

## PHYSICAL THERAPY INTERVENTIONS IN THE PREVENTION OF FALLS IN OLDER ADULTS

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**Abstract:** Falls represent a significant challenge to the health of older people, with the potential to cause severe injuries and negatively impact quality of life. Physical therapy plays a key role in preventing falls in older people, offering a variety of therapeutic approaches to improve the functionality of this population. This literature review critically examines studies on physical therapy approaches to preventing falls in older people, intending to provide a comprehensive overview of the effectiveness of these interventions and guide clinical practice. A systematic search was carried out in the PubMed, PeDRO, Scielo, and Web of Science databases to identify published studies investigating physical therapeutic approaches to preventing falls in older people. Original studies that evaluated muscle-strengthening interventions, dual-task exercises, and home guidance and reported outcomes related to fall prevention were included. Analysis of studies revealed that muscle strengthening is an effective intervention in preventing falls in older people, resulting in significant improvements in muscle strength, balance, and functionality. Dual-task exercises have demonstrated effectiveness, challenging the sensorimotor and cognitive systems, and improving the ability to perform complex tasks while maintaining balance. Additionally, home guidelines, including environmental modifications, safety strategies, and education about risk behaviors, were useful in reducing the risk of falls in older adults. These approaches are promising strategies for preventing falls in older adults and improving muscle strength, balance, functionality, and safety in older adults.

**Keywords:** Falls; Older Adult; Strengthening; Physical Therapy, Interventions; Quality of life.

## INTRODUCTION

According to Albuquerque *et al.* (2018), the increase in longevity increasingly imposes the need for studies on the promotion of functional aging and greater independence and autonomy.

With the aging of the world population, the number of older people at risk of falls increased; as cited by Rosa *et al.* (2015), studies show falls as an important cause of mortality, morbidity, and disability in the older population, becoming an increasing concern for healthcare professionals and caregivers, representing one of the main causes of severe injuries, hospitalizations and even deaths among older people. Tomicki *et al.* (2016) and Duarte *et al.* (2018) state that they cause not only physical but also psychological and social consequences, which negatively impact the quality of life and autonomy of these individuals.

In this context, physical therapy plays a key role, offering a variety of therapeutic approaches aimed at improving balance, muscular strength, coordination, and mobility, essential factors in reducing the risk of falls, and providing multifaceted approaches to assessment, intervention, and education. (GISELE *et al.*, 2018).

Through specific techniques and adapted exercise programs, among these approaches, muscle strengthening, dual-task exercises, and home guidance stand out, thus reducing the risk of falls.

Physical therapy aims to prevent falls, and thus, it employs various tools, including educational measures to provide older adults with greater autonomy and improvements in activities of daily living, promoting quality of life and providing well-being. Based on an assessment, personalized intervention programs are developed, which include specific exercises to strengthen muscles and improve balance (MATIAS *et al.*, 2019).

Another essential approach in this process is dual-task, as it represents an innovative and effective treatment for preventing falls in older adults. This strategy involves the simultaneous performance of motor and cognitive tasks while performing everyday activities, challenging the sensorimotor and cognitive systems and promoting adaptations to improve the ability to maintain balance and stability in adverse conditions (GISELE *et al.*, 2018).

Muscle strengthening is a widely recognized intervention in physical therapy, with well-documented benefits in improving muscle strength, endurance, and stability in older adults. Through specific exercise programs, targeted at the main muscle groups, it is possible to promote neuromuscular adaptations that contribute to the prevention of falls, improving the ability to withstand the demands of daily life and maintain balance in challenging situations (TOMICKI *et al.*, 2016 and LIU-AMBROSE *et al.*, 2019).

As mentioned by Albuquerque *et al.* (2018), it is common to find disorders related to gait that are not always resolved by clinical or surgical treatments, and most of the time some type of external assistance is necessary for this population to walk safely.

Additionally, home guidance plays an important role in preventing falls by offering ongoing support outside of the clinical setting. Adapting their interventions according to the needs and limitations of these older adults, promoting safety and well-being in their living environment, including environmental modifications, safety strategies, and education about risk behaviors, which help older adults identify and minimize risk factors in their home environment, thereby reducing the likelihood of falls (MATIAS *et al.*, 2019 and DOURADO JÚNIOR *et al.*, 2022).

