AGE GROUP: 18 - 64 YEARS OLD

TARGET POPULATION

These guidelines are relevant to all healthy adults aged 18–64 years unless specific medical conditions indicate to the contrary. The guidelines also apply to individuals in this age range with chronic noncommunicable conditions not related to mobility such as hypertension or diabetes. Pregnant, postpartum women and persons with cardiac events may need to take extra precautions and seek medical advice before striving to achieve the recommended levels of physical activity for this age group.

Inactive adults or adults with disease limitations will have added health benefits if moving from the category of "no activity" to "some levels" of activity. Adults who currently do not meet the recommendations for physical activity should aim to increase duration, frequency and finally intensity as a target to achieving the recommended guidelines.

These recommendations are applicable for all adults irrespective of gender, race, ethnicity or income level. However, to be most effective, the type of physical activity, the communication strategies, dissemination and messaging of the recommendations, may differ in various population groups. The retirement age, which varies from country to country, should also be taken into consideration when implementing interventions to promote physical activity.

These recommendations can be applied to adults with disabilities. However they may need to be adjusted for each individual based on their exercise capacity and specific health risks or limitations.

NARRATIVE SUMMARY OF SCIENTIFIC EVIDENCE *(11, 13–19)*

The review of the literature relating cardiorespiratory fitness, muscular strength, metabolic health and bone health to the rationale for relation and dose response patterns was based on an evaluation from the CDC literature review (2008), the evidence reviews from Warburton et al (2007 and 2009) and the review by Bauman et al (2005). *(11, 13–19)*

The dose-response pattern related to depression was reviewed from the CDC literature review (2008). *(11)*

There is a direct relationship between physical activity and cardiorespiratory health (risk reduction of CHD, CVD, stroke, hypertension). Physical activity improves cardiorespiratory fitness. Fitness has direct dose-response relations between intensity, frequency, duration and volume. There is a dose-response relation for CVD and CHD. Risk reductions routinely occur at levels of 150 minutes of at least moderate-intensity activity per week. *(11, 13–19)*

Literature from Cook (2008) and Steyn (2005) related to The INTERHEART Africa Study and Nocon (2008) and Sofi (2008) related to cardiovascular disease and mortality were also considered during the peer review process and related specifically to the context of Africa and cardiovascular disease. *(14-17)*

There is a direct relationship between physical activity and metabolic health, including reduction of risk of diabetes and metabolic syndrome *(11, 13–19)*. Data indicate that 150 minutes per week of moderate- to vigorous-intensity physical activity bring significantly lower risks.

There is a favourable and consistent effect of aerobic physical activity on achieving weight maintenance. Accumulation of energy expenditure due to physical activity is what is important to achieving energy balance. Accumulation of physical activity can be obtained in short multiple bouts of at least 10 minutes, or one long bout to meet physical activity expenditure goals for weight maintenance. The evidence is less consistent for resistance training, in part, because of the compensatory increase in lean mass, and the smaller volumes of exercise employed. There is substantial inter-individual variability with physical activity and weight maintenance; more than 150 minutes of moderate-intensity activity per week may be needed to maintain weight. Data from recent well-designed randomized control trials lasting up to 12 months indicate that aerobic physical activity performed to achieve a volume of at least 150 minutes per week is associated with approximately 1–3% weight loss, which is generally considered to represent weight maintenance. *(11)*

Physically active adults are likely to have less risk of a hip or vertebral fracture. Increases in exercise training can minimize the decrease in spine and hip bone mineral density. Increases in exercise training enhance skeletal muscle mass, strength, power, and intrinsic neuromuscular activation. *(11, 13, 18, 19)*

Weight-bearing endurance and resistance types of physical activity (i.e. exercise training) are effective in promoting increases in bone mass density (e.g. moderate- to vigorous-intensity activity performed 3–5 days per week, 30–60 minutes per session).

