

The Danish Physical Activity Report Card for Children and Youth

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The Danish Report Card on Physical Activity for Children and Youth

Lisbeth Runge Larsen, Jens Troelsen, Kasper Lund Kirkegaard, Bjørn Christensen, Søren Riiskjær, Rikke Krølner, Lars Østergaard, Peter Lund Kristensen, Jens-Ole Jensen, Charlotte Østergaard, Niels Christian Møller & Thomas Skovgaard

Research and Innovation Centre for Human Movement and Learning



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Help us do our job better

The Report Card is based on the best available data on physical activity and physical activity related indicators in children and youth. – mainly going back 3-5 years. However, since this is the first Danish Report Card a few data sources represent findings reaching back about 10 years.

If you have data that could inform future grades for one or more indicators, please contact Lisbeth Runge Larsen at the Research and Innovation Center for Human Movement and Learning (lrla@ucl.dk).

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The Danish Report Card

The Report Card provide a "state of the nation" report on how Denmark is performing when it comes to activity behaviors in children and young people and how various levels of government promote an active lifestyle in the same target group. Through identification of potential facilitators and barriers of physical activity, the aim of the Report Card is to provide updated knowledge on and prompt political action in relation to engaging children in physical activity from an early age. The majority of data to inform the first Danish Report Card cover the period 2007 to 2016.

Target audience

- Those interested in childhood physical activity and sedentary behavior.
- Community providers or organizations that develop are interested in, or who implement programs for increasing physical activity.
- Schools and education providers
- Health care providers
- Those who develop and implement public health policies.
- Those who are responsible for ensuring the built environment.
- Those who supports safe opportunities for physical activity participation.
- Parents, children and youth

Report Card Development Team

The development of the Danish Report Card was initiated and coordinated by the Research and Innovation Centre for Human Movement and Learning, a joint-venture Centre between University of Southern Denmark and University College Lillebaelt.

The Report Card was developed by a Report Card Research Committee comprised of 12 members. The Committee had a wide presentation of researchers and experts in physical activity, health behaviors and policy development and represented different scientific perspectives and methodological background.

The Committee represented four Research Units from University of Southern Denmark, three research departments from different University Colleges, three professional organizations and the region of Southern Denmark. The Danish Health Authority participated as observer in the committee and helped identifying relevant data.

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About the Research and Innovation Center for Human Movement and Learning

The center develops and applies new, practice-oriented knowledge on human movement and learning - in close collaboration with non-governmental organizations, private companies and public institutions.

The center promotes cross-sector and interdisciplinary research and innovation in the area of learning, well-being and human movement in relation to children and youth.

Together with a range of external partners the center strives to co-create movement and learning environments of the future. In cooperation with university colleges and universities, the center contributes to bachelor, master and PhD-level education. Another of the centers core outputs is development programs for professionals working with human movement, learning and well-being.

Let's work together on…

- Research and development in relation to movement and learning of children and young people
- Innovation projects on learning, well-being and human movement
- PhD-projects on cutting-edge issues in human movement science
- Joint courses of study for university college and university students
- Further training activities
- Knowledge translation and research dissemination





Introduction

Physical activity is associated with numerous health benefits in children and effective prevention of a number of lifestyle-related diseases[1-4]. There is strong evidence for associations between several psychological and social health benefits of PA, including mental well-being, higher self-esteem and social skills, self-efficacy, perceived activity competence, goal orientation, motivation, and sports participation[3,5,6]. Thus, motivating children towards a healthy lifestyle is an important goal to encourage a healthy lifestyle later in life.

Physical activity has a tendency to track from childhood to adulthood: The physical active children and youngsters have an inclination to continue to be so in adult life and, in a somewhat similar fashion, low physical activity tracks into adulthood[7,8]. This highlights the importance of continued focus on possible factors influencing physical activity during childhood in order to support factors and behaviors positively associated with being active. Establishing good physical activity habits in the younger years is essential to encourage children to stay physically active through adolescence.

According to the latest version of the Health Behaviour in School aged Children study (HBSC) from the World Health Organization (WHO), only 9% of the Danish girls and 11% of the Danish boys at age 11 report at least 60 minutes of daily moderate to vigorous physical activity. Consequently Denmark rank as number 41 of 42 comparing countries.

Even though Danish children do substantially better when the compared factor is time in vigorous physical activity, the amount of time with physical activity at a high intensity level is not enough to compensate for the weekly lack of physical activity. Off hand, the low ranking is puzzling as several initiatives to promote physical activity have been taken;

- Voluntary sport has high priority among both national and local governments in Denmark.
- *The Act on Non-formal Education and Democratic Voluntary Activity* urge local governments to support voluntary sports clubs making sports participation available to all children and youngsters.
- Physical education lessons have been a part of school life since the 19th century.
- Active transportation is promoted and very common in Denmark.

Still, there are sizeable challenges in promoting physical activity among Danish children and youth.

The amount of evidence to guide action has proliferated in the past decades. But despite the growing body of evidence highlighting the adverse health outcomes of sedentary behaviors among children, these behaviors seem to remain a challenge to address.

Thus, there is a need to gather, evaluate and translate high quality research on physical activity to guide future practice and interventions, as well as policy and program development. One way to address this knowledge translation is using the Report Card method, developed by Active Healthy Kids Canada[9].



Indicators and grading system

The Report Card Research Committee identified the existing key research articles, reports and other available data sources on physical activity indicators.

The Danish Report Card presents nine indicators related to physical activity in Danish children and youth:

1	Physical Activity
2	Organized Sport Participation
3	Active Play
4	Active Transportation
5	Sedentary Behaviors
6	Family and Peers
7	School
8	Community and the Built Environment
9	Government Strategies and Investments.

Table 1: The nine indicators

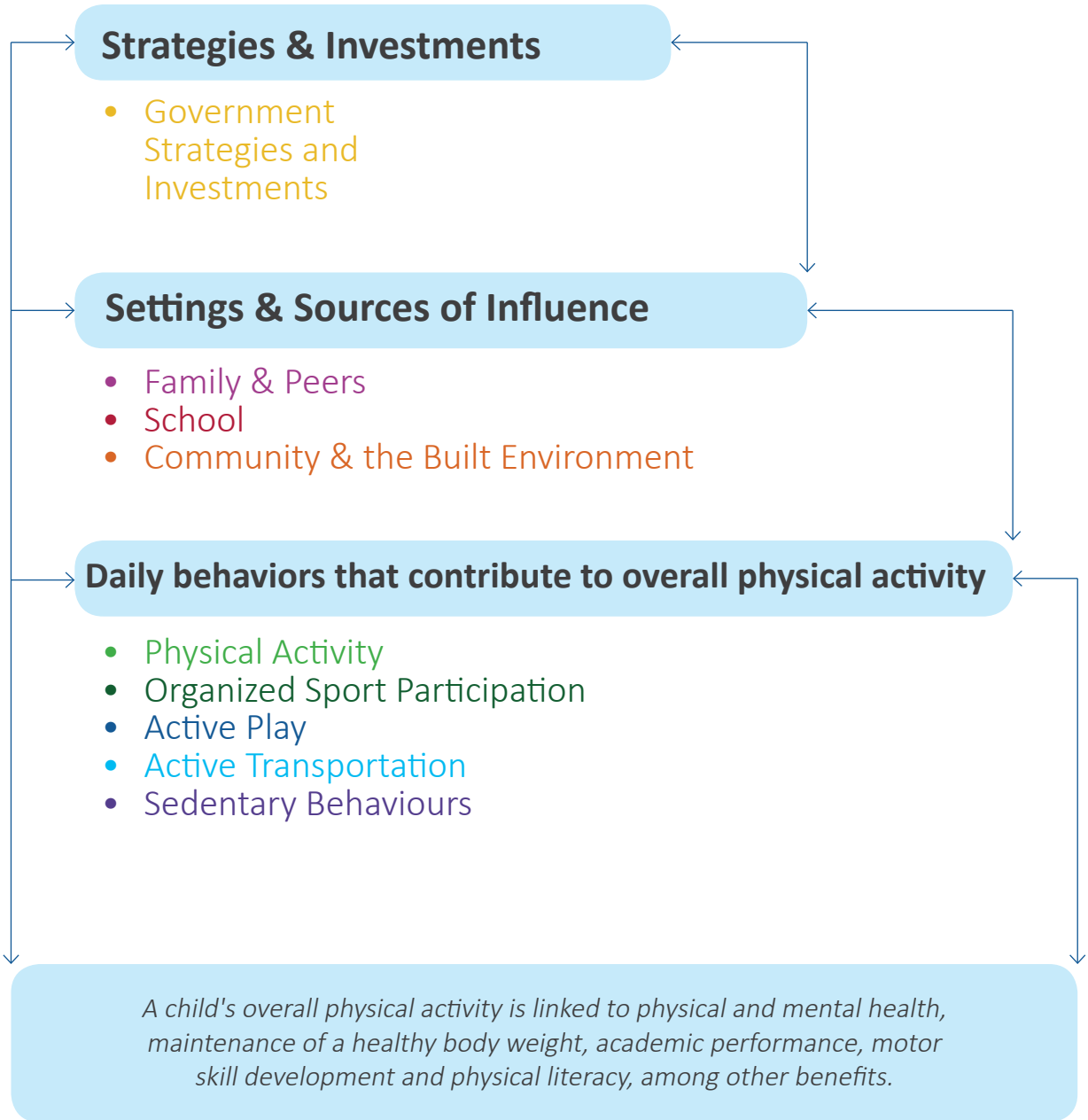


Figure 1: Summary of the 2016 Report Card Indicators

Method for grading the indicators

The indicators have been graded using the Active Healthy Kids Canada Report Card development process, which included a synthesis of the best available research, health surveillance and other relevant monitoring data, policy and practice findings, and expert consensus statements. The assigned grade for each indicator has generally been based on the proportion of children, adolescents, schools or municipalities achieving the benchmark for each indicator, or as a consensus decision following discussions of the quality of the evidence and the governmental priority of strategies and investments to promote physical activity.

The grades from A to F were giving as shown in table 2. If data were available, any disparities (e.g. age, gender, disability, ethnicity, socioeconomic status, regional comparisons, etc.) and data trends also contributed to the decision of the assigned grades. When necessary, a "+" or "-" was included if any of the aforementioned disparities pushed the grade to the upper or lower limits of the benchmark. In addition, for each indicator the quality of the evidence, the sample size and the representativeness was discussed in the grade assignment meeting and where possible the most recent and larger studies were used throughout the grading process.

Grade	Benchmark
A	we are succeeding with 81% – 100%
B	we are succeeding with 61% – 80%
C	we are succeeding with 41%–60%
D	we are succeeding with 21% – 40%
F	we are succeeding with 0% – 20%
INC	incomplete data

Table 2. The grades from A-F. When necessary, a "+" or "-" was included if any disparities pushed the grade to the upper or lower limits of the benchmark.

