson time for PE in minutes per week, divided in level of education

***Table 1**. Overview of primary data sources (3/4).*

DSP group Monitor exercise and sports in SE. 2010-2011 64 & A healthy lifestyle in SVE. Monitor healthy lifestyle 2013-2014 [65]	Monitor research of exercise and sport in secondary vocational education	2010 2011 2012 2014			Report 2010-2011 64 institutes Report 2013-2014 44 institutes	not applicable	School	Anchoring of health themes in central policy documents – sport and exercise: stimulating active lifestyle a) Yes b) No c) Don't know Explicit focus for health themes – sport and exercise: stimulating active lifestyle a) Yes b) No c) Don't know Who provides the sports-and exercise offer at the SVE institutes a) Teachers level 5 b) Assistant teachers level 4 c) External instructors (of sports clubs) d) Interns level 4 and/or 5 e) Don't know Which % of the BOL (vocational training) and BBL (apprenticeship training) students meets the 5% policy? a) Meet the policy b) Does not meets the policy c) Don't know
Mulier Institute Sports participation of children in poverty. Exploration of the literature and interviews about the theme sports participation of children in poverty. Reijgersberg N, van der Poel H[98]	Research question: What is known in the literature (numbers, risk factors and significance) about sports- and exercise participation of children and youth in poverty?	2010	Cross-sectional study		not applicable	< 18 years	Family and Peers	Numbers found for > % of children who live in a family with sufficient financial resources to participate in sports and cultural activities > % of the children in prosperous families/lower social economic class families who have a membership at a sports club, while only 44% of the children in lower social economic class families have a membership
Differences in weight status and energy-balance related behaviors according to ethnic background among adolescents in seven countries in Europe: the ENERGY-project.[48] Brug J, van Stralen MM, Chinapaw MJM et al.	Research aim: to explore differences in weight status and energy balance behaviors according to ethnic background among adolescents across Europe. School-based survey	2010	Cross-sectional study		n = 956	10-12 years	Family and Peers	My parents/care givers help me if I need something form my sports (shoes, money, equipment, transport and such). a) I fully agree b) I agree a bit c) Neither agree nor disagree d) I disagree a bit e) I fully disagree How often do your parents/care givers do physical activity/sports? a) Always b) Often c) Sometimes d) Not often e) Never How often do you take part in physical activity/do sports with your parents/care givers? a) Never b) Less than once a week c) Once a week d) 2-4 days a week e) 5-6 days a week f) Every day If I do physical activity/sports, most of my friends think this is….. a) Very good b) Good c) Neither good nor bad d) Bad e) Very bad
Mulier Institute Sports, Exercise and Education: chances for the future. Wide analysis 2010. Lucassen J, Wisse E, Smits F, Beth, van der Werff J.[73]	Focus areas: 1) Social and political developments directly related to sports, exercise and education 2) Analysis of the current situation of the sports-and exercise activity behaviors and offer 3) Ambitions which can include sports and exercise, for example weight loss and school drop outs. 4) Possible future situations	2010	Single research		Primary Schools n= 528 primary Secondary schools n= 250	not applicable	School	Sport-and exercise activities for students at primary schools outside school hours * tournaments * clinics, workshops ,introduction lessons *opening of school playground for students after school hours *sport activities during recess *opening of gymnasium for students after school hours *courses *other a) 1 or several times per year b) (almost) monthly c) (almost) weekly d) (almost) daily

***Table 1**. Overview of primary data sources (4/4).*

Indicators & Grades

A total of 9 indicators were included for the 2016 Active Healthy Kids The Netherlands Report Card. These indicators were grouped in three categories (see figure 1):
Strategies and investment (Government and Non-Government), Settings & Sources of Influence (Family & Peers, School and Community & Environment) and the Behaviors that Contribute to Overall Physical Activity Levels (Overall Physical Activity, Organized Sport Participation, Active Play, Active Transport and Sedentary Behavior).
The outcome of the indicators gives an overview over the physical activity behaviors of the children and youth in the Netherlands and how the Netherlands supports these behaviors in different settings of influence.

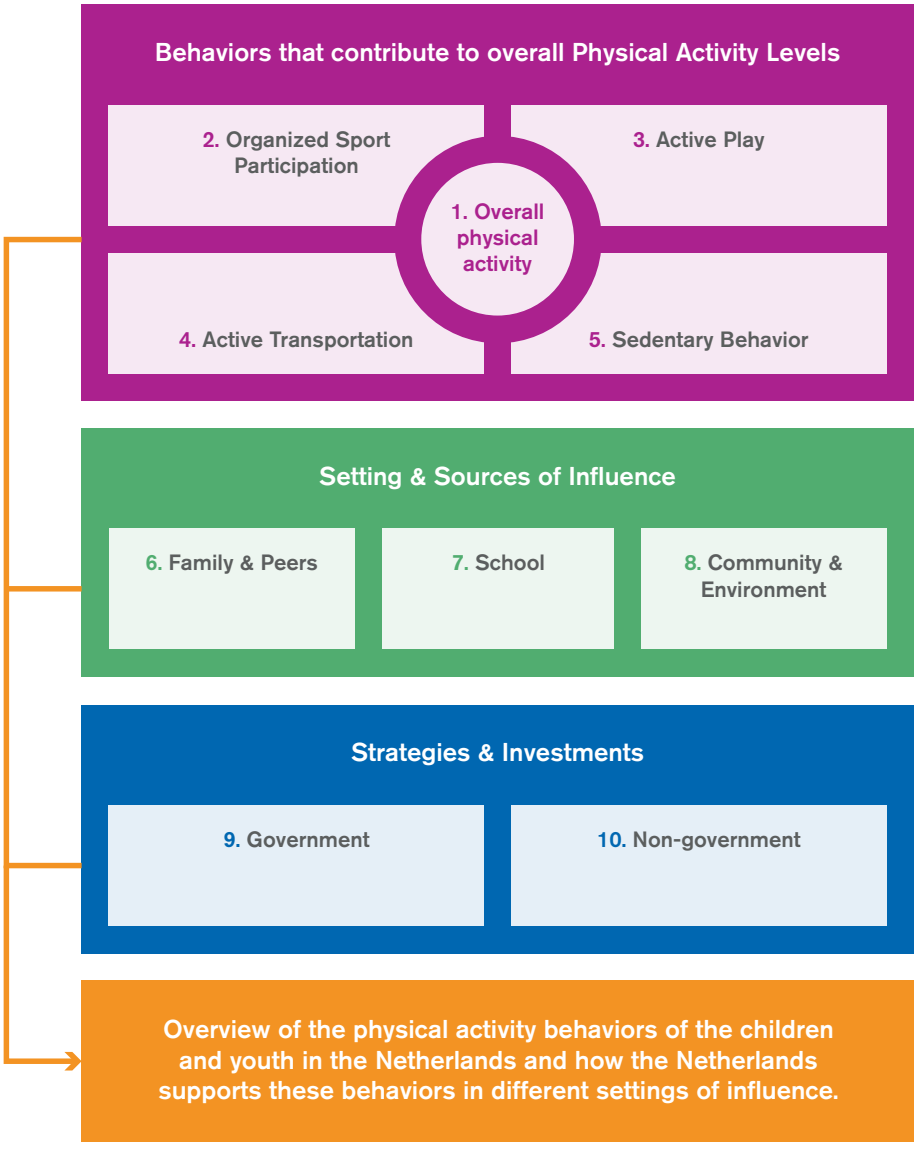


***Figure 1**. Overview categories and related indicators*

Why physical activity is important.

According to the World Health Organization (WHO) physical inactivity is the fourth leading risk factor for mortality.[2] Regular physical activity reduces the risk of cardiovascular disease, diabetes, breast and colon cancer, and depression.[2] Noting that the more physical active the child the greater the health benefit, specific research showed that physical activity has positive effects on musculoskeletal health, cardiovascular health and mental health.[3]

Data from TNO show that the percentage of children and youth meeting the Dutch Physical Activity Guideline (NNGB; to be at least moderately active for at least 60 minutes every day[4]) show a declining trend for the period between 2006 and 2014.[5] For the 4-11 year olds the number of children who are meeting the NNGB has decreased by approximately 10 percent during this period. Furthermore, it seems that the Dutch adolescents are getting more inactive. For example, there was an increasing trend in the percentage of inactive (when a child is at most moderately physically active for 60 minutes in the span of only 2 days[5]) 12-17 year olds from 2010 (11%) to 2014 (15%).[5] These numbers show the increment of the inactivity crisis among Dutch youth. This is a worrying development because of the negative health effects of being physically inactive.[2,3] Promoting physical activity among children and youth remains an important mission.

Is our youth cycling to health?

The Netherlands is known globally for its widespread use of bicycles and some call it a "cycling nation". Indeed, many Dutch inhabitants own a bike and cycle frequently. Numbers show that 84% of the Dutch inhabitants from age 4 years and older own a bike. Those owners have an average of 1.3 bikes per person. This results in 18 million bikes in the Netherlands and 13.5 million bike owners.[6] The Dutch use their bike as a means of transportation, but also for sports and exercise. Bike-use fits well in an active lifestyle and it is highly plausible that cycling is responsible for a large part of the daily physical activity in Dutch youth. It is estimated that Dutch people have on average a 6 months longer life expectancy attributable to bicycle use.[7] It seems that the nation itself is well shaped to cycle: no large mountains, only a few small hills, and an extensive layout of cycle paths and routes in every city and village. In many urban areas separate cycle paths are very common.
Our results show that many Dutch children use the bike as their way of transportation. It was demonstrated that active transportation is responsible for a large part of school-related physical activity in Dutch youth.[8] 80% of 12-17 year-old children cycled three or more days to or from school/work.[9] This resulted in an 'A' for the indicator active transportation (walking is included in the grade as well). Active transport is associated with increased total physical activity among youth.[10,11] Also evidence is reported for an association between active transport and a healthier body composition and healthier level of cardiorespiratory fitness among youth.[12]

Although Dutch children accumulate a lot of daily physical activity through cycling, it is not enough to meet the current national physical activity guidelines of 60 minutes of moderate-to-vigorous physical activity per day. Even though cycling is an important component to the amount of daily physical activity, Dutch youth are not cycling to health.

D

Overall Physical Activity

Grading

Benchmark: % of children and youth who meet physical activity guidelines.
Note: Data of the children younger than 12 years are unfortunately lacking for the national health survey of RIVM & CBS. Grading is only based on the older age group. Fortunately, children of the age group of 4 to 11 years are included in the survey since 2015.

Year	2010	2011	2012	2013	2014	2015
Grade	28% = D [9,13]	26% = D [9,13]	34% = D [9,13]	29% = D [9,13]	28% = D [9,13]	29% = D

NNGB: to be at least moderate active for at least 60 minutes every day[4]
Norm-active: to meet the Dutch physical activity guidelines (NNGB)
Semi-active for 12-to 17-year old children: if a child does not meet the NNGB, but if he/she is norm-active for at least 1 day and maximal 6 days a week.[14]

Key findings | Indicator Overall Physical Activity

28% of the 12- to 17-years-old children meet the NNGB in 2014. From this 12- to- 17-years-old group, 32% of the boys and 24% of the girls meet the NNGB. In 2010, 2012, 2013 and 2014 the boys were meeting more often the NNGB compared to girls. Only in 2011, the girls met more often the NNGB than boys. [9,13]

Overall

- The high percentage of 2012 can be explained by the many boys who met the NNGB. In 2012 43.8% met the NNGB, compared to 31.5% in 2010, 24.8% in 2011, 31.9% in 2013 and 31.9% in 2014.[9,13]
- Data of CBS showed, that 52% of the children in primary school and 28% of the 12- to 17-years-old in secondary school met the NNGB; this indicates that children in secondary school are less active than children in primary school.[15]
- In 2014, children and youth in the age of 12- to 17-years, in highly urbanized areas met less often (24%) the Dutch physical activity guidelines than children in moderate/non-urbanized areas (31%).[9,13]
- 36% of the 12- to 17-year olds and 30% of the 16 to 20 year olds, were already semi-active in 2014.[14]

Recommendations |

- Increase opportunities to be physically active in highly urbanized areas. For example, in these areas children are not required to cycle daily to school that far, so they need to be more physically active beyond active transport to school.
- Stimulate those children who are close to fulfill the NNGB, this is the low hanging fruit. If they are a little bit more active, this will also have possible positive effects on their (adult) health.
- Motivate children and youth to be active. Physical activity before, during and after school is very important. Let the children also be active in the evenings and weekends. Give them enough opportunities to play outside and to participate in organized sports. Also the television and computer time must be reduced. For most children it is important to change their physical activity pattern. For example, children and youth can go by bike to school instead of by car and play outside with their peers after school.
- Incorporate objective measures in future surveys. In other large surveys accelerometry has been used to directly measure the physical activity patterns of children and youth.16 This could be valuable next to subjective measures.
- Make parents aware of the importance of physical activity for their children and their important role in the physical activity behavior. Playing together outdoors, exercise stimulating toys and the influence of being a good example for their children.

