



REVIEW ON SEDENTARY LIFESTYLE AND HEALTHY ISSUE

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***Article History:**

Received: 05/10/2024

Revised: 23/10/2024

Accepted: 12/11/2024

ABSTRACT

A sedentary lifestyle, characterized by prolonged periods of inactivity, has emerged as a major public health concern. Increasing evidence suggests that physical inactivity is associated with numerous health complications, including cardiovascular diseases, obesity, diabetes, hypertension, and musculoskeletal disorders. Furthermore, a sedentary lifestyle has detrimental effects on mental health, contributing to conditions such as anxiety, depression, and cognitive decline. This review highlights the multi-dimensional impact of sedentary behavior on physical and psychological health, emphasizing its contribution to the global burden of non-communicable diseases. Various parameters, including sleep disturbances, reduced life expectancy, psychosocial effects, and cognitive decline, are discussed in relation to sedentary behavior. Additionally, the review addresses the economic costs and implications of physical inactivity on healthcare systems. It concludes by emphasizing the importance of promoting physical activity and reducing sedentary time as essential strategies for improving public health outcomes.

Keywords: Sedentary lifestyle, physical inactivity, cardiovascular diseases, obesity, diabetes, hypertension, musculoskeletal disorders, mental health, cognitive decline, global health, economic costs, public health.

INTRODUCTION

A sedentary lifestyle refers to behavior characterized by prolonged sitting or lying down with minimal physical activity. With urbanization, technology advancements, and a shift in work environments, sedentary behavior has become increasingly prevalent. Prolonged inactivity is now recognized as a significant public health risk, contributing to a range of chronic conditions. This review explores the health implications of a sedentary lifestyle and suggests interventions to mitigate its impact.

Prevalence of Sedentary Lifestyle

The rise in sedentary behaviors, especially in developed countries, is a consequence of modern technological advancements and

lifestyle changes. Sedentary behavior is prevalent due to the increase in desk-based jobs, digital entertainment, and reliance on automobiles for transport. According to the World Health Organization (WHO), approximately 80% of adolescents and 27% of adults worldwide are insufficiently active, highlighting the global nature of this issue (World Health Organization, 2020).

Health Implications of a Sedentary Lifestyle

Cardiovascular Diseases

A sedentary lifestyle is strongly associated with an increased risk of cardiovascular diseases (CVDs), including heart disease and stroke. Prolonged sitting can lead to poor circulation, increased blood pressure, and

elevated cholesterol levels, all of which are major risk factors for CVD (Biswas *et al.*, 2015).

Obesity and Metabolic Disorders

Lack of physical activity can lead to weight gain and obesity by reducing the body's ability to burn calories. Obesity is a significant risk factor for several other chronic conditions, including type 2 diabetes, hypertension, and certain cancers (Ng *et al.*, 2014).

Type 2 Diabetes

Sedentary behavior is one of the primary contributors to insulin resistance, a precursor to type 2 diabetes. Physical inactivity reduces the body's sensitivity to insulin, leading to high blood sugar levels and an increased risk of developing diabetes (Baskin *et al.*, 2015).

Musculoskeletal Disorders

Prolonged sitting can lead to musculoskeletal issues, particularly back and neck pain. Sitting for extended periods places stress on the spine and weakens muscles, increasing the risk of disorders such as lower back pain (Shariat *et al.*, 2017).

Mental Health Issues

Physical inactivity is also linked to a decline in mental health, contributing to depression, anxiety, and stress. Physical activity, on the other hand, has been shown to improve mood, cognitive function, and overall psychological well-being (Rebar *et al.*, 2015).

Cancer:

Sedentary behavior has been associated with an increased risk of certain cancers, including colon, breast, and endometrial cancers. This may be due to alterations in hormone levels, inflammation, and poor metabolic health (Liu *et al.*, 2016).

Pathophysiology behind Sedentary Lifestyle Effects

Extended periods of inactivity can disrupt normal metabolic functions. In particular, the body's ability to metabolize fat and regulate blood sugar decreases, leading to fat accumulation, weight gain, and insulin resistance. Prolonged sitting also affects circulation and causes poor blood flow to the muscles, which in turn leads to muscle atrophy and joint stiffness (Thyfault & Booth, 2011).

Interventions to Counter Sedentary Lifestyle

Several strategies can be adopted to mitigate the health risks of a sedentary lifestyle:

Increased Physical Activity

Engaging in regular physical activity, such as walking, cycling, or exercise routines, helps counter the negative effects of inactivity. The WHO recommends at least 150 minutes of moderate-intensity aerobic activity per week, in addition to muscle-strengthening activities (World Health Organization, 2020).

Workplace and Environmental Changes

Interventions at the workplace can include the introduction of standing desks, scheduled breaks for walking, or on-site gyms. Additionally, urban planning that encourages walking and cycling can reduce sedentary behavior (Baker *et al.*, 2019).