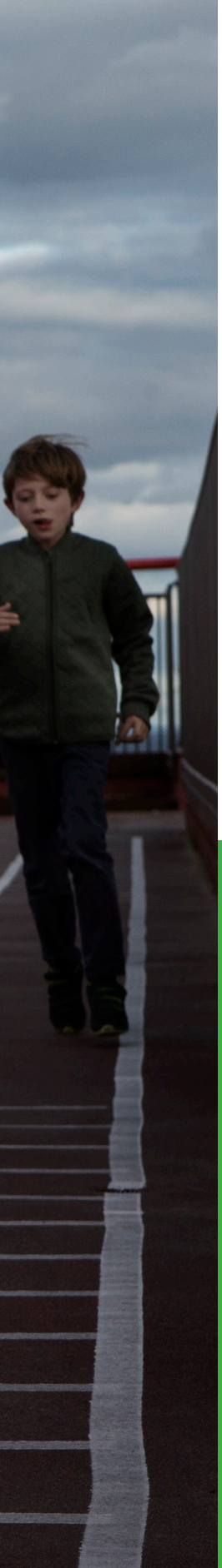
Summary of results

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

Table 3. Grades according to physical activity indicator in the 2016 Danish report card on physical activity for children and youth.







Physical Activity

The Danish Health Authority´s recommendations for physical activity vary by age. In the age span 0 to 4 years of age, the recommendations for physical activity for children does not include a number of minutes of physical activity[10,11]. However, the Danish Health Authorities recommend to limit sedentary behavior as much as possible, and to facilitate that the child can move freely and with variation during the day[11].

From 5- to 17-years of age the recommendations advise that children and youth spend 60 minutes of moderate to vigorous physical activity per day including at least three times 30 minutes in vigorous physical activity per week[12] (text box page 18).

D+

The benchmark for this indicator pertains to the proportion of children and youth complying with the recommendations for physical activity.

The Danish Health Authority: Recommendations for children and adolescents (5-17 years old)

The following recommendations are relevant to all healthy children aged 5–17 years[12]:

- Be physically active for at least 60 minutes per day. The activity should be of moderate to high intensity and should extend beyond the usual short-term daily activities. If the 60 minutes are divided, each activity should last at least 10 minutes.
- Engage in physical activity of high intensity at least three times a week for at least 30 minutes to maintain or improve physical fitness and muscle strength. Incorporate activities that increase bone strength and flexibility.
- Note that plysical activity in addition to the recommendations will have further health benefits.

How to meet the recommendations

There is a great variety of activities that your child can choose from to meet the physical activity recommendations.

Examples: moving around at school and at home, active transportation and different types of plays and games etc.



Key findings

When physical activity was measured by subjective measures, e.g. questionnaires:

- A national study (n=4534) from 2014[13], showed that on average 13% of Danish 11- to 15-year-olds met the national recommendation of at least 60 minutes moderate to vigorous physical activity per day. Fewer girls (10%) than boys (17%) met the recommendation.
- Two recent studies have assessed physical activity habits for 15- to 20-year-olds[14,15]. Both studies operationalized the physical activity recommendation as the mean number of weekly hours of moderate to vigorous physical activity during leisure time. Answers specifying more than 7 weekly hours was interpreted as conformity to the physical activity recommendation. Separate analyses in one of the databases[14] performed for the Danish Report Card and including only the 16-to 17-year-olds, showed that 55 % met the physical activity recommendation (n=955). The other study including older participants (15-to-20-year-olds) reported that 18% met the physical activity recommendations[15]. In both studies boys were more active than girls.

When physical activity was measured by objective measures, e.g. accelerometers:

- In a regional study (n=797)[16] a sample of 11-13-year-old children was followed over a period of two years. In 11- to 13-year-olds 41% complied with the recommendation of at least 60 minutes of daily moderate to vigorous physical activity, whereas the corresponding percentage at age 13-to 15-year-olds was 24%.
- In a recent report from The Danish Health Authority[17] it was estimated that 78% of the 5-year-olds met the recommendation of at least 60 minutes of daily moderate to vigorous physical activity.

Additional findings

Objective measures of physical activity have been preferred when measuring physical activity in children[18-20]. This is due to the risk of a biased memory when children are asked to estimate the amount and intensity of physical activity over the last week, e.g. because physical activity in children often are in the form of short bursts of high intensity activity, difficult for the child to quantify[18-20]. When analyzing data from objective measurement tools, there are indications, that method of analyses influences the estimated percentage of children complying with the recommendations for physical activity[21]. In a study of preschool children (386 children, mean age 5.8 years[22]), additional analyses were made (unpublished) presenting the proportion of children meeting the recommendations for physical activity depending on two different methods for analyzing the objective data.

Based on one of the methods[23] 78% of the children met the recommendation of at least one hour per day spent in moderate to vigorous physical activity. Based on the other method[24] this was only the case for 3% of the children. Thus, the methodology to estimate the amount and the intensity of physical activity in children is challenged.

Recommendations for physical activity for children below 5 years of age have been established by The Danish Health Authority, however, due to lack of research examining this agegroup, they do not include recommendations regarding neither the intensity of activity nor the duration of the activity. A recent study of 3- to 4-year-olds[25] showed that all children in this age group accumulated at least 180 minutes of physical activity per day. An amount of 180 minutes physical activity per day is equivalent to the Canadian guidelines for physical activity in this age group[26]. However, having the methodological problems of interpreting objective measures of physical activity in mind, it is premature to conclude that all children below the age of 5 accumulate enough physical activity. To have a clear estimate of physical activity in children and youth demands a better and standardized way to analyze and interpret data from objective as well as subjective measurement tools.

Research gaps

- There is a profound need for standardizing the methods for assessing the proportion of children meeting the physical activity guidelines for physical activity including standardization of how the recommendation is operationalized.
- The choice of methods to analyze and interpret objective physical activity data might influence the identified percentage of children complying with the recommendations for physical activity[21]. Furthermore, questionnaires to measure physical activity in children have to ask the same questions in the same context to be comparable over time. Thus, more research is needed to validate physical activity measures.
- Objective data on physical activity that are nationally representative, with sampling in all 5 regions in Denmark, are needed.

Cues for action

- **Researchers and stakeholders** should interpret results from studies of physical activity in children and youth with caution and give awareness to the methodological challenges in both objective and self-report measures of physical activity.

- **As a consequence of the methodological challenges** when interpreting data on physical activity, studies on physical activity among children and youth should combine the use of objective and subjective measurement methodology as well as combine with data from other settings where physical activity is performed. E.g. studies of active transportation, sports participation and unstructured physical activity.

- **There is a need for projects** that increases the knowledge on how we motivate children and youth to be physically active.

- **To establish** physical activity encouraging environment in daycare, kindergarten as well as schools and leisure time environment.





Organized Sport

In Denmark the most popular organizational framework among children and youth are nonprofit sport associations (sport clubs).

The organization of sports in Denmark is rather unique, as it is primarily a system of voluntary work - meaning that participation is possible for the majority of the population.

A

The benchmark for this indicator pertains to the proportion of children participating in organized sport.

Key findings

- 83% of 7- to 15-year-olds in Denmark exercise or participate in organized sports and / or physical activity programs on a regular basis[27].
- 86% of children aged 7-15 report that they have been a member of a sport club (association) within the last 12 months The reason that the association-rate somehow turnout the general participation rate in sports is, that more respondents have answered that they have participated in more than one activity during the past year, compared to the proportion, who have answered 'yes' to the question if they *"normally exercise or participate in sport activities"*. The higher figure for associations compared to general participation is therefore an indication that many children have been active in a sport club in more than one activity in the past year, although some of them are not active members 'at the present time'.
- The proportion of children aged 7- to 15-year-olds, participating in organized sport, has remained relatively stable during the latest decade, with the surveys from 2007, 2011 and 2016 reporting respectively 84%, 86% and 83% of children and youth taking part in such activities[27-29].
- The self-reported participation in organized sport and physical activity is lower for the older age group (13- to 15-year-olds) compared to the two other age groups (7- to 9-year-olds and 10- to 12-year-olds)[27].
- The prevalence of self-reported participation is almost equal across gender (table 4)[27].
- Today´s children and youth are sport specialized: They participate in fewer selected sport activities but spend more time per activity than was the case just a few years ago[27]. In 2007, children were active in 3.9 sports per sport active child. In 2011, this figure was 3.2. In the new study from 2016, preliminary data showed a decrease to a participation-rate of 3.0 sports per sport active child.
- The total average time spent on sport is relatively stable. The sport active children participated on average in sport for about 4.25 hours per week in 1998, while in both 2007 and 2011 the active children were active approximately for 4.75 hours per week[28].

	7 to 9-year-olds (%)	10 to 12-year-olds (%)	13 to 15-year-olds (%)
All	85	86	76
Girls	86	85	78
Boys	85	87	75

Table 4: Self-reported participation in organized sports or/and physical activity programs by age and gender.

Additional findings

The proportion of children, who participate in more than six hours of sport per week, has risen from 22% in 1998 to 29% in 2007 and 30% in 2011[28-30].

Additional research confirms the high level of sport participation among children. In a recent study[31], using novel data collection method via automated mobile phone text message (SMS-tracking), the children were asked to estimate number of times per week they were engaged in organized club sport during leisure time. The children reported their activity level every week over a period of 2.5 years. The mean frequency of participation in organized sport was 1.5 times per week, with preschool children having less participation than grades 1, 2 and 3.

Research gaps

- Better insight into and understanding of when, how and why children start in organized sport or physical activity programs is needed.
- There is a need for research to examine if sport participation facilitates the development of certain skills in the early years that condition participation in physical activity later on?
- Research is needed to examine if the changes of sport habits over time in children and youth relate to the specific activities that they choose at younger ages.
- In precedence of interventions, future research should try to understand when, how and why the children under the age of 6 start in in organized sport/physical activity programs as well as when, how and why the older children drop out.

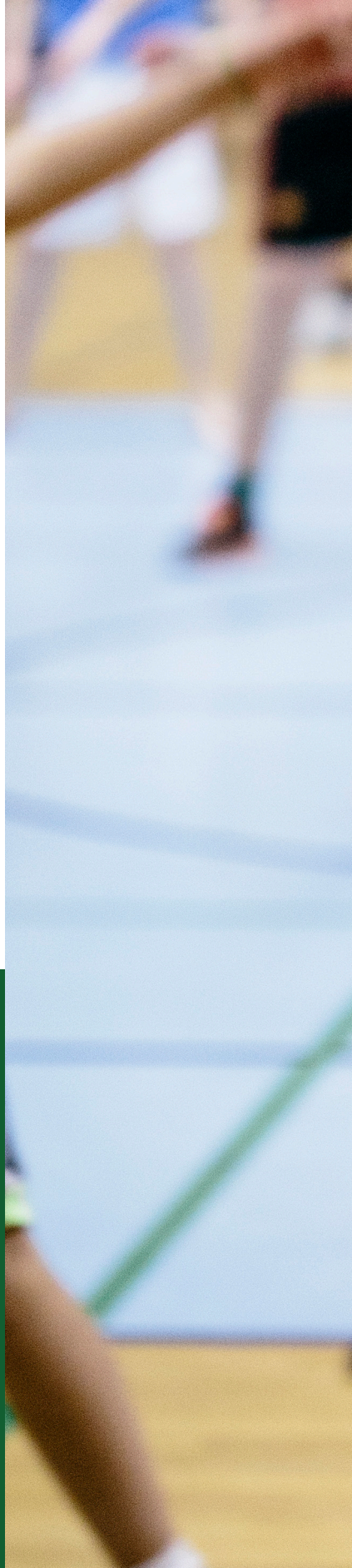
Cues for action

- **To educate volunteers** (i.e. coaches/instructors, officials, board members) in associations to focus on and develop the quality of sport activities.

