

# Recommendation on physical activity for children and adolescents aged 7–17 years

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## Recommendation on physical activity for children and adolescents aged 7 to 17 years

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### Abstract

Based on the best scientific evidence, the recommendation on physical activity for children and adolescents describes how much and what kind of physical activity children and adolescents need in order to ensure their well-being.

According to the recommendation, all children and adolescents aged 7 to 17 years are recommended to be physically active in a versatile, brisk and strenuous manner for at least 60 minutes a day in a way that suits the individual, considering their age. Excessive and extended sedentary activity should be avoided.

According to the recommendation, it would be good to be physically active every day of the week, and most of the physical activity should be endurance activity. Vigorous endurance-type activity and physical activity that increases muscle strength and the skeletal system should be performed at least three days a week. Physical activity should be versatile, in which case different movement skills will develop. Attention should also be paid to flexibility. The recommended amount of physical activity may be accumulated from several sessions of physical activity during the day. A smaller amount of physical activity is also beneficial, even if the recommendation is not met every day. The joy of physical activity helps to create a lasting physical activity routine and find lasting hobbies. All children and adolescents should engage in daily physical activity which is safe and equally available to everyone.

Key implementing bodies for the physical activity recommendation include your family and friends, schools and educational institutions, sports organisations and sports clubs and all organisers of sports activities, municipalities and central government.

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**Keywords** sport, youth, movement, exercise, physical activity, well-being, children, adolescents, health, health promotion

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## Liikkumissuositus 7–17-vuotiaille lapsille ja nuorille

Opetus- ja kulttuuriministeriön julkaisuja 2021:21

Teema

liikunta

**Julkaisija** Opetus- ja kulttuuriministeriö

**Tekijät** Liikuntapolitiikan koordinaatioelimen nimittämä lasten ja nuorten liikkumissuositus -työryhmä: valmistelijat Arja Sääkslahti, Tuija Tammelin, Tommi Vasankari, puheenjohtaja Minttu Korsberg ja jäsenet Antti Blom, Katja Borodulin, Olli Heinonen, Marke Hietanen-Peltola, Terhi Huovinen, Sami Kokko, Taru Lintunen, Mari Miettinen, Matti Pietilä, Kai Pihlainen, Aija Saari, Marko Viitanen.

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### Tiivistelmä

Lasten ja nuorten liikkumissuosituksessa kuvataan parhaaseen tieteelliseen näyttöön perustuen, kuinka paljon ja millaista liikuntaa lapset ja nuoret tarvitsevat hyvinvointinsa turvaamiseksi.

Liikkumissuosituksen mukaan kaikille 7–17-vuotiaille lapsille ja nuorille suositellaan monipuolista, reipasta ja rasittavaa liikumista vähintään 60 minuuttia päivässä yksilölle sopivalla tavalla, ikä huomioiden. Runsasta ja pitkäkestoista paikallaanoloa tulisi välttää.

Suosituksen mukaan olisi hyvä liikkua viikon jokaisena päivänä ja suurimman osan liikumisesta tulisi olla kestävyystyyppistä. Teholtaan rasittavaa kestävyystyyppistä liikumista sekä lihasvoimaa ja luustoa vahvistavaa liikumista tulisi tehdä vähintään kolmena päivänä viikossa. Liikkumisen tulisi olla monipuolista, jolloin erilaiset liikuntataidot kehittyvät. Myös liikkuvuuteen on hyvä kiinnittää huomiota. Suosituksen mukainen määrä liikumista voi kertyä useista liikumisen hetkistä päivän aikana. Vähäisempikin liikumisen määrä on hyödyllistä, vaikka suositus ei täytyisikään jokaisena päivänä. Liikkumisen ilo auttaa pysyvien liikkumistottumusten ja harrastusten löytämisessä. Turvallinen ja yhdenvertaisesti saavutettava päivittäinen liikkuminen kuuluu kaikille lapsille ja nuorille.

Liikkumissuosituksen keskeisiä toimeenpanotahoja ovat perhe ja kaverit, koulut ja oppilaitokset mukaan lukien koulu- ja opiskeluterveydenhuolto, liikunta- ja urheiluseurat ja kaikki liikuntaharrastusten järjestäjät, kunnat sekä valtionhallinto.

Tähän julkaisuun viitattaessa käytetään seuraavaa lähdemerkintää: Liikkumissuositus 7-17-vuotiaille lapsille ja nuorille. 2021. Opetus- ja kulttuuriministeriön julkaisusarja 2021:21.

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## Motionsrekommendation för barn och unga i åldern 7–17 år

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<b>Utgivare</b>	Undervisnings- och kulturministeriet	
<b>Författare</b>	Samordningsorganet för idrottspolitik har utnämnt en arbetsgrupp för motionsrekommendation för barn och unga som består av beredarna Arja Sääkslahti, Tuija Tammelin och Tommi Vasankari, ordförande Minttu Korsberg och medlemmarna Antti Blom, Katja Borodulin, Olli Heinonen, Marke Hietanen-Peltola, Terhi Huovinen, Sami Kokko, Taru Lintunen, Mari Miettinen, Matti Pietilä, Kai Pihlainen, Aija Saari, Marko Viitanen.	
<b>Språk</b>	engelska	<b>Sidantal</b> 43
<b>Referat</b>	<p>I motionsrekommendationen för barn och unga beskrivs utgående från bästa vetenskapliga bevis hur mycket motion och vilken typ av motion barn och unga behöver för att må bra.</p> <p>För alla barn och unga i åldern 7–17 år rekommenderas minst 60 minuter mångsidig, rask och ansträngande motion per dag på ett sätt som är lämpligt för individen, med beaktande av hans eller hennes ålder. Långa stunder av stillasittande bör undvikas.</p> <p>Enligt rekommendationen bör barn och unga röra på sig varje dag, och det bör till största delen vara fråga om uthållighetsmotion. Ansträngande motion av uthållighetstyp och rörelseaktiviteter som stärker muskler och skelett bör ingå i dagsprogrammet minst tre gånger i veckan. Det är viktigt att barnen och ungdomarna rör på sig mångsidigt, så att de utvecklar olika motionsfärdigheter. Man bör också fästa uppmärksamhet vid rörligheten. Den rekommenderade mängden motion kan bestå av flera kortare stunder av motion under dagens lopp. Också en mindre mängd motion är till nytta, även om rekommendationen inte uppfylls varje dag. Rörelseglädje gör det lättare att hitta bestående motionsvanor och hobbyer. Alla barn och unga ska ha möjlighet till trygga, tillgängliga rörelseaktiviteter på lika villkor varje dag.</p> <p>Centrala aktörer som kan bidra till att motionsrekommendationerna genomförs är familj och vänner, skolor och läroinrättningar, motions- och idrottsföreningar och alla som ordnar motionshobbyverksamhet, kommunerna och statsförvaltningen.</p> <p>Vid hänvisning till denna publikation används följande källanteckning: Motionsrekommendation för barn och unga i åldern 7-17 år. 2021. Undervisnings- och kulturministeriets publikationsserie 2021:21.</p> <p>Publikation uppdaterades den 28 april 2021, s. 3, 5 och 43.</p>	
<b>Nyckelord</b>	idrott, ungdom, rörelse, motion och idrott, rekommendationer, fysisk aktivitet, välbefinnande, barn, unga, hälsa, hälsofrämjande	
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## FOREWORD

According to studies, only one third of Finnish children and adolescents get enough physical activity to stay healthy. Adequate physical activity is a prerequisite for the healthy growth, development and well-being of children and adolescents. Brisk physical activity, good physical fitness and good motor skills are also linked to learning.

The aim of the programme of Prime Minister Sanna Marin's Government is to increase overall physical activity in all age groups. In accordance with the Government Programme, a civil-service-level coordination body for sports policy was appointed to coordinate measures related to physical activity in different central government sectors. On 10 June 2020, the coordination body appointed a working group to reform the national recommendation on physical activity for children and adolescents.

The purpose of the recommendation on physical activity is to describe, based on the best scientific evidence, how much and what kind of physical activity children and adolescents need in order to safeguard their well-being. The previous national recommendations for physical activity were issued more than ten years ago. The scientific knowledge base compiled in international recommendation processes has been used as the basis for drawing up new national recommendations for physical activity. In addition, extensive Finnish research evidence on the physical activity and the physical functional capacity of children and adolescents has been included.

Recommendations for physical activity were prepared by a multidisciplinary and professional group of experts on the physical activity and well-being of children and adolescents. Researchers from different fields and representatives of physical activity operators for children and adolescents were represented.

We give our warmest thanks to those preparing the recommendations for physical activity for children and adolescents, Associate Professor Arja Sääkslahti (University of Jyväskylä), Research Director Tuija Tammelin (LIKES Research Centre for Physical Activity and Health) and Director Tommi Vasankari (UKK Institute) as well as to the members of the working group: Programme Manager Antti Blom (the Finnish National Agency for Education), Professor Taru Lintunen (University of Jyväskylä), Professor Olli Heinonen (University of Turku/Paavo Nurmi -keskus), Chief Physician Marke Hietanen-Peltola (the Finnish Institute for Health and Welfare), Associate Professor Sami Kokko (University of Jyväskylä), Lecturer Terhi Huovinen (University of Jyväskylä), Line Manager Katja Borodulin (the Age Institute), expert Marko Viitanen (the Finnish Olympic Committee), Research Manager Aija Saari (the



Finnish Paralympic Committee), Counsellor of Education Matti Pietilä (the Finnish National Agency for Education), Sports Coordinator Kai Pihlainen (the Finnish Defence Forces) and expert Mari Miettinen (the Ministry of Social Affairs and Health).

Physical activity habits are adopted in childhood, so it is important to support a physically active lifestyle early on. Habits are influenced in many different ways, in different administrative branches and operating environments, such as the examples of family and friends, schools and educational institutions, health care and hobbies, and the structures and services of the living environment. We all need to be involved in supporting the physically active lifestyle of children and adolescents!

Helsinki 7 April 2021

Esko Ranto  
Director General, Ministry of Education and Culture  
Chairperson, coordination body for sports policy

Minttu Korsberg  
Secretary General, National Sports Council  
Chairperson, working group for the recommendation on physical activity for children and adolescents

# 1 Introduction

The importance of physical activity for the development, health and well-being of children and adolescents has been widely identified and recognised. However, only some Finnish children and adolescents still are physically active according to the recommendations: approximately half of those aged 7–12 and less than one fifth of those aged 13–17 years. Changes in nutrition and the amount of physical activity have jointly contributed to an increase in the proportion of overweight children and adolescents and to a deterioration in their aerobic fitness over the decades. There is a need to increase physical activity.