Research Gaps

- At national level, there are no specified data for children under the age of 12 years for their overall physical activity level. There are only data from CBS available for primary school children in total, which includes 5 to 12 year-olds. It is also important to know the difference in this age group. A subdivision in this age group would be informative and fortunately the age group of 4 to 11 years is included in the National Health Survey since 2015.
- There is need for more objective research in addition to subjective measures. The findings thus far are obtained only by questionnaires that are subjective measures. The reliability of this type of subjective measurements is debatable. It is difficult for people to recall properly. Children and adolescents often under- or overestimate their physical activity levels.[17]

Literature synthesis

Physical activity correlates with different variables

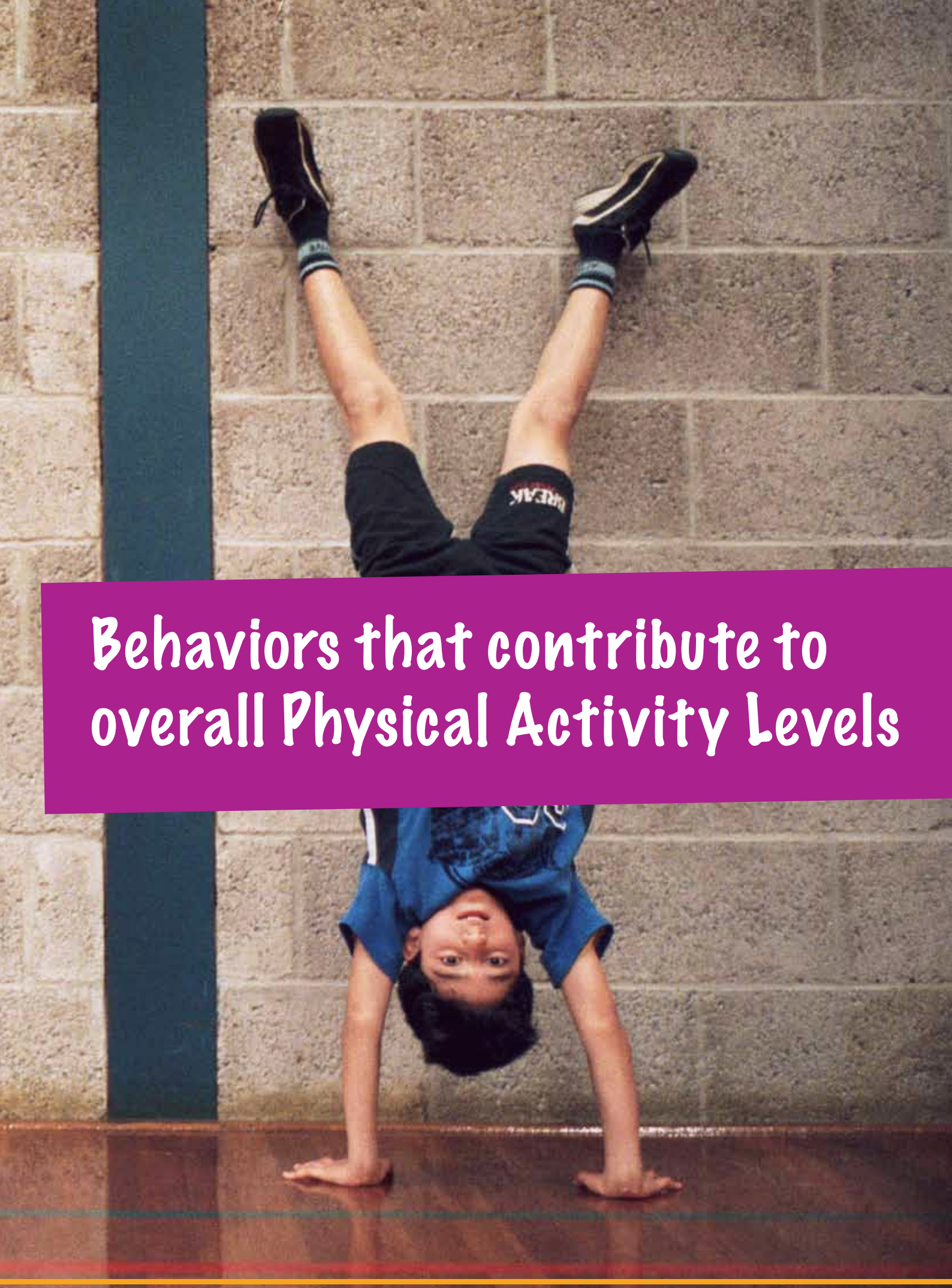
There are several determinants of physical activity during school recess and in the after school period. One of these variables is gender. In several studies it was found that boys are in general more active than girls.[18,19] Another variable that contributes to the level of physical activity is perceived encouragement from family, friends and school. Higher level of encouragement is correlated with a higher level of physical activity. Physical environmental variables can also play a role in the level of physical activity in children and youth. For example, some studies found that during school recess the availability of portable equipment during school recess, such as balls and skipping ropes, have a positive effect on the level of physical activity in children.[19]

Being physically active may influence school performance positively

Multiple studies showed that being physically active can have a positive effect on the school performance of children. The study of Mullender-Wijnsma et al.[21] investigated the effect of the intervention called Fit & Vaardig (F&V), which consists of physically active academic lessons. The students participated in the F&V program for 22 weeks, 3 times a week. During each F&V lesson 10-15 minutes are spent on solving math problems followed by 10-15 minutes on solving language problems. The main focus was on repetition and memorization of reinforced concepts that children learned in an earlier class. The physical exercises were of moderate to vigorous intensity but relatively easy to perform. During the lessons specific exercises or basic exercises were performed. Specific exercises were, for example, words that had to be spelled by jumping in place for every mentioned letter. Examples of basic exercises were marching, jogging or hopping in place. The results showed that the F&V lessons have a positive influence on the time focusing on an academic task.[21] The study of Donnelly et al.[22] also evaluated the academic performance of children in secondary school. The study compared schools in the intervention group to the control schools. The intervention schools participated in the Physical Activity Across Curriculum (PAAC) approach. PAAC consisted of 90 minutes of moderate to vigorous physically active academic lessons, delivered intermittently throughout the school day. The study found a significant improvement in the academic achievement in the intervention schools compared to the control schools for reading, math and spelling.[22]

Contributing factors and disparities

- Gender differences are present: boys are slightly more physical active than girls. In 2014, the difference between boys and girls in meeting NNGB was 8.3%. [9,13]
- Primary school children are more physically active than secondary school children.[15]
- Children in the age of 12 to 17 years that live in highly urbanized areas met less often the Dutch physical activity guidelines (24%) than children living in moderate/non-urbanized areas (31%).[9,13] Possible reasons why these children are less active, is because they have insufficient space to play outdoors and that distances to cycle or walk to school and home are smaller.
- Higher levels of physical activity during school recess was observed when children have access to more portable equipment.[20]



Behaviors that contribute to overall Physical Activity Levels

B

Organized Sport Participation

Grading

Benchmark: % of children and youth who participate in organized sport and/or physical activity programs weekly.
Note: Grading is based on data of the 12- to 17- year old children. Data of the younger children were lacking for the national health survey of RIVM & CBS. Fortunately, children of the age group of 4 to 11 years are included in the survey since 2015.

Year	2010	2011	2012	2013	2014	Overall
Grade	INC	INC	77%=B [9,13]	74%=B [9,13]	71%=B [9,13]	74% = B

Key findings | Indicator Organized Sport Participation

71% of the 12 -17- year olds are considered a weekly athlete in 2014. [9,13]

Overall

- Boys participate slightly more in sports (72%) than girls (70%). [9,13]
- 55% of children from ethnic minorities (12-17 years old) was a weekly athlete. Autochthonous children in this age group were more often considered a weekly athlete, 77%.[9,13]
- 63% of children participating in sports met the NNGB, compared to only 20% of the children who do not engage in sports, in 2013. [9,13]
- According to the KISS registration, 3% of the 0-4 years old is a member of a sports club and/or federation. For the 5-9 year olds this number increases to 45%. From the 10-14 year olds 64%, is a member of a sports club and this number decreases to 42% for the 15-19 year olds*. 23 Of all sports clubs memberships, 31.8% corresponds to youth[24]

*The percentages originate from dividing the members of a sports club/federations by the number of inhabitants in that specific age category.

mbers of a sports club/federations by the number of inhabitants in that specific age category.

Recommendations |

- Make (organized) sports available for all children, regardless their background or their social economical status, by offering easy approachable sport programs at sport clubs or in the neighborhood, just as addressing other causes and barriers why children cannot or do not like to engage in sport.
- Develop strategies to decrease the number of dropouts in sport participation among 15-19 year olds. The sport participation decreases among 15-19 year olds compared to 10-14 year olds.[23] Therefore, a strategy is needed to avoid these dropouts and encourage them to maintain active in (organized) sports. The Mulier Institute already proposed some indications, in their factsheet Working elements for sports stimulating in youth.[25]
- Encourage parents to promote (organized) sports participation to their children. If they engage in sports, chances are higher that they will meet the physical activity guideline.

Literature synthesis

Research among youth aged 10-18 year-old children showed that participation in organized sports was related to higher levels of objectively measured moderate physical activity (OR=1.01, 95% CI: 1.01-1.02, p<0.01)) and vigorous physical activity (OR =1.09, 95%CI:1.05-1.13, p<0.001). Children participating in organized sports were more likely to meet physical activity guidelines (OR 1.64, 95%CI 1.14-2.23, p<0.001). [26] These results suggest that promoting organized sport may increase physical activity of at least moderate intensity among youth. These effects seem also beneficial at an older age: when you participate in sports during youth, the likelihood increases to be active in sports at an older age.[27,28] Research focusing on organized youth sport had a similar outcome; participation in organized sport at an early age, and sustaining these activities during adolescence, seem to increase the chance of a physically active lifestyle in young adulthood.[29]

Research Gaps

- Being a member of a sport club does not necessarily means active participation in sports. Information about the intensity level of physical activity of youth at sports club is lacking. This information is needed to get a more extensive view on if (organized) sport participation indeed contributes to the preferred physical activity level of youth in the Netherlands and can be obtained by for example using accelerometers or introducing a central attendance registration for training and competition.
- Until 2014 there are no data available for children under the age of 12. These data are available from 2015 onwards.

Contributing factors and disparities

- There is a 22% difference between the percentages of weekly athletes in autochthonous youth and youth from ethnic minorities (12-17 years old). [9,13] To stimulate sport participation among youth, especially youth from ethnic minorities, the government started a program in 2006 until 2010. The main goal of the program was to stimulate meeting, connecting, education and integration of immigrant youth and their parents, in and by sport.[30] Evaluation of the program showed a 59% increase of sport membership among children of an ethnic minority, also the involvement of their parents increased.[30] Despite this intervention, there was still a lower sport participation in youth of ethnic minorities in 2014 (21% difference[9,13]). A possible explanation could be the costs of sports. Twenty-four percent of the parents of youth from non-Western ethnic minorities state that their child is not participating in at least one leisure activity (sport, cultural, etc.) due to financial reasons, compared to only 8% of autochthonous parents.[31] To understand the differences in organized sport participation between autochthonous youth and youth from ethnic minorities, further research is required.
- (highly) urbanized areas 69% of the 12 to 17 year old children was considered a weekly athlete versus 73% in moderate/low/non-urban areas.[9,13]

B

Active Play

Grading

Benchmark: % of children and youth who engage in unstructured/unorganized active outdoor play in the last week.
Note: data was only available for the age group of 4 to 11 years.