Given the importance of these approaches, this literature review aimed to analyze

physical therapy interventions in preventing falls in older adults, and throughout the study, we developed the applicability of muscle strengthening, dual-task exercises, and home guidelines, and how this impacts the life of the older patient.

With an analysis of articles published from 2018 onwards, the purpose was to investigate and bring results from the analyzed resources, so that we can have better quality evidence regarding the most appropriate physical therapy procedures for this population.

This literature review followed a systematic approach to identify relevant studies on the role of physical therapy in preventing falls among older adults. Electronic databases were consulted, such as PubMed, Scielo, PeDRO, Scopus, and Web of Science, using specific search terms related to the topic. Studies with different methodological designs were included, including randomized clinical trials and observational studies. Relevant data were extracted and synthesized, with emphasis on the physical therapy interventions used, their results, and limitations.

## METHODOLOGY

This research consists of a literature review that aims to analyze relevant studies on muscle strengthening, dual-task exercises, and home guidance for preventing falls in older adults. To ensure an adequate selection of articles, specific eligibility criteria were established.

### ELIGIBILITY CRITERIA

The five PICOS criteria were used: (1) Population of both sexes and over 60 years of age; (2) Dual-task approaches, muscle strengthening, and home guidance in older people with a history of falls; comparison with individuals separated into control and experimental groups; evaluating as outcomes, dual-task training, muscle strengthening, guidelines and home changes and the risk

of falling in older adults; (5) studies with a randomized controlled, counterbalanced or crossover design were used.

### **SELECTION CRITERIA**

The inclusion criteria adopted for the selection of studies were: (1) Original studies published without a time frame; (2) study evaluating, as outcomes, dual-task training, muscle strengthening, guidelines, and home changes and the risk of falling in older adults; (3) studies published in English and Portuguese. The exclusion criteria were: (1) hospitalized older people and amputees; (2) duplicate studies; (3) master's dissertations and doctoral theses; (3) articles with more than seven years of publication; (4) articles published in languages other than English, Spanish, and Portuguese; (5) master's dissertations; (6) doctoral theses.

### **SEARCH INFORMATION**

Studies were retrieved from electronic database searching and a comprehensive scan of the reference list of included studies. The search was carried out from March to May 2024 in the following databases: PubMed, Scielo, PeDRO, and Web of Science.

### **SEARCH STRATEGY**

The search strategy combined the following descriptors and Boolean operators (AND/OR/NOT): ('older population' OR 'Dual task training' OR 'fall risk') AND ('older adult' OR 'muscle weakness' OR 'imbalance') AND ('older adult' OR 'fall' OR 'home guidance') NOT ('review'), with their appropriate translations into Portuguese.

### **SELECTION OF STUDIES**

Studies retrieved from each database were sent to EndNote X9 software (Clarivate Analytics, Philadelphia, USA), and duplicate studies were removed automatically and manually. Titles and abstracts were evaluated according to the eligibility criteria by five independent researchers (ACDSR, MFP, NDACA, PAPDS, and RSDF). Researchers were not blinded to authors, institutions, or journals. Abstracts without decisive information were selected for full-text inspection.

### **DATA COLLECTION PROCESS**

Five reviewers (ACDSR, MFP, NDACA, PAPDS, and RSDF) extracted data from the full texts, using a standardized and previously structured protocol. Data collected included participant characteristics (sample size, age, height, body mass, gender, and number of falls) and training protocols (study design, intervention, results, and final considerations). The data extracted by the reviewers were compared and disagreements were decided by everyone.