The recommendation on children and adolescents aged 7–17 years serves as a support for promoting physical activity and providing advice and guidance on it. The previous Finnish recommendation for this age group, 'Recommendation on physical activity for school-aged children', dates from 2008. The core of the recommendation has not changed much, but the content of the recommendation has been modified to better correspond to the research evidence on the physical activity of children and adolescents, the amount and quality of which have increased significantly since 2008. The new updated recommendation emphasises physical activity related to an active everyday life.

The exact amount of physical activity in the recommendations should not be overemphasised in the promotion of physical activity, as the health impacts of physical activity are very individual. The effects of physical activity and sedentary behaviour on health are also different in various areas of health, so the general recommendation is always some kind of consensus of viewpoints. It is hoped the recommendation will guide both physical activity promoters in their activities as well as ordinary people.

In November 2020, the World Health Organisation (WHO) updated international recommendations on physical activity for children and adolescents. In this context, the WHO working group also gathered international research evidence on the impact of physical activity and sedentary behaviour on the various aspects of good health. The group that drafted the Finnish recommendation has used this work to prepare the update and application of the Finnish recommendation to adapt it to our culture.

The new recommendation on physical activity for children and adolescents contains a core recommendation in its concise form and opens up the interpretation of the recommendation and the concepts used. The recommendation is accompanied by a concise summary of international research evidence on the impacts of physical activity

and sedentary behaviour on health, as well as research data on the physical activity, physical fitness and functional capacity of Finnish children and adolescents. The recommendation also offers ideas for how the implementation of the recommendation on physical activity may be supported in different operating environments.

Families, groups of friends, schools, educational institutions, health care, sports clubs and sports organisations, operators promoting physical activity, municipalities and the central government can all do a great deal to promote the physical activity of children and adolescents. This recommendation is therefore an invitation to all parties to participate in joint work to enable children and adolescents to move and to support the implementation of this recommendation.



## 2 Recommendation on physical activity for children and adolescents aged 7–17 years

### 2.1 Recommendation

***Recommendation on physical activity for children and adolescents aged 7 to 17 years:***

For all 7–17-year-olds, at least 60 minutes of versatile, moderate to vigorous intensity physical activity a day is recommended in a manner suitable for the individual, taking into account their age. Excessive and prolonged sedentary behaviour should be avoided.

For all 7–17-year-olds, at least 60 minutes of versatile, moderate to vigorous intensity physical activity a day is recommended in a manner suitable for the individual, taking into account their age. Excessive and prolonged sedentary behaviour should be avoided. According to the recommendation, it would be good to be physically active every day of the week, and most of the physical activity should be endurance activity. Vigorous endurance-type activity and physical activity that increases muscle strength and bone health should be performed at least three days a week. Physical activity should be versatile, in which case different motor skills will develop. Attention should also be paid to flexibility. The recommended amount of physical activity may be accumulated from several sessions of physical activity during the day. A smaller amount of physical activity is also beneficial even if the recommendation is not met every day of the week. The joy of physical activity helps to create lasting physical activity habits and find lasting hobbies. All children and adolescents should engage in daily physical activity which is safe and equally available to everyone.





## 2.2 Interpretation of the content and concepts of the recommendation

Here, physical activity includes all kinds of physical activity, such as play and games, physical activity and sports, physical activity during the school day as part of physical education, breaks or lessons, physical activity during leisure time independently or in connection with hobbies or sports activities or as part of housework, and moving actively from one place to another, for instance by walking, cycling or in a wheelchair.

**Physical activity** covers all voluntary physical activity of the muscles which increases energy consumption (fyysinen aktiivisuus/liikkuminen in Finnish). Exercise is part of physical activity.

**Exercise** is a voluntary muscle function controlled by the nervous system which increases energy consumption. Exercise is aimed at predetermined goals and physical performances contributing to them as well as experiences gained from the activities.

**At least 60 minutes per day.** In the recommendation on physical activity, it is recommended that you do moderate to vigorous intensity physical activity (MVPA) for at least 60 minutes a day, on average. The recommendation is considered to be met when the average duration of physical activity for the period to be monitored (e.g. 4–7 days) is at least 60 minutes per day.

**A smaller amount of physical activity is also beneficial, even if the recommendation is not met every day.** It is better to do some physical activity than none at all. Even if children and adolescents do not currently meet the recommendations, physical activity in amounts smaller than in the recommendations is also beneficial to health. Children and adolescents who have little physical activity should start incorporating physical activity into their lives in small doses and gradually increase the duration, frequency and intensity of physical activity.

**It would be good to be physically active every day of the week.** It would be good to distribute the recommended amount of physical activity evenly between different days of the week and to be physically active on most days of the week, not just 1–2 days a week.

In this recommendation, **moderate physical activity** refers to physical activity during which the heart rate increases and breathing accelerates at least slightly. Brisk walking, cycling or wheelchair racing are examples of such physical activity.

In this recommendation, **vigorous intensity physical activity** refers to physical activity during which the heart rate increases and breathing accelerates considerably. On a daily basis, physical activity should also include vigorous physical activity, during which the heart



rate increases considerably. Running or energetic wheelchair racing are examples of such physical activity.

**Endurance type physical activity.** The majority of physical activity should be endurance type, during which the heart rate and breathing accelerate. Brisk walking, running, cycling, skiing or wheelchair racing are examples of such physical activity.

**Vigorous endurance type physical activity should be done at least three days a week.** Vigorous physical activity results in stronger physiological changes and health impacts in the body, and it is more effective in developing endurance and cardiac health than light or moderate intensity physical activity. For children, vigorous physical activity is usually done naturally in periods lasting from a few seconds to a few minutes, where periods of activity and rest alternate. Prolonged performances at a continuously high intensity should not be required of children. In adolescents, vigorous physical activity is mostly related to different sports hobbies. Apart from sports, adolescents' everyday lives rarely involve situations where the heart rate increases sufficiently. However, it would be important for everyone to find, no later than in adolescence, a pleasant physical activity involving also sufficient vigorous physical activity and resulting in an active lifestyle.

**Physical activity that increase muscle strength should be done at least three days a week.** In order to develop and maintain muscle fitness or muscle strength and muscle endurance, physical activity should include sessions that strain the muscles. It would be good to begin to strengthen the muscle fitness of children before puberty by practising performance techniques and by drawing on the body's own weight or by using light additional weights. A rubber resistance band can also be used to increase muscle strength. Physical activity that improves muscle fitness includes body weight training, gym training, group physical activity, walking up stairs, etc.

**Physical activity increasing bone strength should be done at least three days a week.** Physical activity is highly beneficial for the bones of children of primary school age. The bone mineral content in physically active children is higher and the bone structure is stronger compared to physically less active children. The best exercise for strengthening the bones of children and growing adolescents include different jumps and play, games or sports with rapid changes of direction. Good forms of physical activity include different stunt schools, gymnastics groups performing jumps, athletics schools and energetic ball games.

**Attention should be paid to flexibility.** To maintain flexibility and joint mobility, the entire range of motion of joints should be used. Examples of physical activity that develops mobility include stretching and gymnastics in their different forms.

**Diversity of physical activity.** The versatility and variety of physical activity also affect motivation – versatile physical activity is pleasant, and you do not easily tire of it. Basic motor skills and special skills require plenty of versatile physical activity and repetitions to develop. The diversity of physical activity in children is a prerequisite for learning basic skills. Basic skills are strengthened by encouraging children to be physically active as diversely as possible in different environments: indoors and outdoors, on different platforms and in different terrain, snow, ice, water, sand, grass, etc. Good motor skills will open up countless opportunities for recreational activities in later life.

**The joy of movement.** The pleasure of physical activity helps to create a lasting physical activity routine and find lasting hobbies. Physical activity should be fun, giving children and adolescents joy and experiences. When on the move, friends are made, and this in itself increases the joy of movement and the motivation to engage in physical activity.

**Excessive and prolonged sedentary behaviour should be avoided.** Here, a period of sedentary behaviour refers to when you sit or lie down while awake, and your energy consumption is low. This may happen at home, at school, at an educational institution, at hobbies or when moving from one place to another in a motor vehicle. It is worth remembering that sedentary behaviour also includes activities that are important and useful for the growth, development and cognition of children and adolescents. For example, reading, doing homework, drawing, handicrafts and playing music are beneficial activities in many ways, although they often are sedentary.

**The perspective of a sedentary child and adolescent.** A sedentary child or adolescent needs time to reach the minimum level in the recommendation on physical activity. If the child or adolescent engages in little or no physical activity, it is good to gradually increase their physical activity to half an hour a day and then gradually to the minimum recommended level. At the same time, it would be a good idea to decrease sedentary behaviour and take breaks from sedentary activity, especially if it is abundant and long-lasting. Alongside a gradual increase in physical activity, the time spent on sedentary activities is gradually reduced. For example, 15 minutes of moderate intensity physical activity is initially added to each day, and 15 minutes of sedentary behaviour reduced, and a similar change is made a few weeks later. Good ways of increasing physical activity in everyday life include walking, cycling, using stairs instead of elevators, yard games, etc.

**Adolescents' independence, inclusion and peer groups.** For adolescents, the independence and voluntary nature of physical activity are emphasised – adolescents want to free themselves of authority and experiment with their boundaries. Adolescents' participation in planning and implementing physical activities is important. The adolescent development phase includes seeking peer groups. Physical activity in a group or in a team (e.g. team sport and dance groups) provides an excellent opportunity to do this.

**All children and adolescents.** 'All children and adolescents' literally means everyone, including children and adolescents with disabilities and other minorities. Approximately one quarter of children and adolescents have some degree of disability. A disability may be related to movement, vision, understanding, hearing or other permanent impairment. Children or adolescents in other minorities may also experience difficulties in getting involved or being involved in physical activity. A child or adolescent may also have more than one disability at the same time or may belong to one or several minority groups. Physical activity recommendations apply equally to all children and adolescents, regardless of their potential disability, difficulty in motor learning or minority status.

**All children and adolescents should engage in daily physical activity which is safe and equally available to everyone.** It is important to encourage children and adolescents to be physically active, and to provide all children and adolescents with opportunities to participate safely and equally in activities that are appropriate to their age and abilities and that are enjoyable and offer variety.



## 3 Scientific evidence

This chapter provides a concise description of international research evidence on the effects of physical activity and sedentary behaviour on health as well as Finnish research data on the physical activity of children and adolescents and their physical fitness and functional capacity.

