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The role of physiotherapy in fall prevention in the elderly: scientific evidence and challenges for public health.

The role of physiotherapy in the prevention of falls among older adults: scientific evidence and challenges for public health

The performance of physiotherapy in the prevention of falls in older people: scientific evidence and challenges for collective health

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SUMMARY

Population aging represents one of the main challenges for health systems worldwide, especially given the increased incidence of falls among older adults. Falls constitute a significant public health problem because they are associated with high morbidity and mortality, prolonged hospitalizations, loss of functional independence, early institutionalization, and increased healthcare costs. In this context, physiotherapy stands out as one of the main prevention strategies, acting in the maintenance of functional capacity, muscle strengthening, balance training, gait improvement, and reduction of intrinsic factors associated with the risk of falls. This study aims to analyze the scientific evidence on the role of physiotherapy in fall prevention in older adults, as well as to discuss the main challenges for the implementation of these strategies within the scope of public health. This is an integrative literature review, conducted through a search of the PubMed, SciELO, Virtual Health Library (BVS), PEDro, and Web of Science databases, including studies published between 2020 and 2026, in Portuguese, English, and Spanish. The results demonstrate that multicomponent physiotherapy programs, involving muscle strengthening, proprioceptive training, balance exercises, functional training, and home-based interventions, significantly reduce the incidence of falls and improve indicators of functionality, autonomy, and quality of life. However, challenges persist related to the insufficient number of specialized professionals in Primary Care, low adherence of older adults to preventive programs, regional inequalities in access to rehabilitation services, and the need to strengthen public policies aimed at healthy aging.

It is concluded that physiotherapy plays an essential role in promoting active and healthy aging, constituting a cost-effective strategy for reducing falls and their impact on the Brazilian Unified Health System (SUS).

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Keywords: Physiotherapy. Elderly. Falls. Public Health. Aging.

ABSTRACT

Population aging represents one of the greatest challenges for health systems worldwide, especially due to the increasing incidence of falls among older adults. Falls are a major public health concern because they are associated with increased morbidity, mortality, hospitalization, functional decline, and institutionalization. Physiotherapy plays a fundamental role in fall prevention through muscle strengthening, balance training, gait rehabilitation, and improving functional capacity. This study aims to analyze scientific evidence regarding physiotherapy interventions for fall prevention among older adults and discuss the main challenges faced by public health systems. An integrative literature review was conducted using PubMed, PEDro, SciELO, BVS and Web of Science databases, including studies published between 2020 and 2026. Evidence indicates that multicomponent exercise programs significantly reduce fall rates while improving balance, mobility, independence and quality of life. Despite these benefits, barriers remain, including limited access to rehabilitation services, shortage of trained professionals and low adherence to preventive interventions. Physiotherapy should therefore be considered a key strategy for healthy aging and for reducing healthcare costs associated with falls.

Keywords: Physiotherapy. Older adults. Falls. Public Health. Aging.

1 INTRODUCTION

Population aging constitutes one of the main demographic transformations of
21st century, directly impacting the epidemiological profile of populations and imposing
New challenges for healthcare systems. The increase in life expectancy, coupled with a reduction
Due to fertility rates and advances in sanitary and healthcare conditions, it has expanded
The number of elderly people worldwide is increasing. At the same time, a greater...
prevalence of chronic diseases, functional decline, and geriatric syndromes, among which are
Falls stand out as a significant public health problem due to the high risk of accidents.
morbidity and mortality, the impact on functional autonomy, and the increased demand for services.
health (Montero-Odasso et al., 2022).

Despite the robust evidence regarding the effectiveness of physiotherapy interventions,
Significant challenges remain for its systematic incorporation into Primary Health Care.
including the unequal distribution of professionals, structural limitations of services
rehabilitation, low adherence of the elderly to preventive programs, and insufficient integration.
among the different levels of care. International guidelines reinforce that prevention of
The management of falls should be based on multifactorial assessments and personalized interventions.
conducted by multidisciplinary teams, in which physiotherapy occupies a strategic position.
for the promotion of active aging and the reduction of clinical, social and
economics of the falls (Montero-Odasso et al., 2022; USPSTF, 2024).