- **To encourage volunteers** (i.e. coaches/instructors, officials, board members) to develop strategies to counter the dropout rate in organized sport among youth from the age of 12 – 15.

- **To encourage parents** to get engaged as coaches/ trainers in sports clubs and the like.

- **To encourage local authorities and policy stakeholders** to continue building sport facilities for organized sport and active living.




HOCKEY
ACADEMY
2014





Active Play

Especially young children have a natural inclination to take part in physical activities and active play. Playing in general is important for children's social, psychological and physical development[32-34].

Active engagement in play means that children are free to choose what, where and with whom they interact with while playing. Children's play is hard to define and take place in multiple settings and surroundings, e.g. at playgrounds, in schools, or at home. Sometimes it's initiated by adults and sometimes it is recognized as well known games.

Often, playing is a unique activity created by the particular children´s imagination. Thus, the diversity of playing is the heart of playing and for that reason a challenge to define, operationalize and quantify in a meaningful way.

INC

The benchmark for this indicator pertains to the proportion of children and youth who participate in un-organized physical activity or unstructured play in leisure time. Furthermore the benchmark should refer to national recommendations for active play.

However, there are no national recommendations for the amounts of active play in Denmark. For that reason the indicator active play remains incomplete.

In this context 'active play' doesn't refer to an existential being in the world like many humanistic play theories claim[35]. Active play is a category including all physical activities outside school, active transport and organized sport activities. From previous report cards, the indicator Active Play has been described as children's physical activity in unorganized activities and/or time spend outside. Two studies from the Danish Institute for Sport Studies[28,29] provide knowledge about children's unstructured physical activity other than school and organized sport. The key findings represent numbers from those studies.

Key Findings

- 46% of children in the age of 7- to 15 year-olds report that they are doing sport or exercise on their own.
- Doing sport and exercise on their own is more popular among boys (52%) than among girls (39%).
- The 13-to 15 year-olds are more likely (51%) to do unstructured and unorganized activities than the 7- to 12-years-olds (43-44%).

Additional findings

The most popular unstructured and unorganized activities are cycling, fitness training, running, hiking, skateboarding and roller skating[28].

Research gaps

- Existing investigations do provide insight on what kind of physical activities children choose in unstructured and not organized settings. More detailed knowledge is needed with regards to the amount, the intensity and the nature of the unorganized activity.
- There is a lack of studies in Denmark quantifying the time children spend outdoor.
- There is a lack of Danish studies examining possible associations between intensity and duration of active play and children's physical and psychosocial health.
- Studies seeking to identify motivational factors for children to be more physical active are needed.



Cues for action

- **Schooldays** in Denmark were prolonged in 2014. Therefore, available time for children's free play has decreased. For that reason awareness should be given to time for recess and breaks during the school day.

- **Active play should be promoted**, as it contributes to the development of children's creativity, autonomy and judgement within social interactions.

- **Adults should encourage** and facilitate children's free play in unstructured and not organized settings.

- **International studies** recommend that children are encouraged to spend time outside, this factor increases children's level of physical activity[36,37].




SRAM



Active Transportation

The key findings of this indicator are based on data from "The study of transport behavior among schoolchildren"[38] conducted by the Danish Cancer Society including a total of 18,835 children and adolescents from the municipality of Aarhus, Odense, Gladsaxe and Rudersdal.

Virtually all public schools from these four municipalities participated. A total of 1000 school classes were visited to assess transport mode. The active transportation indicator was graded "B" since, according to the most recent data, most children and adolescents (averaging 68.5%) commuted actively to and from school.

B

The indicator reflects the percentage of children and youth who use active transportation to get to and from places (e.g., school, park, leisure time activities, mall or a friend`s house).

Key Findings

- 66% of children and adolescents attending public schools actively commuted (walking, cycling, skateboard, child scooter or roller-skates) to school.
- 71%, of children and adolescents attending public schools actively commuted (walking, cycling, skateboard, child scooter or roller-skates) from school.
- The proportion that actively commuted to and from school was higher among 10- to 15-year-olds (76.4% and 82.1%, respectively) than among 6- to 9-year-olds (52.4% and 55.4%, respectively).

Additional findings

The prevalence of active transportation to public schools varied widely (from 61% to 76%) between the four municipalities, and the prevalence varied substantially between individual schools within each municipality (e.g. from 28% to 86%). The prevalence of active transportation to (averaging 44.1%) and from (averaging 49.0) school was lower at private compared to public schools.

Based on a fact sheet from The Danish National Travel Survey (pooling 2010-2014 data) walking and cycling constituted approximately 64% of the school trips among the 10- to 15-year-olds[39]. Among the 10- to 17-year-olds, walking and cycling trips to after-school care, sports club and other leisure time activities were approximately 78%, 43% and 50%, respectively[39].

When taking another methodological approach it has been observed that 57% of high school students (approximately 15- to 20-year-olds) and 45% of vocational students (approximately 15- to 20-year-olds) reported always or almost always to walk or bike to school[15].

The average commuting distance to school was increased with age: Thus, 10- to 12-year-olds travelled approximately 3km, while 16- to 17-year-olds covered around 11 km. Furthermore only 48% of high school students in the northern region of Denmark use active transportation compared to 64% in the capital region[15]. All-though 89% of Danish adolescents own a bike, it is highly likely that distances beyond a certain distance are perceived incompatible with active transportation. Such a threshold could be one of the reasons that public transportation is more common among older compared to younger adolescents[39].

Cycling to school has been linked to health effects effects such as lower BMI[40] and higher cardiorespiratory fitness compared to passive commuting[41]. Furthermore it has been demonstrated that starting cycling to school has beneficial effects on clustering of cardio metabolic risk factors[42]. These factors have not yet been examined when the factor of interest is walking to school.

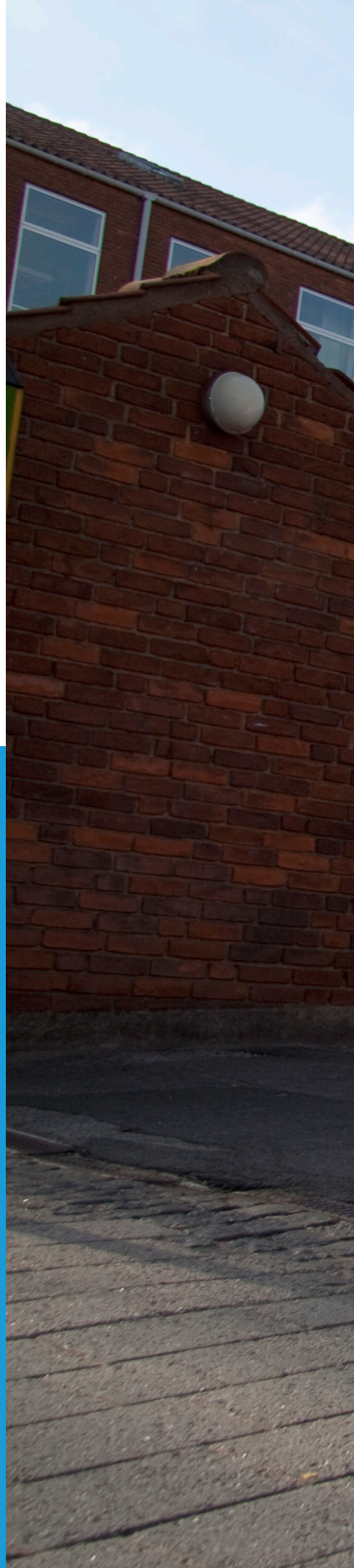
Research gaps

- Data allowing for assessment of nation representative trends in active transportation to and from school are currently not available.
- Limited evidence exists on the effectiveness of interventions aimed at promoting active transportation to school. Cycling as well as walking.
- Since 85% of all cycle trips in Denmark are below a distance of 5 km[39] it appears relevant to specifically estimate the distance threshold for active school commuting. Especially in a time where many local authorities of financial reasons decide to shut down some of the smaller schools.
- There is a lack of solid evidence regarding effect of active transportation on concentration, cognition, learning and well-being.
- Underlying reasons of a distinct commuting behavior among ethnic minorities compared to children and adolescents of Danish ethnicity[40] should be further investigated to visualize cultural differences.
- The four Danish municipalities of relatively high population density are unlikely to be representative for all 98 municipalities in Denmark e.g. since it previously has been demonstrated that inhabitants in larger cities generally cycle more compared to inhabitants in smaller cities[39]. Thus future estimations of the prevalence of active transportation ought to be based on several municipalities and assessments which to a further extent include schools located in smaller cities and rural environments.
- The key findings reflect one-day assessment of school transport behavior but optimally the prevalence of active transportation should be based on several days sampled during different seasons.

Cues for action

- **Future initiatives** to promote active transportation to school should be aimed especially at those schools, which despite safe routes to school, i.e. sidewalks and cycle paths, have relatively low rates of active transportation.

- **Users (i.e. pupils and parents) may be involved** when designing interventions to increase active transportation to school. This appears to be beneficial both in terms of effectively identifying local barriers to active commuting and beneficial in terms of knowledge dissemination and joint ownership.




RALEIGH





Sedentary Behaviour

The total amount of sedentary behavior among children and youth has been measured either by nationally representative surveys or by movement sensors (accelerometers) in smaller, not necessarily representative intervention studies. All assessments showed the same tendency.

INC

The benchmark for this indicator pertains to the proportion of children complying with the recommendation for the amount of sedentary behavior. Due to the lack of research examining this agegroup, The Danish Health Authority has not yet established recommendation for the maximum amount of sedentary behavior in Denmark. Therefore we cannot assign a grade to this core indicator in 2016.

Key findings

- According to data on TV viewing from a nationally representative study 2014[13], 64% of Danish 11- to 15-year-olds spend more than 2 hours of screen time per day on weekdays and 81% on weekends.
- Among 11- to 15-year-olds, computers were used at least 2 hours per day by 56% and 61% on weekdays and weekends respectively[13].
- Computer use increased by age (41% among 11-year-olds and 69% among 15-year-olds)[13].
- During waking hours school-aged children spend an average of 8.2 hours per day being sedentary (7, 5 hours in 7-year-olds to 8.9 hours in 11-year-olds43, 8.2 hours among high-school students aged 16-18-years-old)[15].