### 3.1 International studies – impact of physical activity and sedentary behaviour on health

In 2020, the World Health Organisation published international recommendations on physical activity. A working group set up to draw up the recommendations gathered research evidence on the impacts of physical activity and sedentary behaviour on different areas of health. These areas included:

- physical fitness (e.g. endurance, motor fitness, muscle fitness)
- cardiometabolic health (e.g. blood pressure, fat metabolism disorder, sugar metabolism disorder)
- bone health
- adiposity
- adverse health effects (e.g. various types of physical disabilities and hazards, such as the effects of air pollution or fine particles on the respiratory system)
- mental health (e.g. symptoms of depression, self-esteem, anxiety symptoms, ADHD)
- cognitive functions (e.g. school performance, executive function)
- pro-social behaviour (e.g. behavioural disorders, peer relationships, social inclusion)
- amount and quality of sleep

The WHO working group also made use of previous extensive reviews of studies on the links between physical activity and health. These research collections have included research reviews created when drawing up recommendations on physical activity in the United States in 2018, in Canada in 2016 and in Australia in 2019 (WHO 2020, Physical Activity Guidelines Advisory Committee 2018). The working group also assesses the degree of quality of the research evidence.

## Physical activity, sedentary behaviour and health of children and adolescents

In the next section, a concise compilation has been made of research evidence on the effects of physical activity and sedentary behaviour on health. The degree and quality of research evidence (A–C) have been assessed in accordance with the descriptions used by the WHO Guideline Development Group and the levels of evidence used in Finland as follows: A) strong research evidence based on high-quality research, B) moderate research evidence, and C) scarce or poor-quality research evidence.

### Physical activity and health in children and adolescents

The compiled research evidence dealt with the connections between different areas of physical activity and health, and with whether the connections have a dose response (amount, duration, frequency, intensity) and whether these connections vary according to the type of physical activity or its method of implementation. The degree of the research evidence is described by a letter at the end of the sentence.

- Increased physical activity and increased intensity are positively related to many aspects of health, such as cardiovascular, muscular and bone health. (A)
- Physical activity is positively linked to cardiometabolic health and cognitive functions. (B)
- Physical activity reduces the risk of depression, and interventions involving physical activity will reduce the symptoms of depression. (A)
- Both short-term and long-term moderate to vigorous physical activity has a positive impact on brain health, cognitive functional capacity and academic performance (e.g. school performance, executive function). (B)
- Physical activity is linked to healthy weight control (C). A higher amount of physical activity may be linked to less accumulation of fat and body weight. The risk of harmful weight management posed by physical activity is small.
- There is a dose response relationship between physical activity and health, but there is not enough evidence to demonstrate the optimal amount of physical activity. Many of the benefits are experienced when there is 60 minutes of physical activity a day. More physical activity seems to be even better for health.
- There is not enough evidence to show whether the links between physical activity and different health responses vary according to the type and manner of physical activity in children and adolescents.
- Moderate to vigorous endurance-type physical activity improves endurance, and weight training improves muscle fitness in children and adolescents. (A)

Further information on studies:

- The current evidence does not support the view that exactly 60 minutes of moderate to vigorous physical activity would be needed daily to achieve health benefits.
- The studies on which the evidence is based have in most cases used the 60 minutes' daily threshold value of physical activity for analyses when assessing the health benefits of physical activity.
- In the recommendation, 60 minutes of physical activity refers to the average daily number of minutes of physical activity per week. Compared to the previous specifications, this manner more closely reflects the evidence.
- There is not enough evidence to recommend a maximum limit for physical activity. Increased and increasingly intensive physical activity may bring greater health benefits.

### **Sedentary behaviour and health in children and adolescents**

The up-to-date compiled research evidence addressed the links between sedentary behaviour and different health responses, and whether they have a dose response (total amount of sedentary behaviour, duration of continuous sedentary behaviour and interruption of sedentary behaviour) and whether these links vary according to the type of sedentary behaviour.

- A larger amount of sedentary behaviour is linked to poorer health, such as body fat percentage, cardiovascular health, incidence of behavioural disorders, physical fitness and self-esteem. (C)
- The health hazards of sedentary behaviour may be caused by the direct effects of sedentary behaviour on health or by the indirect effect (the duration of sedentary behaviour overrides the time spent on physical activity) or both.
- The evidence is not sufficient to indicate whether there is a dose-response relationship between the time spent on sedentary behaviour and the health responses.
- The evidence is not sufficient to indicate whether the link between the time spent on sedentary behaviour and health responses varies according to the type of sedentary behaviour.
- The link between the time spent on sedentary behaviour and the harmful health variables is generally stronger when the time spent on sedentary behaviour examined has consisted of time spent watching TV or enjoying screen time than when it was the entire time spent on sedentary behaviour.
- A variety of sedentary activities (such as reading, studying, drawing, crafts, music) may be useful for a child's development, cognitive activities and other aspects of health.



Further information on studies:

- Most of the research evidence on the links between children and adolescents' sedentary behaviour and health responses is based on cross-sectional studies (C). In most of the studies, methods based on the data reported by children and adolescents themselves or their parents have been used in the estimation of the time spent on sedentary behaviour. Self-reporting increases the possibility of a measurement error for sedentary behaviour compared to motion measurements.
- Several studies describe the connection between screen time and health hazards, but the total time spent on sedentary behaviour measured by means of motion measurements has not been systematically linked to health, when the analysis takes into account the amount of moderate to vigorous activity.
- Health benefits are achieved when some of the time spent on sedentary behaviour is compensated for by physical activity, particularly by moderate to vigorous activity.

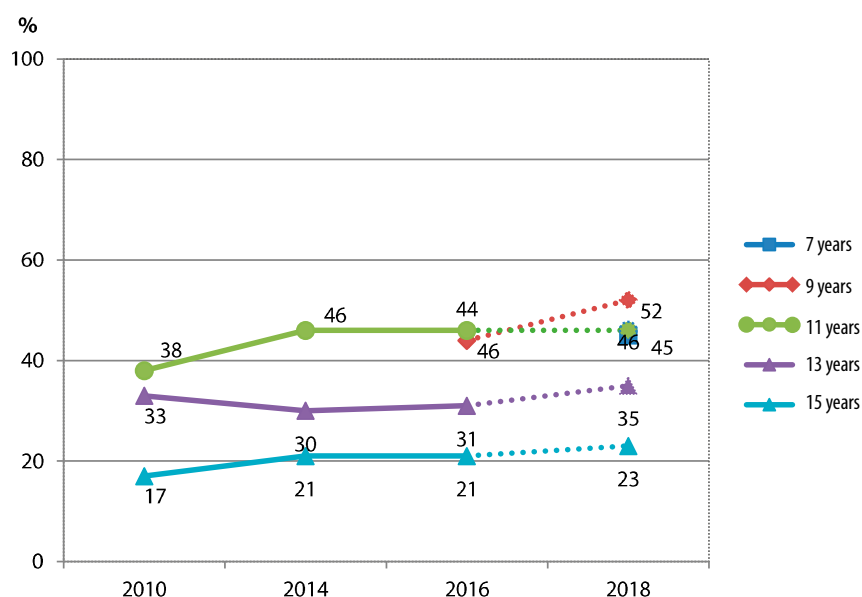


## 3.2 Finnish studies – children and adolescents' physical activity and physical fitness

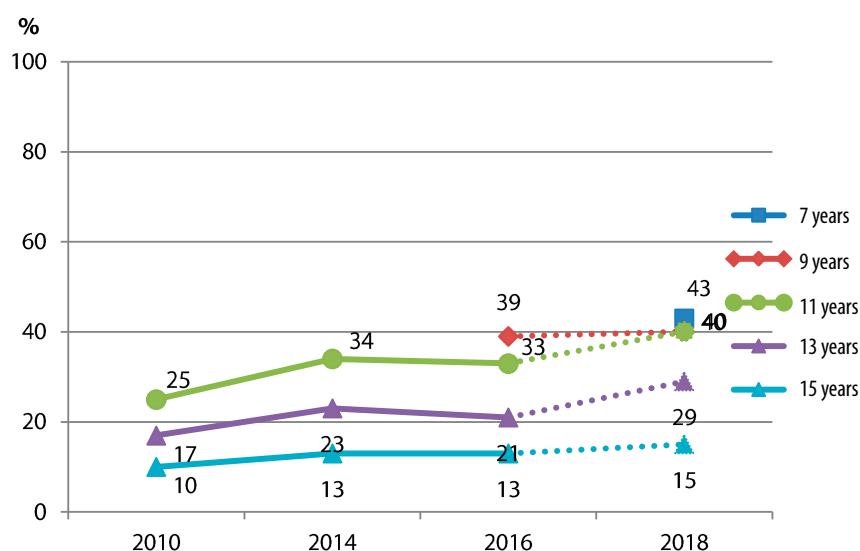
### Physical activity of children and adolescents according to surveys – WHO schoolchildren survey and LIITU 2018 studies

According to schoolchildren surveys conducted by the World Health Organisation (WHO) over the years (in 2014 and 2016) and LIITU studies (2016 and 2018), the number of children and adolescents engaging in at least 60 minutes of physical activity every day has increased by a few percentage points in both girls and boys during the last eight years. The number of people meeting the recommendation on physical activity will decrease with age. While 46% of 11-year-old boys did at least one hour of physical activity every day in 2018, the same applied to only 23% of 15-year-olds. While 40% of 11-year-old girls did at least one hour of physical activity every day, the same applied to 15% of 15-year-olds.

**Figure 1.** The proportion of boys meeting the recommendation (self-assessed) on physical activity (at least 60 minutes each day of the week) by age in 2010 and 2014 (WHO schoolchildren survey) and in 2016 and 2018 (LIITU) (%).



**Figure 2.** The proportion of girls meeting the recommendation (self-assessed) on physical activity (at least 60 minutes each day of the week) by age in 2010 and 2014 (WHO schoolchildren survey) and in 2016 and 2018 (LIITU) (%).

