How Exercise Benefits Children and Older People

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Introduction

Physical activity is a fundamental component of health across the human lifespan, yet its significance varies according to age, physiological development, functional capacity, and social context. Children require regular movement to support growth, motor development, cardiovascular fitness, skeletal strength, cognitive functioning, and emotional well-being, whereas older adults depend on physical activity to preserve mobility, muscular strength, balance, independence, and protection against age-related decline. Although these populations differ substantially in their physical needs, both benefit from exercise that is appropriate to their stage of life and consistently integrated into daily routines. Contemporary public-health guidance therefore treats physical activity not merely as a strategy for weight management, but as a broader determinant of physical, psychological, and functional health (World Health Organization [WHO], 2024). This essay examines how exercise benefits children and older people, with particular emphasis on physical development, cognitive and psychological outcomes, functional independence, and the importance of safe, age-appropriate participation.

The value of exercise begins with its effect on the body's major physiological systems. Regular movement increases cardiovascular efficiency, supports healthy circulation, strengthens skeletal muscle, stimulates bone tissue, and improves metabolic regulation. These effects are relevant at every age, but they serve different purposes across the lifespan. In childhood, exercise contributes to the development of capacities that are still emerging, including coordination, balance, speed, strength, and endurance. In later adulthood, exercise increasingly functions as a means of preserving capacities that may otherwise decline with age. Thus, physical activity should be understood as both developmental and protective: it helps children build physical competence while helping older adults maintain function and independence.

Exercise and the Physical Development of Children

For children, physical activity is closely connected to healthy growth and development. The Centers for Disease Control and Prevention (CDC, 2025a) recommends that children and adolescents aged six to seventeen engage in at least sixty minutes of moderate-to-vigorous physical activity each day. Most of this activity should be aerobic, while vigorous aerobic activity, muscle-strengthening exercise,

and bone-strengthening activity should each be included on at least three days per week. Children aged three to five are encouraged to remain active throughout the day. These recommendations reflect the fact that children are not simply smaller versions of adults; their bones, muscles, motor skills, and cardiovascular systems are still developing, and they therefore benefit most from varied forms of movement rather than highly specialized training.

Activities such as running, jumping, climbing, swimming, cycling, dancing, and active games support the development of fundamental movement skills. These skills include balance, coordination, locomotion, throwing, catching, and changes of direction, all of which form the foundation for later physical competence. Bone-strengthening activities are especially significant during childhood because skeletal tissue responds to mechanical loading. Running, hopping, jumping, gymnastics, and other weight-bearing activities place controlled stress on bones and can contribute to stronger skeletal development. Similarly, age-appropriate resistance activities such as climbing, body-weight movement, and supervised strength training can improve muscular strength without requiring children to participate in adult-style bodybuilding or maximal lifting.

The benefits of exercise in childhood extend beyond physical growth. Regular physical activity can also support cognitive performance and learning. Li et al. (2023), in a systematic review and meta-analysis of physical-activity interventions in children, found that programs combining movement with academic content were associated with improvements in academic performance, particularly in mathematics. These findings do not imply that exercise automatically produces higher grades, but they demonstrate that physical activity can complement rather than interfere with learning. Recess, physical education, active lessons, and structured movement breaks may therefore contribute to a learning environment in which attention and cognitive engagement are supported by regular opportunities for movement.

Psychological and social development are also influenced by physical activity. Exercise can provide opportunities for children to experience mastery, cooperation, self-regulation, resilience, and social belonging. Purgato et al. (2024) reviewed evidence on the psychosocial effects of physical activity among children and adolescents and reported beneficial outcomes across several measures of psychological well-being, although the certainty of evidence varied by population and outcome. This distinction is important because exercise should not be presented as a guaranteed treatment for mental-health conditions. Rather, it should be viewed as one factor that may support emotional well-being by reducing sedentary behavior, encouraging social interaction, and giving children structured opportunities to build confidence and competence.

The manner in which exercise is introduced to children is therefore as important as the activity itself. Excessive emphasis on competition, appearance, or performance may discourage less-skilled children and reduce their willingness to participate. In contrast, programs that emphasize enjoyment, gradual skill development, inclusion, and personal improvement are more likely to encourage long-term engagement. Children differ in their interests and abilities, and a child who dislikes organized team sport may respond positively to swimming, dance, martial arts, cycling, hiking, or informal play. For

this reason, the primary objective of childhood exercise should be to establish a positive relationship with movement rather than to impose a single model of physical fitness.

Exercise and Healthy Ageing in Older Adults

In older adulthood, the purpose of physical activity changes from building new developmental capacity to preserving function and reducing the consequences of age-related decline. The CDC (2025b) recommends that adults aged sixty-five and older engage in at least 150 minutes of moderate-intensity aerobic activity each week, or 75 minutes of vigorous activity, together with muscle-strengthening exercise on at least two days and regular activities that improve balance. These recommendations are especially important because ageing is commonly accompanied by reductions in muscle mass, strength, aerobic capacity, bone density, and balance. Without regular activity, these changes can contribute to reduced mobility, increased fall risk, and loss of independence.

Muscle strength is particularly important in later life because it supports essential daily tasks such as rising from a chair, climbing stairs, carrying groceries, maintaining posture, and recovering from a loss of balance. Resistance exercise can therefore contribute directly to functional independence. Kashi, Mirzazadeh, and Saatchian (2023) conducted a systematic review and meta-analysis of resistance training among older adults and found improvements in several measures of physical functioning, muscle strength, mental health, and quality of life. These findings challenge the assumption that older adults should avoid demanding physical activity. Instead, they support the use of progressive resistance training that begins at a manageable level and increases gradually according to ability and health status.

