CHILDREN AND ADOLESCENTS (aged 5–17 years) LIVING WITH DISABILITY

Many of the health benefits of physical activity for children and adolescents, as set out in the section above, also relate to those children and adolescents living with disability. Additional benefits of physical activity to health outcomes for those living with disability include: improved cognition in individuals with diseases or disorders that impair cognitive function, including attention-deficit/hyperactivity disorder (ADHD); improvements in physical function may occur in children with intellectual disability.

It is recommended that:

› **Children and adolescents living with disability should do at least an average of 60 minutes per day of moderate- to vigorous-intensity, mostly aerobic, physical activity, across the week.**

Strong recommendation, moderate certainty evidence

› **Vigorous-intensity aerobic activities, as well as those that strengthen muscle and bone should be incorporated at least 3 days a week.**

Strong recommendation, moderate certainty evidence

Doing some physical activity is better than doing none.

GOOD PRACTICE STATEMENTS

- Doing some physical activity is better than doing none.
- If children and adolescents living with disability are not meeting these recommendations, doing some physical activity will bring benefits to health.
- Children and adolescents living with disability should start by doing small amounts of physical activity and gradually increase the frequency, intensity and duration over time.
- There are no major risks for children and adolescents living with disability engaging in physical activity when it is appropriate to an individual's current activity level, health status and physical function; and the health benefits accrued outweigh the risks.
- Children and adolescents living with disability may need to consult a health-care professional or other physical activity and disability specialist to help determine the type and amount of activity appropriate for them.

In children and adolescents, higher amounts of sedentary behaviour are associated with the following poor health outcomes: increased adiposity; poorer cardiometabolic health, fitness, and behavioural conduct/pro-social behaviour; and reduced sleep duration.

It is recommended that:

› **Children and adolescents living with disability should limit the amount of time spent being sedentary, particularly the amount of recreational screen time.**

Strong recommendation, low certainty evidence

LIMIT

the amount of time spent being sedentary, particularly recreational screen time.

Start by doing small amounts of physical activity.

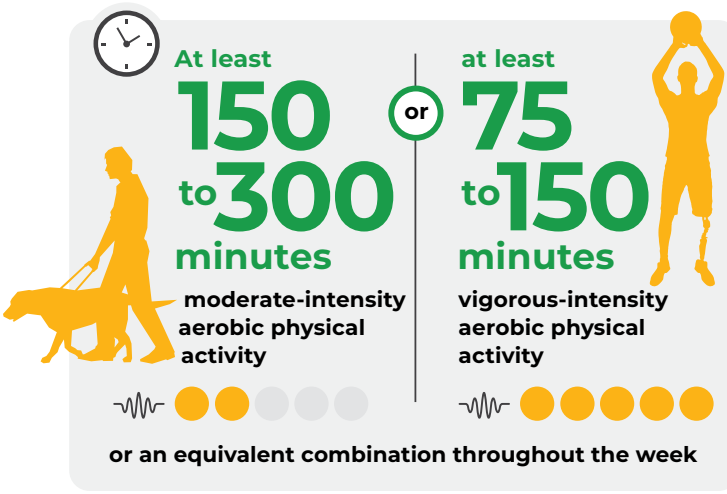
ADULTS (aged 18 years and older) LIVING WITH DISABILITY

Many of the health benefits of physical activity for adults, as set out in the section above, also relate to adults living with disability. Additional benefits of physical activity to health outcomes for those living with disability include the following: **for adults with multiple sclerosis** – improved physical function, and physical, mental, and social domains of health-related quality of life; **for individuals with spinal cord injury** – improved walking function, muscular strength, and upper extremity function; and enhanced health-related quality of life; **for individuals with diseases or disorders that impair cognitive function** – improved physical function and cognition (in individuals with Parkinson's disease and those with a history of stroke); beneficial effects on cognition; and may improve quality of life (in adults with schizophrenia); and may improve physical function (in adults with intellectual disability); and improves quality of life (in adults with major clinical depression).