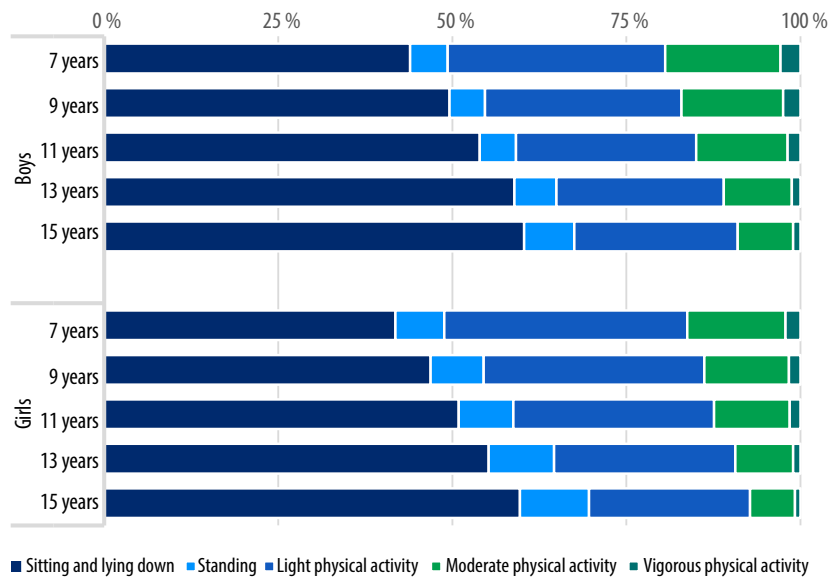


### Physical activity of children and adolescents by accelerometer – LIITU 2018 study daily percentages of physical activity, sedentary behaviour and sleep

On average, children and adolescents spent half of their waking hours sitting or lying down (Figure 3). The percentage of sitting and lying down was lowest among seven-year-olds and increased steadily towards the older age groups. In all age groups except 15-year-olds, boys sat or lay down for a few percentage points more of their waking hours than girls did, on average. On average, less than one tenth of their waking hours were spent standing still. The percentage of standing increased slightly towards the older age groups. On average, for girls, standing covered almost three percentage points more of their waking hours than for boys.

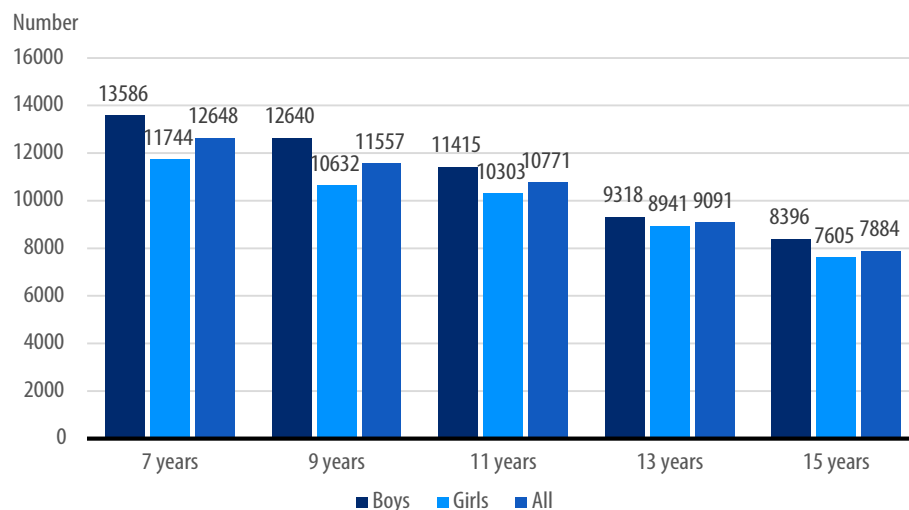
Most children's and adolescents' physical activity was light (1.5–2.9 MET) (Figure 3). On average, younger age groups engaged in more light physical activity than older groups. Girls engaged in a few percentage points more light physical activity during their waking hours than boys. More than one tenth of their waking hours were spent on moderate physical activity (3.0–5.9 MET), and a few per cent only on vigorous physical activity ( $\geq 6.0$  MET). The percentage of both moderate to vigorous physical activity during waking hours decreased towards older age groups. For girls, the percentage of moderate to vigorous physical activity during waking hours was slightly smaller than for boys.

**Figure 3.** Average proportions of sedentary and physically active time (%) during waking hours in the LIITU 2018 study 2018.



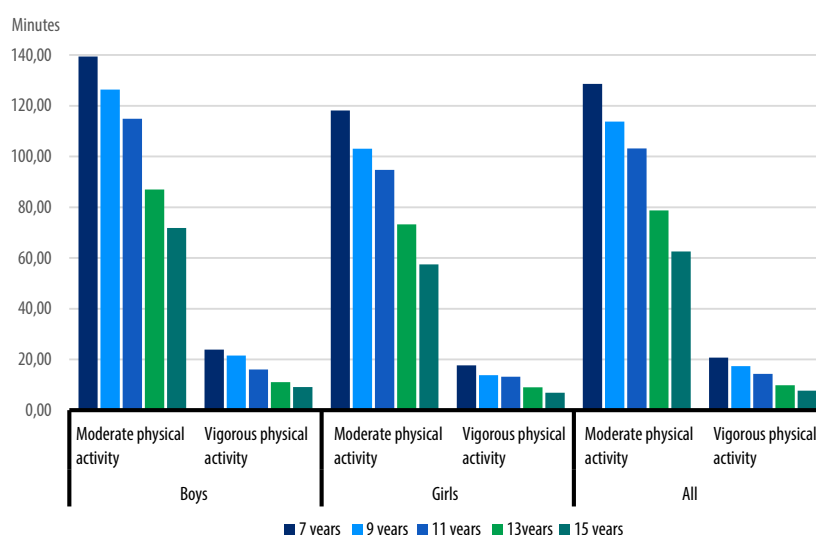
On average, children and adolescents took 10,861 steps a day. Younger age groups took more steps than older groups (Figure 4). On average, boys took more steps in all age groups than girls, but the gender gap was smaller in older age groups compared to younger age groups. On average, the most daily steps were taken by boys aged 7 and the least by girls aged 15.

**Figure 4.** The average number of daily steps in the LIITU 2018 study.



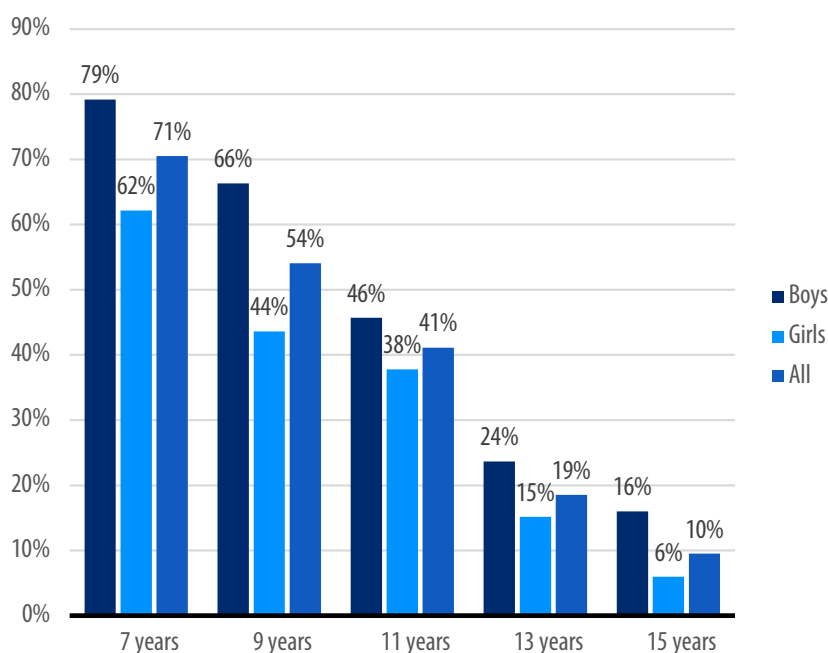
On average, 1 hour and 44 minutes of moderate physical activity (3.0–5.9 MET) and 15 minutes of vigorous physical activity ( $\geq 6$  MET) were accumulated daily by children and adolescents. In other words, a total average of two hours of moderate to vigorous physical activity were accumulated per day. Both moderate to vigorous physical activity decreased considerably towards older age groups. The boys were physically active in all age groups examined, on average more so than girls on both intensity levels (Figure 5).

**Figure 5.** The average number of minutes of daily moderate to vigorous physical activity in the LIITU 2018 study.



Meeting the recommendation on physical activity was assessed as the share of children and adolescents who engaged in moderate to vigorous physical activity for at least 60 minutes on each day included in the assessment. 71% of the seven-year-olds, slightly over half of the 9-year-olds, 41% of the 11-year-olds, nearly one fifth of the 13-year-olds and one in ten 15-year-olds engaged in moderate to vigorous physical activity for at least 60 minutes (Figure 6). Boys met the recommendation more often than girls: in all age groups, the number of boys who met the recommendation was higher than that of the girls.

**Figure 6.** The share of children and adolescents who met the recommendation on physical activity (at least 60 minutes of moderate to vigorous physical activity each day) in the LIITU 2018 study.



## Physical functional capacity of children and adolescents

### – Move! measurements

Move! measurements form a monitoring system for the physical functional capacity of 5th and 8th graders ([www.oph.fi/fi/move](http://www.oph.fi/fi/move)). The measurement package includes tests measuring physical properties and motor skills. Physical characteristics measure strength, speed, endurance and mobility. In terms of basic motor skills, balance, movement and handling of equipment shall be measured. Move! measurements have been made since 2016.

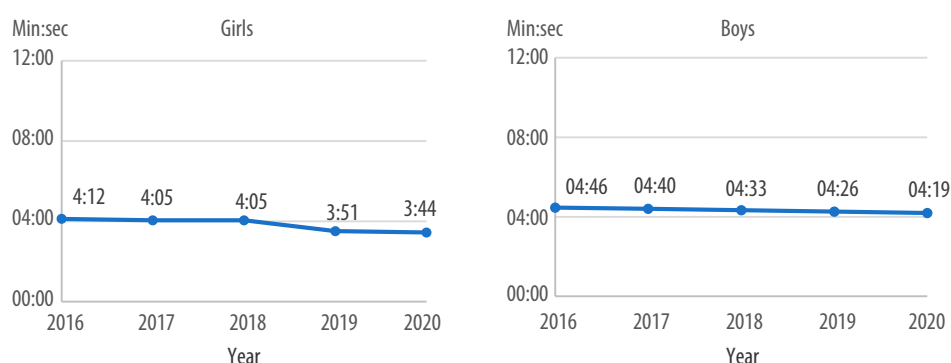
The median duration of the 20-metre shuttle run test for 5th grade girls has improved from 4:12 minutes to 3:44 minutes between 2016 and 2020 (Figure 7). For boys, the corresponding change is 4:50 minutes to 4:19 minutes. In the case of eighth-graders, almost the entire age group has a follow-up history of three years. Between 2019 and 2020, the median result deteriorated by 14 seconds for girls and by 13 seconds for boys.

A significant difference was observed in mobility measurements between girls and boys in all mobility measurements. The lower back cannot be extended in the long sitting position by approximately 20 per cent of 5th grade boys and 26 per cent of 8th grade boys.



