

BULETINUL INSTITUTULUI POLITEHNIC DIN IAȘI

Publicat de

Universitatea Tehnică „Gheorghe Asachi” din Iași

Volumul 70 (74), Numărul 3, 2024

Secția

CONSTRUCȚII DE MAȘINI

DOI:10.2478/bipcm-2024-0013



SEDENTARISM AND THE CONSEQUENCES OF A SEDENTARY LIFESTYLE AMONG STUDENTS

BY

PETRONELA PARASCHIV*

“Gheorghe Asachi” Technical University of Iași,
Department for Teacher Training - Physical Education Sport Department

Received: November 27, 2024

Accepted for publication: December 12, 2024

Abstract. Sedentary lifestyles are characterized by minimal or nearly non-existent physical activity. In modern society, this phenomenon has become increasingly widespread, primarily due to the growing reliance on technology and changes in workplace structures that necessitate prolonged sitting or screen time. Various studies have demonstrated a direct correlation between sedentary lifestyles and several chronic diseases, such as obesity, cardiovascular diseases, type 2 diabetes, and certain cancers. The implications of this lifestyle extend beyond physical health, as research also indicates significant adverse effects on psychological well-being, contributing to issues like anxiety, depression, and sleep disorders.

Keywords: students, education, technology, health, consequences.

*Corresponding author; *e-mail*: petronela.paraschiv@academic.tuiasi.ro

© 2024 Petronela Paraschiv

This is an open access article licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND 4.0).

1.Introduction

Physical inactivity has become one of the greatest public health challenges in contemporary society. As technology advances and lifestyles become increasingly centered on indoor activities, more and more people are experiencing a decline in physical activity.

Technology companies, urbanized environments and modern work styles, with desks that require prolonged sitting, have led to a significant reduction in the time devoted to movement. Sedentary lifestyles are not just a lack of exercise, but also a lack of balance between physical and cognitive activities, which can lead to imbalances in physical and mental health.

This problem is all the more urgent as studies show a direct correlation between sedentary lifestyles and a number of chronic diseases such as obesity, cardiovascular disease, type 2 diabetes and even some forms of cancer. Moreover, sedentary lifestyles not only affect the body, but also have a significant impact on psychological health, contributing to the development of problems such as anxiety, depression and sleep disorders.

2. Causes of Sedentary Lifestyles

Sedentarism, a lifestyle characterized by prolonged physical inactivity, is an increasingly widespread phenomenon in modern society. The causes of sedentarism are multiple and complex, including technological, social, economic and individual factors. These causes are often interlinked and mutually reinforcing, making changing a sedentary lifestyle a challenge.

Technological progress and dependence on electronic devices

Technology has revolutionized everyday life, offering a wide range of entertainment and work options that do not require physical movement. Technology companies and the digital environment have led to a reduction in face-to-face interactions and activities involving moving around. For example, activities such as shopping, socializing or even education, which in the past required physical travel, can now be done from the comfort of your own home, online. Telecommuting and remote working, while having many advantages, have also led to a significant number of hours spent in front of screens in a static position. Leisure time is also increasingly spent on video streaming platforms, video games or social media browsing, activities that do not involve any movement at all.

Urbanization and city lifestyles

As more people move to cities, urban life is becoming increasingly sedentary. Cities are often built in a way that supports fast and efficient transportation, and this encourages people to depend on personal cars or public

transport for their daily commute. For example, it is no longer necessary to walk to work or to go shopping, and urban infrastructure often favors fast travel by transport over walking or cycling. In addition, many cities do not have enough green spaces, parks or cycle paths to encourage movement. This leaves residents with few options for engaging in daily physical activity, which contributes to a sedentary lifestyle (Paraschiv *et al.*, 2022).

Office work and long working hours

Another major contributor to sedentary lifestyles is the nature of many jobs in modern society. Many jobs involve prolonged sitting in front of a computer, and in many cases employees spend 8 to 12 hours a day in a static position. Many employers also do not encourage exercise breaks or physical activity, and work schedules are often very busy, leaving little time for exercise. Although some companies offer exercise facilities such as gyms or wellness programs, these options are not accessible to all employees. These conditions make sedentary activities the norm in many professional fields, leading to a sedentary lifestyle in the long term.