Additional findings

New Zealand[44] and Australia[45] have recommendations with regards to the amount of time children spend being sedentary. They specified that 5– to 17-year-olds should spend less than 2 hours screen-time per day. In the identified data, there was a social gradient showing that 11- to 15-year-olds exceeded this guideline on weekdays ranging from 54% in high family occupation social class to 71% among children with parents outside the labour market[46]. During weekends there were no differences between children and youth from various social settings. There were no gender differences.

Research gaps

- There is a need for research to qualify the guidelines and definition for sedentary behavior including standardization of how the recommendation operationalized.
- Standardization of measurement methods and specification of type of sedentary behavior is needed.
- Nationally representative data on the total amount of sedentary behavior is needed among children.
- Objective measurements of sedentary behavior need improvement and standardization – e.g. methodologies to assess non-screen based sedentary behaviors are needed so that the effects of screen-based and non-screen-based sedentary behaviors on health indicators can be differentiated.

Cues for action

- **To establish more specific Danish recommendations** on sedentary behavior. This calls for more research to enlighten the consequences of sedentary behavior
- **To develop effective strategies** to limit time spent on sedentary behaviors.
- **To develop effective strategies** to limit screen time.
- **To increase the awareness** on the importance of reducing sedentary behaviors.


HELLO



Family and Peers

Support from family and peers are important determinants for children to engage in physical activity. Data on the percentage of children and youth who encourage friends or are encouraged by friends are limited in a Danish context.

The data on parent`s behavior to encourage their children to engage in physical activity are also limited. Therefore the indicator was graded incomplete. However, overall the identified data indicated a close relationship between parent participation in sports and their children's participation in sports.

INC

The benchmark for this indicator pertains to the proportion of parents who facilitate their children to participate in physical activity, and the proportion of parents who (themselves) meet the guidelines for physical activity. Furthermore it pertains to the proportion of children who have peers encouraging and supporting them to participate in physical activity.

Key findings

- If both parents take part in sport, 91% of their children (among the 11- 13- and 15 year olds) participated in sports[47,48].
- If one parent participate in sports, 89% of their children (among the 11- 13- and 15 year olds) also participated in sports[47,48].
- If none of the parents practices sport, 79% of the children participated in sports[47,48].
- Especially it seems to matter to boys, if their fathers participate in sports or not: If the father participate in sports, 91% of the boys are also active[47,48]. If the father does not participate in sports, only 76% of boys participate[47,48].
- Parental support is important for children and youth in relation to participation in physical activity. In a study of 11- 13- and 15 year olds[49], there were significant interconnections between four dimensions of parental support (Parental social support for their children's physical activity, doing joint physical activity, parents watching their child doing physical activity, and talking about physical activity).
- 6% of the Danish children do not participate in sport or exercise at all, despite the fact that parents are active in sports. Of these 6% of the children, 41% have been a member of a sports club earlier, but have dropped out during the past year. 'Lost interest' was the most popular reasons why they have stopped doing sports.
- If the children have sport inactive parents, they are more likely to be inactive themselves. Only one in ten children with sports active parents are sports inactive, while this is the case for three in ten children of sport inactive parents.

Additional findings

The organizational framework of the parent`s choices of sport reflect their children`s choices of sport. If parents practice sport in a nonprofit association, 94% of the children are also members and active. If the parents are not active in sports or in a nonprofit association, only 84% of the children participate in sports in an association. It does not have to be the same association that the parents and the child are members of[48].
Furthermore, it appears that children of parents, who were not born in Denmark, are less likely to be active in sports, and sport participation is strongly related to parental socioeconomic background.

Research gaps

- The influence of parental and peer support on physical activity has received relatively less research attention in Denmark compared to other countries. In particular, prospective research is needed to examine whether changes in parental and peer support explain changes in physical activity over time.
- Peer-based physical activity and interventions need to be developed and evaluated.
- Research is needed to identify factors from friends and peers that children and youth find supportive for physical activity.
- Identification of characteristics, facilitators and barriers among the parents who are active and / or facilitate physical activity and sport opportunities for their children (e.g., volunteering, coaching, driving, paying for membership fees and equipment), is needed.
- Identification of characteristics, facilitators and barriers among children and youth who encourage and support their friends and peers to be physically active is needed.

Cues for action

- **Parents are encouraged** to reduce their own sedentary time.

- **Parents are encouraged** to reduce their children's sedentary time.

- **Parents are encouraged** to regularly plan for physical activities with their children and family on evenings, weekends, leisure time and holidays.

- **Since physical inactivity** is a problem for people of all ages in Denmark, interventions could encourage families as a whole to be physically active together and reduce sedentary time together.





School

In general, Danish children have a supportive activity-friendly school environment. Physical education lessons are compulsory from 1st to 9th grade.

Moreover, in order to support physical activity and fundamental movement skills as well as meet the requirements of the learning objectives of physical education lessons, school children are by law ensured sports facilities and equipment in public schools[50].

B

The benchmark for this indicator pertains to the proportion of students who are taught by a physical education specialist, are offered at least 150 minutes of physical education per week and who have facilities and equipment that support physical activity. Furthermore it pertains to the proportion of schools that have active school policies and offer physical activity opportunities.

Key findings

- The Education Act, updated in 2014[51], makes it compulsory for public schools to offer an average of 45 minutes of physical activity per school day.
- Physical education lessons are compulsory from 1st to 9th grade (approximately 7 to 15 year olds). This way, Danish school children are ensured a minimum of 60-90 min. of physical education lessons every week.
- 81% of the teachers who teach in physical education are physical education specialists[52].
- The 45 minutes of physical activity is not yet fully implemented. In a national survey among teachers in the beginning of 2016, 27% state that the provision was fully implemented[53]. In a later survey from 2016 this number has increased, showing that 60% of the public schools have implemented the 45 minutes of physical activity per school day[54]. The numbers reflect large regional differences. In the Region of Southern Denmark 83% of the schools answers, that the pupils have 45 minutes of physical activity per day. In the capital region this number is only 40%. The lack of full implementation can be related to challenges in the general demand for pedagogical competences and information on how to implement 45 minutes of daily physical activities during school hour
- Data indicates that only 49% of the girls and 63% of the boys are physical active for a minimum of 45 minutes during a normal day of school[55].
- The majority (84%) of the teachers state that the indoor facilities support the requirements[52].
- 27% of the teachers state that the outdoor facilities support the requirements[52].
- A mapping evaluating the work with implementation of the National Board of Health prevention packages showed that only few municipalities reported that schools had a policy for physical activity[56]. The most recent report showed that 17% of the public schools had a policy for physical activity[54].
- 25% of the municipalities in Denmark stated that none of the schools in the municipality had a school policy for physical activity, while 14% stated that every school or nearly all schools had a policy for physical activity[56].



Additional findings

A Danish school study[57] showed that the domain characterized by the highest physical activity level is physical education lessons followed by recess, school time and leisure time. For all domains, the physical activity levels were generally higher for boys than girls[43].

A pilot study showed that the median time spent in moderate to vigorous physical activity during recess was 2.8, 8.3 and 19.9 minutes for the Low, Middle and High physical activity group, respectively. During the whole school day the median time spent in moderate to vigorous physical activity for the three groups was 54.0 minutes, 75.6 minutes and 87.0 minutes respectively[58]. Based on both analyses three main locations could be distinguished: building (i.e., the entire indoor school area), schoolyard and field. Results from another study showed that the mean time spent in moderate to vigorous physical activity for children in regular Danish schools (before the Education Act, updated in 2014[51]) were 6 min/h which is approximately 40 min per day[59].

A recent study investigated school playground facilities effect on children's daily physical activity. This study showed that the number of play facilities in the school grounds was positively associated with all measures of children's activity. School playground area (m2) did not affect activity levels independently of the number of permanent play facilities. Therefore the study concludes that increasing the number of play facilities in primary school playgrounds may increase the level of children's daily physical activity.



Research gaps

Further research is needed on the number of schools with active school policy and how the policies are put into practice.

More research is needed to investigate the implementation of the school reform and the impact on the amount of physical activity during school hours.

Cues for action

- **Danish Ministry of Education** should be encouraged to increase education and support for pedagogical competences for implementing the 45 minutes daily physical activities.

- **A whole-school approach** for supporting physical activity is needed and school leaders must create a clear framework for implementing physical activity and acknowledge the benefits of more movement and physical activity during the school day.

- **The school provides an arena** where it is possible to reach the majority of children and young people, including those who do not otherwise do regular physical activity. Increased focus on physical activity and time for physical activity with qualified, meaningful and customized activities can be a possible way to promote motor skills, cognitive performance and motivation for participation in physical activity.







Community and the Built Environment

In general, Danish children live in or have reasonable access to activity-supportive environments – including widespread access to sport facilities, green areas and natural resorts interconnected with pedestrian and highly-developed cycling infrastructure supporting children's independent and safe mobility from a young age[60].

Especially children and youth living in urban settings can make use of many private and public play grounds, and, in recent years, improved access to street movement facilities like parkour, skate and BMX parks[61,62].

B+

The benchmark for this indicator pertains to the proportion of municipalities allocating resources and actively promoting physical activity. It also pertains to the proportion of children and parents indicating that their community is doing a god job to prioritize and promote physical activity, and that the community has adequate facilities to do physical activity (parks, play grounds, bike lanes etc.).

Key Findings

- For 7- to 15-year-olds 88% assess their local community to have suitable sport facilities.
- 91% of the 7- to 15-year-olds assess the local community as a good setting to be active[28].
- Facilities for sport, play and leisure time activities are unequally distributed geographically. Children living in dense urban settings have lower accessibility to physical activity facilities per capita, though the absolute number of facilities is higher in the major Danish cities.
- The two most popular outdoor areas, for children and youth to spend time at are "sport facilities" (51%) and "in the garden" (40%)[63].
- 84% of children and youth are physical active when they are at the sport facilities, 7% use the facility to hang out. In the garden the most common activities are playing (39%), hanging out (27%) and doing sports (18%)[63].
- The perceived safety in urban marginalized areas is lower[64].

Additional findings

Studies show that adults are most active when their neighborhoods are densely populated, have several parks nearby, have good access to public transport, and they have highly connected streets that provide direct routes from place to place[65]. Less is known about how the movement patterns of children and youth are impacted by built environment and community areas´ physical layout. In general children (and to a lesser degree youth) have a limited radius of action and are dependent on grownups transporting them from one location to another. We could obtain more detailed knowledge about children's movement patterns based on objective measurements using accelerometers and GPS and thereby, more in-depth, identify barriers and facilitators for physical activity in the built environment.