Year	2010	2011	2012	2013	2014	Overall
Grade	65% = B [32]	74% = B [32]	69% = B [32]	73% = B [32]	INC	70% = B

Key findings | Indicator Active Play

73% of 4 -11 year old children played outdoor over the past week, afterschool, in 2013 according to parent reports. [32]

Overall

- 65% of 10- to 12- year old primary school children from the South of the Netherlands, reported that they played outdoors after school at the previous day.33 In addition, 34% of these children reported that they played outdoors for 7 days per week during the after school period, 16% played 5 times per week outdoors.[33]
- 22% of these 10- to 12- year olds played for 3 or more hours outdoors, and 21% played 2 to 3 hours outside.[33]
- Boys played more often outdoors than girls (21% versus 14%).[34]
- In a small study by Jantje Beton, 48% of the 6-12 year old children and 50% of the parents reported that the play area's are boring. [35]
- 63% of these 6-8 year old children reported that they would play more outside and 60% would watch less TV or play less with the computer, when the neighborhood had more (interesting facilities). For the 9-12 year old children in the study, this was both 69%. [35]

Recommendations |

- Evaluate and revise the construction of the current playgrounds. As mentioned above, about half of the children and parents who participated in a study by Jantje Beton, think that the play areas in neighborhoods are boring. This also applies to other aspects in neighborhoods; sidewalks and little squares are boring as well. These insights are especially present in the older age group, besides they reported that they would like to have more facilities for the older age children.[35] Safety for the playing children should also be a focus.
  When addressing the above, this might be a good approach to increase the amount of active play and thus the overall activity level. Furthermore, the playground is the second location of choice after the own garden where children report to play most frequently, respectively 43% and 59%. Play fields were frequently reported as well (17%), thus it might be quite worthy to optimize the playgrounds, in order to increase the outdoor active play levels in children. [36]
- Involve children in plans for future revisions or adjustment of playgrounds, play areas and neighborhood, to make the best improvements. Eighty percent of the children in a Jantje Beton study, reported that they would like to help in decisions about the play opportunities in their neighborhood, but unfortunately, only 8% has been ever asked about his/her opinion.[37]
- The study of van Doorn showed that co-researching of children provides valuable information in the development process in for example playgrounds and equipment.[38]
- Stimulate and motivate students to move and sport maximally during recess. School recess is an appropriate moment for students to be physically active and get a large proportion of their daily active play. Although it is not obligatory for students to be active during their recess, schools could try to stimulate and perhaps motivate their students maximally to move and sport during this period. For example, the spatial design of schoolyards can be (more) attractive to invite the students to be physical active or schools can offer physical or sports activities. It seems that currently, especially PE teachers of the secondary schools are not satisfied about the physical activity and sport opportunities during the recesses at their schools.[39] This could be an interesting option to increase physical activity levels, in both primary and secondary schools.

Research Gaps

- Today, there is no (inter) nationally accepted definition for the concept of active play and consequently no (inter) national guidelines for active play exist. Furthermore, it is not clear what is the best way to measure active play, for example self (-or parent) report, direct observation or measurements with accelerometers have all been used. To gain a better insight of active play and its share in overall physical activity levels, it is necessary to establish the definition, corresponding guidelines and adequate measurement.
- Active play includes inside and outdoor play. Most of the included studies that have been used for this

Report Card, comprises research regarding outdoor play. This also, should be addressed in the concept of active play.
- Active play is not a part of the national surveys yet, so the numbers given here are based on relatively small populations of children. Fortunately, outdoor play is included in the national health survey since 2015.

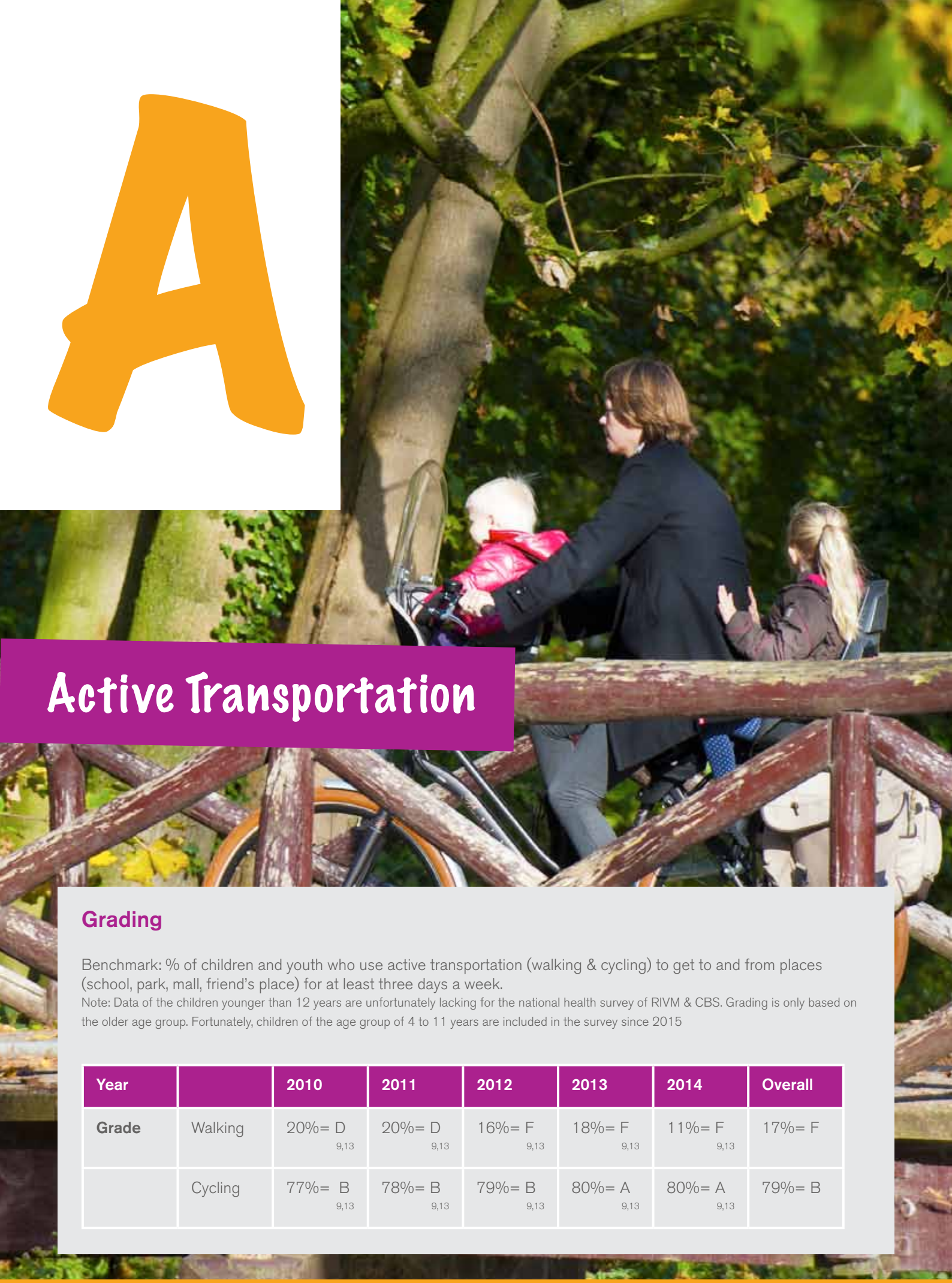
Literature synthesis

- Several studies using accelerometers have shown that a great part of the moderate-to-vigorous activity (MVPA) levels, is reached outside home.[40] In the study in Bristol it was found that 35% of the MVPA happens outdoors.[40,41] Further, in a literature review about the health, social and economic value of outside play by de Vries and van Veenendaal (2012), it was reported that different studies have shown that children and adolescents are at least moderate active between 25 to 54% of the time which they spend at a public playground or school playground.[42] So, active play is an important and perhaps easy way for children to reach their ideal overall activity levels.
- It has been demonstrated that outdoor play, especially in the younger children, has a positive effect on the development of the brain and ability of learning.[42] An advantage of outdoor play compared to inside play or structured activities is that outdoor play offers more opportunities to develop and improve motor skills. Further, children are automatically challenged to move at different play (ground) equipment's, different surfaces and different weather situations. In addition, they have room to be creative and make up their own games and rules. [42]
- Outdoor play is also an important contributor for the development of social skills. Playgrounds are excellent places to meet peers and play together. During games children have to learn how to collaborate and make compromises. [42] Both Dutch children and parents reported that one of the main reasons for children why they enjoy and engage in outdoor play is that they can meet and be together with friends and peers.[37,43]

Contributing factors and disparities

- Boys in the age range of 6 to 12 years, play more often outdoors compared to girls of this age (21%versus 14%).[34]
- This can partly be clarified by the observations found during school recess. Studies have shown that girls are more passive (more talking and gossiping and viewing recess as a way to be socially active). The favorite activities to do are self-made-up games, swinging, tumble and rope skipping. Boys, on the other hand, are more active, individualized and more focused on competition. They like to play soccer, run or skateboard. Boys want to dominate the available space. [37,44]
- Social class has an influence on amount of outdoor (and inside) play as well. Children of higher social classes play more often inside than children of lower social classes, respectively 54% and 32%.[35]
- The degree of urbanization contributes to the amount of outdoor play as well. Parents of children of (highly) urban areas restrict their children more often to play outside unsupervised (78%). A possible reason for this is safety in relationship with the traffic conditions, parents see their children as just too young.[35] Forty-six percent of the parents reported that they will allow their children to play more outside, if there are safer routes available to the nice play areas/grounds.[35] Children of (highly) urban areas report more often that they play less outdoor than that they actually would like to do, compared to children in non-urban areas.[34] Children from (very) urban areas do play less outdoors (3.5 times a week) compared to children from low urban areas (4.2 times per week).[34]
- Remarkably, in a study by Jantje Beton 1 in 10 children reported that they are afraid to play outdoors, because they are scared of being bullied by other children.37 Next, 1 in 10 reported that they do not like to play outdoor, because they will be turned away by the people in their street.

A



Active Transportation

Grading

Benchmark: % of children and youth who use active transportation (walking & cycling) to get to and from places (school, park, mall, friend's place) for at least three days a week.

Note: Data of the children younger than 12 years are unfortunately lacking for the national health survey of RIVM & CBS. Grading is only based on the older age group. Fortunately, children of the age group of 4 to 11 years are included in the survey since 2015

Year		2010	2011	2012	2013	2014	Overall
Grade	Walking	20%= D [9,13]	20%= D [9,13]	16%= F [9,13]	18%= F [9,13]	11%= F [9,13]	17%= F
	Cycling	77%= B [9,13]	78%= B [9,13]	79%= B [9,13]	80%= A [9,13]	80%= A [9,13]	79%= B

Key findings | Indicator Active Transportation

- *-80% of the 12-17 year old children cycles 3 or more days to or from school or work.* [9,13]
- *11% of the 12-17 year old children walks 3 or more days to or from school or work.* [9,13]

Overall

- The active transport behavior does not differ between ages; 80% of 12-14 year olds cycles more than 3 days per week and 81% of the 15 -17 year olds uses active transport this often. [9,13]
- The use of active transport is not different between boys and girls. 81% of the boys uses active transport (cycling) and 80% of the girls cycles more than 3 days per week to school or work. [9,13]
- 39% of the parents reported that they accompany their children to school, because of the presence of dangerous crossings and also 39% reported unsafe traffic situations as one of the reasons.[45]
- 61% of the parents reported that they think their child is too young to travel alone to school.[45]
- According to parents, 11% of the 4 -to 13- year old children do not have sufficient cycling skills to travel unsupervised to school. This is 15% for the 4- to 7- year old children and 7% for the 8-13 year old children.[45]
- According to parents, 22% of children in low-non urban area's does always walk unsupervised and 10% cycles unsupervised, compared to 6% and 4% of children in highly urban area's.[45]

Recommendations |

- Investigate and integrate opportunities to make the routes to school safer. When addressed, we can make sure that the children and youth continue to use active transportation and hopefully the small group who yet does not cycle or walk to school or work will use active transport. For example, car free zones, separate bike lanes or more traffic guards/ controllers at difficult or dangerous traffic situations.
- Stimulate students to cycle or walk together to and from school. Schools could stimulate this and for primary schools, there could be a rotation system for the parents, to escort a group of children and provide supervision during dangerous traffic situations on their way to and from school.
- Increase bicycle skills through frequent educational and training courses at school ("learning by doing").
- Advise and inform parents about their great importance as role models and influences of their children's activity behavior and transport mode during childhood but also during adulthood.