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Given this context, the present study aims to critically analyze the evidence.
scientific studies on the role of physiotherapy in preventing falls in the elderly, discussing its
effectiveness in reducing the incidence of falls, their impacts on functionality and the
quality of life of this population, as well as the main challenges for the consolidation of these
Strategies within the scope of Public Health.

2 METHODOLOGY

This is an integrative literature review, a method that allows for the synthesis of results.
research on a specific topic, allowing the incorporation of scientific evidence.
relevant to clinical practice and public health. The review was conducted according to the
The steps proposed by Whittemore and Knafl (2005) are widely used in review studies.
integrative approaches in the healthcare field.

The searches were conducted in the PubMed/MEDLINE, SciELO, and Library databases.
Virtual Health Library (BVS), PEDro (Physiotherapy Evidence Database), and Web of Science, among others.
May and July 2026. The descriptors used were in Portuguese and English, combined by
Boolean operators AND and OR: "physiotherapy", "elderly", "falls", "fall prevention",
"postural balance", "physiotherapy", "older adults", "falls" and "fall prevention".
Original articles, systematic reviews, meta-analyses, and clinical guidelines were included.
published between 2020 and 2026, in Portuguese, English, and Spanish, that addressed interventions.
physiotherapy techniques aimed at preventing falls in elderly people living in the community or
Followed up in health services. Duplicate studies and studies without access were excluded.
to the full text, opinion articles, experience reports and research not directly related to
the topic investigated.

The selection of studies occurred in three stages: reading the titles, analyzing the abstracts, and reading the abstracts.
Full texts of the eligible entries. The extracted information included authors, year of publication,
Study type, sample, physiotherapy intervention, main outcomes and results
related to reducing the risk of falls. The findings were organized in a descriptive manner.
and interpreted in light of contemporary scientific evidence.

3. Population Aging and Falls in the Elderly

Aging is a physiological process characterized by progressive changes in

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musculoskeletal, neurological, cardiovascular, and sensory systems, resulting in a reduction functional reserve and increased vulnerability to adverse events. Among these changes Key characteristics include muscle loss, decreased strength, and impaired function. Balance and gait alterations are factors closely related to an increased risk of falls (Cruz-Jentoft et al., 2019).

It is estimated that falls affect between 28% and 35% of individuals aged 65 or older. which can reach 42% among those over 70 years of age. In addition to the high frequency, Falls have significant clinical, social, and economic repercussions, being responsible for millions of emergency room visits and hospitalizations annually (World Health Organization, 2021).

In Brazil, falls are among the leading causes of hospitalization due to external causes. elderly people. The impact is even more significant when associated with hip fractures, a condition related to high mortality in the first year after the event and significant loss of Functional independence. According to Montero-Odasso et al. (2022), fall prevention should to be considered a priority in healthy aging policies, due to its potential to reduce disabilities and healthcare costs.

From a public health perspective, falls are not limited to an individual event, but These constitute an aggravating factor with population repercussions. The need for rehabilitation prolonged use, increased dependence in activities of daily living, and family burden. They reinforce the importance of evidence-based preventive strategies integrated into... primary care services.

4 RISK FACTORS FOR FALLS

Factors associated with falls can be classified as intrinsic and extrinsic. Among the Intrinsic factors stand out:

- Sarcopenia and muscle weakness;
- Changes in postural balance;
- Impaired gait;
- Visual and auditory deficits;
- Neurological diseases, such as Parkinson's disease and stroke;
- Cognitive decline;
- Use of multiple medications (polypharmacy).

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Polypharmacy has been consistently associated with an increased risk of falls.
especially when it involves psychotropic, sedative, and antihypertensive medications.
The US Preventive Services Task Force (2024) recommends periodic evaluation of the scheme.
Therapeutic treatment for elderly people with a history of falls.
Extrinsic factors include inadequate environmental conditions, such as slippery floors,
Loose rugs, insufficient lighting, steps without handrails, and lack of grab bars in
bathrooms. The interaction between intrinsic and extrinsic factors significantly increases the
probability of falls.
Furthermore, psychosocial aspects such as fear of falling, social isolation, and low self-esteem also contribute.
Participation in physical activities can contribute to progressive functional decline.
Studies show that the fear of falling leads many elderly people to reduce their daily activities.
which promotes the loss of muscle strength and worsens balance, establishing a cycle of
functional vulnerability (Sherrington et al., 2020).