Mobility challenges were also identified in the lower back and hip area and in shoulder joint mobility.

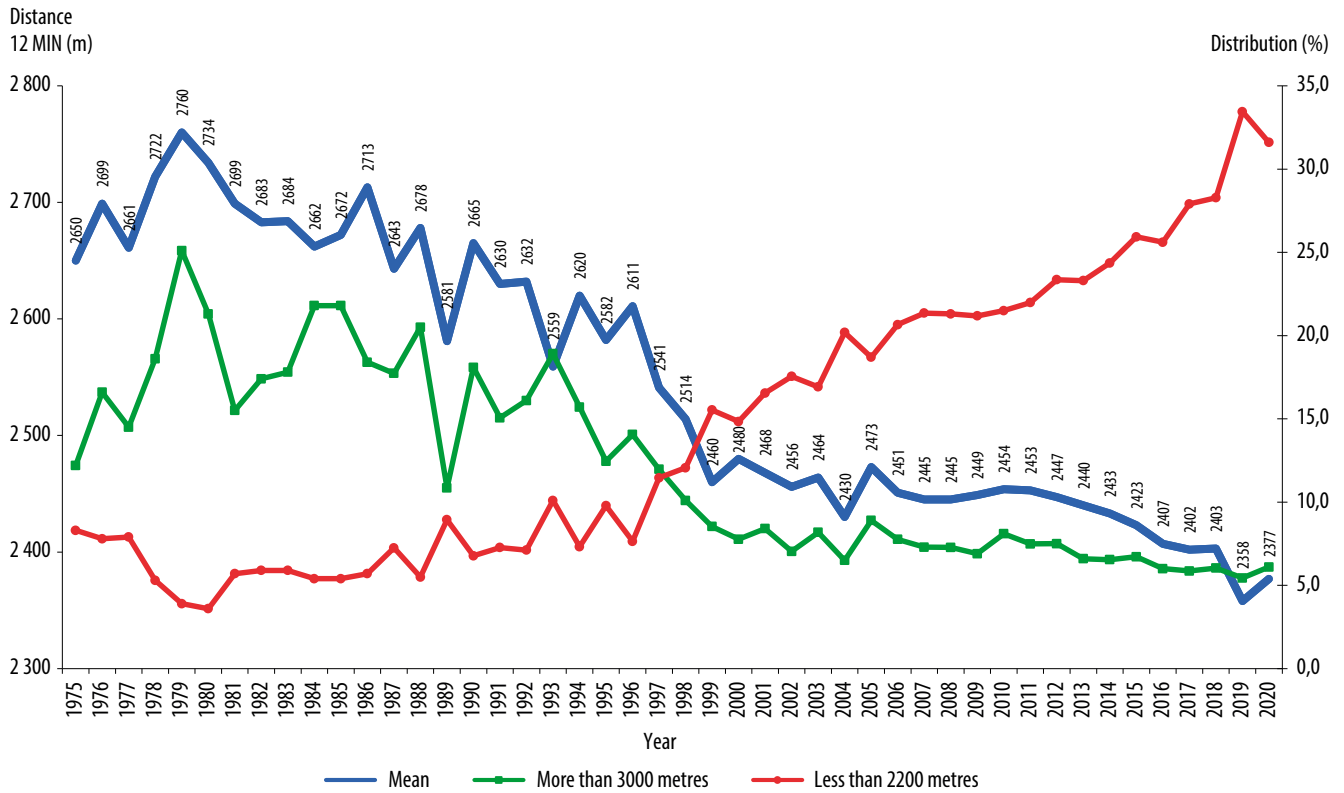
**Figure 7.** Median result of the Move! measurement for the 20 m shuttle run test in 5th graders in 2016–2020.

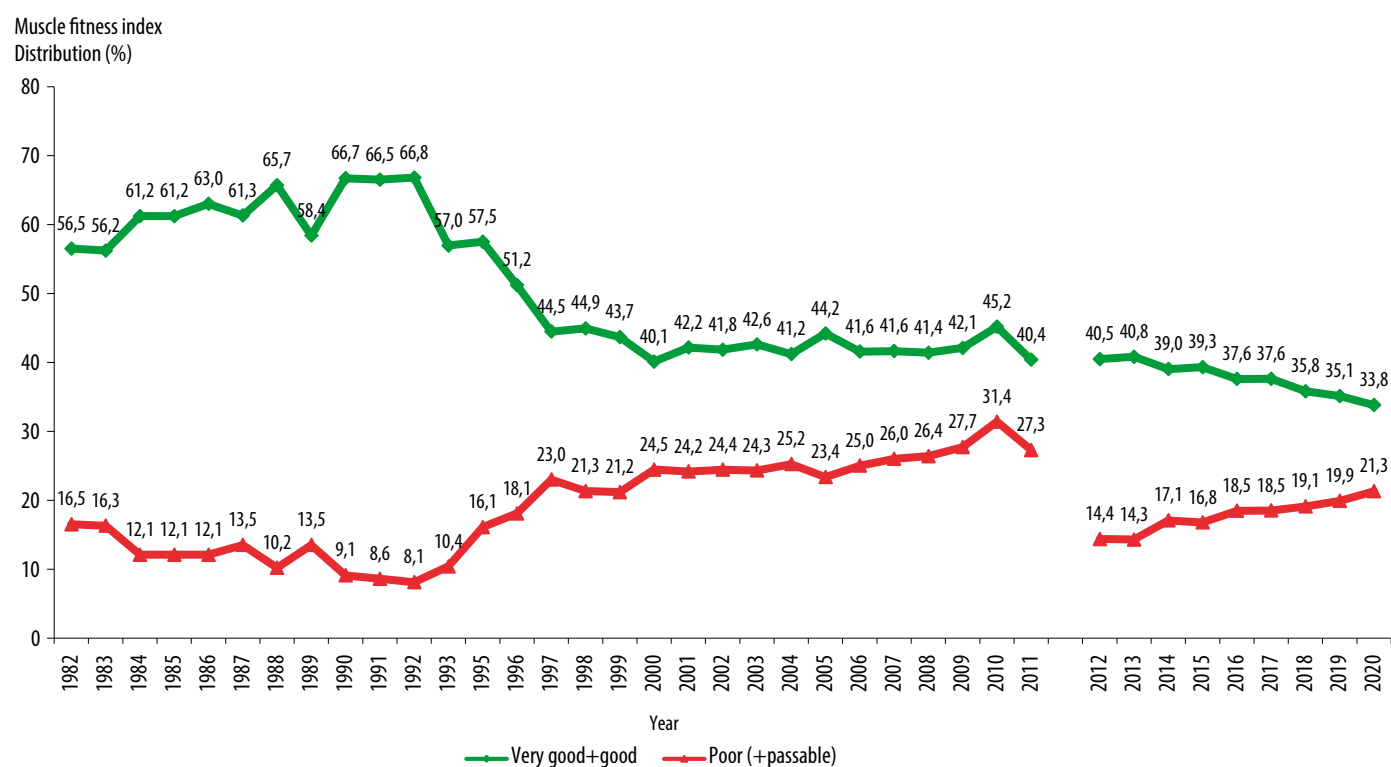


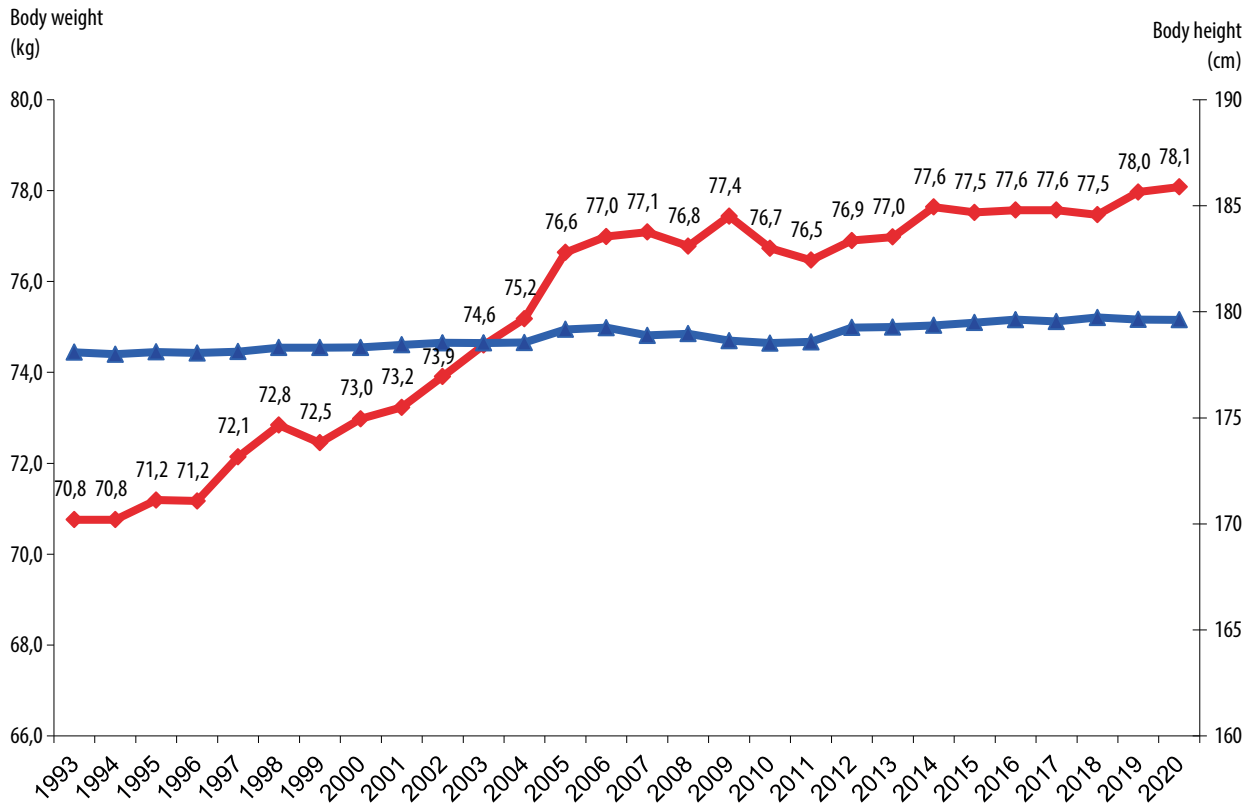
### Physical fitness of young men – fitness tests for conscripts

Physical activity and sedentary behaviour are linked to changes in physical fitness. The following illustrations indicate the results for the physical fitness of young men aged 19 or over when their military service begins. Due to the general conscription requirement, the results are available for approximately 80% of young men in the age group, but no similar comprehensive population data is available for young women. The average endurance of men who have started their military service has decreased since 1980 (Figure 8). While the average 12-minute running test result was 2,760 metres in 1979, the corresponding result in 2019 was an average of 2,358 metres. In the corresponding period, the proportion of those running at most 2,200 metres changed from 4% to almost 34%. The proportion of those running at least 3,000 metres dropped from 25% to approximately 5%.