Research Gaps

- Currently there is little information about the active transport behavior of Dutch children during leisure time and weekend days. The monitor survey that is used in the Report Card was focused on active transport to and from school and only cycling and walking are included. Nowadays, there are more ways of transportation. For instance, inline-skating, skate boarding, long boarding and stepping are common modes of transportation. When these modes will be included in future surveys, we will get a better insight of the active transport behavior.
- It seems that children who use public transport, are not inactive for their entire trip. Therefore, in the future when active transport is explored, this should also be investigated. There are studies, which showed that primary school children walk on average 52 minutes and secondary school students 66 minutes a week when they use public transport.[39] For instance, the active part accounts for the walk from home to the bus stop and the walk from the bus stop to school. [39]
- The population for the monitor survey used here, included only children of 12 years and older. Unfortunately, valid data are lacking for the younger age group. Previous research from CBS (2009) has shown that younger children probably use less active transport.[46] It was reported that parents drive their younger children more often to school and sport clubs or other leisure time locations during the weekends.[46]

Literature synthesis

- Active transportation seems to have an important, quite large share in the overall activity levels of Dutch children and youth. In the study of Slingerland et al. (2012) it was found that active transport to school over four weekdays, was 15% of the total Physical Activity Energy Expenditure (PAEE) during weekdays and that it accounted for 30% of total PAEE during school hours.[8] Fortunately, a lot of Dutch children are already

biking or walking to school.
- Students in primary schools walk more frequently than students of secondary school, 30% versus 5% respectively.[39]
- Dutch children spend a median of 150 minutes per week for cycling to or from school or work. The duration is the same for the ages 12-14 year and 15-17 year and no gender differences were found.[9,13] This is in line with the results of a study in the South of the Netherlands in 10 to 12 year old children. Sixty-seven % of the children reported that they are less than 10 minutes underway for school to home and vice versa. 23.5% of the children reported that this trip takes 10 to 20 minutes.[33]
- There are no discrepancies in the perception of the parents and children about the active transport behavior. According to the parents, 77% of their children uses active transport to go to school, compared to 78% of the children.[33]

Contributing factors and disparities

- Children of an ethnic minority participated less in cycling than autochthonous children, respectively 100 and 150 minutes per week.[9,13] Olde Kalter (2008) suggested that one of the reasons for this difference is that in the country of origin, it is not a custom to cycle. Other reasons which have been enumerated were: in the country of origin people do not learn to bicycle, financial issues (e.g. the purchase of a bike is too expensive), a bicycle does not have a well appreciated status (a bike fits to a transport mode of the poor), the position of the females in the (Islamic) culture restrict the use of bikes and lastly, fear for traffic unsafety. [39]
- We also observed a difference in the degree of urbanization. Children in (highly) urban areas cycled less frequently to school or work and engaged less in active transport, compared to children in low urban areas.
- The percentage of children in highly urban areas that cycled 3 or more days/week was 77% with a median cycling time per week of 120 minutes, compared to 83% and 150 minutes per week in low urban areas. [9,13]
- Other contributing factors in the active transport behavior are traffic safety and distances. In a systematic review, it was concluded that there is some evidence of (American) studies that showed that the youth walks or cycles more often to school or work, when the routes to school or work are shorter and more safe regarding traffic.[41] In addition, European studies have shown that chances are higher that children are brought by car when the distances are larger and the number of cars in the family are higher.[41] In the work of Stuij et al. (2011), it was shown that children who walk to school, live in a 1 kilometer distance area from school, 77% even less than 500 meters. Of the students who are cycling, 68% lived 600 meters to 5 kilometers from school. The percentage of students that used public transport increased with distance. 57% of these students lived more than 5 kilometers from school. [39]
- Other studies showed as well that the perceived danger of traffic is one of the reasons that primary school children are brought by car. This is alarming, not only for the lower levels of overall physical activity, but also for gaining experience in traffic.[47]

C

Sedentary Behavior

Grading

Benchmark: % of the children who watch television or sit in front of the computer less than two hours a day.
Note: Data regarding the sitting/lying behaviors are not incorporated in the grading, because no norm is available yet. In addition, grading is based on TNO data for the age group 4- to 11- years old. Fortunately the national health survey of RIVM & CBS included sedentary behavior in their survey since 2015 for age 4 to 12 years.

Year	2010	2011	2012	2013	2014	Overall
Grade	64%= B [32]	52% = C [32]	49%= C [32]	63% = B [32]	INC	57% = C

Key findings | Indicator Sedentary Behavior

Screentime

63% of 4- to 11-years-old children sit in front of the computer or watch TV, less than 2 hours a day, outside school. [32]

Overall

- Children of parents with a low education had more minutes of screen time per day compared to children of parents with a high education, namely 224 minutes compared to 177 minutes. The same trend was present for television time per day and computer time per day. [48]

Sitting/lying behavior:

- 4- to 11-years-old children sit/lie on average 7.5 hours per day on a school day. This is accumulated from 0.6 hours before school, 4.7 hours during school and 2.2 hours after school. [49]
- 12- to 17-years-old children sit/lie on average 9.9 hours per day on a school day. This is accumulated from into 0.7 hours before school, 5.8 hours during school and 3.5 hours after school. [49]
- 4- to 11-years-old children sit/lie on average 4.3 hours during a day off from school. [49]
- 12- to 17-years-old children sit/lie on average 5.4 hours during a day off from school. [49]

Recommendations |

- Reduce overall sedentary behavior in children and youth because sedentary behavior entails risk factors for their health. The study of Hendriksen et al. (2013) showed that long term sedentary behavior can have a higher risk on mortality.[44] This was independent of the level of physical activity.[50]
- Reduce the screen time in the age category 12-17 years, because they spend more time in front of the television/computer than 4-11 year-olds. This especially applies for boys: they also spend more time in front of the television/ computer. [48]
- Explain to parents that sitting in front of the computer and watching television have high risks, especially in lower educated families. It has been found that children of low educated parents sit more time in front of a screen than children of highly educated parents.[51] parents can make rules and agreements towards screentime behavior of their children.
- Reduce screen time and sedentary behavior, because sedentary behavior in adulthood can partly be explained by physical characteristics in adolescence.[51]
- Reduce the hours of sitting behavior during school time, because there is a lot of room to improve during school. Explore the interventions of more physical activity during and between courses. Fit & Vaardig, exercise breaks (energizers) and SMARTMMOVES seem plausible options. [52]

Research Gaps

- A national norm for overall sedentary behavior is lacking. A future norm should include both screen time and sitting and lying behaviors. In a position statement of Hendriksen et al. it was suggested that a future guideline should include the total sitting duration per day which is acceptable, the frequency and the duration of the non-sedentary moments which interrupt the sedentary bouts.[50]
- A norm for screen time for children of the age of 4 to17 years old is available, but there is need for differentiation in age groups. Canada divided the group in different age groups, namely 3-4 years of age and 5-17 years old. The norm is different for these two age groups. The question is whether it is necessary to differentiate in age groups and how the groups need to be divided. For now, there is only one norm for children for one age group.
- A more objective way to measure sedentary behavior is needed next to subjective measures of sedentary behavior. Currently only questionnaires are used to monitor sedentary behavior. An example of an objective way to measure sedentary behavior is using accelerometry.[33,51] There is a need for this kind of monitoring in the health surveys in the Netherlands. Feasibility for national surveys, however, should be taken into account.

Literature synthesis

Health risks of being sedentary

Sedentary behavior is one of the most important factors in worldwide prevalence of obesity and overweight. Childhood obesity increases the risk of adult obesity and can have

multiple chronic health problems such as, type II diabetes, hypertension and cardiovascular disease. [54,55] There is need for more knowledge about what can occur when you are sedentary in childhood and what the health effects are of TV viewing and playing computer games. For this reason it is important to have more insights about the health consequences of sedentary behavior.

Parents

Parents are the primary caregivers, who are largely responsible for their children's nutrition and physical activity patterns, particularly in the early years of life. For this reason it is important to teach parents about the importance of a healthy lifestyle. Authoritative parenting is important to promote, because there is evidence that this is an effective method to prevent and manage childhood obesity. [53,56]

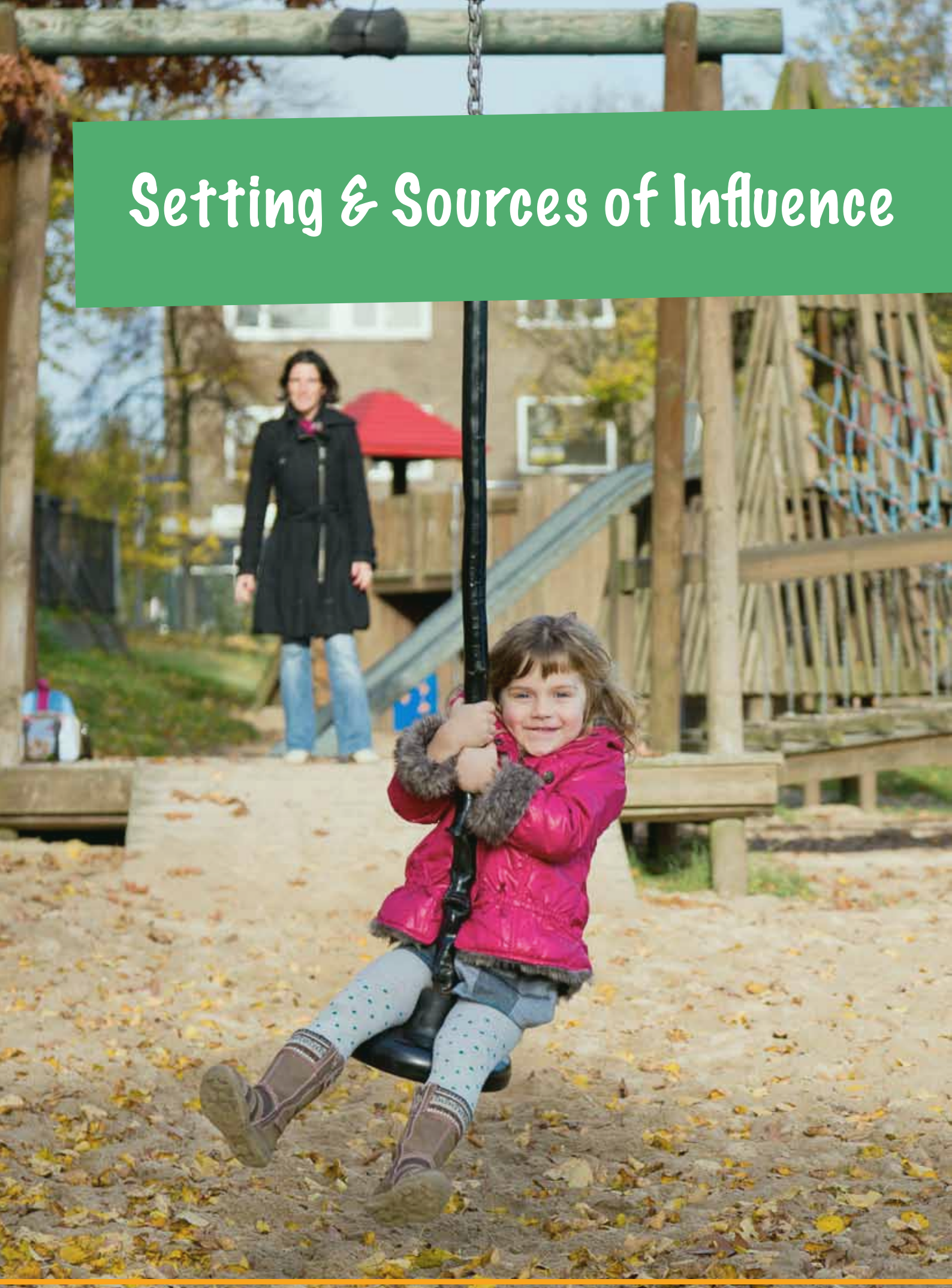
Physical activity in the classroom

The key findings show that children are most sedentary during school time. The largest benefit can be obtained during school time. Mullender-Wijnsma et al.[57] studied the effect of physical activity in the classroom on academic performance. They developed physically active academic classroom lessons. During each lesson 10 to 15 minutes were spent on solving math problems followed by 10 to 15 minutes on solving language problems. This study showed that the implementation of the program was successfully and that physical activity lessons contributed to the academic performances of children in third grade.[57] This could be a way for children to be less sedentary and also to increase academic performance. also to increase academic performance.

Contributing factors and disparities

- Screen time, computer time and TV time is higher in children with poorly educated parents than in children with highly educated parents. [51]
- Children in the age category 4 to 17 years spent a lot of time in front of the TV and computer. This screen time is lower in the age category 4 to 11 years than in the age category 12 to 17 years. [49]
- Children sit/lie more on a school day than on an average day off from school.[48]
- In general, boys sit/lie more in front of a screen than girls in the age of 10-12 years. [48]

Setting & Sources of Influence



B

Family & Peers

Grading

Family

Benchmark:

- % of parents who facilitate physical activity and sport opportunities for their children (e.g. volunteering, coaching, driving, paying for membership fees and equipment)
- % of parents who meet the physical activity guidelines for adults
- % of parents who are physically active with their kids.