5. The Role of Physiotherapy in Fall Prevention in the Elderly: SCIENTIFIC EVIDENCE

Fall prevention in the elderly has been extensively investigated in recent decades.
establishing itself as one of the main areas of practice in geriatric physiotherapy.
Scientific evidence demonstrates that structured physiotherapy interventions reduce
significantly reduce the incidence of falls, improve functional capacity, and preserve the
Independence in activities of daily living contributes to healthy aging.
Due to the multifactorial nature of falls, international guidelines recommend that...
Prevention should be based on individualized assessment and multicomponent programs.
capable of acting simultaneously on muscle strength, balance, mobility, and gait.
and environmental factors (Montero-Odasso et al., 2022).
The physiotherapy assessment constitutes the initial stage of the preventive process and should include
Clinical, functional, and environmental aspects. In addition to a detailed medical history, it is recommended
investigate the history of falls, medication use, associated illnesses, and level of
Physical activity, the presence of fear of falling, and the conditions of the home environment. For the
Objective measurement of functional performance often involves instruments.
validated methods, such as the Timed Up and Go Test (TUG), the Berg Balance Scale, and the Five Times
Sit-to-Stand Test, the Short Physical Performance Battery (SPPB) and the Functional Reach Test, which

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They have a high capacity to identify elderly people at higher risk of falls (Panel on Prevention of Falls in Older Persons, 2022).

Among physiotherapy interventions, physical exercise programs constitute the strategy with the highest level of scientific evidence. The systematic review conducted by Sherrington et al. (2020), published in the *British Journal of Sports Medicine,* demonstrated that programs composed of balance exercises combined with functional training. They significantly reduce the occurrence of falls in elderly people living in the community. According to the authors, the best results are observed when the exercises are challenging. These exercises progressively improve postural balance and are performed for at least three hours per week.

Balance training acts directly on the mechanisms responsible for maintaining balance. of body stability, promoting neuromuscular adaptations that favor control Postural adjustments in different everyday situations. Exercises performed on supportive surfaces. reduced mobility, unstable surfaces, rapid changes of direction, single-leg support, and displacements. Multidirectional movements stimulate integration between the vestibular, visual, and somatosensory systems. improving responsiveness to external disturbances (Montero-Odasso et al., 2022).

In addition to conventional strategies, new technologies are being incorporated into practice. Physiotherapy. Telerehabilitation has expanded significantly following the COVID-19 pandemic. 19, allowing remote follow-up, monitoring of clinical progress and Maintenance of home exercise programs. Systematic review conducted by Lapierre et al. (2023) concluded that remote interventions yield comparable results. to in-person programs for improving balance and mobility, provided that they are carried out with structured protocols and appropriate professional supervision.

6 Challenges for Physiotherapy Practice in the Prevention of Falls in the context of public health

Although scientific evidence demonstrates the effectiveness of physiotherapy interventions In reducing the incidence of falls in the elderly, its large-scale implementation is still... faces significant challenges in the context of Public Health. These challenges involve factors structural, organizational, socioeconomic, and cultural factors that limit access for the population. elderly people are unable to access prevention and rehabilitation services, compromising the comprehensiveness of their care and... effectiveness of public policies aimed at healthy aging (Montero-Odasso et al., 2022).

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In Brazil, the rapidly aging population has increased the demand for services.
specialized rehabilitation services, while the supply of professionals and the care structure
They remain insufficient in several regions of the country. Despite the progress made...
through the Family Health Strategy (ESF) and the reorganization of Primary Health Care
(APS), regional inequalities persist in the availability of physiotherapists, especially
in small municipalities and rural areas, which makes implementation difficult
ongoing fall prevention programs (Brazil, 2023).