The two most popular outdoor areas, that children prefer to spend their leisure time, are "at sport facilities" (51%) and "in the garden" (40%)[63]. This makes it clear that sport facilities and private domains like gardens are to be seen as important spaces for physical activity-based social networking among youngsters.

Research gaps

- More knowledge is needed on children and youth's movement patterns in relation to the characteristics of the built environment and the community.
- The needed insight could be generated through objective measurements using accelerometers and GPS and thereby identify barriers and facilitators for physical activity in the built environment.

Cues for action

- **Sport facilities and gardens** are common places to do activities like playing (39%) and hanging out (27%). These settings should therefore be considered important spaces for physical activity and social networking among youngsters. As peer support to physical activity in general facilitate more activity, places to meet and network should be prioritized at the community level.

- **The community** should support independent mobility, so children have the possibility to do physical activity without parental support.





Government Strategies and Investments

Denmark is among the most decentralized countries in Europe – assessed by the power to make independent political decisions and the volume of resources spend at the local level. Thus, local government in Denmark accounts for a very high degree of GDP and public expenditure. On top of this Danish municipalities are rather big population wise – on average with 55.000 inhabitants.

Quite many national mechanisms and procedures - related to legislation, funding options, policies, overall strategies and campaigns - predominantly function as (binding) frameworks for further, independent policy- and planning processes at the local level.

A-

The benchmark for this indicator pertains to the evidence of leadership and general obligation at governmental levels to provide physical activity opportunities for all children and youth. Furthermore it pertains to the allocated resources to the implementation of political strategies aiming for implementing physical activity promotion strategies for all children and youth.

It should be noted that the fundamental formal and informal rules for the division of competences and powers between the three nested governmental tiers in Denmark (National, Regional and Local), build on a historical development over many decades. A crucial point in this has been a shared commitment to secure that the functions of government are discharged at the lowest possible level of government, - in ways that contribute to welfare and prosperity at the national level. Thus, the 98 municipalities handle the greater part of welfare and societal affairs and have a strong local tax base. Examples of main activity areas are: Social security benefits, health services, primary and secondary schools, cultural activities, local roads, public utilities, spatial planning.

Key findings

- Municipalities are in charge of 85% of public expenditure with regards to sport and leisure time.
- National authorities and bodies conduct a number of public information campaigns every year, e.g. "Get Moving"[66], to encourage children to be physically active.
- Especially three laws are important for children's physical activity from an early age.

    - **The Day-Care Act** specifies body and movement as one of six key learning themes[67].
    - **The Education Act** ideally ensures that all children are physically active at least 45 minutes each day in school[51]. The Education Act requires schools to seek cooperation with local Sports and leisure time organizations.
    - **The Act on Non-formal Education and Democratic Voluntary Activity** calls for municipalities to support voluntary associations for children and young people under 25 - including sports clubs[68]. This legislation makes it mandatory for the municipalities to provide financial support for organized sport activities, to provide facilities and to subsidize rent in privately owned facilities.

- Physical exercise lessons are mandatory in the majority of secondary schools.
- Municipalities spend annually around 890 DKR. per capita on sport purposes.
- Almost all municipalities have adopted a separate policy on sport related issues[69].
- Local authorities are obliged to provide safe transport routes to schools (e.g. via adequate bicycle paths).

Additional findings

The Danish Foundation for Culture and Sports facilities (LOA), which annually support a number of leisure- and physical activity related projects with substantial funds, was established in 1994. As one of its main purposes, LOA initiate and advise on investments in innovative building- and design projects, seeking to stimulate new ways to be physical active. The foundation prioritizes efforts to engage vulnerable, impaired and/or sedentary population groups.

Today a number of sensible efforts run aground due to lack of overall attention to synchronizing resource allocation processes. Evidence suggests that a coordination of initiatives leads to greater effects on the total amount of physical activity than the effect of each initiative individually.

Research gaps

- There is a need to assess impacts of policies, plans and projects as regards physical activity among children and youth.
- There is a need to gather evidence on both organization, implementation and effectiveness issues in connection with policy related to promotion of physical activity.

Cues for action

In an effort to promote broad-based physical activity participation among children and youth, stakeholders from both research and policy should:

- **Systematically implement and refine** available methods to assess impacts of policies, plans and projects as regards physical activity among children and youth. Examples of accessible, relevant methods are: Health, environment and socio-economic impact assessment tools and approaches.

- **Systematically make use of (preferably scientific) evidence** on both organization, implementation and effectiveness issues in connection with policy and planning development related promotion of physical activity of children and youth.

- **Secure development of financial planning models** that promotes co-ordination and alignment of relevant initiatives at the local, regional and national level and across sectors.

Concluding remarks

The Danish RC is a narrative review that, more than anything else, constitutes the combined insights and knowledgebase of the Report Card Research Committee. Thus, the grading is, of course, influenced by the participant's scientific knowledge and experience. The Report Card approach can be seen as a methodology that aims to extract the collective knowledge of a group of experts, in the study of a rather complex topic. Such a process certainly has its limitations. Major strengths are, at the same time, clear: Emerging, mixed and highly varied data are more easily processed using an open yet still structured discussion format.

A better understanding of determinants of physical activity behavior among the youngest children under the age of 6 is needed. For instance, it would be valuable to know more about when, how and why children start in organized sport. As well as examining queries such as: Does sport participation facilitate the development of certain skills in the early years that condition participation in physical activity later on?

The Report Card points to possible methodological problems related to both self-reported and objective measures of physical activity. Self-reported measures are influenced by limited memory in children of the intensity and the amount of physical activity[70] and in the interpretation of accelerometer measures, the choice of method for analyses is crucial[21]. Furthermore, time and intensity measured by quantitative methods is only one among several important variables to consider when addressing behavioral outcomes - especially when it comes to children and youth. Motivational drivers – both intrinsic and extrinsic – and the perceived quality of time spent engaging in physical activity are critical to include when aiming at fostering behavioral changes e.g. represented by studies using qualitative measures to explore factors influencing physical activity behavior.

Despite many strategies to promote physical activity, a large proportion of Danish children seem not to comply with national recommendation for physical activity. The first Danish Report Card shows that Denmark performs very well on strategic and political levels, but that the impact on the individual level is sparse. This indicates an implementation gap between the governmental level and the individual level that need to be bridged to increase physical activity and decrease sedentary behavior in children.

It is time to take physical activity for children and youth seriously.



Organizations and centers presented in the Report Card Research Commitee

Active Living

Active Living conducts research on human behavior in the built, natural and social environments in order to understand the requisite conditions for sustainable active living and to encourage healthier lifestyles in specific target groups. We generate evidence-based knowledge about how to create settings that encourage people to engage in physical activity.

Active living incorporates a combination of different forms of physical activity associated with behavior around school, home, work, transport and leisure, to promote a healthier lifestyle.

Exercise Epidemiology

The Research Unit for Exercise Epidemiology (ExE) conducts large-scale epidemiological studies that aim to quantify and increase understanding of the importance of engaging in regular physical activity and limiting sedentary behaviors in the prevention of disease and the promotion of population health. Furthermore ExE aims to design effective preventive interventions and implementable solutions to improve aspects of the physical and mental health of child, adolescent and adult populations.

Danish School Sport (Dansk Skoleidræt)

Dansk Skoleidræt is a nationwide, nonprofit organization seeking to promote better health, academic performance and wellbeing through encouraging increased physical activity in schools. It is the only organization in Denmark strongly rooted in both the school system and the world of physical activity. The purpose of the activities are to have fun during sport and experience joy through physical activity. The promotion also includes cultural guidance to the students in terms of making the right choices in order to stay active and take responsibility for their own physical and intellectual development. Furthermore all students should be provided with an all-round knowledge about what make up a healthy lifestyle.

Dansk Skoleidræt cooperates with other sport organizations, health promoting foundations, Ministry of Education and Ministry of Culture.

DIF

DIF is the National Olympic Committee and Sports Confederation of Denmark. DIF is the main organization for 61 federations and has more than 1.9 million members distributed among 9,046 associations (2015). In addition to being responsible for both elite and amateur-level/recreational sports at association level, DIF is also responsible for Danish participation in the Olympic Games. DIF is an umbrella organization and handle the tasks of the sports associations which again safeguard the interests of the athletes.

DGI

DGI is the second largest sports organization with more than 1.5 million members. DGI is a nonprofit organization that for more than 150 years has worked together closely with associations to make the Danes more active. Today DGI counts more than 6,300 associations and 100,000 dedicated volunteers. As one of the largest providers of courses DGI makes more than 50,000 Danes learn about themselves and sports every year.

Metropolitan University College

Metropolitan University College has two Faculties; the Faculty of Health and Technology and the Faculty of Social Science and Pedagogy. The research focuses are on applied sciences. Metropolitan University College offers Bachelor's Degree programs, Academy Profession Degree programs, postgraduate studies, and conducts applied research and development activities in welfare-sector subjects such as health, rehabilitation, welfare technology, management, education and social work.

VIA

The Body, Physical Education and Movement is a research program at the Faculty of Education and Social Studies at VIA University College. The ambition is to provide theoretical knowledge about pedagogical practice in relation to the body, physical education and movement activities. Furthermore the aim is that bodily activities in pedagogical practices are based on research and in respect for children as subjects in their own lives.

The Danish National Institute of Public Health

The Danish National Institute of Public Health (NIPH) is an institute devoted to forwarding public health concerns through research, knowledge and education. The Danish National Institute of Public Health currently resides under the Faculty of Health Sciences at the University of Southern Denmark. The NIPH is conveniently located in the center of Copenhagen. The NIPH has national obligations, and especially to assisting public authorities in research-based counseling within the field of public health.



Data sources

The majority of data to inform the first Danish Report Card cover the period 2007 to 2016. The grades were primarily informed by large nationally representative surveys, peer reviewed papers and grey literature such as government and non-government reports. The primary data sources used in the Danish RC included population based surveys on Sports Participation in Denmark from The Danish Institute of Sports Studies (Idan), the Health Behaviour in School Children 2013/2014[13,46], the report "Reform of Public Primary and Lower Secondary School" from the Danish National Centre for Social Research, the survey "Implementation of 45 minutes of Physical Activity on School days" from Danish School Sport (2015)[53], the "Study of Transport Behavior among school-children"[38], Ungdomsprofilen 2014 [The Youth Profile 2014][15], the SPACE-study[16], and the SKOT cohort study[25].

The primary surveys are presented below.

The Danish Institute of Sport Studies (www.IDAN.dk)
IDAN is a public self-governing institution, who is doing socially oriented research and analysis on political initiatives in the field of sports in Denmark. See www.idan.dk for further information (in Danish only). Four IDAN publications have contributed and are defined as main data sources in the Danish Report Card. The four publications provide information on how many Danes practice sport and exercise, what kind of activities they practice and how the activities are organized. The reports have contributed mainly to the indicators on "Organized Sport", "Active Play", "Family and Peers" and "Community and Environment".