It is recommended that:

› **All adults living with disability should undertake regular physical activity.**

Strong recommendation, moderate certainty evidence

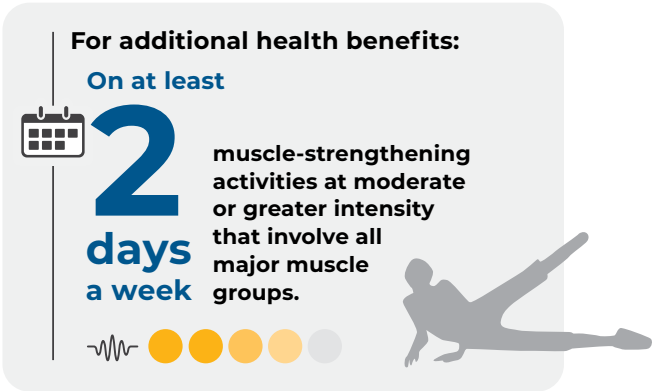


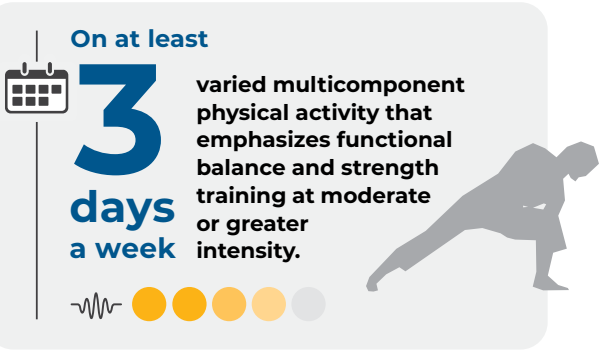
› **Adults living with disability should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week for substantial health benefits.**

Strong recommendation, moderate certainty evidence

› **Adults living with disability should also do muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week, as these provide additional health benefits.**

Strong recommendation, moderate certainty evidence



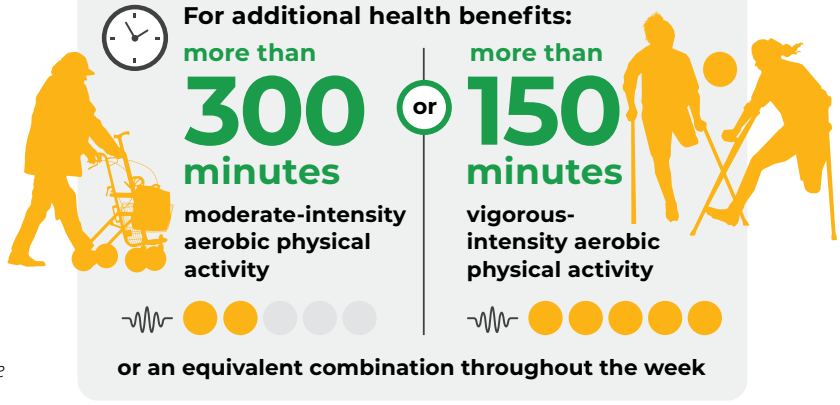


› **As part of their weekly physical activity, older adults living with disability should do varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity on 3 or more days a week, to enhance functional capacity and prevent falls.**

Strong recommendation, moderate certainty evidence

› **Adults living with disability may increase moderate-intensity aerobic physical activity to more than 300 minutes; or do more than 150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week for additional health benefits.**

Conditional recommendation, moderate certainty evidence



GOOD PRACTICE STATEMENTS

- Doing some physical activity is better than doing none.
- If adults living with disability are not meeting these recommendations, doing some physical activity will bring benefits to health.
- Adults living with disability should start by doing small amounts of physical activity, and gradually increase the frequency, intensity and duration over time.
- There are no major risks to adults living with disability engaging in physical activity when it is appropriate to the individual's current activity level, health status and physical function; and when the health benefits accrued outweigh the risks.
- Adults living with disability may need to consult a health-care professional or other physical activity and disability specialist to help determine the type and amount of activity appropriate for them.

In adults, higher amounts of sedentary behaviour are associated with the following poor health outcomes: all-cause mortality, cardiovascular disease mortality and cancer mortality and incidence of cardiovascular disease, cancer and type-2 diabetes.

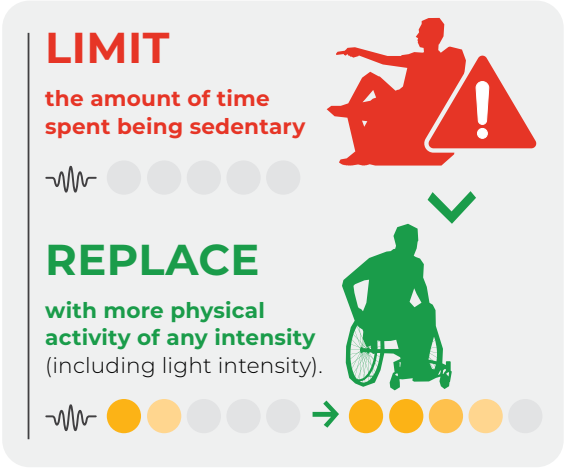
It is recommended that:

› **Adults living with disability should limit the amount of time spent being sedentary. Replacing sedentary time with physical activity of any intensity (including light intensity) provides health benefits.**

Strong recommendation, low certainty evidence

› **To help reduce the detrimental effects of high levels of sedentary behaviour on health, adults living with disability should aim to do more than the recommended levels of moderate- to vigorous-intensity physical activity.**

Strong recommendation, low certainty evidence



BACKGROUND

Regular physical activity is a known protective factor for the prevention and management of noncommunicable diseases such as cardiovascular disease, type-2 diabetes, breast and colon cancer *(1–3)*. Physical activity also has benefits for mental health *(4)*, delays the onset of dementia *(5)*, and can contribute to the maintenance of healthy weight *(1)* and general well-being *(6)*.

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure *(1)* and can be performed at a variety of intensities, as part of work, domestic chores, transportation or during leisure time, or when participating in exercise or sports activities. At the low end of the intensity range, sedentary behaviour is defined as any waking behaviour while in a sitting, reclining or lying posture with low energy expenditure *(7)*. Emerging new evidence indicates that high levels of sedentary behaviour are associated with cardiovascular disease and type-2 diabetes as well as cardiovascular, cancer and all-cause mortality *(8–10)*.

Physical inactivity is defined as not meeting the 2010 *Global recommendations on physical activity for health (1)* and is a leading contributor to global mortality. It is estimated that between four and five million deaths per year could be averted if the global population was more active *(2, 11)*. Global estimates of physical inactivity indicate that in 2016, 27.5% of adults *(12)* and 81% of adolescents *(13)* did not meet the 2010 WHO recommendations *(1)*, and trend data show limited global improvement during the past decade. The data also highlight that women are less active than men in most countries and that there are significant differences in levels of physical activity within and between countries and regions. These differences can be explained by inequities in access to opportunities to be physically active, further amplifying inequalities in health.

Currently, there are no global estimates of sedentary behaviour, but technological innovation and the transition towards more sedentary occupations and recreation, and the increasing use of personal motorized transportation are contributing to changing patterns of physical activity and increased sedentary behaviour across the world. The *Global action plan on physical activity 2018–2030 (14)* sets out 4 strategic objectives and 20 policy actions to achieve a 15% relative reduction in the global prevalence of physical inactivity in adults and adolescents by 2030.

In 2010, WHO published the *Global recommendations on physical activity for health (1)*, the first population-based public health guidelines for children and adolescents, adults and older adults. In 2018, the World Health Assembly, in resolution WHA71.6,[1] called for WHO to update the 2010 recommendations.

In 2019, WHO published *Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age (15)*. The guidelines were called for by the Commission on Ending Childhood Obesity (recommendation 4.12) *(16)*, and address the omission of this younger age group in the 2010 *Global recommendations on physical activity for health (1)*.

The 2020 WHO *Guidelines on physical activity and sedentary behaviour,* replace the 2010 guidelines and are based on the most recent advances in the evidence for the selected behaviours and associated health consequences. They will form part of the overall set of global recommendations on physical activity and sedentary behaviour.

[1] *WHA71.6 WHO Global Action Plan on Physical Activity 2018–2030.*

OTHER KEY WHO GUIDELINES

The importance of physical activity for health is recognized in other WHO guidelines. The *WHO Package of essential noncommunicable disease interventions for primary health care in low-resource settings (17)* provides a protocol for the clinical management of hypertension, type-2 diabetes, raised cardiovascular risk, asthma, and chronic obstructive pulmonary disease, and includes counselling to progressively increase physical activity to moderate levels (such as brisk walking) and at least 150 minutes per week, in line with the 2010 global recommendations. Recent WHO guidance in *Risk reduction of cognitive decline and dementia (18)* states that physical activity should be recommended to adults with normal cognition (strong recommendation) and those with mild cognitive impairment (conditional recommendation) to reduce the risk of cognitive decline. WHO *Integrated care for older people: guidelines on community-level interventions to manage declines in intrinsic capacity (19)* recommend multimodal exercises to prevent falls, and exercises for older adults with declining mobility. *WHO recommendations on antenatal care for a positive pregnancy experience (20)* recommend counselling on healthy eating and being physically active during pregnancy to stay healthy and to prevent excessive weight gain, but do not address the wider health benefits of physical activity during pregnancy and the postpartum period.