Peers

Benchmark: % of children and youth who encourage and support their friends and peers to be physically active

Year	2010	2011	2012	2013	2014	Overall
Grade Family	65% = B [58,59,60]	INC	75% = B [58,59,60]	INC	INC	70% = B
Grade Peers	55% = C [32]	76% = B [32]	71% = B [32]	73% = B [32]	INC	69% = B

Key findings | Indicator Family and Peers

Famliy

- *54% of the single parents met the Dutch Physical Activity Guidelines. Parents with multiple families scored comparable, 52%.* [58]
- *89% of the children live in a family with sufficient financial resources to participate in sports and cultural activities.*[59]
- *77% of the children in prosperous families have a membership at a sports club, while only 44% of the children in lower social economic class families have a membership.*[59]
- *89% of the parents with children of age of 5 till 14 years old do not experience the financial burden of sport as a barrier. 83% of the youth (15-18 years) also do not see this as a barrier.* [60]

Peers

- *57% of the peers and friends of the 4-11 years old children participated very often in exercise. 6% of the peers and friends participate in exercise very little and 33% not much/not little.*[32]
- *40% of the friends of the 12-17 years old children participated in exercise a lot. 44% participated in exercises not much/not little and 13% exercises rarely.*[32]
- *29% of the peers and friends of the 4-11 years old children motivated them a lot to be physically active. 33% of the peers and friends motivated them a little and 35% never motivated them to be physically active.* [32]
- *17% of the friends of the 12-17 years old children motivated them a lot to be physically active, 39% motivated them a little and 40% did not motivate them to be physically active.* [32]

Overall

Family

- 66% of the parents of 4-to 11- year old children, did not encourage their children once in the past month to be more physically active.[32]
- Only 25% of the parents is (very) often physically active together with their children.[32]

Recommendations |

- Motivate parents to encourage their children to participate in sport and exercise. Exercise and sports has significant health benefits and unfortunately, only 2/3 of the of the parents encouraged their children between the age of 4 and 11 years once in the past month to be more physically active in 2014. [33] It has been shown that perceived encouragement from family, friends and school, is one of the variables that contributes to the level of physical. Higher level of encouragement is correlated with a higher level of physical activity.[19]
- Motivate parents to be physical active together with their children. 75% of the parents is not regularly physically active with their children. [32] The activity behavior of children is related to the behavior of the parents.

Research Gaps

- There is need for more research, because a lot of data for the benchmarks is not available. Especially data to grade family behavior is not available in the Netherlands, even as data to grade peers is lacking. Unfortunately for 2014, both family and peers could not be graded.
- Clear norms need to be established to grade the indicator family & peers. The relations and consequences of the current used benchmarks are not entirely clear. Future research should explore the possible relations between physical activity of children and parent and peer behavior.

Literature synthesis

Relation between children and parents

When children are growing up, they are increasingly separated from their parents and become more independent. The parents are behaving also differently when children grew older. For example, when children

are getting older, the parents stimulate them less to be physically active. 91% of the 12 year old children are encouraged by their weekly active parents to be physically active. For a 16 year old child it is only 79%, which is significantly lower.[61] It is important that the parents stimulate their children to be active even at an older age. This changing relationship between parents and children is also observed in the way the children and youth feel supported by their parents. 77% of the 12 year old children feel supported by their family where it is only 64% for the 15 year old children. This is the same in boys and girls. [61]

Motivating children by their parents

It is very important for children to motivate them to be physically active. Multiple data sources show that parents do not motivate their children frequently. For example, around 15% of the children disagreed with the statement that their parents encourage them to be physical active.[48] Another example is that in 2013, 66% of the parents of 4-11 years old children never say to their children that they need to be more active. This is 72% of the parents of the 12-17 years old children.[32] These numbers are high. It is very important to improve this in the future, because encouragement by parents is important for children to be physically active.

Family influence

In the study of Van Kann et al.[33] 70% of the parents of the 11-12 years old South-Limburg children brought their children (very) often to places where they can be physically active. 55% of the parents indicated that they are (very) often physically active and/or participate in a sport. Only 45% of the parents used (very) often the bicycle. Only 25% of the parents indicated that they are (very) often active together with their children.[33] These numbers indicate room for improvement on the indicator family influence. The influence of family and especially the parents is crucial for the way children are acting.

Contributing factors and disparities

- Children in low social economic status (SES) families have less often a sports membership compared to children of higher SES families. Memberships for sports clubs seems to be too expensive for some parents.[59]
- The way children feel supported by their parents changes with age. When children are getting older, they feel less supported by their parents. This also applies for encouragement by their parents to be physically active. There is a 12% difference between a 12 year old and a 16 year old child.[61]
- Peers and friends of 4-11 year old children are more physically active than friends of 12-17 year old children. [32]
- More peers and friends of the 4-11 year old children than of the 12-17 year old children motivate them to be physically active. [32]

B

School

Grading

Benchmark:

- % of schools with active school policies (e.g. collaborations with municipality and/or sport clubs, presence of student tracking systems, presence of annual planning PE, opening of school playgrounds, offering physical activity opportunities (excluding PE/ during recess))
- % of schools where the majority (≥80%) of students are taught by a PE specialist
- % of schools where the majority (≥80%) of students are offered at least 120 minutes of PE per week. For SVE, the percentage of students which meet the 5% policy was included.

Year	2010	2011	2012	2013	2014	Overall
Grade	C 62,63, 64,65	C 62,63, 64,65	C 62,63, 64,65	C 62,63, 64,65	C 62,63, 64,65	C

Key findings | Indicator School

Primary School

- *79% of the PE teachers agreed (totally) with the statement that an annual plan for PE is present at their school.* [62]
- *67% of the PE specialists indicated that their school works with a student tracking system.*[62]
- *15% of the primary schools organized sport and exercise activities outside school hours weekly. 6% offered these kind of activities daily.* [62]
- *In only 25% of the schools a PE specialist teacher was used for the PE lessons of groups 3 to 8*, for groups 1 and 2, only in 5% a PE teacher was present.*[62]
- *An average of 48% of the students received 120 minutes or more PE per week.* [62]

** In the Netherlands, Primary School children from 4 to 12 years of age are taught. There are 8 groups related to age. Group 1 and 2 are similar to kindergarten.*

Secondary School

- *98% of the section leaders of PE reported the presence of an annual planning for PE.* [63]
- *75% of the secondary schools collaborated with a sports club and 55% collaborated with the municipality in the field of sport and exercise.*[63]
- *As dictated by governmental regulations, students in secondary schools are taught by a PE specialist teacher.*[63]
- *85% of the secondary school students had 120 minutes or more PE per week.*[63]

Secondary Vocational Education

- *53% of the Secondary Vocational Education schools have integrated sports and exercise in their policies for sectors, clusters and domains and 91% of these schools have explicit attention for the health themes sports and exercise.*[65]
- *In 92% of the Secondary Vocational Education schools with a sports- and exercise offer, a PE specialist provides the PE lessons.*[65]
- *Only 12% of the students met the 5% policy**** [65]

**** This means that 5 percent of the contact time (education time minus the internship time) exists of exercise and sport. This corresponds to 60 minutes of exercise per week, at times that the student does not do his/her internship* [65]

Overall

Primary school

- The number of schools which obtain a certificate 'theme sports and exercise' from the initiative 'Vignette Healthy School' [Vignet Gezonde School], increases per year. In 2011 5 schools had a certificate, in 2012 the number was 20, 21 in 2013 and 66 primary schools in 2014. [66]
- A study among 40 primary and secondary schools in the Netherlands showed that in 2010, 46.6% of the time of PE was of moderate-to-vigorous intensity in primary school. [69]

Secondary school

- Since September 2014, it was possible for secondary schools to apply for the theme certificate of the Vignette Healthy School, sports and exercise. 11 schools obtained this certificate.[66]
- A study among 40 primary and secondary schools in the Netherlands showed that in 2010, 40.1% of the time of PE was of moderate-to-vigorous intensity in secondary school. [69]

Secondary Vocational Education

- Since November 2013 it was possible for Secondary Vocational Education Schools to apply for the theme certificate of the Vignette Healthy School sports and exercise. 11 schools obtained this. [65]
- The percentage of Secondary Vocational Education Schools with a sports-and exercise offer increased a little: in 2014 16% of the schools has an offer, compared to 13% in 2012. [65]

Governmental regulations regarding PE

- Primary School
  According to government policy, primary schools are obliged to provide PE, however no regulations about the minimum of hours of PE, frequency and quality (for example teachers) are present. Primary schools can decide upon themselves the number of PE hours. [67]
- Secondary School
  For secondary school, the government's policy obliged that the students are taught by a PE specialist teacher. [63] Regulations regarding minimum hours or frequency are not clear established.
- Secondary Vocational Education
  In 1996, is has been decided to exclude 'sport and exercise' from the secondary vocational education curriculum.[68]

Recommendations |

- Develop strategies to increase the moderate-to-vigorous active time during PE lessons and create a more efficient PE lesson in terms of physical activity. School is the place where youth spends most of their time and all children can be reached. It is also a place where an active lifestyle or exercise behavior can be influenced at several levels. As mentioned above, study results showed that less than half of the time of PE lessons is of moderate-to-vigorous intensity in both primary (46.6%) and secondary school (40.1%).[69]
- Pay attention to the children who are not already active during PE lessons. Girls are currently a bit neglected in this respect. Already interventions are present which aim to increase the physical activity levels during recess and results of the PLAYground program for example, show that it was effective in increasing PA intensity levels during recess (with a significant difference between the intervention group and the control group. The intervention group was on average moderately physically active opposed to the control group who was light physically active. In the intervention group 77.3% of the children engaged in MVPA opposed to 38.7% of the children in the control group. The intervention effect was stronger for girls than for boys (might be explained by the nature of the intervention program).[70]
- Start or amplify collaborations between PE specialists, community coaches or people form sports clubs to address the above.
- Arrange more collaboration between schools, sports clubs and other organizations. Sharing facilities will be beneficial for all parties.[71] For example, schools can open their gymnasium for sport clubs for their regular activities or clinics or vice versa. Especially during school time, not all rooms of the accommodation of the sport clubs will be booked. NOC*NSF could stimulate and support connections and collaborations between schools, and (un) organized sports. [72]
- Offer sport and/or exercise activities weekly next to PE lessons. The school could organize this themselves or could collaborate with sports clubs, to give clinics for example.[73] Especially in secondary school, it seems that the dropout rate in sports participation is high. If schools can offer comprehensively and varying sport activities next to PE, this might give the possible dropout children new suggestions for sports. In addition, such offer of sports activities can better connect the preferences of all children, (girls and children of different origins as well). [75]
- Find strategies or interventions to reduce the sitting hours at school. In the current school systems, students are obliged to sit ceaselessly for several hours when they are at school. Interventions or new teaching styles should be considered. Interventions as Fit & Vaardig (F&V), in which physically active academic lessons are taught, might be valuable in decreasing sedentary time at school and improve academic skills. (During each F&V lesson 10-15 minutes are spent on solving math problems followed by 10-15 minutes on solving language problems. The main focus was on repetition and memorization of reinforced concepts that children learned in an earlier class. The physical exercises were of moderate to vigorous intensity but relatively easy to perform. During the lessons specific exercises or basic exercises were performed. Specific exercises were for example words that had to be spelled by jumping in place for every mentioned letter. Examples for basic exercises were marching, jogging or hopping in place.) [57]
- Explore the possibilities of teaching outdoors more.
- Stimulate the collaboration of schools in the same regions. It is supposed by the State Secretary of Education, Culture and Science (OCW) that schools of the same regions can learn from each other and could support each other. Some schools already have a well-developed policy concerning PE and those schools can be an example for others schools. [74]

- Restrict the 5% policy only to the first two study years. Students of those years will be more often present and the older children are most of their time engaged in internships and it seems that interventions to improve their activity levels are not successful.[76]
- Involve children, teachers and parents in the design and development of the school environment (playground for example). It is recommended as well to involve those persons in other settings as well, for example (after school) day care.[47]

Research Gaps

- As the minister of OCW already defined that by 2017, PE lessons should be taught by a PE specialist. It is also of interest to monitor the quality and learning aims of the PE lessons. Clear criteria should be established.
- Research in Secondary Vocational Educations schools, showed that 39% of the institutions need policy supporting instruments, to identify the actual school status and problem area's and to develop an integral action plan.[65] Presumable, this need is present in primary- and secondary schools as well. Strategies to support the schools to provide in this information should be developed. In Secondary Vocational Educations, the initiative of Testyourlifestyle.nl [Testjeleefstijl.nl] is already operating and might be a useful tool for primary- and secondary schools as well (adapted to their relevant aspects). In Testyourlifestyle.nl, every registered Secondary Vocational Education institute can see the status of how their students' behavior is regarding several lifestyle theme's (such as exercise, smoking, drugs, alcohol, screen time, and sex) and other aspects (fitness, BMI & waist, hearing & music, contacts & friendship, aggression & safety, fear & gloom/depression and bullying). Based on these facts, individualized policies and solutions could be drafted.[77]
- Several interventions regarding PE and physical activity in and- around schools have been developed and effectiveness seems promising.[78] Long term follow-up studies should start, so that it can be investigated if any of these promising effects result in sustainable effects.
- For 2017 and further, it will be established by law that schools have to offer at least 120 minutes of exercise per week. However, some countries, Canada for example, obliged schools to 150 minutes per week. It is not clear which amount and in which form, for instance two times 60 minutes or once 120 minutes PE per week, results in the most optimal health benefits. Future studies should address this.