Lack of motivation and preference for sedentary activities

Another important factor contributing to sedentary lifestyles is lack of motivation to exercise. Many people perceive physical activities as tiring or difficult to fit into their daily routine, preferring to relax through sedentary activities such as watching movies, surfing the internet or playing video games. Busy daily routines and stress can also lead people to look for ways of distraction that require less energy and effort, such as spending time in front of a screen. This is a comfortable choice, but it can quickly lead to a sedentary lifestyle, especially if there isn't a strong internal motivation to replace these habits with physical activity.

Socio-economic factors and limited access to recreational facilities

Economic factors and limited access to recreational facilities play a significant role in the onset of sedentarism. In many regions or neighborhoods, access to parks, gyms or other physical activity facilities is limited and people do not have the financial resources to pay for gym memberships or to participate in structured physical activities. Also, in deprived areas, where living conditions are poorer, people may be more concerned with meeting basic needs than promoting an active lifestyle. This means that, in the absence of affordable options, many people will choose sedentary activities, which do not involve extra expense and are easier to do.

Physical and mental health problems

Being sedentary can also be a consequence of health conditions that make it more difficult to move. People suffering from chronic illnesses such as obesity,

joint pain or other conditions that limit mobility may find it harder to engage in regular physical activity. In addition, mental health problems such as depression or anxiety can reduce motivation to exercise. People with such conditions may prefer to remain inactive, as exercise may seem exhausting or incomprehensible in a fragile emotional state. These difficulties can contribute to a vicious circle in which a sedentary lifestyle worsens ill health and makes it even harder to get out of this inactive lifestyle.

3. The Effects of a Sedentary Lifestyle

Sedentarism, is sometimes perceived as a convenient lifestyle, but the risks associated with sedentarism are multiple and serious, having a direct impact on quality of life and even life expectancy. Here are the main effects of sedentarism on the body:

Cardiovascular problems

One of the most serious effects of a sedentary lifestyle is an increased risk of cardiovascular disease. Lack of exercise leads to the cardiovascular system becoming less efficient and less well trained. Thus, the heart becomes less able to pump blood efficiently and circulation is impaired. A sedentary lifestyle is associated with:

Increased blood pressure (hypertension).

Increased levels of 'bad' cholesterol (LDL) and triglycerides.

Higher risk of heart attack and stroke.

Obesity and metabolic problems

Obesity is one of the direct effects of sedentary lifestyles, a phenomenon that currently affects half a billion people, with an estimated continuous increase in this phenomenon by 2050, 40% of women and 60% of men. The hypertrophy of adipose tissue caused by excess weight leads to a chronic inflammatory state resulting in insulin sensitivity and diabetes (Avtanski and Poretsky, 2023).

The number of people affected by diabetes worldwide currently exceeds 400 people, with a particularly rapid increase in low- and middle-income countries.

Lack of physical activity leads to an energy imbalance, favoring fat accumulation in the body. People who are sedentary have a much higher risk of developing obesity, which in turn can lead to a number of other serious conditions, such as:

Type 2 diabetes - being sedentary contributes to increased insulin resistance, which can lead to diabetes levels, which increases the risk of atherosclerosis (<https://www.healthpartners.com/blog/health-risks-of-sedentary-lifestyle>).

Metabolic syndromes - a combination of factors, such as hypertension, high cholesterol and high blood glucose, which are often seen in sedentary people.

Musculoskeletal disorders

Prolonged inactivity has a negative impact on the musculoskeletal system, contributing to muscle weakening and decreased flexibility. The main effects include:

Back and neck pain - a sedentary lifestyle is a common cause of chronic back and neck pain, especially for people who spend long periods of time in an awkward position.

Weak bones - lack of bone-stressing exercise can lead to decreased bone density, increasing the risk of osteoporosis and fractures.

Muscle atrophy - muscles become weaker and less resistant due to lack of physical stimulation.

Arthritis and other joint conditions - prolonged inactivity can lead to damage to cartilage and joints, which can favor the development of arthritis.

Musculoskeletal disorders occur mainly in the lower limbs, with a decrease of up to 40% in muscle strength, with the onset of a marked muscle fatigue. Osteodensitometry shows significant loss of bone mass, especially in the spine, femoral neck and calcaneus. It should be noted that muscle changes are reversible and can improve in a few weeks.

Bone changes, on the other hand, may not improve with exercise and treatment until after 6 months (Sbenghe, 2008).

Psychological and emotional problems

A sedentary lifestyle not only affects your body, but also your mental health. Inactivity can contribute to:

Studies have shown a strong link between lack of exercise and increased risk of depression and anxiety. Movement releases endorphins and other chemicals in the brain that help improve mood.