- Pilgaard M. *Danskernes motions- og sportsvaner 2016*. (http://www.vifo.dk/media-/4796731/Maja-Pilgaard-Offentliggoerelse.pdf.) Updated May 24, 2016. Accessed June 27, 2016. The report collected data via online questionnaires. To create a representative test sample, 6.500 children and 11.000 adult Danes were randomly selected within the Danish centralized civil register. All respondents were invited by letter. 3.221 children and 3.914 adults answered the questionnaire leaving response rates at 49,6 pct. for children and 35,6 pct. for adults.

- Laub TB, Idrættens Analyseinstitut. *Sports participation in Denmark 2011.* Copenhagen: Idrættens Analyseinstitut; 2013:111 sider, illustreret (nogle i farver). The report collected data via postal questionnaires sent to 13.150 randomly selected Danes aged 7 and older. Children from 7 to 15 years of age received a 14-page questionnaire, while the adult questionnaire was 20 pages long. Response rates landed on 49,9 pct. for children and 43,6 pct. for adults.

- Pilgaard M, Idrættens Analyseinstitut. *Sport og motion i danskernes hverdag.* Copenhagen: Idrættens Analyseinstitut; 2009:375 pages. The report is based on data collected via a combined postal and online questionnaire survey. To create a representative test sample, children and adult Danes were randomly selected within the Danish centralized civil register. Questionnaires were distributed to 3.743 children and 8.828 adults. 1.987 children and 4.147 adults answered the questionnaire leaving response rates at 53 pct. for children and 47 pct. for adults.

- Pilgaard M, Idrættens Analyseinstitut. *Danskernes motions- og sportsvaner 2007: Nøgletal og tendenser.* Copenhagen: Idrættens Analyseinstitut; 2008:91 pages. The report is based on data collected via a combined postal and online questionnaire survey. To create a representative test sample, children and adult Danes were randomly selected within the Danish centralized civil register. Questionnaires were distributed to 3.743 children and 8.828 adults. 1.987 children and 4.147 adults answered the questionnaire leaving response rates at 53 pct. for children and 47 pct. for adults

The HBSC research network (www.HSBC.org)

The HBSC research network is an international alliance of researchers that collaborate on the cross-national survey of school students: Health Behaviour in School-aged Children (HBSC). The HBSC collects data every four years on 11-, 13- and 15-year-old boys' and girls' health and well-being, social environments and health behaviours. See www.hbsc.org for further information. The recent HBSC report contributes mainly to the indicators on “Physical activity” and “Sedentary behaviour” and is defined as a main data source in the Danish Report Card.

- Inchley J, Currie D. Growing up unequal: Gender and socioeconomic differences in young people's health and well-being: Health behaviour in school-aged children (HBSC) study: International report from the 2013/2014 survey. WHO, 2016. *Health policy for children and adolescents*. 2016. The latest international report from the study presents findings from the 2013/2014 survey, which collected data from almost 220 000 young people in 42 countries in Europe and North America, including Denmark. The study focuses on social context, health outcomes, health behaviors and risk behaviors relevant to young people’s health and well-being. New items on family and peer support, migration, cyberbullying and serious injuries are also reflected in the report.

The Youth Profile 2014

In 2015 The Danish National Institute of Public Health published “Ungdomsprofilen 2014” - “The Youth Profile 2014”.

(http://www.si-olkesundhed.dk/Udgivelser/B%C3%B8ger%20og%20rapporter/2015/Ungdomsprofilen%202014.aspx?lang=da)

The Youth Profile is a national questionnaire on health behavior, health, and well being targeting students in Danish high schools and Danish vocational programs. Data was collected via online questionnaires containing around 250 core questions. A total of 75.096 students participated in the study. The response rate for invited High School students was 82% and the response rate for students from participating vocational programs was 69%. The Youth Profile furthermore drew on data from other studies e.g. “The HBSC study (2012) and “The Danish National Health Profile (2014)”.

Danish School Sport (www.danskskoleidraet.dk)

In 2015 Danish School Sport published “Opfølgning på 45 minutters bevægelse I skoledage – en statuskortlægning november 2015” - “Implementation of 45 minutes of Physical Activity on School days”, which had the purpose of evaluating the implementation of the compulsory physical activity. Data was collected via online questionnaires sent to all schools in Denmark targeting teachers and pedagogues.

A total of 1531 respondents answered the questionnaire. Out of these 1210 were teachers and 303 were pedagogues. The respondents are spread fairly equally throughout the nation with 211 respondents in Northern Jutland, 359 in central Jutland, 381 in the region of Southern Denmark, 261 in the region of Sealand and 301 in the region of Copenhagen.

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Danish summary:

Den danske profil for børn og unges fysiske aktivitet 2016

Active Healthy Kids Danmark
Den danske profil for børn og unges fysiske aktivitet er en konsensusrapport med det formål at give en opdateret status på fysisk aktivitet blandt danske børn og unge. Formålet er ligeledes at belyse politiske og strategiske prioriteringer af indsatser der skal understøtte fysisk aktivitet blandt børn og unge samt at inspirere til politisk handling vedrørende børns deltagelse i fysisk aktivitet fra en tidlig alder.

Holdet bag den danske profil
Udviklingen af den danske profil er iværksat og koordineret af Forsknings- og Innovationscenter for Idræt, Bevægelse og Læring. Centret er et samarbejde mellem University College Lillebaelt og Syddansk Universitet (www.fiibl.dk). Den danske profil er udviklet af en projektgruppe bestående af 12 medlemmer. Projektgruppen omfatter en række forskere og professionelle eksperter, som arbejder inden for fysisk aktivitet, sundhedsadfærd og politisk udvikling. Dermed repræsenterer projektgruppen ikke kun forsknings og uddannelsesinstitutioner, landsdækkende organisationer, men også forskellige videnskabelige perspektiver, metodologiske baggrunde og praksistilgange. Sundhedsstyrelsen deltog i projektarbejdet som observatør. For flere oplysninger om den danske profil for Active Healthy Kids, kontakt: Lisbeth Runge Larsen, lrla@ucl.dk

Baggrund
Mængden af evidens som underbygger de negative sundhedseffekter af stillesiddende adfærd blandt børn og unge er stigende. Desuden viser undersøgelser, at kun et til to ud af ti børn i alderen 11 til 15 når den anbefalede mængde af fysisk aktivitet. Derfor er der behov for at indsamle og evaluere den eksisterende viden på området, for at blive klogere på, hvordan vi kan facilitere børn og unge til at være fysisk aktive. Der er ligeledes behov for at skabe et samlet overblik over viden og indsatser på området vedrørende børn og fysisk aktivitet, så etablering af fremtidig praksis, fremtidige interventioner samt facilitering af udviklingen af politiske strategier kan foregå på et oplyst grundlag.

Den danske profil for børn og unges fysiske aktivitet undersøger og vurderer ni indikatorer (tabel 3, side 14). Profilen er baseret på de forskningsresultater, der findes for øjeblikket, befolkningsundersøgelser og andre relevante resultater fra projekter, politiske strategier for området, praksisser samt efterfølgende konsensusdannelse blandt deltagerne i projektgruppen. Indikatorerne er kategoriseret efter temaerne *daglig adfærd, omgivelser, strategier* samt *investeringer* (figur 1, side 12).

De ni indikatorer

Tema: Daglig adfærd

1) Fysisk aktivitet
Indikatoren beskriver den andel af børn og unge, som overholder anbefalingerne for fysisk aktivitet.

Konklusioner
Når fysisk aktivitet måles ved hjælp af subjektive metoder, f.eks. spørgeskemaer:

- 13 % af børn og unge i alderen 11-15 år opfylder den nationale anbefaling om mindst 60 minutters moderat til høj fysisk aktivitet om dagen. Færre piger (10 %) end drenge (17%) overholder anbefalingen.
- 18 % af unge i alderen 15-20 år overholder anbefalingerne for fysisk aktivitet; drenge er mere aktive end piger.
- Når fysisk aktivitet måles ved hjælp af objektive metoder, f.eks. accelerometer:
- 41 % af børn og unge i alderen 11-13 år opfylder anbefalingen om mindst60 minutters moderat til høj fysisk aktivitet om dagen, hvorimod den tilsvarende procentdel i gruppen af 13-15 årige er 24 %.
- 78 % af de femårige overholder anbefalingen om mindst 60 minutters moderat til høj fysisk aktivitet om dagen.

2) Organiseret idræt
Indikatoren beskriver andelen af børn, som deltager i organiseret idræt.

Konklusioner

- 83 % af de 7-15-årige i Danmark motionerer eller deltager regelmæssigt i organiseret idræt og/eller andre idrætstilbud.
- 86 % af børn og unge i alderen 7-15 år siger, at de har været medlem af en sportsklub inden for de sidste 12 måneder.
- Andelen af 7-15-årige, som deltager i organiseret idræt, har været relativt stabile de seneste 10 år.
- Den selvrapporterede deltagelse i organiseret idræt og fysisk aktivitet er lavere for de ældre aldersgrupper (13-15 år) sammenlignet med de to yngre aldersgrupper (7-9 år og 10-12 år).
- Forekomsten af selvrapporteret deltagelse i idræt er næsten ens på tværs af køn.
- De idrætsaktive børn deltager i ca. 4,75 timers idræt om ugen.
- Børn deltager i færre udvalgte idrætsaktiviteter men bruger mere tid pr. aktivitet, end tilfældet var for bare et par år siden.
- Andelen af børn, som deltager i mere end seks timers idræt om ugen, er steget fra 22 % i 1998 til 30 % i 2011.

3) Aktiv leg

Indikatoren beskriver andelen af børn og unge, som deltager i ikke-organiseret fysisk aktivitet eller ustruktureret leg i fritiden.

Konklusioner

- 46 % af de 7-15-årige angiver, at de dyrker idræt eller motionerer på egen hånd.
- At dyrke idræt og motionere på egen hånd er mere populært blandt drenge (52 %) end blandt piger (39 %).
- Det er mere sandsynligt, at de 13- 15-årige (51%) deltager i ikke-organiserede aktiviteter end de 7-12-årige (43-44 %).
- De mest populære ikke-organiserede aktiviteter er cykling, fitnesstræning, løb, vandring, skateboardløb og rulleskøjteløb.

4) Aktiv transport

Indikatoren beskriver den procentdel af børn og unge, der bruger aktiv transport (f.eks. cykel, gå-tur, rulleskøjter) for at komme til f.eks. skole, til parken, til fritidsaktiviteter, til butikker eller hjem til en ven.

Konklusioner

- Ca. 7 ud af 10 børn og unge, som går i folkeskole, pendler aktivt (går eller cykler eller kører på skateboard, løbehjul eller rulleskøjter) til og fra skole.
- Andelen af børn, som aktivt pendler til og fra skole, er højere blandt de 10-15-årige (henholdsvis 76,4 % og 82,1 %) end blandt de 6-9-årige (henholdsvis 52,4 % og 55,4 %).