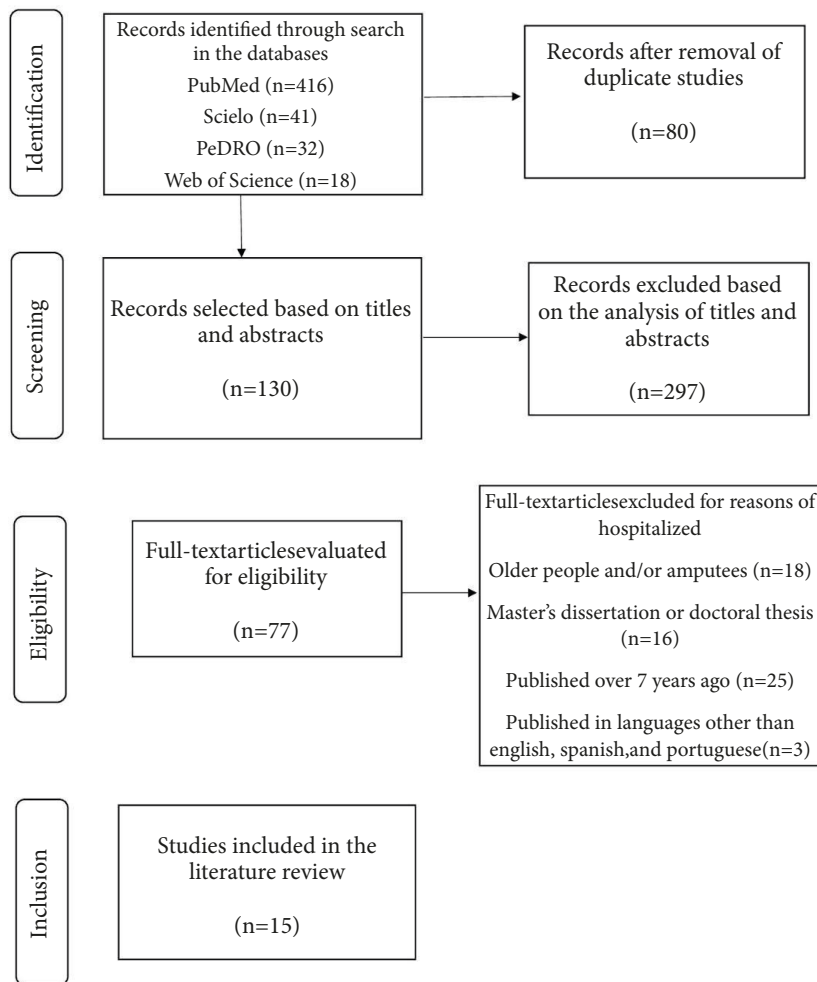
### **ANALYSIS AND DISCUSSION OF RESULTS**

#### **SELECTION OF STUDIES**

The study search flowchart is illustrated in Figure 1. Among the 77 studies retrieved in the database search, 13 were selected for the present review. Details of the characteristics of the 495 participants and the 5 included studies are presented in Boxes 1 and 2.

The articles selected for discussion are described in Box 1 as follows: Studies, number of participants, age, height, body mass, gender, and number of falls.

The articles selected for discussion are described in Box 2 as follows: Studies, study design, intervention, results, and final considerations.



Source: Prepared by the authors (2024).

| Studies  | Participants (n=XX) | Age (years)                              | Height (cm)            | Total Body Mass(kg)      | Gender          | Falls (N=X)   |
|--|---------------------|--|------------------------|--------------------------|-----------------|---|
| Investigate the influence of education on gains  | 31                  | 72.4 (average age of participants)       | N/A                    | N/A                      | Female and male | N/A   |
| Physical exercise to prevent falls in older people in long-term care institutions  | 20                  | 60 years or older                        | N/A                    | N/A                      | Female and male | 16 falls (in the previous 12 months)  |
| Effect of aerobic exercises on the neuromuscular quality of older people   | 80                  | 65 to 80 years                           | N/A                    | N/A                      | Female and male | N/A   |
| To evaluate the impact of inertial training on upper and lower limb strength in older adults and the influence of inertial training on independence, balance, gait speed, and quality. | 20                  | 65 to 91 years                           | 174.2 ± 6.72 cm        | 78.3 ± 8.91 kg           | Female and male | N/A   |
| Effects of a home exercise program on subsequent falls among high-risk older adults living in the community after a fall.  | 344                 | 81.6 years (average age of participants) | 162.3 (average height) | 72.1 Kg (average weight) | Female and male | 366 falls (Control group, during 12 months among 172 patients) and 236 falls (Intervention group) |

Box 1. Participant characteristics.

Source: Prepared by the authors (2024).

