

PHYSICAL ACTIVITY IN THE GERIATRIC POPULATION

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Abstract. *Population aging is one of the major demographic and public health challenges of the 21st century, strongly affecting quality of life and functional capacity in older adults. Physical activity is recognized as a key factor in maintaining health and preventing chronic diseases in the elderly. The aim of this paper was to present the possibilities and challenges of implementing physical activity in the geriatric population, with emphasis on barriers and potential directions for improvement. This study was conducted as a review of relevant literature, focusing on the effects of aerobic exercise, strength training, and balance exercises on the health of older adults. Results indicate that regular and tailored physical activity can significantly reduce the risk of sarcopenia, falls, cardiovascular and metabolic diseases, while also contributing to the preservation of cognitive function and mental health. The most common barriers include chronic illnesses, fear of injury, lack of self-confidence, financial constraints, and insufficient education of healthcare professionals. The discussion highlighted that personalized programs, greater accessibility of subsidized community activities, the use of technology, and a multidisciplinary approach represent the most effective strategies for long-term engagement of older adults in physical activity. It is concluded that physical activity must be an integral part of geriatric healthcare, as it contributes to prolonged life expectancy, preservation of functional independence, and improvement of quality of life in the elderly population.*

Key words: *physical activity, geriatric population, healthy aging, barriers, quality of life*

Introduction

The aging of the population represents one of the most serious demographic challenges of the 21st century. According to data from the World Health Organization [1], the number of people over 60 will almost double by 2050, reaching approximately 2.1 billion. This demographic shift has far-reaching implications, including an increase in the prevalence of chronic non-communicable diseases, a decrease in functional capacity, an increased need for health care, and marked social isolation among the elderly. Consequently, the burden on the health system and the economic stability of societies is becoming greater.

In this context, physical activity emerges as one of the most important factors that can significantly contribute to preserving health and quality of life in the later life. As an integral part of the concept of healthy aging, regular physical activity has the potential

to not only alleviate the negative consequences of aging, but also to directly influence the slowing down of biological processes that lead to functional decline. Scientific research confirms that physical activity can slow the progressive loss of muscle mass (sarcopenia), improve balance and mobility, maintain cognitive abilities and reduce the risk of chronic diseases such as type 2 diabetes, hypertension, cardiovascular diseases and osteoporosis [2].

In addition to physiological effects, physical activity also has significant psychosocial benefits. It has been proven that participation in regular exercise programs contributes to the reduction of symptoms of depression and anxiety, strengthens the sense of purpose and self-confidence, and improves the social inclusion of the elderly [3]. Despite this knowledge, the proportion of older people who are sufficiently physically active remains worryingly low.

Despite abundant evidence of the benefits of physical activity, epidemiological data indicate that the majority of older people do not meet the minimum recommendations of the World Health Organization when it comes to recommended levels of physical activity. Global research [4] shows the following worrying trends:

- More than 60% of people over the age of 65 lead a predominantly sedentary lifestyle, with minimal movement and extended periods of sitting;
- Only 25–35% of older people regularly participate in moderate to vigorous physical activity, which is below recommended standards;
- Older women are significantly less active compared to men, and the difference is influenced by numerous circumstances, including cultural norms, social roles, but also a higher prevalence of osteoporosis, arthritis and other chronic conditions.

These data clearly indicate the existence of a serious gap between recommendations and actual behavior in the elderly population. It is necessary to develop and implement more effective public health strategies that will be adapted to the specific needs, opportunities and barriers faced by the elderly. The promotion of physical activity must not be an isolated initiative, but an integral part of a comprehensive model of geriatric health care.

Challenges and opportunities in applying physical activity in the geriatric population

Physical activity in the geriatric population is a key component of healthy aging, but its implementation potential faces numerous challenges. Although there is clear evidence of its benefits, the actual implementation of recommendations in practice is often limited by physiological, psychological, social and structural barriers. In this discussion, we will analyze in more detail current research, controversies in recommendations, and shortcomings in existing approaches to promoting physical activity in the elderly.

Optimal combination of aerobic, strength and balance exercises

According to WHO [5], elderly people should combine aerobic activities (eg brisk walking 150 minutes per week), strength exercises (2-3 times per week) and balance exercises to achieve the maximum effect on health. However, the question of optimal combination and intensity remains a subject of research.

-Aerobic activities - Meta-analyses [6] show that even low-intensity walking reduces the risk of cardiovascular diseases by 20-30%. However, in people with osteoporosis or arthritis, long-term walking can increase pain, which indicates the need for an individual approach.

-Strength exercises - Some studies [7] confirm that progressive muscle loading (eg using bands or light weights) reduces muscle loss (sarcopenia) and improves functional mobility. However, many older people avoid these activities due to fear of injury or lack of access to equipment.

