Article 17: Human Development and Lack of Exercise

Lack of exercise, or physical inactivity, has a direct negative relationship with **human development** across the entire lifespan, affecting **physical** (Cesari et al., 2014; Kashica Webber-Ritchey et al., 2024), **cognitive** (Buchwald et al., 2024; Reisberg et al., 2024), and **psychosocial health** (Siegmund et al., 2021; Zablotsky et al., 2025). While regular physical activity promotes growth and well-being, a sedentary lifestyle stunts development and increases the risk of certain chronic conditions, as well as other health issues.

Lack of Exercise and Physical Development

Lack of exercise negatively affects physical development across all life stages, and its effects can be especially damaging during childhood and adolescence, even though long-term effects often persist into adulthood. While sufficient physical activity is crucial for building and maintaining a strong and healthy body, inactivity impairs key developmental processes and increases the risk of chronic disease (Cesari et al., 2014; Kashica Webber-Ritchey et al., 2024).

The 2024 United States Report Card on Physical Activity for Children and Youth, published by the Physical Activity Alliance, assessed the physical activity levels of children and youth aged 6 to 17 in the United States. The report utilized data from nationally representative surveys to evaluate 11 indicators related to physical activity, including overall activity levels, organized sports participation, active transportation, and sedentary behavior. The findings revealed that only 20% to 28% of children meet the recommended 60 minutes of daily physical activity, with a decline in activity levels as children age. Additionally, participation in organized sports has decreased from 58% to 51% over the past five years, and only 10% of children usually walk or bike to school. Sedentary behavior remains high, with 20% of children engaging in two hours or less of screen time per day. The report also highlighted disparities, noting that children from low-income households are less likely to participate in sports. The researchers concluded that the current physical activity levels are insufficient for optimal physical development and emphasized the need for policies and programs to promote physical activity among children and youth. They highlighted that lack of exercise contributes to declines in physical development, including reduced muscle strength, endurance, and overall physical fitness. The report serves as a call to action for stakeholders at all levels to create environments that support and encourage physical activity for children and youth (Kashica Webber-Ritchey et al., 2024).

Another study examined whether a structured physical activity program could improve mobility and reduce frailty in older adults in the United States. Researchers enrolled 424 sedentary adults with an average age of 76.8 years who were at risk for mobility disability. Participants were randomly assigned to either a 12-month physical activity intervention or a successful aging education group. Physical activity sessions included walking, strength, balance, and flexibility exercises, while the education group attended health workshops. Data on mobility, physical function, and frailty status were collected at baseline, 6 months, and 12 months using standardized performance tests and questionnaires. The results showed that participants in the physical activity group maintained or improved their mobility and overall physical function, while those in the education group experienced declines. In particular, strength, walking speed, balance, and endurance improved among those who exercised regularly. The study found that lack of movement contributed to faster declines in these traits of physical development and increased frailty. Overall, the researchers concluded that consistent exercise can

significantly slow physical decline in older adults. They emphasized that inactivity negatively impacts muscle strength, balance, endurance, and overall physical capacity. Furthermore, the authors noted that promoting regular exercise is essential to help older adults maintain independence and quality of life (Cesari et al., 2014).

Lack of Exercise and Cognitive Development

Lack of exercise is negatively linked to cognitive development, since it can affect learning, memory, and executive function throughout a person's life. While physical activity promotes brain growth and protects against cognitive decline, a sedentary lifestyle impairs these processes and increases the risk for dementia and other related conditions (Buchwald et al., 2024; Reisberg et al., 2024).

For instance, a study examined the relationship between physical activity and cognitive development in young children. Researchers followed a cohort of U.S. preschoolers into first grade to assess how activity levels influenced early learning and executive function. Data were collected through observations, teacher reports, and standardized cognitive tests measuring attention, memory, and problem-solving skills. Physical activity was monitored through daily routines and structured play sessions. The findings showed that children who engaged in higher levels of physical activity demonstrated better attention, memory, and problem-solving abilities. Conversely, children with lower activity levels exhibited slower cognitive development and weaker executive function. Lack of exercise was linked to reduced mental flexibility and difficulties in managing complex tasks. The study concluded that regular physical activity in early childhood supports the development of critical cognitive skills. The authors emphasized that inactivity can hinder brain development and learning readiness. Moreover, they advocated for programs promoting active play and structured exercise in early preschool and elementary settings. Overall, maintaining consistent physical activity was shown to be vital for healthy cognitive growth and school preparedness (Reisberg et al., 2024).