N/A = not applicable

| Studies   | Study design  | Intervention   | Results  | Final Considerations  |
|---|---|--|--|---|
| Investigate the influence of education on gains.                                  | Exploratory study of secondary data from a prospective randomized clinical trial. | Assessment using the ACE-R, trail test, Stroop test, and an intervention protocol was developed, consisting of 18 sessions, with 15 exercises each, cognitive DT (motor-cognitive), and 12 sessions, with 35 exercises each, motor DT (motor-motor). The number of sessions was designed in an attempt to minimize the effect of learning the exercises, since throughout the training, 36 sessions, each motor-cognitive exercise session was repeated only once, and the motor-motor activity sessions were repeated only twice. | Among the 31 study participants, 17 had 3 to 7 years of schooling ( $4\pm 1.2$ ) and 14 had 8 years of schooling or more ( $12\pm 4.2$ ; $p<0.0001$ ). Regarding the Stroop test, pre- and post-intervention main effects were observed ( $\eta^2p=0.17$ , $power=0.66$ ), without significant effects of the interaction group (pre- and post- and groups) ( $F=2.14$ , $p=0.15$ ), improvements were observed in the Stroop test for both groups after DT. Similar results were found for the ACE-R. Main effects were observed ( $\eta^2p=0.39$ ; $power=0.99$ ), and improvements were observed in the ACE-R test for both groups. For the Trails B test, no significant main effects were detected ( $\eta^2p=0.30$ ; $power=0.15$ ), but a group effect was identified, with no interaction. | Dual-task training (DT) resulted in an improvement in the performance of executive functions regardless of education in most of the tests used in this study. In only one test, Trails B, no significant difference was found after DT training in any of the groups. These results suggest that interventions that use DT can be used in clinical practice, aiming to improve the performance of executive functions in older women, regardless of education, expanding its use. |
| Physical exercise to prevent falls in older people in long-term care institutions | Non-randomized clinical trial.  | The evaluation took place 3 times a week, over 18 weeks, totaling 40 group exercise sessions, each lasting approximately 2 hours. Warm-up exercises such as walking, muscle strength (active free-resisted exercises), balance, flexibility, and relaxation were performed.  | There was a significant reduction in the number of older people who fell. Significant gains were observed for physical fitness variables such as balance, handgrip and lower limb muscle strength, shoulder flexion range of motion. In the previous 12 months, 8 older people (40%) reported falls, while 12 did not (60%). After 12 months of interventions, 4 older people suffered falls (20%), and 16 older people did not (80%), resulting in a decrease in reports of falls.  | The exercise intervention proved to be adequate and had positive results in terms of reducing the number of falls, muscle strength in the lower and upper limbs, and shoulder flexibility. However, it was not enough to achieve improvements in gait, multi-joint flexibility of the spine and hips, and fear of falls.  |
| Effect of aerobic exercises on the neuromuscular quality of older people          | Longitudinal comparison and horizontal comparison study                           | Participants were divided into four groups with no statistical difference. The control group of both sexes continued with their normal daily activities, while the experimental group practiced aerobic training exercises with a progressive increase in exercise, 3 times a week for 12 weeks.   | This study concluded that gradual aerobic training of moderate and high intensity can improve the muscular exercise capacity of older adults. The experimental group proved to be better than the control group in changing body shape, reducing body fat, and increasing the lean mass index, thus increasing exercise capacity. Promoting the recovery of balance and improving cognitive function.  | Aerobic training is worthy of clinical application as it has good results in relation to the physical fitness of older people, also helping with health by promoting the reduction of body fat, in addition to improvements in balance and also in cognitive function.  |