Literature Synthesis

Research has shown that PE of high quality is important for the social, motor and cognitive development of children.[79] Next, (scientific) indications are present, which support the importance of PE: sports and exercise could contribute to improved education results and reduces the chance of school absence and dropout. High quality PE can contribute to the development of an active and healthy lifestyle in children. [79]

The State Secretary of the Ministry of OCW has quoted that: "the quality of the PE lesson depends on the quality of the man or woman who teaches the group. An inspiring PE class motivates children to develop a lifestyle in which regulatory exercise is obvious. For me, it is of high importance, that PE lessons are taught by a passionate, enthusiastic PE specialist. It should be unacceptable that unqualified teachers provide the lessons". [74]

Therefore, the Ministry of OCW and the Primary School Board, included as one of their aims that in 2017, all primary schools should offer at least two hours of PE per week, taught by a PE specialist. If possible, it should be endeavored to offer three hours per week. [80]

A relation is established between the lack of sports- and play facilities at the school playground and low levels of exercise. On the contrary, activities during recess are related with higher levels of exercise intensity.[39]

Research has shown that children of primary schools with more active exercise and sports policies have a higher activity level. This is especially the case if activities are offered in and around the own school. But remarkably, a more active exercise policy influences mainly the behavior of boys, autochthonous children and students who are already member of a sports club. Of which already is assumed that their physical activity behavior is higher.[37] More attention should be paid to hypoactive subgroups (girls, minorities, those not participating in sport and exercise). In secondary school, it seems that students of non-western origin benefit the most from a more active school policy.[39]

Next to an active school policy, interventions at school seem effective as well. A study has shown that students who participated in an exercise program, exercised 5 to 45 minutes more per day, watched 5 to 60 minutes less television per day and were fitter than students who did not participated in the program. Also, a study showed that physical activity is related to higher school performances and it probably leads to a better school performance.[78]

Research of the Mulier Institute has shown that the work of community sport coaches positively affects the stimulation of sports activities/offer for students in and around schools and at the sport society's. In addition, both community sport coaches and sport organizations share the opinion that the amount of members has increased due to the community sport coaches. Especially the amount of youth members (60%) and members of non-western origin (43%) would have increased the most due to the work of community sport coaches.[81]

Contributing factors and disparities

- Primary schools reported that main barriers to increase the amount of PE per week are insufficient financial resources (63%), lack of sufficient PE specialists (36%) and insufficient amount of accommodations (45%).[62]
- Not all schools have many sport clubs in the neighborhood. For those, school sport clubs or collaboration with commercial gyms might be a solution. This will probably facilitate a membership of a sports club.[75]
- Another barrier is the unsafe routes to school and sports accommodation's or society's. Schools could involve parents for supervision during this transport.[75]
- Previous research showed that personal characteristics related to physical activity levels: students of primary schools are more active were than students of secondary school. Boys have a higher activity level than girls. Characteristics of students with a lower activity level are: children of families without a car, families of which the father does not engage in sports, non-western origins, and not participation in organized sports.[39]

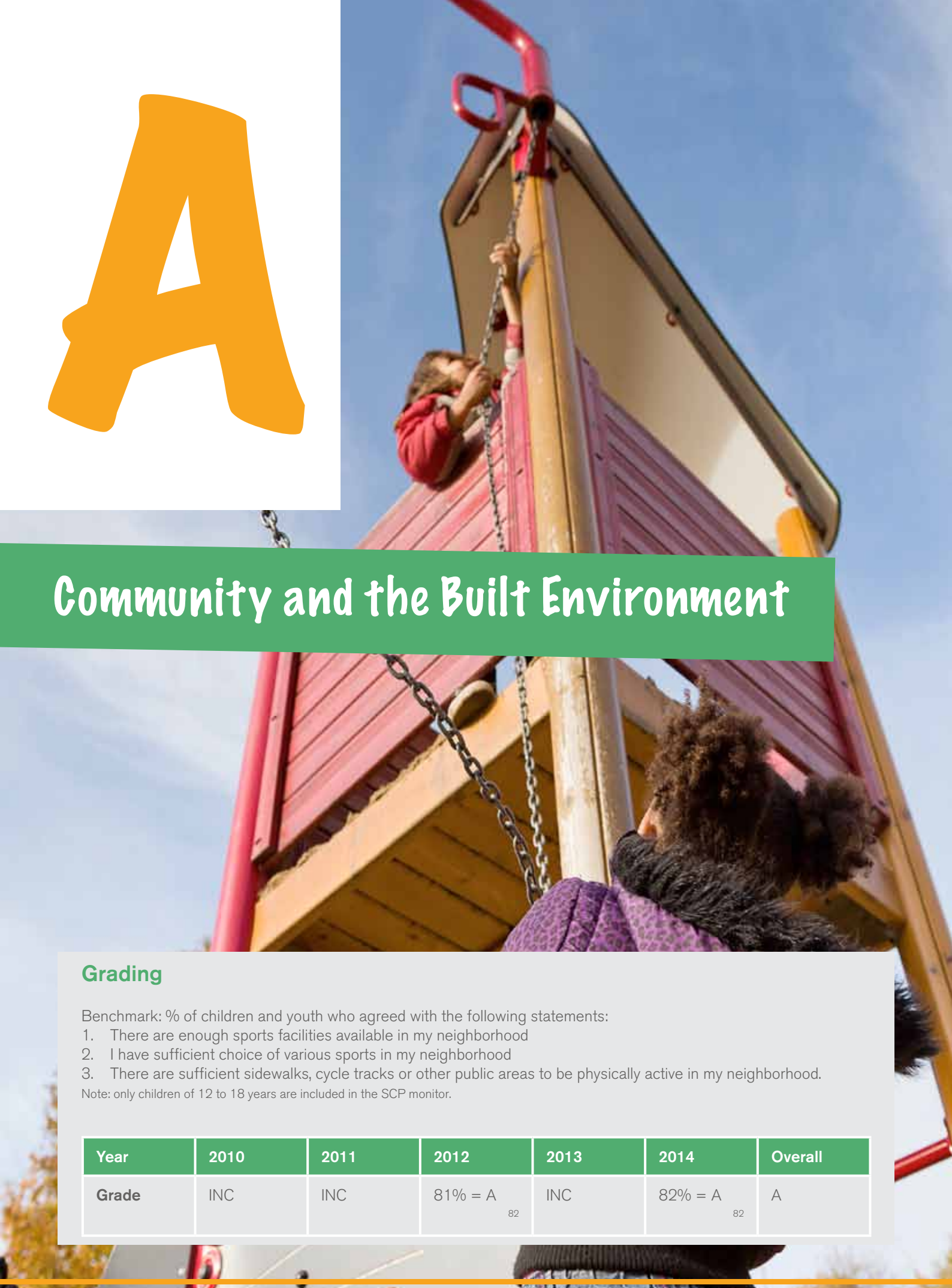
Note:

When interpreting these school results it is important to realize that:

1. The grading for some benchmarks was based on the legal situation. Monitoring was not always present and it was assumed that the schools actually comply with the regulations.
2. For Secondary Vocational Education meeting the 5% policy was used. To meet this norm, a considerably lower amount of PE per week is required compared to the 120 minutes in primary and secondary school.
3. The benchmarks used for school policy include several factors. Duration of recess and frequency of recess during a school day were not included.
4. The presence of a PE specialist was included based on the rationale of the importance of PE lessons of high quality and the influence for developing a healthy lifestyle and developmental skills. PE teachers could however, be highly valuable for the quantity of PE lessons or other exercise and sports activities.

A

Community and the Built Environment



Grading

Benchmark: % of children and youth who agreed with the following statements:

1. There are enough sports facilities available in my neighborhood
2. I have sufficient choice of various sports in my neighborhood
3. There are sufficient sidewalks, cycle tracks or other public areas to be physically active in my neighborhood.

Note: only children of 12 to 18 years are included in the SCP monitor.

Year	2010	2011	2012	2013	2014	Overall
Grade	INC	INC	81% = A [82]	INC	82% = A [82]	A

Key findings | Indicator Built Environment

Availability of programs/facilities

- *82% of the 12-18 year olds was satisfied with the sport and exercise opportunities in their neighborhood. *[82]*

** This percentage is a mean score of the appreciation of three aspects; 1) there are enough sports facilities available in my neighborhood 2) I have sufficient choice of various sports in my neighborhood 3) there are sufficient sidewalks, cycle tracks or other public areas to be physical activity in my neighborhood.[82]*

Overall

Availability of programs/facilities

- *36% of the 6-8 year olds think that sidewalks and squares in their neighborhood are boring. In the age category of 9-12 years old this percentage is higher; 46% think sidewalks and squares are boring.[34]*

Neighborhood safety

- *In 2014 there were 19 traffic fatalities among youth aged under 15 and 17 fatalities among the 15 to 17 years olds. [83]*
- *29% of the 6-8 year olds experienced that they could not reach a playground because of too much traffic. This percentage is halved (14%) in older children aged 9-12 years. [34]*

Recommendations |

- Make sidewalks and squares more inviting for the younger youth (~ ≤ 12 years) to be physical active to increase the attractiveness of sidewalks and squares. For example by widening the sidewalks, placing small goals or (more) attractive and challenging playground equipment at squares.
- Improve traffic safety. For example by adding more speed bumps and warning signs in neighborhoods with many children. This could help to decrease the amount of children and parents that perceive traffic danger as a barrier to reach a playground.

Research Gaps

- More objective research is needed about how often playgrounds/squares/sidewalks are used by children. Currently, there is only information available about how satisfied children and parents are with the possibilities in their neighborhood to be physical active, not whether they actually used them. Too much traffic is mentioned as a barrier for not using a playground, but more information about possible barriers is of interest to record.

Literature synthesis

Environmental factors

Environmental characteristics are associated with the level of physical activity of children. Research showed that environmental characteristics such as: presence of green spaces, water, playgrounds and free parking spots are positively associated with outdoor play among Dutch children.[36, 84, 85] Another study among children aged 4-12 years concluded that informal play areas such as sidewalks, are probably more important for Dutch children's outdoor play than formal play areas such as playgrounds or schoolyards.[86] Apart from availability of play areas also safety plays a role, traffic safety was an important factor associated with outdoor play.[86] Furthermore, a lower body mass index score was associated with higher perceived physical attractiveness of the neighborhood among Dutch Children.[87] Overall, environmental factors are contributing to the physical activity level of Dutch children. These environmental factors can be taken into consideration by policy makers to create more active-friendly neighborhoods.

Where do they play?

Dutch children aged 5-14 years old, or their parents, reported that they have several locations in their neighborhood where they can play outdoors. The most common used location to play outdoors is the private garden (59%) followed by a playfield (47%) and a playground (43%). [36, 60]

Contributing factors and disparities

- Too much traffic contributes to less active play in children because for 29% of the 6-8 years old and 14% of the 9-12 years old, too much traffic is a barrier to reach a playground.[34] The results in the 9-12 years old, are comparable to results from research among parents of youth aged 10-12 years, 16% of the parents stated that their children do not play outdoors because of too much and unsafe traffic in their neighborhood.[33] However, for 80% of the parents too much traffic is not a barrier for their kids to play outside. [33]
- Some children stated that the sidewalks and squares in their neighborhood are boring, this differed between two age categories with 10%: 36% of the 6-8 years old think their sidewalks and squares are boring, compared to 46% of the 9-12 years old.[34]
- Children, aged 6-12 years, from highly urbanized areas found their sidewalks and squares more boring.[34]
- 47% of the parents reported that when the routes to school would be more safe, they would allow their children cycle or walk to school on their own and 46% of the parents reported that they would let their children play more often outside unsupervised, when the routes to nice play area's would be more safe.[35]
- Also parents reported that they would not allow their children to cycle on their own to sports clubs or school because the routes are too dangerous.[88]

Strategies & Investments

A

Government and non-Government Strategies and Investments

Grading

Benchmark:

- Evidence of leadership and commitment in providing physical activity opportunities for all children and youth.
- Allocation of funds and resources for the implementation of physical activity promotion strategies and initiatives for all children and youth.
- Demonstrated progress through the key stages of public policy making (i.e. policy agenda, policy formation, policy implementation, policy evaluation and decisions about the future).