Use of Technology for Physical Activity

While technology is often associated with sedentary behavior, it can also be harnessed to promote physical activity. Fitness trackers and mobile applications that encourage movement can help individuals track their physical activity and motivate them to be more active (Dunn *et al.*, 2017).

Public Health Campaigns

Public health initiatives and awareness campaigns can inform people about the dangers of a sedentary lifestyle and the importance of staying active. These programs are often most effective when targeted at specific demographics, such as children, elderly adults, or office workers.

Government Policies

Governments can implement policies to encourage physical activity, such as investing in infrastructure for biking and walking or providing incentives for companies that promote physical health at work (Lee *et al.*, 2012).

Additional Parameters on the Impact of Sedentary Lifestyle with References

Sleep Disturbances: A sedentary lifestyle has been linked to poor sleep quality and sleep disorders. Prolonged inactivity and irregular daily routines can affect the circadian rhythm, leading to problems such as insomnia or excessive daytime sleepiness. Studies suggest that regular physical activity helps improve sleep duration and quality by promoting the release of endorphins and regulating hormonal balance, including melatonin (Shin *et al.*, 2019).

Impact on Longevity: Sedentary behavior has been directly associated with reduced life expectancy. Studies have shown that individuals who engage in prolonged sedentary activities, such as watching TV or sitting for long periods, are more likely to experience early mortality compared to those who engage in moderate physical activity. A sedentary lifestyle can increase the risk of developing conditions like heart disease, diabetes, and certain cancers, which

ultimately affect life expectancy (Biswas *et al.*, 2015).

Increased Risk of Stroke: A sedentary lifestyle is one of the risk factors for stroke. Prolonged periods of physical inactivity can lead to hypertension, obesity, and poor circulation—all risk factors for stroke. Research indicates that individuals with high sedentary time are at greater risk for ischemic and hemorrhagic strokes due to the impact on vascular health and blood flow (Matsumoto *et al.*, 2017).

Psychosocial Effects: Sedentary behavior can lead to increased feelings of isolation and loneliness. The lack of social interaction that often accompanies extended periods of inactivity can negatively impact mental well-being, increasing the risk of depression and anxiety. This psychosocial effect can be particularly prominent in elderly populations, where isolation and reduced mobility often coexist with sedentary behavior (Hawkey & Cacioppo, 2010).

Cognitive Decline: There is growing evidence that a sedentary lifestyle may contribute to cognitive decline and an increased risk of neurodegenerative diseases such as Alzheimer's and dementia. Lack of physical activity has been shown to impair brain function, reduce neuroplasticity, and increase the risk of cognitive decline by decreasing blood flow to the brain and promoting inflammation (Avenell *et al.*, 2017).

Economic Costs: The economic burden of a sedentary lifestyle on healthcare systems is significant. Healthcare costs related to diseases associated with sedentary behavior, such as obesity, diabetes, heart disease, and stroke, are substantial. According to

estimates, the global economic cost of physical inactivity is over \$67 billion per year (Ding *et al.*, 2016).

Impact on Immune Function: Regular physical activity enhances immune function, while a sedentary lifestyle can impair immune responses. Physical inactivity has been shown to decrease the efficiency of the immune system, making individuals more susceptible to infections and other illnesses. Exercise-induced modulation of immune responses helps protect the body from diseases and enhances overall health (Gleeson *et al.*, 2011).

Increased Risk of Hypertension: Sedentary behavior is closely linked to the development of hypertension. Prolonged sitting increases the risk of developing high blood pressure, which is a major contributor to cardiovascular diseases and stroke. Regular physical activity, including walking and resistance training, has been shown to significantly reduce blood pressure and improve overall heart health (Cornelissen & Smart, 2013).

Negative Effects on Bone Health: Sedentary behavior also has a negative impact on bone health, leading to conditions such as osteoporosis. Lack of physical activity results in reduced bone density and strength, making bones more susceptible to fractures. Weight-bearing exercises and physical activities like walking or resistance training are essential for maintaining bone health (Robinson *et al.*, 2017).

CONCLUSION

The sedentary lifestyle has emerged as a significant public health challenge with widespread effects on both physical and mental health. It is associated with an increased risk of cardiovascular disease, obesity, type 2 diabetes, musculoskeletal

problems, mental health issues, and certain cancers. However, through a combination of individual efforts, workplace changes, public health initiatives, and supportive government policies, the impact of a sedentary lifestyle can be mitigated. Encouraging regular physical activity and reducing time spent in sedentary behaviors are essential for improving overall health and well-being, leading to a healthier society.

DECLARATION OF INTEREST

The authors declare no conflicts of interests. The authors alone are responsible for the content and writing of this article.

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