|   |   |  |   |   |
|---|---|--|---|---|
| <p>To evaluate the impact of inertial training on upper and lower limb strength in older adults and the influence of inertial training on independence, balance, gait speed, and quality.</p> | <p>Randomized Controlled Trial Study</p>              | <p>Activities of Daily Living (ADL) Questionnaire, Chair Stand Test, Biceps Curl Test, 8-FootUp-and-Go, and Tinetti Test.</p> <p>Twenty physically inactive older people living in a nursing home (6 women and 14 men; age, 76.7 ± 8.77 years) were randomized to a training (T; n = 10) or control (C; n = 10) group. Group T performed inertial training twice a week for 6 weeks using a Cyklotren inertial device. Each training session included 12 sets of exercises involving the flexor and extensor muscles of the elbow and knee (3 sets per single muscle group). Training loads were 10 and 20 kg for upper and lower limbs, respectively.</p> | <p>The training group showed significant changes (from 37.1% to 69.1%) in maximum strength between pre- and post-training for all trained muscles. Relative increases in maximal strength were also greater in group T than in group C. Strength measured during the biceps curl test and the chair stand test increased in group T while remaining unchanged in group C. The time to complete the 8-foot Up-and-Go test decreased by 12.8% and 1.87% in T and C, respectively.</p> <p>However, ADL remained unchanged. Both groups achieved similar scores before and after the training period. Post-training scores in the Tinetti test were higher than pre-training values in T, while there was no significant change in C.</p> | <p>Inertial training provided a great improvement in upper and lower limb muscle strength in elderly people. A 6-week training program resulted in functional benefits, balance, confidence, and gait speed significantly improved. These changes reduce the risk of falls and increase the safety and independence of older adults.</p>  |
| <p>Effects of a home exercise program on subsequent falls among high-risk older adults living in the community after a fall.</p>  | <p>Randomized, single-blind clinical trial study.</p> | <p>Study carried out for 12 months with an Intervention group (N=172 participants) who received a home program of strengthening and balance exercises in addition to usual care compared to the Only Usual Care Group (N=172). The Intervention group was guided by Otago exercise programs, carried out at home, and taught by a physical therapist. Participants were instructed to perform the exercises 3 times a week and walk for 30 minutes at least twice a week.</p>  | <p>The Intervention Group showed a significant reduction in subsequent fall rates compared to the group that received only usual care from a geriatrician. Therefore, it can be concluded that the Otago exercises are a great exercise program that will help older people in preventing falls at home.</p> <p>During a 12-month follow-up, the number of falls observed in the intervention group was 236 falls (Falls per person-year, average 1.4). In contrast, the usual care group had 366 falls (Falls per person-year, average 2.1).</p>   | <p>The home exercises that were programmed for the participants, even in manual format with photographs with guidance from a physical therapist and biweekly visits, were able to significantly reduce fall rates compared to older people who only received the usual care provided by a geriatrician.</p> <p>In this way, the importance of exercise in the daily lives of older adults and the importance of muscle strengthening in preventing falls is observed.</p> |

**Box 2.** Summary and characteristics of the studies included in the review.

**Source:** Prepared by the authors (2024).

## DISCUSSION AND ANALYSIS OF RESULTS

Preventing falls in older adults requires a careful and multifactorial assessment of the various risk factors involved, which is one of the fundamental areas of activity of the physical therapist. This assessment covers both intrinsic and extrinsic aspects, in addition to behavioral and lifestyle factors (DOURADO JÚNIOR *et al.*, 2022)

With regard to intrinsic factors, the physical therapist evaluates changes related to the older person's own physical condition. The loss of muscle mass and decreased flexibility and joint mobility, for example, can be identified and treated through specific exercises and rehabilitation programs supervised by a physical therapist (GISELE *et al.*, 2018)

In addition, sensory impairments, such as vision, hearing, and balance problems, and cognitive changes, such as dementia and mild cognitive impairment, are also assessed and treated by the physical therapist, in collaboration with other healthcare professionals, when necessary (DUARTE *et al.*, 2018). This involves a complete assessment of physical health, including tests of balance, muscle strength, and sensory function (MATIAS *et al.*, 2019 and CHITTRAKUL *et al.*, 2020).

Extrinsic factors, related to the physical environment, are also the target of intervention by the physical therapist. Obstacles in the home environment, such as loose carpets, slippery surfaces, lack of handrails, and inadequate lighting, can be identified by the physical therapist during the home assessment and corrected through appropriate guidance and environmental modifications. Furthermore, the physical therapist can advise on the appropriate use of footwear and assess the need for adaptations in the home environment to reduce the risk of falls (ALBUQUERQUE *et al.*, 2018; LIU-AMBROSE *et al.*, 2019 and DOURADO JÚNIOR *et al.*, 2022).