The muscle fitness results for men who have started their military service have changed since the early 1990s (Figure 9). While in 1992, approximately 67% of those who started military service achieved a commendable or good result, in 2019 the corresponding result was approximately 35%. At the same time, the number of poor results has become more common: in 1992, less than one in ten had poor results in muscle fitness; in 2011, approximately three out of ten had a poor result. The weight of those who started their military service has increased between 1993 and 2019 by more than 7 kg (Figure 10).

**Figure 8.** The endurance of men who started their military service in 1975–2020.

**Figure 9.** The muscle fitness of men who started their military service in 1982–2020.

**Figure 10.** The height and weight of men who started their military service in 1993–2020.

## Conclusions

Different trends can be observed in the physical activity and physical fitness of children and adolescents. Based on the surveys, the number of children and adolescents in basic education who meet the recommendation on physical activity has increased slightly in the 2010s, but Move! measurements and the results on conscripts' fitness also indicate a deterioration in their endurance. These slightly contradictory trends may be based on unfavourable weight gain trends and a gradual decrease in the total amount of physical activity. In the years to come, the data on physical functional capacity and fitness as well as the amount of physical activity measured using an accelerometer will be collected alongside the surveys to clarify the overall picture of trends in children's and adolescents' physical activity and physical fitness.



## 4 Implementation of the recommendation on physical activity

This chapter describes the key implementing bodies for the recommendations on physical activity for children and adolescents. Previous studies indicate that family and friends, schools and educational institutions, sports clubs and organisations and other organisers of sports activities, municipalities and the central government are all relevant actors in implementing the recommendations. The following sections provide examples of measures to support the physical activity of children and adolescents in different contexts. The purpose of these examples is to stimulate the physical activity of children and adolescents.

### 4.1 Family and friends

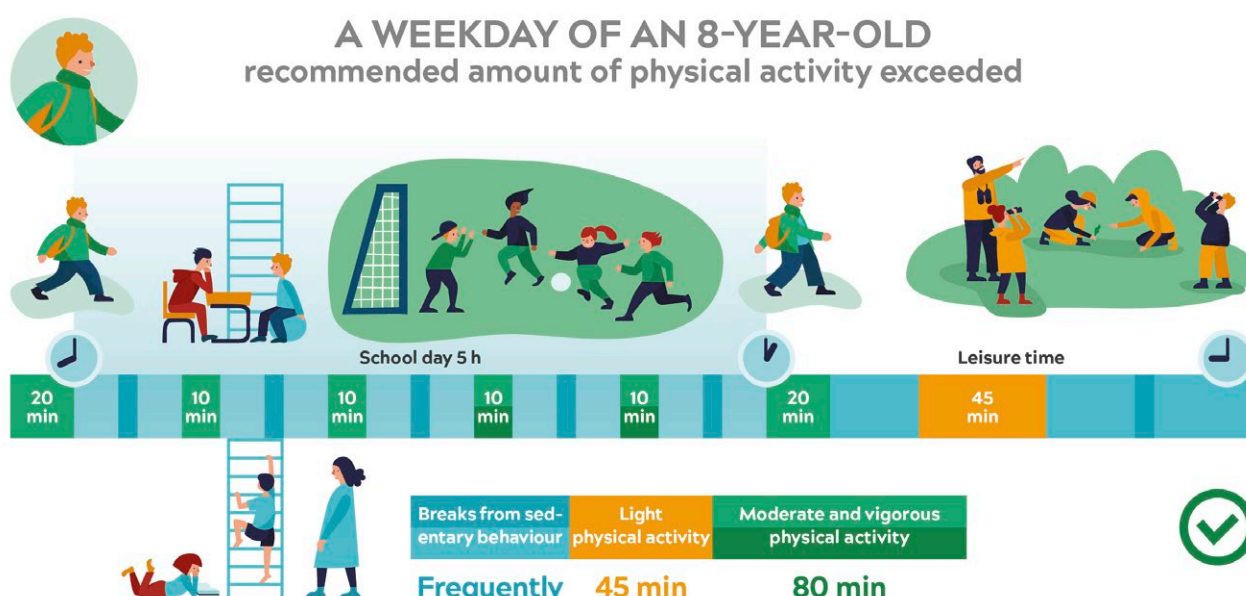
Cultural customs and habits that affect children's and adolescents' physical activity and holistic well-being are formed early in the family circle (Lounassalo et al. 2019). The attitudes, examples and encouragement of loved ones who interact with the child on a daily basis play an important role in the child's physical activity and sedentary behaviour. The family can support the physical activity of primary school pupils for example by encouraging regular physical activity, by engaging in physical activity together with the child, by paying for sports hobbies and transporting children so they may participate in them (Laukkanen et al. 2020; LIITU 2018). The importance of friends in physical activity increases with age. Hobbies and interests in a circle of friends affect the way adolescents spend their time. They are also reflected in the total amount and type of physical activity of the adolescents. (LIITU 2018.)

Families can support children's and adolescents' adoption of a physically active lifestyle in the following ways:

- physical activity in the family (cycling, walking with grandparents and spending time outdoors with friends)
- everyday routines that maintain their well-being (walking and cycling short distances, taking the stairs instead of the lift)
- encouraging people to move around in their immediate surroundings together with friends (e.g. yard games, freestyle scootering, skateboarding, hobby-horse riding)



- encouraging independent physical activity and outdoor activities (e.g. walking or cycling to school and hobby facilities)
- leveraging opportunities for physical activity in the outdoor environment (e.g. outdoor fitness racks, disc golf tracks, nature trails, beaches, ice rinks, ski tracks, sledge slopes)
- encouraging physical activity with an instructor
- where necessary, applying for support for recreational activities for children and adolescents (e.g. sports equipment lending centres, cost subsidies for hobbies and aids enabling physical activity, and using different forms of peer support)



*The recommendation on physical activity is met by the child in the picture, as their day can accommodate a total of 80 minutes of moderate to vigorous physical activity and at least 45 minutes of light physical activity. Yard games will put strain on their muscles and bones, help them improve their motor skills and bring enjoyment of engaging in physical activity together with others. A nature excursion in the fresh air relaxes, sharpens up the senses and improves balance.*

## 4.2 Schools and educational institutions as an operating environment

Schools and educational institutions are multidisciplinary communities in which everyone has the opportunity to support the potential for physical activity. The physical activity of schoolchildren is at its highest at the beginning of their school years and in the first grades

(Schools on the Move; LIITU 2018). Even though children's participation in physical activities will increase until the age of 13, the total daily average amount of physical activity begins to decrease immediately after the first school years. The level of daily physical activity for young adults is the lowest (LIITU 2018). The Move! measurement results for physical functional capacity have shown that functional capacity can be systematically developed, for instance, between the 5th and 8th grade.

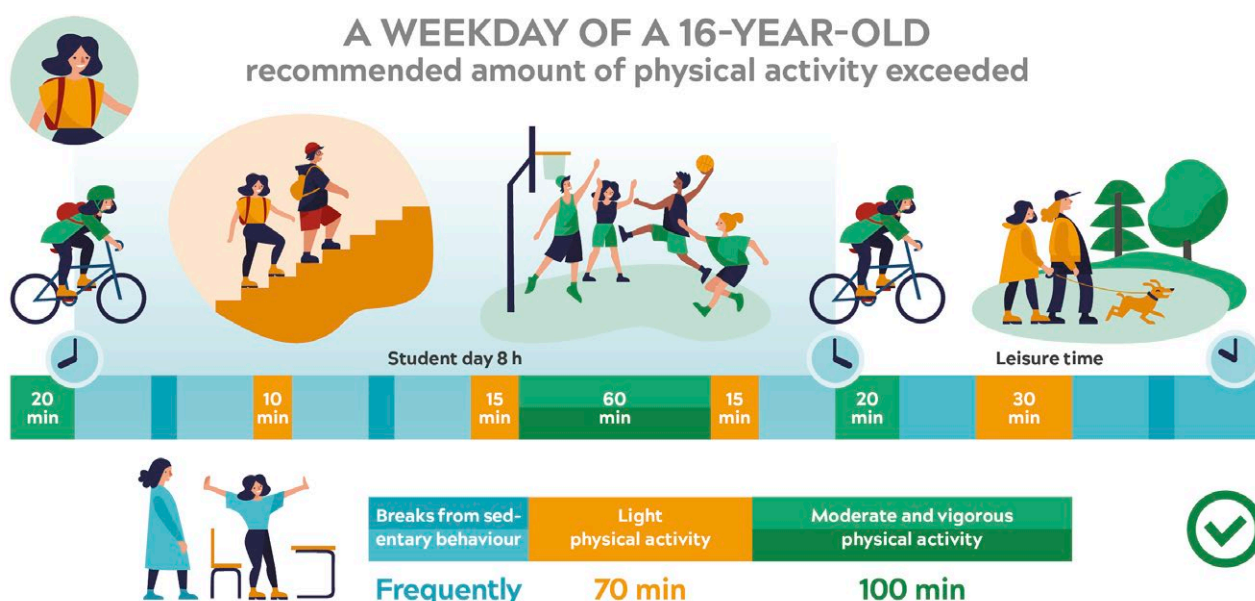
### **Teaching staff**

In addition to physical education lessons, the operating culture of comprehensive schools and upper secondary schools influences the total amount of physical activity in children and adolescents. For example, various Schools on the Move and Students on the Move measures can support a sufficient amount of physical activity in children and adolescents.

### **Schools and educational institutions can support the physical activity of children and adolescents, for example by:**

- encouraging physical activity on the way to school (e.g. adding bicycle stands, improving lighting, clarifying traffic arrangements in the vicinity of the school);
- planning break and free period areas that encourage physical activity (for example, school yard areas, outdoor shelters and indoor facilities)
- taking care of the appropriate facilities and conditions (e.g. dressing rooms, exercise halls and outdoor sports facilities)
- involving pupils and students (e.g. in planning physical activities, evaluation and physical activity peer activator)
- regularly using teaching methods that promote learning and physically stimulate pupils (such as teamwork methods, functional and physically active teaching methods) and by pausing teaching (physically active breaks and recess time)
- organising high-quality physical education and encouraging teachers to participate in continuing education
- offering and implementing optional physical activity studies with diverse contents
- providing support for children and adolescents engaging in goal-oriented physical activity in order for them to combine their studies and sports (cooperation with local clubs, support for children's and adolescents' functional everyday life)
- supporting the physical activity and well-being of all children and adolescents by means of multiprofessional cooperation (e.g. support measures based on weak Move! measurement results)

- supporting the physical activity opportunities for those in need of special support
- organising diverse, low-threshold morning, afternoon, club and hobby activities in cooperation with local clubs, organisations and associations.