5) Stillesiddende adfærd

Indikatoren skal relatere til andelen af børn, som overholder anbefalingen for stillesiddende adfærd. Sundhedsstyrelsen har dog endnu ikke etableret anbefalinger for stillesiddende adfærd, så indikatoren beskriver i denne udgave af profilen for børn og unges fysiske aktivitet mængden af stillesiddende adfærd blandt børn og unge.

Konklusioner

- For børn i skolealderen gælder det, at de er stillesiddende i 8,2 timer af deres vågentid.
- 64 % af børn i alderen 11-15-år har mere end to timers skærmtid pr. dag på hverdage. I weekenden gælder dette 81 % af denne gruppe.
- 56 % af de 11-15-årige bruger en computer mindst to timer pr. dag på hverdage. I weekenden gælder dette 61 % af gruppen.

Tema: Omgivelsernes betydning

6) Familie og venner

Indikatoren beskriver andelen af forældre/kammerater, som opfordrer deres børn/venner til at deltage i fysisk aktivitet, og andelen af forældre, som selv overholder anbefalingerne for fysisk aktivitet.

Konklusioner

- Hvis begge forældre deltager i idræt, gør 91 % af deres børn (blandt de 11-13-årige og 15-årige) det også.
- Hvis én forælder deltager i idræt, gør 89 % af deres børn (blandt de 11-13-årige og 15-årige) det også.
- Hvis ingen af forældrene deltager i idræt, deltager 79 % af børnene i idræt.
- Hvis faren deltager i idræt, er 91 % af drengene også aktive. Hvis faren ikke deltager i idræt, deltager 76 % af drengene.
- Når børnene har forældre, som ikke deltager i idræt, er det mere sandsynlig, at børnene heller ikke deltager i idræt.

7) Skole

Indikatoren beskriver den andel af eleverne, der undervises af en idrætsuddannet lærer, desuden beskriver indikatoren andelen af elever og skoler hvor der tilbydes mindst 150 minutters i idræt om ugen og har de nødvendige faciliteter og det nødvendige udstyr til skoleidræts aktiviteter. Indikatoren beskriver også andelen af skoler med en aktiv skolepolitik og hvordan mulighederne for fysisk aktivitet er på skolerne.

Konklusioner

- Idrætstimer er obligatoriske fra 1. til 9. klasse (ca. 7-15 år). Det sikrer mindst 60-90 minutters idræt om ugen.
- Folkeskoleloven som blev opdateret i 2014, gør det obligatorisk for folkeskoler at tilbyde i gennemsnit 45 minutters fysisk aktivitet om dagen.
- 27 % af skolelærerne siger, at udbuddet af 45 minutters fysisk aktivitet om dagen er fuldt implementeret.
- 49 % af pigerne og 63 % af drengene er fysisk aktive i mindst 45 minutter på en almindelig skoledag.
- 81 % af idrætslærerne er linjefagsuddannede i idræt.
- 25 % af kommunerne angiver, at ingen af skolerne i kommunen har en bevægelsespolitik.
- 14 % af kommunerne siger, at alle eller næsten alle skoler har en politik for fysisk aktivitet.

8) Lokalsamfund og det fysiske miljø

Indikatoren beskriver andelen af børn og forældre, som angiver, at lokalsamfundet gør det godt med hensyn til den opgave det er, at prioritere og fremme fysisk aktivitet. Indikatoren beskriver ligeledes, om lokalsamfundet har tilstrækkelig faciliteter til fysisk aktivitet (f.eks. parker, legepladser, cykelstier osv.).

Konklusioner

- Blandt de 7-15-årige angiver 88 %, at lokalsamfundet har tilstrækkelige idrætsfaciliteter.
- 91 % af de 7-15-årige mener, at lokalsamfundet har et godt miljø til fysisk aktivitet.
- Faciliteter til idræts-, lege- og fritidsaktiviteter er geografisk skævt fordelt. Det samlede antal faciliteter er således højere i større danske byer. Dog har børn, som lever i tætbefolkede byområder mindre adgang til faciliteter til fysisk aktivitet når dette vurderes pr. indbygger.
- De to mest populære udendørsområder, hvor børn og unge opholder sig, er idrætsfaciliteter (51%) og haven (40%).
- 84 % er fysisk aktive, når de befinder sig ved en idrætsfacilitet, og 7 % bruger faciliteten til at hænge ud.



Tema: Regeringsstrategier og -investeringer

9) Strategier og investeringer

Indikatoren relaterer til overordnet lederskab, politiske strategier og facilitering fra regeringsniveau med hensyn til at fremme muligheder for fysisk aktivitet til alle børn og unge.

Konklusioner

- Kommunerne kontrollerer omkring 85 % af de offentlige udgifter til idræts- og fritidsaktiviteter.
- Myndigheder og organisationer kører hvert år informationskampagner for at opfordre børn og unge til at være fysisk aktive.
- Tre love er særligt vigtige for børns fysiske aktivitet fra en tidlig alder.
- Dagplejeloven (der dækker børn fra 0 til 6 år) specificerer krop og bevægelse som en af seks vigtige læringstemaer.
- Folkeskoleloven hvoraf det fremgår, at alle børn skal være fysisk aktive 45 minutter hver dag i skolen. Folkeskoleloven forpligter også skolerne til at indgå samarbejde med lokale idræts- og fritidsorganisationer.
- Ifølge Folkeoplysningsloven skal kommunerne støtte frivillige foreninger for børn og unge under 25 år, herunder idrætsklubber. Denne lov gør det obligatorisk at give finansiel støtte til den organiserede idræt at lægge faciliteter til aktiviteterne, samt give støtte til leje af privatejede faciliteter.
- Idrætstimer er obligatoriske i størstedelen af de gymnasiale uddannelser.
- Næsten alle kommuner har vedtaget en separat politik om idrætsrelaterede emner.
- De lokale myndigheder skal sørge for en sikker skolevej (f.eks. via egnede cykelstier).

References

1. Andersen LB, Riddoch C, Kriemler S, Hills A. Physical activity and cardiovascular risk factors in children. *Br J Sports Med.* 2011;45:871-876.

2. Janssen I, Leblanc AG. 2885312; systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *Int J Behav Nutr Phys Act.* 2010;7:40.

3. Biddle SJ, Gorely T, Stensel DJ. Health-enhancing physical activity and sedentary behaviour in children and adolescents. *J Sports Sci.* 2004;22:679-701.

4. Andersen LB, Harro M, Sardinha LB, et al. Physical activity and clustered cardiovascular risk in children: A cross-sectional study (the european youth heart study). *Lancet.* 2006;368:299-304.

5. Sallis JF, Prochaska JJ, Taylor WC. A review of correlates of physical activity of children and adolescents. *Med Sci Sports Exerc.* 2000;32:963-975.

6. Van Der Horst K, Paw M, Twisk J, VM. 17762356; A brief review on correlates of physical activity and sedentariness in youth. *Med Sci Sports Exerc.* 2007;39:1241-1250.

7. Kristensen PL, Moller NC, Korsholm L, Wedderkopp N, Andersen LB, Froberg K. Tracking of objectively measured physical activity from childhood to adolescence: The european youth heart study. *Scand J Med Sci Sports.* 2008;18:171-178.

8. Telama R. Tracking of physical activity from childhood to adulthood: A review. *Obes Facts.* 2009;2:187-195.

9. Colley RC, Brownrigg M, Tremblay MS. A model of knowledge translation in health: The active healthy kids canada report card on physical activity for children and youth. *Health Promot Pract.* 2012;13(3):320-330.

10. Danish Health Authority. Recommendations for physical activity: Infants younger than 1 year old. Sundhedsstyrelsen Web site. http://sundhedsstyrelsen.dk/en/health-and-lifestyle/~/media/4D712D1E17794FCCA10B18B3BE-8CD0DD.ashx. Updated 2016. Accessed June 23, 2016.

11. Danish Health Authority. Recommendations for physical activity: Children 1-4 years old. Sundhedsstyrelsen Web site. http://sundhedsstyrelsen.dk/en/health-and-lifestyle/~/media/038D1AD667D14453BB02E3AAD26F9033.ashx. Updated 2016. Accessed June 23, 2016.

12. Danish Health Authority. Recommendations for children and adolescents. 5 - 17 years old. Danish Health Authority. Health and Lifestyle Web site. http://sundhedsstyrelsen.dk/en/health-and-lifestyle/physical-activity/recommendations/recommendations-for-children-and-adolescents-. Updated 2016. Accessed June 23, 2016.

13. Inchley J, Currie D. Growing up unequal: Gender and socioeconomic differences in young people's health and well-being: Health behaviour in school-aged children (HBSC) study: International report from the 2013/2014 survey. WHO, 2016. *Health policy for children and adolescents.* 2016(7).

14. Region Hovedstaden. Forskningscenter for Forebyggelse og Sundhed. *Sundhedsprofil for region og kommuner. årgang 2013.* Glostrup: Region Hovedstaden, Forskningscenter for Forebyggelse og Sundhed; 2014:258 sider, illustreret (nogle i farver).

15. Bendtsen P, Schou Mikkelsen S, Tolstrup JS. *Ungdomsprofilen 2014: Sundhedsadfærd, helbred og trivsel blandt elever på ungdomsuddannelser.* Kbh.: Statens Institut for Folkesundhed; 2015:66 sider, illustreret.

16. Troelsen J, ed. *Space - rum til fysisk aktivitet: Samlet evaluering af en helhedsorienteret,*

forebyggende indsats for børn og unge. Kbh.: Center for Interventionsforskning, Institut for Idræt og Biomekanik, Syddansk Universitet; 2014.

17. Sundhedsstyrelsen. *Motorik, fysisk aktivitet og stillesiddende tid hos 0-6 årige børn.* Copenhagen: Sundhedsstyrelsen; 2016:77 pages. https://sundhedsstyrelsen.dk/da/udgivelser/2016/~/media/98FE88553AE34B24A6050871AB6196F3.ashx. Accessed June 23, 2016.

18. Evenson KR, Catellier DJ, Gill K, Ondrak KS, McMurray RG. Calibration of two objective measures of physical activity for children. *J Sports Sci.* 2008;26:1557-1565.

19. Bailey RC, Olson J, Pepper SL, Porszasz J, Barstow TJ, Cooper DM. The level and tempo of children's physical activities: An observational study. *Med Sci Sports Exerc.* 1995;27:1033-1041.

20. Adamo KB, Prince SA, Tricco AC, Connor-Gorber S, Tremblay M. A comparison of indirect versus direct measures for assessing physical activity in the pediatric population: A systematic review. *Int J Pediatr Obes.* 2009;4:2-27.

21. Beets MW, Bornstein D, Dowda M, Pate RR. Compliance with national guidelines for physical activity in U.S. preschoolers: Measurement and interpretation. *Pediatrics.* 2011;127(4):658-664.