Similarly, a study looked at the relationship between physical activity and cognitive health in U.S. adults. Hence, researchers analyzed data from 30,119 individuals aged 18 and older using the National Health and Nutrition Examination Survey (NHANES). Participants reported their physical activity levels through questionnaires, and cognitive function was assessed with memory and mental performance tests. The researchers investigated how different levels of exercise affected memory, cognitive decline, and mental performance. The findings showed that adults who engaged in regular physical activity had lower rates of memory loss and cognitive decline. Higher activity levels were associated with better attention, memory retention, and overall mental sharpness. On the other hand, adults with low activity levels were at higher risk of cognitive decline and impaired memory. Lack of exercise contributed to slower processing speed, reduced memory capacity, and weaker cognitive function. The study concluded that maintaining regular physical activity is essential for preserving cognitive health. The authors emphasized that inactivity negatively impacts mental sharpness, memory, and executive function. Thus, they recommended promoting regular exercise as a key strategy to support cognitive development and long-term brain health (Buchwald et al., 2024).

Lack of Exercise and Psychosocial Development

Lack of exercise can have detrimental effects on psychosocial development across all life stages, contributing to low self-esteem, poor mental health, and deficits in social skills. Likewise, regular

physical activity is a vital component of positive psychosocial development, helping people build confidence, manage stress, and form healthy social relationships (Siegmund et al., 2021; Zablotsky et al., 2025).

For example, a study examined the relationship between screen time, physical activity, and mental health among adolescents in the United States. Following that lead, researchers analyzed data from the National Survey of Children's Health, focusing on 12- to 17-year-olds. Participants reported their daily screen time, physical activity habits, sleep patterns, and mental health symptoms through questionnaires. Moreover, the study assessed outcomes including anxiety, depression, and behavioral problems. Findings showed that adolescents with higher screen time and lower physical activity levels experienced more mental health issues. Reduced physical activity was linked to poorer psychosocial development, including higher stress, lower self-esteem, and more behavioral difficulties. On the other hand, adolescents who engaged in regular exercise showed better mood regulation, social interaction skills, and overall mental well-being. Lack of exercise worsened the negative impact of excessive screen time on mental health. Hence, the researchers argued that promoting physical activity is crucial for healthy psychosocial development. Additionally, they noted that inactivity can hinder social skills, emotional resilience, and overall adolescent well-being. Overall, the study supports the notion that regular exercise alongside limiting screen time may help support mental and social growth in adolescents (Zablotsky et al., 2025).

Lastly, a study examined the relationship between physical activity, social isolation, and depression in older U.S. adults during the COVID-19 pandemic. Researchers collected data from 803 individuals aged 65 or older. Surveys were administered to assess physical activity, social isolation, and depressive symptoms among participants. Standardized instruments included the Physical Activity Scale for Elders, the Geriatric Depression Scale, and the PROMIS Social Isolation Scale. The study investigated how levels of exercise and social connectedness influenced mental and emotional well-being. Findings showed that older adults with lower physical activity levels experienced higher depressive symptoms. Reduced exercise, in particular, was linked to poorer psychosocial development, including increased feelings of loneliness and social disconnection. Social isolation and low physical activity together predicted the greatest levels of depression. On the other hand, maintaining regular exercise was associated with better mood regulation and emotional resilience. The researchers concluded that physical activity is critical for supporting psychosocial health in older adults. They also emphasized that inactivity can worsen emotional well-being and social engagement. Hence, the study noted that physical activity may help reduce depression and strengthen social connectedness among older adults (Siegmund et al., 2021).

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