- Balance and flexibility exercises - Tai chi and yoga have been shown to be very effective in reducing the risk of falls [8], but their availability in rural areas and low-income countries remains limited.

It is not clear enough whether group activities (eg, dancing or hiking) are more effective than individual programs. Some studies [9] suggest that group activities have an additional psychosocial benefit, while others [10] indicate that individually tailored programs have higher adherence rates.

Physiological and health barriers

- Chronic diseases such as diabetes, arthritis and cardiovascular diseases represent a significant limiting factor for the mobility of the elderly. Although there has been reliable evidence for years that moderate physical activity reduces the inflammatory processes in osteoarthritis and rheumatoid arthritis, many people still avoid exercise due to pain and fear of worsening the condition. For example, according to research by Stevens and Michaels (2019), approximately 18% of people with arthritis show a strong tendency to avoid activities due to fears that they will cause pain or further joint degeneration [11].

This confirms that, despite clinical evidence of the benefits of exercise, psychological factors (such as fear of pain) significantly limit participation in physical activities. This indicates the need for interventions to be comprehensive – to include not only education about the benefits of exercise, but also emotional support and strategies to overcome fear in order to improve the acceptance and long-term participation of older people in physical programs.

- Fear of injuries - The fear of falls is especially pronounced in people suffering from osteoporosis, given that even minor falls can lead to serious fractures, especially of the hip, spine and wrist. This fear often leads to reduced mobility, social isolation and additional functional decline. Although fall prevention has long been a focus of geriatric health care, many older people still lack access to relevant information or practical strategies to reduce risk.

Interventions that include education about mobility safety - such as the proper use of walking aids (canes, walkers), introducing ergonomic adaptations in the home environment or improving balance through targeted exercises - have been shown to be effective in reducing perceived risk and increasing confidence in mobility [12]. Empowering the elderly through knowledge and support is a key step in overcoming this barrier and encouraging a more active lifestyle.

Psychological and motivational obstacles

Psychological factors play a key role in shaping behavior related to physical activity, especially in older age. Mental health, emotional states and individual beliefs about abilities strongly influence willingness to engage in exercise and maintain an active lifestyle.

Depression and anxiety: Numerous studies, including a meta-analysis by Schuch et al. [13], indicate that physical activity significantly contributes to the reduction of depressive symptoms. However, in individuals dealing with more severe forms of depression or anxiety, there is often a marked lack of motivation to begin any activity. This condition makes it even more difficult to break the negative cycle of mental inertia and physical inactivity. In addition, symptoms such as fatigue, lethargy and a reduced sense of control further demotivate older people to start or maintain physical activity.

Lack of self-confidence: Negative beliefs about one's abilities represent another significant obstacle. Many older people believe that they are "too old to exercise" or that physical activity is no longer "for them" [14]. Such perceptions often stem from fear of injury, lack of knowledge of appropriate exercises for one's age, or previous negative experiences. In this context, it is especially important to use positive and affirmative messages in communication with older people - such as "Every movement is useful" or "It is important to be active according to your capabilities" - instead of emphasizing demanding or intensive exercise regimes. An approach that respects individual boundaries, but encourages continuous movement, has proven to be more effective in increasing engagement and a sense of competence among the older population.

Lack of adapted programs - Most sports centers do not have specialized training for the elderly, such as slower and safer group exercises or individual supervision, which can discourage their participation in physical activity.

- Financial constraints – Membership fees at gyms, swimming pools or rehabilitation programs are often too high for retirees on limited incomes, and many programs do not offer discounts or subsidies for the elderly population.

- Urbanization and lack of safe spaces - Older people in densely populated urban areas often do not have access to safe, flat and well-lit parks, walkways or bike paths, which increases the risk of falls and reduces their willingness to move outside the home.

Shortcomings in current physical activity promotion strategies

One of the key challenges in the promotion of physical activity among the elderly population is insufficient education and involvement of healthcare professionals in counseling activities. According to the results of some studies, health professionals rarely provide recommendations regarding physical activity during routine examinations, despite the proven benefits of exercise in old age. For example, a study by Orsega-Smith et al showed a positive effect of educational interventions on the attitudes of older people towards physical activity, but such approaches are rarely applied in clinical practice [15]. The main reasons for insufficient inclusion of physical activity in daily health practice include:

- Limited time during clinical examinations, where acute and chronic medical problems are prioritized [16];
- Lack of professional knowledge about adapted forms of physical activity suitable for the elderly population, including the type, intensity and frequency of exercise [16,17].

Introducing short educational interventions – such as five-minute advice on the importance of physical activity during routine medical examinations – can have a positive impact on patients' motivation and willingness to engage in exercise [16]. The study by Pahor et al. (LIFE study) showed that structured physical activities significantly reduce the risk of loss of mobility in the elderly, which indicates the importance of systematic inclusion of physical activity recommendations within primary health care [18].