22. Olesen LG, Kristensen PL, Ried-Larsen M, Grøntved A, Froberg K. Physical activity and motor skills in children attending 43 preschools: A cross-sectional study. *BMC pediatrics.* 2014;14(1):1.

23. Evenson KR, Catellier DJ, Gill K, Ondrak KS, McMurray RG. Calibration of two objective measures of physical activity for children. *J Sports Sci.* 2008;26:1557-1565.

24. Sirard JR, Trost SG, Pfeiffer KA, Dowda M, Pate RR. Calibration and evaluation of an objective measure of physical activity in preschool children. *Journal of physical activity and health.* 2005;2(3):345.

25. Christensen LB. *Physical activity and health in preschool children: The SKOT cohort study.* Department of Nutrition, Exercise and Sports, Faculty of Science, University of Copenhagen; 2014.

26. Canadian Society for Exercise Physiology. Canadian physical activity guidelines. 24-Hour Movement Guidelines for Children and Youth Web site. http://www.csep.ca/CMFiles/Guidelines/CSEP_PAGuidelines_0-65plus_en.pdf. Updated 2016. Accessed June 28, 2016.

27. Pilgaard M. Danskernes motions- og sportsvaner 2016. http://www.vifo.dk/media/4796731/Maja-Pilgaard-Offentliggoerelse.pdf. Updated May 24, 2016. Accessed June 27, 2016.

28. Laub TB, Idrættens Analyseinstitut. *Sports participation in denmark 2011.* Kbh.: Idrættens Analyseinstitut; 2013:111 sider, illustreret (nogle i farver).

29. Pilgaard M, Idrættens Analyseinstitut. *Danskernes motions- og sportsvaner 2007: Nøgletal og tendenser.* Kbh.: Idrættens Analyseinstitut; 2008:91 pages.

30. Fridberg T. *Kultur-og fritidsaktiviteter 1975-1998.* Copenhagen: Socialforskningsinstituttet; 2000:362 pages. http://gl.sfi.dk/Files/Filer/SFI/Pdf/Rapporter/2000/0001Kulturogfritidsaktiviteter_1975_98.pdf. Accessed june 29, 2016.

31. Jespersen E, Holst R, Franz C, Rexen CT, Klakk H, Wedderkopp N. Overuse and traumatic extremity injuries in schoolchildren surveyed with weekly text messages over 2.5 years. *Scand J Med Sci Sports.* 2014;24:807-813.

32. Vygotsky LS. Play and its role in the mental development of the child. *Soviet psychology*. 1967;5(3):6-18.

33. Bateson G. *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. University of Chicago Press; 1972.

34. Pellegrini AD, Smith PK. Physical activity play: The nature and function of a neglected aspect of play. *Child Dev.* 1998;69(3):577-598.

35. Sutton-Smith B. *The ambiguity of play.* Harvard University Press; 2009.

36. Vanderloo LM, Tucker P, Johnson AM, Holmes JD. Physical activity among preschoolers during indoor and outdoor childcare play periods. *Applied Physiology, Nutrition, and Metabolism.* 2013;38(11):1173-1175.

37. Schaefer L, Plotnikoff RC, Majumdar SR, et al. Outdoor time is associated with physical activity, sedentary time, and cardiorespiratory fitness in youth. *J Pediatr.* 2014;165(3):516-521.

38. Kræftens Bekæmpelse. Transportadfærdsundersøgelsen. Kræftens Bekæmpelse: Cykling Web site. https://www.cancer.dk/cykling/transportadfaerdsundersoegelse/. Updated 2016. Accessed June 29, 2016.

39. Technical University of Denmark. Faktaark om børn og unges transportvaner. Faktaark om børn og unges transportvaner 2014 Web site. http://www.modelcenter.transport.dtu.dk/Transportvaneundersoegelsen/TU-udgivelser/Faktaark-om-boern-og-unges-transportvaner-2014. Updated 2015. Accessed June 28, 2016.

40. Ostergaard L, Grontved A, Borrestad L, Froberg K, Gravesen M, Andersen LB. Cycling to school is associated with lower BMI and lower odds of being overweight or obese in a large population-based study of danish adolescents. *J Phys Act Health.* 2012;9(5):617-625.

41. Cooper AR, Wedderkopp N, Wang H, Andersen L, Froberg K, Page A. Active travel to school and cardiovascular fitness in danish children and adolescents. *Medicine & Science in Sports & Exercise.* 2006;38(10):1724-1731.

42. Ostergaard L, Borrestad LA, Tarp J, Andersen LB. Bicycling to school improves the cardiometabolic risk factor profile: A randomised controlled trial. *BMJ Open.* 2012;2(6):10.1136/bmjopen-2012-001307. Print 2012.

43. Møller NC, Tarp J, Kamelarczyk EF, Brønd JC, Klakk H, Wedderkopp N. Do extra compulsory physical education lessons mean more physically active children-findings from the childhood health, activity, and motor performance school study denmark (the CHAMPS-study DK). *International Journal of Behavioral Nutrition and Physical Activity.* 2014;11(1):1.

44. Ministry of Health. Physical activity. Physical Activity Web site. http://www.health.govt.nz/our-work/preventative-health-wellness/physical-activity. Updated 2014. Accessed June 26, 2016.

45. Australian Government, The Department of Health. Australia`s physical activity and sedentary behaviour guidelines. Australia`s Physical Activity and Sedentary Behaviour Guidelines Web site. http://www.health.gov.au/internet/main/publishing.nsf/content/health-pubhlth-strateg-phys-act-guidelines. Updated 2014. Accessed June 26, 2016.

46. Rasmussen M, Pagh Pedersen T, Due P. *Skolebørnsundersøgelsen 2014.* København: Statens Institut for Folkesundhed; Syddansk Universitet; 2015:113 sider.

47. Pilgaard M, Idrættens Analyseinstitut. *Sport og motion i danskernes hverdag.* Kbh.: Idrættens Analyseinstitut; 2009:375 sider.

48. Kirkegaard K, Fester M. Notat - familiens betydning for børns idrætsdeltagelse. DIF Undersøger Web site. http://www.dif.dk/da/nyt/dif_undersoeger. Updated October 2012. Accessed June 21, 2016.

49. Henriksen P, Ingholt L, Rasmussen M, Holstein B. Physical activity among adolescents: The role of various kinds of parental support. *Scand J Med Sci Sports.* 2015.

50. Agreement between the danish government (the social democrats, the social- liberal party and the socialist people's party), the liberal party of denmark and the danish people's party on an improvement of standards in the danish public school (primary and lower secondary education). http://eng.uvm.dk/Education/Primary-and-lower-secondary-education/The-Folkeskole. Updated 2013. Accessed June 21, 2016.

51. Bekendtgørelse af lov om folkeskolen [act on primary school]. 2016;LBK nr 747 af 20/06/2016.

52. Seelen Jv, Munk M. *Status på idrætsfaget 2011.* Haderslev: Kosmos; 2012:202 sider.

53. Dansk Skoleidræt. *Opfølgning på 45 minutters bevægelse i skoledagen – en statuskortlægning november 2015.* Nyborg: Dansk Skoleidræt; 2015.

54. Dansk Skoleidræt. *Bevægelse i skoledagen 2016 populationsundersøgelse.* 2016.

55. Nielsen CP, Hansen AT, Jensen VM, Arendt KS. *Folkeskolereformen - beskrivelse af 2. dataindsamling blandt elever [reform of public primary and lower secondary school].* Copenhagen: SFI: The Danish National Centre for Social Science; 2015:148 sider. http://en.sfi.dk/publications/reform-of-public-primary-and-lower-secondary-school-9111/.

56. Christiansen NS, Holmberg T, Hærvig KB, Christensen AI, Rod MH. Kortlægning. kommunernes arbejde med implementering af sundhedsstyrelsens forebyggelsespakker 2015. Udvikling i arbejdet fra 2013-2015. 2016.

57. Wedderkopp N, Jespersen E, Franz C, et al. 3483192; study protocol. the childhood health, activity, and motor performance school study denmark (the CHAMPS-study DK). *BMC Pediatr.* 2012;12:128.

58. Pawlowski CS, Andersen HB, Troelsen J, Schipperijn J. Children's physical activity behavior during school recess: A pilot study using GPS, accelerometer, participant observation, and go-along interview. *PloS one.* 2016;11(2):e0148786.

59. Domazet SL, Møller NC, Støckel JT, Ried-Larsen M. Objectively measured physical activity in danish after-school cares: Does sport certification matter? *Scand J Med Sci Sports.* 2015;25(6):e646-e654.

60. Kaas T. *Analyse af lokale- og anlægsfondens facilitetsdatabase 2013.* Kaas & Mulvad Research og Analyse; 2013.

61. Højbjerre Larsen S. *Parkourfaciliteter i danmark.* Odense: Syddansk Universitet, Institut for Idræt og Biomekanik; 2015:181 sider, illustreret i farver.

62. Gadeidræt. National platform for gadeidræt. Gadeidræt Web site. http://map.gadeidraet.dk/. Updated 2016. Accessed June 29, 2016.

63. Andkjær S, Høyer-Kruse J, Arvidsen J. *Børn og unges hverdagsfriluftsliv: NatureMoves spørgeskemaundersøgelse om børn og unges aktiviteter og oplevelser i naturen.* Odense: Syddansk Universitet, Institut for Idræt og Biomekanik; 2016:121 sider, illustreret i farver.

64. Avlund N, Kjeldsen L, Darsø L. *Trygheden i danske byområder - en måling af trygheden ved at bo og færdes i udsatte boligområder sammenlignet med andre byområder i danmark.* Hvidovre: Center for Boligsocial Udvikling; 2013:47 sider.

65. Sallis JF, Cerin E, Conway TL, et al. Physical activity in relation to urban environments in 14 cities worldwide: A cross-sectional study. *The Lancet*. 2016;387(10034):2207-2217.

66. Danish Health Authority. Get moving. https://sundhedsstyrelsen.dk/da/kampagner/get-moving. Updated 2016. Accessed October 6th, 2016.

67. Bekendtgørelse af lov om dag-, fritids- og klubtilbud m.v. til børn og unge (dagtilbudsloven). 2010;LBK nr 748 af 20/06/2016:26 sider.

68. Lov om støtte til folkeoplysende voksenundervisning, frivilligt folkeoplysende foreningsarbejde og daghøjskoler samt om folkeuniversitetet (folkeoplysningsloven). 2005;LBK nr 854 af 11/07/2011:28 sider.

69. Hartje S, Fritid & Samfund (forening). *Undersøgelse af de kommunale folkeoplysningspolitikker*. Aarhus: Fritid og Samfund; 2015:170.

70. Riddoch CJ, Cooper AR, Andersen L, et al. Physical activity levels and patterns of 9 and 15 year-old children from four european countries. *Medicine & Science in Sports & Exercise.* 2003;35(5):S342.

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