The existing WHO guidelines, combined with these updated guidelines, provide an increasingly comprehensive set of global guidance on the contribution of physical activity and sedentary behaviours to the prevention and management of key diseases and to the promotion of health and well-being across the life course.

RATIONALE AND PURPOSE

The past 10 years has seen a significant increase in the body of evidence on the health impact of different types, amounts and durations of physical activity, as well as on the impact of sedentary behaviours and its interrelationship with levels of physical activity and health. In addition, the evidence base for physical activity in subpopulations, such as pregnant women and those living with chronic conditions and/or disability now permits the examination of the relationship between physical activity and health outcomes in these groups.

In the *Global action plan on physical activity 2018–2030 (14)*, action 4.1 calls for WHO to develop and disseminate global recommendations for physical activity and sedentary behaviours in children under 5 years of age, young people, adults, older adults and specific subpopulations, such as pregnant women, people living with chronic conditions and disability. Updating and broadening the scope of the guidelines, as requested by the World Health Assembly, ensures that population groups not included in the 2010 recommendations are provided with specific recommendations for physical activity. This aligns with the key principles and goals of the global action plan on physical activity, namely to reduce inequalities and to support all people to be more physically active every day.

The overarching purpose of these guidelines is to provide evidence-based public health recommendations on how much and what type of physical activity children and adolescents, adults, older adults and subpopulations such as pregnant women and those living with chronic conditions or disability, should do for significant health benefits and mitigation of health risks. The guidelines also provide evidence-based recommendations on the associations between sedentary behaviour and health outcomes.

The guidelines have been developed for children and adolescents (aged 5–17 years), adults (aged 18–64 years), older adults (aged 65 years and above), and include for the first time specific recommendations on physical activity for subpopulations such as pregnant women and those living with chronic conditions or disability. Recommendations are made for each specific age group and subpopulation, to provide those working with particular communities easy access to the relevant information. Providing separate recommendations for subpopulations, especially people living with chronic conditions or with disability, highlights the importance of including these subpopulations in policy and planning of physical activity and sedentary behaviour interventions.

These guidelines do not address sleep as a behaviour. Sleep is an important health-related issue and an emerging topic within population health science. However, it was deemed beyond the scope of the mandate to include sleep in the updated recommendations. Nonetheless, the importance of sleep is recognized and was included as an important health *outcome* when considering the impact of physical activity and sedentary behaviour.

TARGET AUDIENCE

This document reports the process and summarizes the evidence-base reviewed to develop the recommendations. **The primary audiences are:**

1. Policy-makers in ministries of health, education, youth, sport and/or social or family welfare, working in high as well as low- and middle-income countries, who formulate country-specific guidelines, and who plan health, education, workplace, residential or community-based intervention programmes across the life course.
2. Government officials who develop national, subregional or municipal plans to increase physical activity and reduce sedentary behaviours in population groups through guidance documents.
3. Persons working in nongovernmental organizations, education and workplace organizations or research.
4. Persons working in health services and those providing advice and guidance, such as community, family, primary or tertiary nurses or doctors, or allied health and exercise professionals working beyond the health sector. These guidelines can inform the content of their advice on these topics, if national guidance is not available.

The recommendations on physical activity and sedentary behaviour contained within the guidelines should be used to inform pre-service training and professional development courses for health-care workers, physical activity specialists and education professionals.

Derivative products are needed that convey these guidelines to specific end-users, stakeholders in sectors outside of health, and the wider community, that use tailored communications to meet the specific needs of each audience.

METHODS

These guidelines were developed in accordance with the *WHO Handbook for guideline development* (2nd edition) *(21)*. A WHO Steering Group, led by the Department of Health Promotion, was established, with representation from WHO regional offices and relevant WHO departments. A Guideline Development Group (GDG) was formed, consisting of 27 experts and stakeholders, taking into account gender balance and geographical diversity. The draft guidelines were externally reviewed by seven independent reviewers, who provided feedback on the scientific evidence, its interpretation and content. In addition, an online public consultation was conducted on the draft guidelines, and feedback was received from over 400 contributors. These inputs from scientists, practitioners and the general public were collated and used by the GDG to finalize the guidelines. Full details of the management of the guideline development process are available in Annex 1.