Year	2010	2011	2012	2013	2014	Overall
Grade	INC	INC	INC	INC	INC	INC

Key findings | Indicator Government and non-Government Strategies and Investments

Government

Vision current government

The current government represents own responsibility and the own power of the Dutch people. This applies also to health. Involvement of business, community, social organizations, school/education and health care is important. If contribution of the government is necessary, municipalities are in many cases the first to handle. The Dutch Government has three vision points:

1. Trust in protection of the health
   People cannot influence some of the risk factors for health (all by) themselves. The Dutch inhabitants can count on the government for this point. Clear laws and regulations, surveillance and compliance will be a task of the government.
2. Health care and sport close to home
   Healthcare should address the promotion of health more, next to the combat of unhealthy. The government would like that everyone can sport, play and exercise in the neighborhood. For this, sufficient and easy accessible facilities are necessary.
3. Own decision making about life style
   Concerning lifestyle, the government would like to dictate as less as possible. People make their own decision. These decisions will be made in an environment in which a healthy choice is easy and were different social sectors contribute to this environment.89

- **National health policy letter**
  The Dutch Government strives to offer suitable sport and exercise opportunities which are safe and accessible as well. The ministry of VWS funds activities which include: exercise close to home, accessible opportunities, customized and reliable information, and an information infrastructure to help create resilient youth to make healthy choices easy and stimulate collaborations with the public private sector.[85] Over the last years the available budget for this policy showed a steady decline: €64 million in 2011, € 59 million in 2012, €53 million in 2013 and in €48 million 2014.[89]

- **Sport and Exercise close to home [Sport en Bewegen in de buurt]**
  For the initiative 'Sport and Exercise close to home (SBB)' from 2012-2016, the Dutch government invests €80 million yearly.[90] It is a national program initiated by the Ministry of VWS, working together with the Ministry of OCW and local governments and non-governmental actors (municipalities, sports clubs). The final aim of this program is a sporting and vital society by 2016.[91]

- **Impulse Community Schools, Sports and Culture [Impuls Brede scholen, sport en cultuur]**
  In 2008 the government already had the 'Impulse Community Schools, Sports and Culture', of which the aim was to connect education, sports and culture by embedding 'combination functionaries'. In 2012 it became part of the SBB (see above) and the program was amplified by community sport coaches, which have to organize opportunities for sport and exercise in the neighborhood and to make a connection with sports and other clubs or unions who offer exercise opportunities. The main target groups are children (4-12 years) and youth (12-18 years). The ministries of VWS and OCW has invested €47 million in 2012, €55 million in 2013 and this will be €58 million per year thereafter.[90,92]

- **Sports Impulse [Sport Impuls]**
  Another part of the SBB initiative is the Sports Impulse, grants are available for sports providers to set up activity programs for sedentary or low-participation groups and eventually gain a structural sports offer. Part from these regular grants there are also grants specific for overweight children or youth in low-income neighborhoods. In 2014, €16 million was available for all these grants. Remarkably is that in 2014 less is targeted to youth compared to previous years (2012 45% for youth, 2013 30% for youth, 2014, 22%).[90,92]

- **Educational Agenda for sports, physical activity and healthy lifestyles in and around school [Onderwijsagenda Sport, Bewegen en Gezonde Leefstijl in en rondom school]**
  For the period 2012 - 2016 the Educational Agenda for sports, physical activity and healthy lifestyles in and around schools) was developed. This is another initiative of the Ministry of VWS, in collaboration with the Ministry of OCW, local government and nongovernmental actors (municipalities, sports clubs). The aim of the initiative is to stimulate schools to implement active policies concerning sports, exercise and a healthy life style. School boards and managements are stimulated to conduct their policies according to 'Healthy School' (Gezonde school). For this Agenda is €4 million available for the period of 4 years.[67,70]

- **Covenant Healthy Weight [Convenant Gezond Gewicht]**
  The ministry of VWS has formed the 'Covenant Healthy Weight' for the period 2010 till 2014. This is a public-private cooperation of 27 parties. The goal is to change the increasing trend of overweight and obesity to a decline. Four factors are addressed: municipality, school, work and leisure time.
  A part of the 'Convenant Healthy Weight' is the covenant ' Youth on healthy weight' [Jongeren op Gezond Gewicht ,

JOGG]. Ambition of JOGG is that in 2020, the Netherlands has the healthiest youth of Europe. One of the targets is to have 75 JOGG municipalities in 2015 and this was already achieved in 2014.[94]

- **National Action plan Sport and Exercise [Nationaal Actieplan Sport en Bewegen]**
  In 2007, the Dutch Government has initiated the program 'National Action plan Sport and Exercise'. The five most important areas of focus were: district, school, care, work and sport. The program ended in 2014. Supported with a grant, 10 sport unions had the opportunity to implement 14 concepts and interventions, to achieve the target of a sports participation increment from 65% to 75%. Based on results it was estimated that 15.000 people were activated due to this program. [95]

- **Exercise-friendly environment [Beweegvriendelijke Omgeving]**
  KSC has developed a project called: Exercise-friendly Environment, in collaboration with the ministry of VWS. In several pilot municipalities it is investigated how to shape the public space and make it more inviting and stimulating to exercise. [93]

- **Sport related research**
  The ministry of VWS finances sport-related research yearly. The ministry has an annual budget of €140 million available for the sports field, from which approximately €10 million is for research and knowledge. Knowledge Centre for Sport Netherlands (KSC) [Kenniscentrum sport] receives €5 million. Approximately €2 million is for organizations which support the ministry to monitor the sports field. Involved institutes are Mulier Institute, CBS, SCP and RIVM. The remaining €3 million is for the national scientific research program: the Dutch Organization for Scientific Research [Nederlandse Organisatie voor Wetenschappelijk Onderzoek, NWO], the Netherlands Organisation for Health Research and Development [Nederlandse organisatie voor gezondheidsonderzoek en zorginnovatie,ZonMw], Technology foundation [technologie sticgting STW] are the involved organizations. [97]

- **Municipalities**
  Since 2010, the government obliged municipalities to include sport participation for children from lower SES in their policies. An assessment in 2012 in smaller municipalities, showed that 88% has specific facilities for this group. 92% of these facilities concerned stimulation of sports activities. [98]

- **Provinces**
  Almost all provinces have changed their sport policies, when comparing 2013 and 2008. Less budget is spend on sports, sports promotion, active life style, social value of sports, sports and education and providers of exercise opportunities. More is focused on elite/professional sports and (elite) sport events. Proliferation is more easy for the provinces with these theme's and a possible explanation is the development of the Olympic Plan 2028. The shift in focus is also present in the financial expenses: in 2008; €17 million was spend and in 2012 €17 million by provinces.[99]

Non-government

Part from governmental investments there are also several non-government initiatives. Most of them are foundations providing opportunities for children to be physical active, for example by creating playgrounds.

- **Youth Sports Fund [Jeugd sport fonds]**
  The Youth Sports Fund was established in 1999 and is financed by both public as private funds. 24% of its income originates from the private sector. The aim of the initiative is to let children from a low socioeconomic status participate in a sports club and to provide the necessary sports equipment. In 2014, the Youth Sports Fund reached 38.574 children, which was more than the aimed 30.000.[100]

- **Johan Cruyff Foundation**
  The Johan Cruyff Foundation supports children to be physical active. The foundation organizes sports projects for disabled children and has developed sporting fields: Cruyff Courts. These Courts realizes outside play opportunities in the district. Up to 2012, 120 Cruyff courts were build.
  50% of all courts are in municipalities with more than 150.000 inhabitants, 33% in municipalities of middle size (50.000-150.000 inhabitants), in the smaller municipalities (less than 50.000 inhabitants) 17% of the courts are build. Also weekly activities are offered, in 2012 the average was 3 activities per week. Almost halve (46%) of the visitors/users of the courts is younger than 12 years old%.[101]

- **Krajicek Foundation**
  The Krajicek foundation is aimed on safely playing outside, close to home, for children in difficult neighborhoods. This foundation was established in 1998. Playgrounds are built in problem areas, to realize that the children can sport and play safely in their neighborhood. In addition, older children are offered scholarships. The agreement is that they will receive a scholarship, when they supervise for 100 hours on one of the playgrounds. [102]

- **Marc Lammers Plaza**
  In 2009, former head hockey coach Marc Lammers collaborated with Yalp (supplier of sports and play equipment). Together they developed the Marc Lammers Plaza. This is a sporting facility where youth can meet each other and do different sports. Their collective goal is to challenge the Dutch youth to play and sport more outdoors. [103]

Recommendations |

Currently, it is not possible to give a valid judgment regarding the effects of all the initiated programs and policies. More research has to be initiated to monitor the effects of the programs and policies. To do so there are some improvements to make for the data collection and the number of case studies can be increased. When the monitoring has been improved, it will be possible to make a judgment about the effect of the work of the community sport coaches on the total of memberships and sport participation in the population.

To achieve a valid judgment of the effects of the policies it is important to define clear indicators for success. Furthermore, it is important to investigate the validity of these indicators. This kind of effect measurement will require efforts, however they will provide significant information for creating successful future policy.

Governmental policy is important but, the implementation of policies is done by each province or municipality. Not every municipality has the same concerns or might choose the same approach for implementation of policies. Therefore policies should be adjusted locally and provinces, municipalities and cities with the same concerns must be able to help each other.

Future policies

In 2014 the government has compiled the 'Plan of Action for physical education' [Plan van aanpak bewegingsonderwijs]. In agreement with ministry of OCW and the primary school board [PO-raad] it was decided that:

1. Schools commit to give at least 2 hours of PE a week, if possible to have to strive to 3 hours per week in 2017. The government will support the schools by funding. €5 million per year is available from.
2. In 2017, there will be agreements made at local level, in which it is strived to increase the amount of PE and more opportunities in outside school activities. At least the large 37 municipalities are reached.
3. From 2017, all physical education lessons will be teached by PE specialists. The government will finance up to €3 million per year to educate more teachers into specialist.[80]

Research Gaps

As stated in the recommendations, more information about the effects of the interventions is needed. More detailed monitoring on the effects of governmental interventions is desirable. Do the policies contribute effectively to a more physical active youth? This information is important for the content and costs of future policies.

Literature Synthesis

According to the WHO physical inactivity is the fourth leading risk factor for mortality.[2] The approach of national policies, of seven European countries, to increase this physical activity are compared. The comparison revealed that the Netherlands is the only country that reported an established process for developing evidence-based policy.[104] KSC plays a central role by ensuring that only the most relevant scientific evidence was taken into consideration. [104]

The influence of so called community sport coaches on the physical activity and sport participation of youth is studied in a pilot. In 11 municipalities there was no convincing evidence found between the employment of community coaches and sport frequency and sports club membership.[81] However, more research including all municipalities in the Netherlands is needed to draw more solid conclusions about the effect of community sport coaches.[90]

Overview & Conclusion

The aim of this Report Card was to provide an overview of the methods and results of the first Dutch Report Card. The results showed that sedentary behavior and overall physical activity levels of Dutch youth are not meeting current guidelines or norms. Over the past 5 years 43% of the 4- to 11 year olds sit more than two hours per day in front of the computer or television and 71% of the 12-17 year olds does not engage in at least 60 minutes of moderate-to-vigorous physical activity every day. Fortunately, behaviors in sports, active transportation and active play are satisfactory. Almost three-quarters of youth (12-17 years) engage in sports weekly, cycles or walks to school for at least three days per week and plays outdoors weekly.

The theme of our cover story was "is the Dutch youth cycling to health?" Our results demonstrate that many Dutch children use the bike as their mode of transportation and it was demonstrated that active transportation is responsible for a large part of school-related physical activity in Dutch Youth. [8] However, cycling alone is not enough to meet the physical activity guidelines. To improve the current situation and to make sure that children will remain using their bikes to go to school or friends, traffic safety and construction of neighborhoods seem important aspects to address.

Even though the overall grading of the community and the built environment is an A, still some children reported that playgrounds are not always easily accessible, because of busy traffic.[35] Also parents reported that they would not allow their children to cycle on their own to sports clubs or school because the routes are too dangerous.[8] Thus, when developing new neighborhoods attention should be drawn to make it more cycle friendly and accessible in which concerns of end users should be incorporated in the design.