Balance is another critical aspect of exercise for older people. Falls are a major threat to independence because they can result in fractures, hospitalization, fear of movement, and long-term reductions in activity. Balance exercises such as controlled weight shifting, heel-to-toe walking, supported single-leg standing, tai chi, and functional stepping activities can improve postural control when they are performed safely. However, balance training should not be isolated from strength and mobility work because these capacities are closely related. An older adult with weak lower-limb muscles may struggle to recover from a loss of balance even when balance reactions are otherwise intact. Effective programs therefore combine strength, mobility, aerobic conditioning, and balance rather than treating them as separate concerns.

Aerobic exercise also contributes to healthy ageing by supporting cardiovascular health, endurance, and participation in daily activities. Walking is one of the most accessible forms of aerobic activity, but older adults may also benefit from cycling, swimming, water aerobics, dancing, and other low-impact activities. The appropriate intensity depends on current fitness and health status. What is moderate for one person may be vigorous for another, particularly when chronic disease, medication use, or long-term inactivity is present. For this reason, older adults who are beginning exercise after a prolonged inactive period should progress gradually rather than attempting to meet the full weekly

recommendation immediately.

Exercise may also support cognitive health in later life. Iso-Markku et al. (2024) analyzed evidence from more than one hundred studies and found an association between physical activity and better late-life cognition, although the magnitude of the association was small and no clear dose-response relationship was established. The findings therefore support a cautious interpretation: exercise should not be described as a guaranteed means of preventing cognitive decline, but it can reasonably be considered one component of a broader healthy-ageing strategy. Its value is likely to be strengthened when combined with social engagement, good sleep, appropriate nutrition, and medical management of chronic conditions.

Older adults may face practical barriers that differ from those encountered by children. Pain, fear of falling, transportation difficulties, limited access to facilities, financial constraints, chronic illness, and previous negative experiences with exercise may all reduce participation. These barriers highlight the importance of individualization. Water-based exercise may be suitable for someone with joint pain, while home-based resistance training may be more practical for an individual who has difficulty traveling. Dance or walking groups may provide both physical and social benefits. The effectiveness of an exercise program therefore depends not only on physiological principles but also on whether the activity is realistic, accessible, and meaningful to the person performing it.

Age-Appropriate Exercise and the Importance of Safety

Although exercise is beneficial for both children and older adults, the same program should not be applied to both groups. Children require instruction that respects developmental stage, movement skill, supervision needs, and the importance of enjoyment. Older adults require exercise that accounts for functional limitations, chronic conditions, medication use, balance, and recovery. In both groups, the principle of gradual progression is essential. Sudden increases in volume or intensity can increase the risk of injury, particularly when technique is poor or when participants are unaccustomed to physical activity.

For children, safe exercise involves suitable equipment, adequate supervision, clear boundaries, hydration, and age-appropriate progression. Resistance training can be safe when it is supervised and technique-focused, but heavy maximal lifting or competitive loading is unnecessary for most children. Similarly, flexibility training should not involve forcing joints beyond comfortable ranges. Warning signs such as severe pain, dizziness, fainting, or unusual breathing difficulty should never be ignored. Children should be encouraged to report discomfort rather than taught that pain is evidence of effort or commitment.

For older adults, safety requires similar caution but different considerations. Exercise should be modified when necessary for arthritis, osteoporosis, neurological conditions, cardiovascular disease,

recent surgery, or mobility limitations. Balance activities may require nearby support, and people with unstable symptoms should seek appropriate clinical advice before progressing. Exercise professionals should also recognize the limits of their role. General physical activity can support health, but rehabilitation after injury or treatment of complex medical conditions may require the expertise of physicians, physical therapists, occupational therapists, or other qualified professionals.

In both age groups, disability should lead to adaptation rather than exclusion. Children with sensory, physical, intellectual, or developmental disabilities may participate through modified equipment, visual or tactile cues, shorter distances, additional rest, or alternative movement patterns. Older adults with reduced mobility may begin with seated or supported exercises and progress gradually toward more demanding activities. Inclusive exercise respects individual capacity while maintaining meaningful participation. The goal is not uniform performance but appropriate challenge.

Conclusion

Exercise benefits children and older people because it supports health at two important stages of the lifespan. In childhood, physical activity contributes to growth, bone and muscle development, cardiovascular fitness, motor competence, learning, psychological well-being, and social development. In older adulthood, exercise helps preserve strength, balance, endurance, cognition, mobility, and independence while reducing some of the risks associated with inactivity and age-related decline. The specific form of exercise should differ between these groups because their physiological and functional needs are not the same. Children benefit most from varied, enjoyable, developmentally appropriate movement, whereas older adults require balanced programs that combine aerobic activity, resistance training, balance, and mobility work.

The evidence also demonstrates that exercise should not be treated as a narrow strategy for controlling weight or improving appearance. Its broader value lies in its ability to support function, participation, confidence, and quality of life. Public-health recommendations provide useful targets, but effective exercise depends on individualization, gradual progression, safety, and sustained participation. When these principles are respected, regular physical activity can contribute meaningfully to healthy development in childhood and healthy ageing in later life.

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