SCOPE OF GUIDELINES AND QUESTIONS OF INTEREST

The GDG reviewed the scope of the guidelines and, at their first meeting, agreed on the most relevant PI/ECO (**P**opulation, **I**ntervention/**E**xposure, **C**omparison, **O**utcome) questions. The key questions addressed for each subpopulation are summarized as follows:

For physical activity:

a. What is the association between physical activity and health-related outcomes?

b. Is there a dose-response association (volume, duration, frequency, intensity)?

c. Does the association vary by type or domain of physical activity?

For sedentary behaviour:

a. What is the association between sedentary behaviour and health-related outcomes?

b. Is there a dose-response association (total volume, frequency, duration and intensity of interruption)?

c. Does the association vary by type and domain of sedentary behaviour?

d. In adults only: Does physical activity modify the effect of sedentary behaviour on mortality?

For each population (P), the exposure (E) was greater volume, duration, frequency or intensity of physical activity; for, as comparison (C) no physical activity or lesser volume, frequency, intensity or duration of physical activity. The critical and important outcomes for each population are summarized in Table 1 and the details of each PI/ECO question in the relevant section of the Web Annex: Evidence profiles.

Available online at https://apps.who.int/iris/bitstream/handle/10665/336657/9789240015111-eng.pdf

Table 1: ***Summary of critical and important* health outcomes addressed by population groups***

Outcomes (in alphabetical order)	Children and adolescents aged 5–17 years: PA and sedentary	Adults aged 18–64 years: PA	Adults aged over 18 years: sedentary	Adults aged over 65 years: PA[a]	Pregnancy and postpartum	Chronic conditions[b]	Children and adults with disability[c]
Adiposity (weight gain, weight change, weight control, weight stability, weight status and weight maintenance)	Critical	Critical	Critical	Critical[a]	Critical	Critical – HIV	–
Adverse events	Critical	Critical	–	Critical[a]	Critical (fetal outcomes)	–	–
All-cause and cause-specific mortality	–	Critical (cancer and CVD specific)	Critical	Critical[a]	–	Critical	–
Bone health	Critical	–	Important	–	–	–	–
Cardiometabolic health	Critical	–	–	–	–	–	–
Cognitive outcomes	Critical	Critical	Important	Critical[a]	–	–	Critical – MS, PD, Stk, Sch, ADHD
Delivery complications	–	–	–	–	Important	–	–
Disease progression	–	–	–	–	–	Critical – HT, T2D, HIV, Critical – cancer recurrence	–
Falls and fall-related injuries	–	–	–	Critical	–	–	–
Fetal outcomes (birthweight, preterm birth)	–	–	–	–	Critical	–	–
Functional ability	–	–	–	Critical	–	–	–
Gestational diabetes mellitus	–	–	–	–	Critical	–	–
Gestational hypertension/ preeclampsia	–	–	–	–	Critical	–	–
Health-related quality of life	–	Important	Important	Important[a]	–	Critical – HT, T2D, HIV	Critical – MS, SCI, ID, MCD, Sch
Incidence of cancer	–	Critical	Critical	Critical[a]	–	–	–
Incidence of CVD	–	Critical	Critical	Critical[a]	–	–	–
Incidence of hypertension	–	Important		Important[a]	–	–	–
Incidence of type-2 diabetes	–	Critical	Critical	Critical[a]	–	–	–
Mental health (symptoms of anxiety and depression)	Critical	Critical	Important	Critical[a]	Critical	–	–
Osteoporosis	–	–	–	Critical	–	–	–
Physical fitness	Critical	–	Important	–	–	–	–
Physical function	–	–	Important	–	–	Critical – HT, T2D, HIV	Critical – MS, SCI, ID, PD, Stk
Pro-social behaviour	Important	–	–	–	–	–	–
Psychosocial outcomes	–	–	–	Important	–	–	–
Risk of co-morbid conditions	–	–	–	–	–	Critical – HT, T2D, HIV	Critical – MS, SCI, ID
Sleep	Important	Important	Important	Important[a]	–	–	–

* Critical outcome: an outcome that is critical to decision-making; Important outcome: an outcome that is important, but not critical to decision-making.

[a] The critical and important outcomes considered for the adult population, including older adults.

[b] Outcomes are for subpopulation condition as listed: Cancer – cancer survivors; HT – hypertension; T2D – type-2 diabetes; HIV.

[c] Outcomes are for subpopulation condition as listed: MS – muscular sclerosis; SCI – spinal cord injury; ID – intellectual disability; PD – Parkinson's disease; Stk – in stroke survivors; Sch – schizophrenia; ADHD – attention deficit/hyperactivity disorder. Critical and important outcomes for the age-specific population were considered and extrapolated.