Lack of long-term interventions

Most studies looking at physical activity in the geriatric population last from 6 to 12 months, but rarely follow long-term effects after completion of formal programs. Long-term data, covering a period of five or more years, show that only 20 to 30% of participants continue to exercise regularly after the program ends [19]. This data points to the challenges of sustainability of changes in lifestyle and the need for the development of interventions that encourage permanent engagement.

Key sustainability factors

- Social support: The inclusion of group activities and the active participation of family members has a positive effect on the motivation and continuity of physical activity [19].
- Accessibility: Free or subsidized programs available in local communities significantly increase the possibility of long-term inclusion of older adults [19].

Future directions of research and practice

Personalized medicine and technology

Advances in technology open up new opportunities for improving the promotion of physical activity among the elderly:

- Smart devices and applications: The use of fitness trackers and mobile applications shows significant results in increasing motivation and monitoring the progress of users [20].

- Tele-rehabilitation: Enables the provision of individualized exercise programs to people with limited mobility or those living in remote areas, thus overcoming geographical barriers [21].

Integration into health systems

- Exercise Prescription: Issuing an "exercise prescription" within health care has been shown to be an effective method for increasing adherence to an exercise program, with data from a Canadian study increasing adherence by around 40% [22].

- Multidisciplinary teams: The inclusion of physiotherapists, nutritionists, psychologists and other experts in geriatric care enables a holistic approach to the health of the elderly, which further improves the success of interventions aimed at physical activity [22].

Although the benefits of physical activity in the geriatric population are unequivocal, its implementation requires a broader approach that includes:

1. Individual programs - Adapted to the state of health and functional abilities.
2. Increasing accessibility - Free or subsidized activities in local communities.
3. Education of healthcare professionals - So that they can advise patients about safe exercises.
4. Long-term maintenance strategies - Using technology and social support to maintain motivation.

Future research should focus on long-term efficacy studies, as well as innovative ways to engage immobile older adults.

Conclusion

Physical activity is a key element in preserving health and functional independence in the later life of life. Despite well-documented benefits for physical, mental and social well-being, engagement levels among older adults remain low. Numerous barriers, including chronic diseases, fear of injury, psychological barriers and lack of adapted programs, significantly limit participation in physical activity.

Given the complexity of factors influencing movement-related behaviour, a holistic and multidisciplinary approach is necessary. Personalized exercise programs, better education of healthcare professionals, wider availability of subsidized activities and the use of technology can significantly contribute to long-term lifestyle changes in the elderly population.

Long-term success requires strategic planning, institutional support and continuous monitoring. Only in this way can physical activity become an integral part of the everyday life of older people, which not only extends life expectancy, but also improves its quality.

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FIZIČKA AKTIVNOST U GERIJATRIJSKOJ POPULACIJI

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Sažetak. Starenje populacije predstavlja jedan od najvećih demografskih i zdravstvenih izazova savremenog društva, sa izraženim uticajem na kvalitet života i funkcionalnu sposobnost starijih osoba. Fizička aktivnost je prepoznata kao ključni faktor u očuvanju zdravlja i prevenciji hroničnih bolesti u trećem životnom dobu. Cilj ovog rada bio je da se prikažu mogućnosti i izazovi primjene fizičke aktivnosti u gerijatrijskoj populaciji, sa naglaskom na prepreke i potencijalne pravce unapređenja. Rad je urađen kao pregled relevantne literature sa fokusom na uticaj aerobnih vježbi, treninga snage i vježbi ravnoteže na zdravlje starijih osoba. Rezultati analize ukazuju da redovna i prilagođena fizička aktivnost može značajno smanjiti rizik od sarkopenije, padova, kardiovaskularnih i metaboličkih bolesti, ali i doprinijeti očuvanju kognitivnih funkcija i mentalnog zdravlja. Najčešće prepreke uključuju hronične bolesti, strah od povreda, nedostatak samopouzdanja, ograničene finansijske mogućnosti i neadekvatnu edukaciju zdravstvenih radnika. Diskusija je pokazala da personalizovani programi, bolja dostupnost subvencionisanih aktivnosti u zajednici, upotreba tehnologije i multidisciplinarni pristup predstavljaju najefikasnije strategije za dugoročno uključivanje starijih osoba u fizičku aktivnost. Zaključuje se da fizička aktivnost mora biti sastavni dio gerijatrijske zdravstvene zaštite, jer doprinosi produženju životnog vijeka, očuvanju funkcionalne nezavisnosti i unapređenju kvaliteta života starije populacije.

Ključne riječi: fizička aktivnost, gerijatrijska populacija, zdravo starenje, prepreke, kvalitet života