Another challenge relates to the integration of physiotherapy into multidisciplinary healthcare teams.
Primary. Although the physiotherapist plays a key role in promoting
Functionality, disability prevention, and health education, its inclusion is still...
heterogeneous among Brazilian municipalities. The absence of this professional in many teams.
limits the performance of early functional assessments and the development of programs.
community exercise programs and systematic monitoring of older adults at higher risk of
falls (Silva et al., 2023).

Low participation of older adults in exercise programs also constitutes a barrier.
Relevant. Several factors contribute to this scenario, including mobility limitations,
Chronic pain, associated illnesses, transportation difficulties, low education level, fear of injury.
during exercise and reduced family support. In addition, psychosocial aspects,
Symptoms such as social isolation, depressive symptoms, and a recurring fear of falling often lead to...
due to decreased physical activity, which favors progressive functional decline (Sherrington)
et al., 2020).

Therefore, addressing the challenges related to falls in the elderly requires investment.
Continuous improvements in the quality of physiotherapy services, in professional training based on
scientific evidence, in the expansion of community-based physical exercise programs and in
implementation of care models focused on the functionality and autonomy of the person.
elderly. These measures have the potential to reduce hospitalizations and minimize system costs.
health and contribute to healthier, more active and independent aging.

7 DISCUSSION

The findings of this review show that physiotherapy plays a central role in prevention.
of falls in the elderly, especially when interventions are planned based on assessment.

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multifactorial and developed through multicomponent exercise programs.
The evidence analyzed demonstrates that interventions involving balance training,
Muscle strengthening, functional exercises, and gait training promote reduction.
significant reduction in the incidence of falls, improved functional capacity, and greater independence.
in carrying out activities of daily living, corroborating the recommendations of the Guidelines
World Score for Falls Prevention in Older Adults. (PubMed)
The results also reinforce the understanding that fall prevention should be...
Considered a priority strategy for Public Health. The increase in life expectancy.
The observation made in recent decades has been accompanied by a higher prevalence of diseases.
Chronic conditions, frailty, sarcopenia, and functional disability are factors that increase the demand for...
Rehabilitation services increase healthcare costs.
Another relevant aspect identified relates to the need for individualized interventions.
Although widely recommended protocols exist, international guidelines emphasize
that clinical assessment should consider intrinsic, extrinsic, and psychosocial factors.
Specific to each elderly person. Therefore, physiotherapy intervention should integrate assessment.
functional, environmental guidance, health education and ongoing monitoring, strengthening
a person-centered approach, not just an event-focused one. (PubMed)

FINAL CONSIDERATIONS

Falls in the elderly constitute one of the main contemporary challenges for healthcare.
Collective, due to its high frequency and significant clinical and functional repercussions.
and psychosocial factors, as well as the financial impact on healthcare systems. Aging
Population growth makes the development of preventive strategies essential.
based on scientific evidence, capable of preserving autonomy and functionality.
and the quality of life of that population.
This review demonstrated that physiotherapy occupies a strategic position in the prevention of
falls, acting from the early identification of risk factors to the implementation of
therapeutic programs based on muscle strengthening, balance training,
Functional exercises, gait retraining, and health education. The scientific evidence.
Analysis suggests that multicomponent programs are more effective in reducing
The incidence of falls is greater than that of isolated interventions.
However, the effectiveness of these strategies depends on expanding access to services.

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physiotherapy, the integration between different levels of health care, and the strengthening of Public policies aimed at healthy aging. Investments in the qualification of Primary Health Care, in the training of specialized professionals and in the implementation of Community-based prevention programs can contribute significantly to reducing Hospitalizations, disabilities, and costs related to falls.

It can be concluded, therefore, that physiotherapy represents an evidence-based intervention. cost-effective and indispensable for promoting active aging. Its inclusion in the actions of Public health must be strengthened through intersectoral policies and programs. permanent prevention measures and incentives for regular physical exercise, contributing for greater functional independence, better quality of life, and a reduction in the impact of falls on the Unified Health System.

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