The recommendation on physical activity is met by the adolescent in the picture, as their day can accommodate more than one hour of moderate to vigorous physical activity (a total of 100 minutes). Cycling puts strain on the respiratory and vascular systems and strengthens the leg muscles. Taking breaks from teaching stimulates adolescents' blood circulation and refreshes and improves their concentration. In addition, during the day, different types of physically active breaks improve their coordination and balance. Walking up and down stairs several times a day strengthens the muscles in adolescents' legs and improves their coordination. Versatile physical education classes are used to improve endurance, speed, muscle strength, motor skills and mobility. When an adolescent moves together with others, they experience the joy of physical activity and improve their motor skills. They also have the opportunity to find pleasant ways to look after their own well-being. In the evening, walking a dog calms you down and helps you sleep.

### School health care

Sufficient physical activity and, on the other hand, a small amount of sedentary activity together with sufficient sleep and healthy food are the most important lifestyle choices that promote the well-being and health of children and adolescents. The Move! measurement results for pupils in 5th and 8th grades, which are submitted to school

health care, provide information on the physical functional capacity of comprehensive school pupils.

School health care that supports physical activity is characterised by:

- health habits and physical activity are discussed in connection with all health examinations
- Move! measurement results are used in extensive medical examinations in the 5th and 8th grades
- encouraging health and physical activity counselling provided by both a public health nurse and a physician (for example, they are familiar with local physical activity and recreational opportunities and can use their knowledge to recommend and encourage involvement)
- close cooperation with parents (for example by cooperating with parents to encourage children to be physically active)
- close cooperation with teachers (such as planning Schools on the Move operations)
- an active role in communal student welfare and support for physical activity during the school day (e.g. cooperation with a sports teacher, special needs teacher and group instructor)

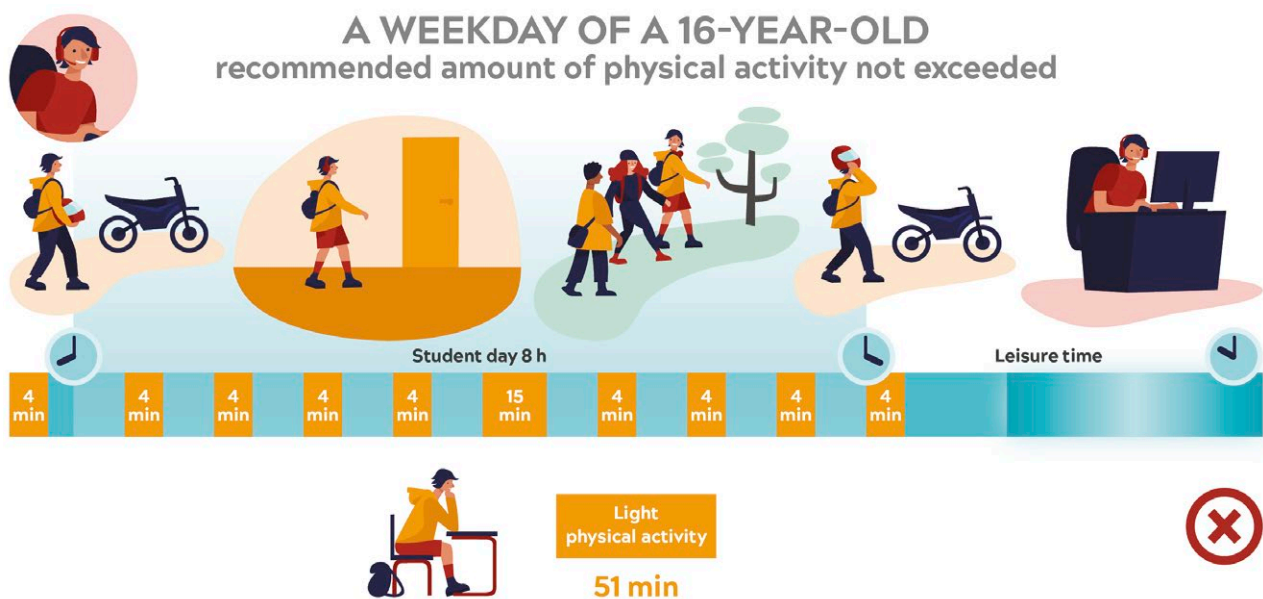
### **Student health care**

The lifestyle choices of today's adolescents have become polarised, and some adolescents rarely engage in physical activity (LIITU 2018). Little physical activity together with other lifestyle choices that are a burden to good health and well-being hamper studying and may also weaken the sense of being in control of one's own life. The start of studies can also serve as a new stage in adolescents' lives, which arouses an interest in taking care of their own well-being.

Successful solutions to support physical activity in student health care:

- taking physical activity into account in both public health nurses' and physicians' examinations
- encouraging health and physical activity counselling, guiding clients to healthy and physically active lifestyles
- strengthening the student's life management and resources (e.g. by encouraging students to engage in regular physical activity and to look for recreational physical activity).
- group activities to increase physical activity and mental well-being

- participation in supporting the school culture promoting daily physical activity
- participation in multidisciplinary student welfare work at an educational institution (e.g. Students on the Move activities)
- cooperation with municipal sports services and third-sector sports organisations to organise various support measures
- sector-specific communication on the link between physical activity and well-being, the ability to study and work



*The adolescent in the picture does not meet the recommendation for physical activity. They accumulate a total of 51 minutes of light-intensity physical activity throughout the day, but no moderate to vigorous physical activity at all. Riding a moped improves balance.*

### 4.3 Sports clubs and organisations and all organisers of sports and physical activities

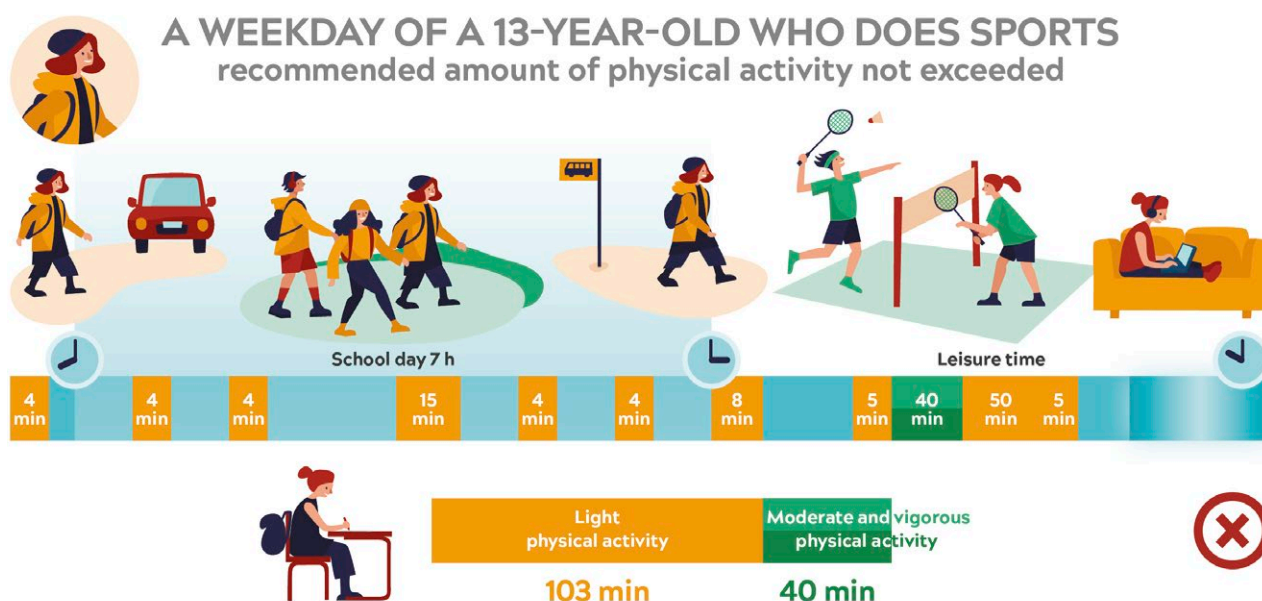
Participation in organized physical activity begins at the age of six on average. The proportion of participants is at its highest at the age of 11, after which the number of hobbies begins to decrease rapidly. (LIITU 2018.) Children and young people say that they are physically active, among other things, because of the joy and good feeling it gives, because it is healthy and because it makes them feel they have succeeded at something and leads to experiences. Being together and doing things together with friends are important reasons

for engaging in physical activity. Adolescents are also interested in physical activity, but there are more obstacles to their hobbies, such as expensive hobby fees and the competitive focus on activities. (LIITU 2018.) However, the amount of moderate to vigorous physical activity accumulated during guided trainings and physical activities is often not enough to cover the amount of physical activity recommended for the entire day. This is why in addition to guided physical activities, other physical activity should also be included in the day of children and adolescents. Walking or cycling to hobbies can significantly increase the total amount of physical activity accumulated during the day.