Lower self-esteem, sedentary person may develop a sense of failure or dissatisfaction due to lack of physical activity, which affects self-image.

Increased stress - without a physical outlet for stress management, sedentary people may be more prone to emotional tension buildup.

Decreased longevity

Several studies have shown that a sedentary lifestyle shortens lifespan, and the risks associated with being sedentary are similar to those of smoking or excessive alcohol consumption. People who lead an inactive lifestyle have a higher risk of developing chronic diseases, which can lead to a shorter life and lower quality of life.

Sleep problems

Lack of physical activity can affect sleep quality. Exercise regulates circadian rhythms and improves sleep quality, while a sedentary lifestyle can lead to insomnia or less restful sleep. People who do not move enough may have difficulty falling asleep or maintaining a deep sleep, and this can adversely affect their overall health (Alkhatib, 2016).

4. Ways and means to prevent sedentary lifestyles

Preventing a sedentary lifestyle involves adopting an active lifestyle, even through small and easily integrated changes in your daily routine. Here are some effective methods:

Daily exercise - at least 30 minutes of moderate activity every day (walking, running, swimming, cycling) helps to maintain physical and mental health.

Integrate movement into everyday life, use the stairs instead of the elevator, walk or bike to work, take exercise breaks at the office.

Sports and recreational activities: Participate in team sports, swimming, dancing or hiking to exercise in an enjoyable and social way.

Use technology as an ally, use apps and fitness trackers to motivate yourself to stay active.

Create an active environment - set up desks that support movement (e.g. standing desk desks) and encourage physical activity in the workplace.

Education and awareness of risks, understanding the impact of sedentary lifestyles on health can motivate behavior change.

Social support by involve family and friends in joint physical activities to make movement more attractive and easy to maintain.

As sports activities suggested to the students to practice physical exercises, I could recommend them to participate in the championships on different branches of sport organized within our University, outside the classes of the curriculum. These competitions are held once under the name "Years I Cup", where all students of years 1 of our University can participate, as well as "Years I-IV Cup" where all students from year 1 to year 4 can participate.

They can also enroll on the basis of their abilities in the University's representative teams, where they can benefit from weekly training and participate in the National University Championships in different sports.

5. Conclusions

Sedentarism is a major public health problem with significant negative effects on the body and mind. Among the most common consequences are cardiovascular risks, obesity, musculoskeletal disorders and psychological problems.

However, preventing and combating sedentary lifestyles is possible by integrating movement into your daily routine, choosing enjoyable physical activities and using technology to track progress. Adopting an active lifestyle does not require big changes, but rather simple adjustments such as walking, team sports, or regular exercise.

Involvement in group physical activities and education about the benefits of movement can also help reduce sedentarism. Ultimately, through small behavioral changes and conscious choices, we can prevent sedentary lifestyles and significantly improve quality of life and long-term health.

REFERENCES

- Alkhatib A., *Sedentary Lifestyle: Predictive Factors, Health Risks and Physiological Implications*, 2016.
- Avtanski D., Poretsky L., *Obesity, Diabetes and Inflammation*, 2023.
- Paraschiv P., Cimpoeșu N., Paraschiv C., *Sedentarism- A predominant factor in difficult post-COVID-19 recovery*, Biomedical Engineering Applications for People with Disabilities and the Elderly in the COVID-19 Pandemic and Beyond, Editura Elsevier, ISBN: 978-0-323-85174-9, (2022).
- Sbenghe T., *Kinesiologie, Știința Mișcării*, Ed. Medicală, 2008.
- <https://www.healthpartners.com/blog/health-risks-of-sedentary-lifestyle/>

SEDENTARISMUL ȘI CONSECINȚELE UNUI STIL DE VIAȚĂ SEDENTAR ÎN RÂNDUL STUDENȚILOR

(Rezumat)

Sedentarismul se referă la un stil de viață caracterizat printr-o activitate fizică minimă sau aproape inexistentă. În societatea modernă, acest fenomen a devenit din ce în ce mai răspândit, în principal din cauza creșterii utilizării tehnologiei și a schimbărilor în structura locurilor de muncă, care impun statul prelungit pe scaun sau în fața unui ecran. Efectele acestui fenomen pot fi grave, se pot dezvolta afecțiuni care pun viața în pericol indiferent de vârstă.