Regular practice of physical activity is linked to prevention of breast and colon cancer. Data indicate that moderate- to vigorous-intensity physical activity performed at least 30–60 minutes per day is needed to see significantly lower risks of these cancers.

Overall, strong evidence demonstrates that compared to less active adult men and women, individuals who are more active have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, diabetes, metabolic syndrome, colon cancer, breast cancer, and depression. Strong evidence also supports the conclusion that, compared to less active people, physically active adults and older adults exhibit a higher level of cardiorespiratory and muscular fitness, have a healthier body mass and composition, and a biomarker profile that is more favourable for preventing cardiovascular disease and type 2 diabetes and for enhancing bone health.

A detailed reference of the literature used by the guidelines group to develop these recommendations can be found in Appendix 2.

RECOMMENDATIONS

In adults aged 18–64, physical activity includes leisure time physical activity, transportation (e.g. walking or cycling), occupational (i.e. work), household chores, play, games, sports or planned exercise, in the context of daily, family, and community activities.

The guidelines group reviewed the above cited literature and recommended that in order to improve cardiorespiratory and muscular fitness, bone health, reduce the risk of NCDs and depression:

1. Adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
2. Aerobic activity should be performed in bouts of at least 10 minutes duration.
3. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity.
4. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

INTERPRETATION AND JUSTIFICATION

Conclusive scientific evidence, based on a wide range of well-conducted studies, shows that physically active people have higher levels of health-related fitness, a lower risk profile for developing a number of disabling medical conditions, and lower rates of various chronic noncommunicable diseases than do people who are inactive.

There are multiple ways of accumulating the total of 150 minutes per week. The concept of accumulation refers to meeting the goal of 150 minutes per week by performing activities in multiple shorter bouts of at least 10 minutes each, spread throughout the week then adding together the time spent during each of these bouts: e.g. 30 minutes of moderate-intensity activity 5 times per week.

Evidence of acute effects on biomedical markers points to benefits of undertaking regular physical activity throughout the week (such as 5 or more times per week). Moreover this has the potential to encourage integrating physical activity as part of daily lifestyle such as active travel through walking and cycling.

The recommendations listed above are applicable to the following health conditions: cardiorespiratory health (coronary heart disease, cardiovascular disease, stroke and hypertension); metabolic health (diabetes and obesity); bone health and osteoporosis; breast and colon cancer and depression.

The volume of physical activity associated with the prevention of different chronic NCDs varies. However, the evidence is currently insufficiently precise to warrant separate guidelines for each specific disease, but it is strong enough to cover all health outcomes selected.

Higher volumes of activity (i.e. greater than 150 minutes per week) are associated with additional health benefits. However the evidence is not available to identify additional or increased benefits for volumes greater than 300 minutes per week.

The costs of adopting these recommendations are minimal and essentially related to the translation into country settings, communication and dissemination. Implementation of comprehensive policies that will facilitate the achievement of the recommended levels of physical activity will require additional resource investment.

These recommendations are applicable in low- and middle-income countries. However national authorities need to adapt and translate them into culturally appropriate forms for country level, taking into consideration, among other factors, the need to identify and adapt to the physical activity domain which is most prevalent at the population level (e.g. leisure time, occupational or transportation physical activity).

Activity-related adverse events such as musculoskeletal injuries are common but are usually minor especially for moderate-intensity activities such as walking. Overall, the benefits of being physically active and implementing the above recommendations outweigh the harms. The inherent risk of adverse events can be significantly reduced by a progressive increase in the activity level, especially in inactive adults. Selecting low-risk activities and adopting prudent behaviour while doing any activity can minimize the frequency and severity of adverse events and maximize the benefits of regular physical activity. In order to reduce the risk of injuries, the use of protective equipment, such as helmets, should be encouraged.

It should be noted that, in populations that are already active the national physical activity guidelines should not promote a physical activity target that would encourage a reduction in current levels.