School seems to have an important role in the overall physical activity patterns of children. At school, almost all children can be reached. Schools could attempt to find strategies to make the PE lessons more active and/or that the moderate-to-vigorous active time is more efficient. Research has shown that less than half of the time of the PE lessons is of moderate-to-vigorous intensity in both primary and secondary school.[69] Next, during PE lessons or during recess, attention should also be paid to children who are not already active. Girls and minorities are currently a bit neglected in this respect. PE specialist, community coaches or people from sports clubs can all work together to address this. Furthermore, more collaboration between schools, sports clubs and other organizations should be arranged. Sharing facilities will be beneficial for all parties.[71] Further, during a school day children sit/lie on average for 7.5 hours per day.[49] The sitting hours during school are on average 5 hours.[49] More recent numbers of 2015 are already present and show that children sit even more at school.[105] Thus, changing the sitting behavior during school and finding strategies to reduce screen time in its broadest sense (including television, computer, mobile phones, tablet, Xbox, PlayStation etc.) at home, seems a very plausible way of improving the physical activity levels of the Dutch youth.

Organized sports has an important role in physical activity patterns for youth as well. There is a wide range of sports clubs for organized sport**. Eighty percent of Dutch children are member of one of the 25.000 local sports clubs, kids having one training or more per week and a game a week (competition). Training/coaching is given mostly by volunteers, which makes it questionable if moderate-to-vigorous active time is reached during training. Organized sport could cooperate more with schools, PE teachers and professional trainers in sport.

Finally, the behaviors of parents seem to have a great influence of the activity and sedentary behaviors of their children. Currently, Dutch parents are not doing it that bad. However, despite the fact that the children are not participating enough in physical activity, about half of the parents do not believe it is necessary for their children to participate more in exercise or sport.[32] Trends also suggest that more children are transported by car to school and sports. Not all parents are aware that their sports behavior, TV viewing behavior or active transport behavior is related to the behavior of their children.[106] Parents are important role models for their children. Consequently, social marketing campaigns, strategies and interventions to increase the knowledge of parents about the importance of physical activity are encouraged. It is expected that this will result in more parents who will cycle together with their children to playgrounds or school. If successful, we can maintain the physically active culture for Dutch youth.

** In the Netherlands, sport is organized at club level, the clubs being members of a sport federation. Most of these sport federations are in turn affiliated to NOC*NSF

Strengths and limitations |

This is the first Dutch Report Card that provides a comprehensive overview over a period of 5 years about how the Netherlands is doing, regarding physical activity opportunities, overall physical activity levels and the role of sources of influences. Strength of the Dutch Report Card is the many data from nationwide surveys and databases. Furthermore, the participation of many experts and organizations in this area make that all important data sources were identified and included. Unfortunately, not all indicators are integrated in national surveys yet (e.g. active play, family and peers, sedentary behaviors). Thus for some indicators, we had to use research with smaller sample sizes and less well representative samples. RIVM has stated that some aspects are integrated already in the 2016 national survey. Hopefully, the other indicators are integrated in future national surveys as well.

The respondents of the (larger) national surveys used for the grading (2010-2014) only included 12 to 17 year-old children, thus the data of the younger age group are unfortunately lacking. Fortunately, the age group of 4 to 11 year-olds will be included since the 2016 survey.[107]

For active play, sedentary behavior and government strategies still no established criteria for the definition, measurements and benchmark or its relationship with health exist. This needs further national and international discussion and consensus. The Health Council of the Netherlands (commissioned by the Minister of Health, Welfare and Sports) evaluates already and if necessary adjusts the current physical and sedentary guidelines based on recent scientific insights.[108]

Self-report and/or parent-report was applied in almost all surveys, however, the (possible) discrepancy for these subjective methods and objective measurements is under discussion. Thus, this needs further scientific exploration as well

Future

We hope that it will be possible to continue with and to develop and release the Report Card annually. Relevant trends over times will probably emerge.

For a next Report Card, some discussion about the currently used benchmarks should be added. Perhaps, duration of an activity (related to the indicators active play, active transportation, organized sport) should also be incorporated in the benchmarks next to the frequency. And it would be perhaps even better, to include the intensity of the several activity behaviors as well.
For now, we can state that a large amount of the Dutch youth cycle frequently, however it might be that the average duration of a cycle trip is getting shorter. For organized sports, for example, it could be that in the activity of a weekly athlete, only a minor part exists of at least moderate intensity. When this knowledge is present, the behaviors which contribute to overall physical activity will be better understood, and more evidence-based, effective strategies can be developed to attack the physical inactivity crisis.

Report Card+

The next step Report Card will be the development of the NL Report Card+. In this Report Card+, indicators in children and youth with a chronic and/or mental disability/disease will be evaluated and assessed. Expected release date is summer 2017. Further information can be found on the following websites:

Further Information

http://www.activehealthykids.nl
https://www.allesoversport.nl/
https://www.volksgezondheidenzorg.info/sport/kernindicatoren

Conclusion |

This first Dutch Physical Activity Report Card indicates that the sedentary behavior and overall physical activity levels of the Dutch youth, are not meeting current guidelines or norms. Fortunately, behaviors in sports, active transportation and active play are satisfactory. Several modifiable factors may be targeted to improve these indicators or at least prevent regression. Turning sitting time, especially during school time, into non-sedentary time might be a feasible way of improving activity levels of Dutch children. Although Dutch children accumulate a lot of daily physical activity through cycling, it is not enough to meet the current national physical activity guidelines of 60 minutes of moderate-to-vigorous physical activity per day. Cycling is important, however cycling alone is not enough for sufficient levels of health-related physical activity.

Summary of Indicators & Grades

Behaviours that contribute to overall Physical Activity Levels

1. Overall Physical Activity

Grade: D

- % of children and youth who meet the Dutch Norm for Physical Activity (NNGB; to be at least moderate active for at least 60 minutes a day).

2. Organized Sport Participation

Grade: B

- % of children and youth who participate in organized sport and/or physical activity programs weekly

3. Active Play

Grade: B

- % of children and youth who participate in organized sport and/or physical activity programs weekly

4. Active Transport

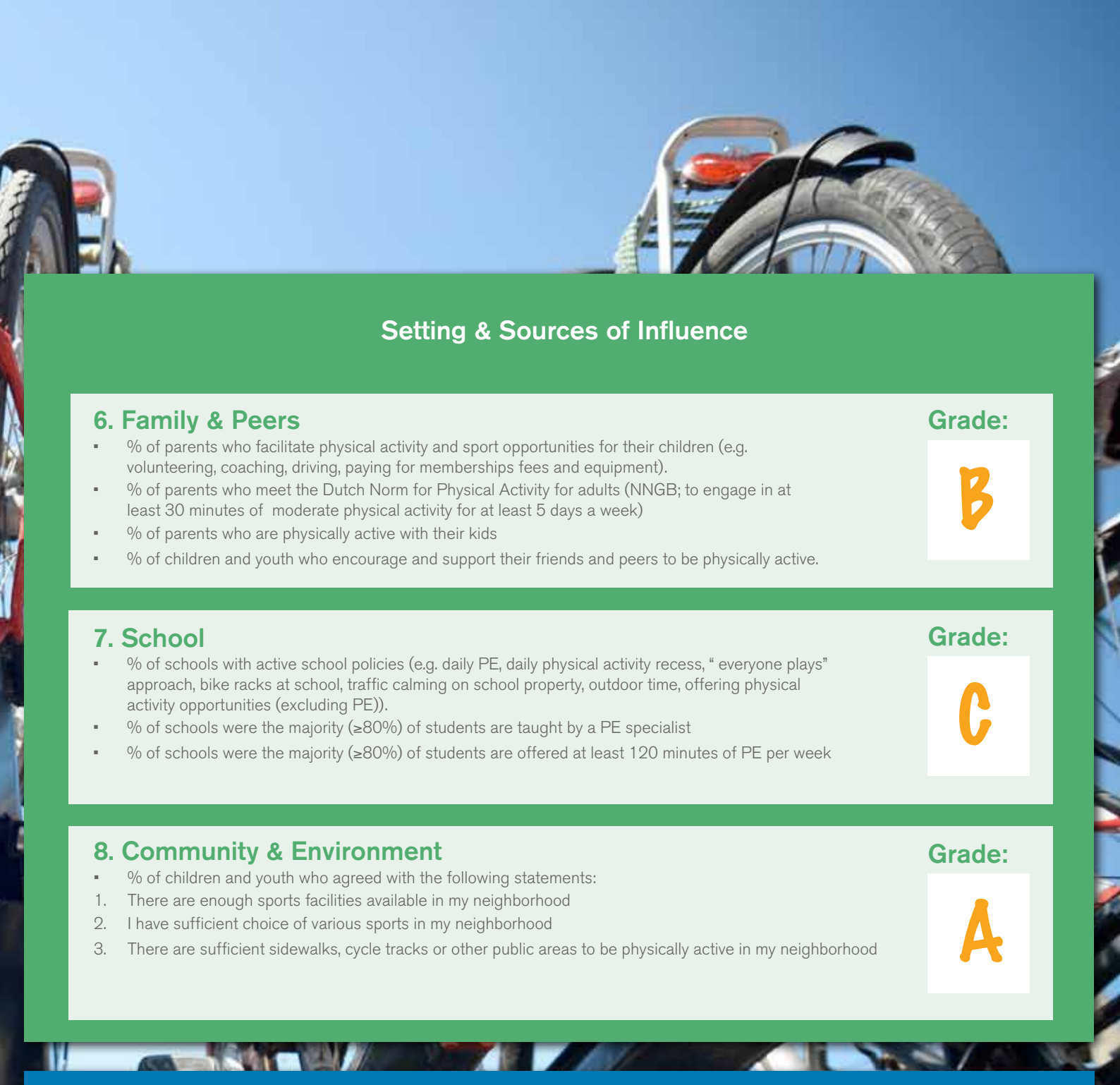
Grade: A

- % of children and youth who uses active transportation (walking or cycling) to get to and from places (school and/or work) at least three times a week

5. Sedentary Behavior

Grade: C

- % of children and youth who engage in no more than 2 hours of screen time per day



Setting & Sources of Influence

6. Family & Peers

Grade: B

- % of parents who facilitate physical activity and sport opportunities for their children (e.g. volunteering, coaching, driving, paying for memberships fees and equipment).
- % of parents who meet the Dutch Norm for Physical Activity for adults (NNGB; to engage in at least 30 minutes of moderate physical activity for at least 5 days a week)
- % of parents who are physically active with their kids
- % of children and youth who encourage and support their friends and peers to be physically active.

7. School

Grade: C

- % of schools with active school policies (e.g. daily PE, daily physical activity recess, " everyone plays" approach, bike racks at school, traffic calming on school property, outdoor time, offering physical activity opportunities (excluding PE)).
- % of schools were the majority (≥80%) of students are taught by a PE specialist
- % of schools were the majority (≥80%) of students are offered at least 120 minutes of PE per week

8. Community & Environment

Grade: A

- % of children and youth who agreed with the following statements:

1. There are enough sports facilities available in my neighborhood
2. I have sufficient choice of various sports in my neighborhood
3. There are sufficient sidewalks, cycle tracks or other public areas to be physically active in my neighborhood

Strategies & Investments

9. Government & 10. non-government

Grade: INC

- Evidence of leadership and commitment in providing physical activity opportunities for all children and youth
- Allocation of funds and resources for the implementation of physical activity promotion strategies and initiatives for all children and youth
- Demonstrated progress through the key stages of public policy making (i.e. policy agenda, policy formation, policy implementation, policy evaluation and decisions about the future)

Abbreviations

CBS	Statistics Netherlands [Centraal Bureau voor de Statistiek]
OCW	Onderwijs, Cultuur en Wetenschap [Education, Culture and Science]
VWS	Volksgezondheid, welzijn en sport [Health, Welfare and Sports]
JOGG	Youth on healthy weight [Jongeren op Gezond Gewicht]
KCS	Knowledge Centre for Sport Netherlands [Kenniscentrum Sport]
KVLO	Dutch Society for Physical Education [Koninklijke Vereniging voor Lichamelijke Opvoeding]
MVPA	Moderate-to-vigorous activity
NNGB	Dutch Physical Activity Guideline [Nederlandse Norm Gezond Bewegen]
NOC*NSF	Dutch Olympic Committee* Dutch Sports Confederation [Nederlands Olympisch comité * Nederlandse Sport Federatie]
OBiN	Accidents and Movements in the Netherlands [Ongevallen en Bewegen in Nederland]
PAEE	Physical activity energy expenditure
PE	Physical Education
RIVM	National Institute for Public Health and the Environment [Rijksinstituut voor Volksgezondheid en Milieu]
SBB	Sport and Exercise close to home [Sport en Bewegen in de buurt]
SCP	Netherlands Institute for Social research [Sociaal en Cultureel Planbureau]
SES	Social economic status
SVE	Secondary Vocational Education [MBO]
TNO	Dutch Organization for Scientific Research [Nederlandse Organisatie voor toegepast-natuurwetenschappelijkonderzoek]
WHO	World Health Organization

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