The following promote children and adolescents taking up physical activity and sticking to it:

- physically, psychologically and socially safe activities
- skilled, trained and ethically operating instructors and coaches able to create a positive, inspiring and encouraging atmosphere
- accessible and obstacle-free hobby facilities
- versatile physical activity content that develops different areas of functional capacity and brings joy, gives a feeling of success and a sense of community
- inclusion of children and adolescents and listening to them, activities enhancing their experienced competence and learning new skills and things
- offering enthusiasts recreational opportunities that are meaningful and versatile, so that the activities correspond to the goals and expectations of the enthusiasts (such as the possibility of starting recreational activities at different ages, the provision of different recreational groups at different levels)
- reasonable hobby fees
- equality and equal treatment in such a way that gender, disability, physical impairment or other factors related to the person do not prevent inclusion
- active cooperation with municipalities and schools to enable hobbies
- cooperation between clubs and other hobby organisers with national and local umbrella organisations to develop high-quality activities, train actors and increase competence





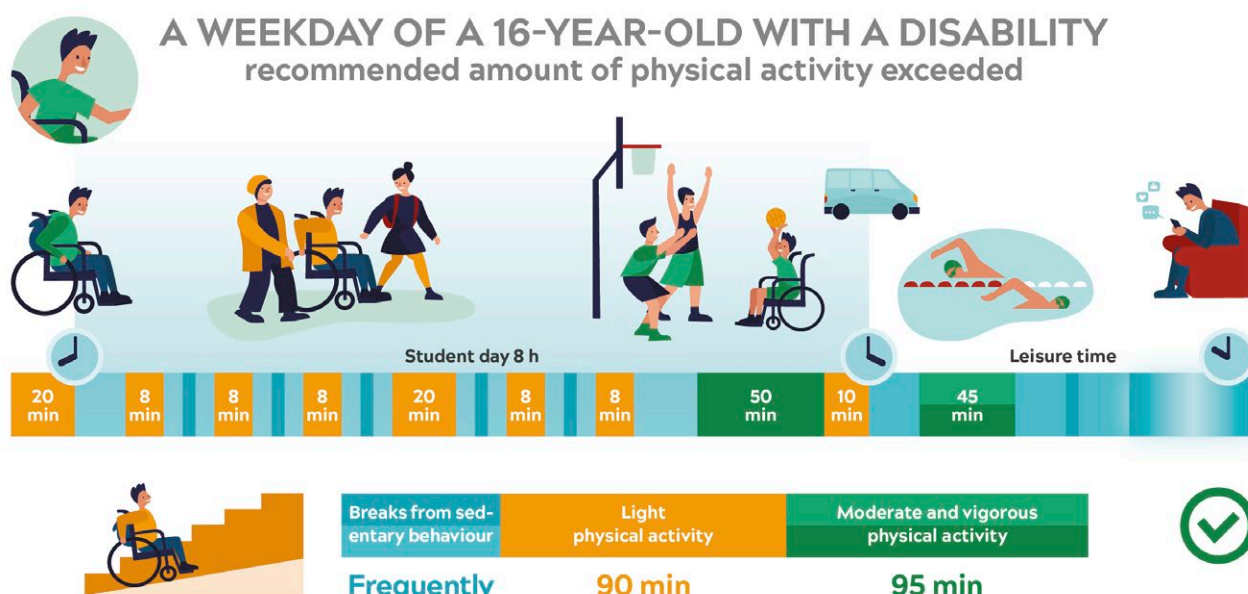
The sporty adolescent in the picture does not meet the recommended daily one-hour amount of physical activity. During the day, he accumulates a total of 40 minutes of moderate to vigorous physical activity. There is a total of 103 minutes of light physical activity. During a sports club training, there is 40 minutes of moderate to vigorous physical activity, during which muscle strength, speed and motor skills are developed in a versatile manner. These exercises also include strain which strengthens bones. In light-intensity exercises, the adolescent does a total of 50 minutes of physical activity during the warm-up and final stretching. At the same time, they maintain and develop the body's range of motion. Practising in a group increases a sense of community and strengthens the sense of belonging to a group.

## 4.4 Municipalities

In municipal decision-making and activities, it is important to take into account securing the prerequisites for the well-being of all residents of the municipality, including children and adolescents aged 7–17. Decision-making and different measures can contribute to enabling school-aged children and adolescents to engage in diverse physical activity. In addition, solutions that force them into unreasonably long periods of sedentary behaviour may be avoided. The promotion of the well-being and physical activity of children and adolescents requires cooperation between different administrative branches in municipalities and a joint review of the fact that the prerequisites for sufficient daily exercise may be met. Municipalities should therefore carry out a comprehensive and systematic assessment of the effects of planned measures and decisions on physical activity.

Municipalities can promote the physical activity of children and adolescents by, for instance, the following factors:

- increasing physical activity will be taken into account in the municipal strategy as a cross-cutting objective for all administrative branches, and there will be cross-administrative cooperation to increase physical activity
- municipal schools and educational institutions promote physical activity through teaching practices that support physical activity
- a systematic preliminary assessment will be made of the impacts of decisions and measures on physical activity among children and adolescents
- sports counselling services are offered to children and adolescents
- the Move! measurement system for 5th and 8th grade pupils is used to promote physical activity
- it is ensured that those in need of particular support for physical activity have access to adequate and suitable transport, assistant and support device services
- accessible physical activity conditions are maintained and constructed systematically
- the fees for recreational facilities are reasonable or free of charge for children and adolescents
- the planning decisions take into account the environment that supports sports and physical activity
- children and adolescents are involved in decision-making related to physical activity and the planning of measures
- the amount and change of physical activity among children and adolescents are monitored and assessed
- in the vicinity of residential areas, there are places allowing for physical activity within walking distance
- the passages between home, school and recreational facilities are safe, allowing children and adolescents to move around without vehicles
- essential school transportation is designed so that children and adolescents do not have to sit in a car for excessively long periods
- municipal sports and youth services work together with parties providing recreational activities
- low-income and child welfare clients may apply for financial support for children's hobbies



*The adolescent in the picture exceeds the one-hour recommendation on physical activity, as they accumulate a total of 95 minutes of moderate to vigorous physical activity and 90 minutes of light activity on the day examined. Moderate and vigorous physical activity strengthen the muscles and the bones. 55 minutes of physical activity maintaining/improving body mobility (stretching + swimming exercise).*

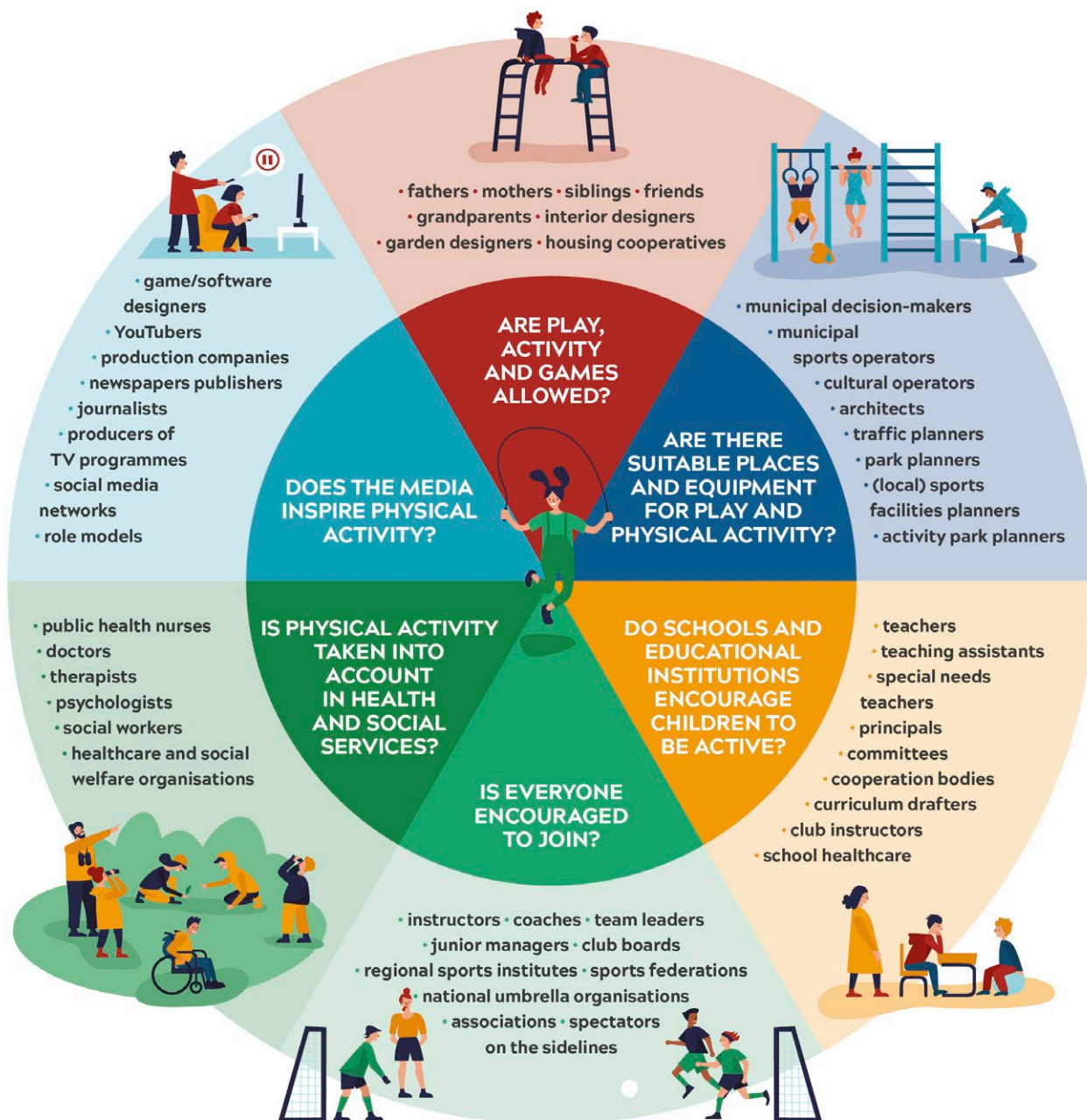
## 4.5 Central government

Children and adolescents will carry responsibility in the future. Children have the right to grow and develop to their full potential and to live as healthily as possible (Articles 6 and 24 of the Convention on the Rights of the Child 1989, General Comment 7). Adolescents who engage in physical activity and look after their well-being usually do better than others in their studies, they study longer, and later in their adulthood they earn more than others (Kari 2018). Fit adolescents have a lower risk of developing different diseases of affluence later on. The social costs due to too little physical activity and lack of physical fitness are estimated to exceed EUR 3 billion per year (Vasankari & Kolu, 2018). Investments in the preventive promotion of health and well-being, including physical activity, will achieve significant improvements in the quality of life of individuals. At the level of society, investing in preventive action is a way of achieving savings.

Central government measures can affect the physical activity of children and adolescents, for example by means of the following:

- the promotion of the physical activity of children and adolescents is regarded as preventive public health work and an issue affecting the national economy
- it is understood that children and adolescents' growth, development and learning require sufficient physical activity
- the impacts of different administrative branches on the physical activity of children and adolescents are understood; cross-administrative and cross-sectoral cooperation is engaged in to increase the physical activity of children and adolescents and to remove obstacles to physical activity
- the development of the knowledge base on physical activity among children and adolescents is promoted, and this knowledge is used in decision-making
- the national promotion of physical activity is supported by means of normative, resource and informational guidance
- an assessment of the impacts of physical activity will be carried out in all decision-making

## HOW MANY ROLES AS AN INFLUENCER DO YOU RECOGNISE IN YOURSELF?



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