However, preventing falls among older people is a multifaceted task that requires an integrated and collaborative approach between different healthcare professionals. By recognizing and addressing the various risk factors associated with falls in older adults, such as physical frailty, chronic medical conditions, and inadequate environment, it is possible to significantly reduce the incidence of these events and promote the safety and well-being of older patients (ALBUQUERQUE *et al.*, 2018).

The implementation of evidence-based strategies, including physical therapy interventions and exercise programs, along with the promotion of self-efficacy for falls, plays a crucial role in this prevention process (MATIAS *et al.*, 2019).

Behavioral and lifestyle factors in older adults are also addressed in preventing falls. Furthermore, it is important to highlight self-efficacy for falls in preventing this type of incident in older people. Self-efficacy refers to a person's belief in their ability to successfully perform a certain activity or behavior to achieve a desired outcome (ALBUQUERQUE *et al.*, 2018).

Given the complexity and variety of risk factors involved in the occurrence of falls in older adults, the physical therapist plays a fundamental role in the early identification of risk factors and the implementation of targeted preventive strategies. Early assessment and intervention, combined with a multidisciplinary and patient-centered approach, are essential to reduce the risk of falls and promote the safety and quality of life of older adults (GISELE *et al.*, 2018 and DOURADO JÚNIOR *et al.*, 2022).



## **INCLUSION OF THE MUSCLE STRENGTHENING APPROACH IN THE MULTIFACTORIAL FALL RISK ASSESSMENT**

In the context of preventing falls in older people, the muscle-strengthening approach plays a key role in the physical therapist's work. The assessment of fall risk factors is complemented by the identification of muscle deficiencies that can contribute to postural instability and an increased risk of falls.

The physical therapist assesses the muscular strength of the lower limbs and trunk, identifying muscular weaknesses and imbalances that can compromise stability and safety during walking and other daily activities (CHITTRAKUL *et al.*, 2020). Loss of muscle mass and decreased muscle strength are common characteristics of aging, which can result in mobility difficulties and greater vulnerability to falls (TOMICKI *et al.*, 2016).

Based on muscle assessment, the physical therapist develops specific exercise programs to strengthen the muscle groups involved in maintaining upright posture, balance, and locomotion. These programs may include resistance exercises, balance training, proprioception exercises, and progressive strengthening techniques (LIU-AMBROSE *et al.*, 2019 and DOURADO JÚNIOR *et al.*, 2022).

By strengthening the muscles of the lower limbs, especially the quadriceps, hamstrings, calves, and core muscles, the physical therapist promotes improvements in postural stability, coordination, and movement control, thus reducing the risk of falls. They can work individually to develop personalized exercise programs that aim to strengthen the muscles responsible for stability and improve motor coordination (CHITTRAKUL *et al.*, 2020; SILVA *et al.*, 2021; TOMICKI *et al.*, 2016; NACZK *et al.*, 2020). Moreover, muscle strengthening contributes to improving gait,

facilitating the performance of daily activities, and increasing the functional independence of older people (HOU & SUN, 2022).

The study by Narck and Marszalek (2020) analyzed the effectiveness of an inertial training program for muscle strengthening that is highly effective in older adults. Each session trained four muscle groups: flexors and extensors of the elbow and knee joints. Despite their age, participants in the training group significantly increased elbow and knee flexor and extensor muscle strength. As far as we know, the improvement in strength (from 37% to 69% for different muscles) achieved by older adults in the present study was extremely high.

In addition to interventions aimed at balance and gait, specific risk factors for falls, such as muscle weakness, reduced flexibility, and sensory deficits, can also be addressed. For example, flexibility exercises can help improve joint range of motion and reduce muscle stiffness (SHERRINGTON *et al.*, 2019; NACZK *et al.*, 2020).

The physical therapist can also create home exercise books that will help the older person maintain their activities at home. The Otago Exercise Program is an individualized balance and strength training program. It includes 5 strengthening exercises: knee extensor (4 levels of difficulty), knee bends (4 levels), hip abductor (4 levels), ankle dorsiflexion (2 levels), walking and turning around (2 levels), side walking (2 levels), tandem stance (2 levels), tandem walk (2 levels), 1-leg stand (3 levels), heel walking (2 levels), toe walk (2 levels), heel-toe walking backward (1 level) and sit to stand (4 levels). The goal of physical therapy is to progress participants to a greater level of difficulty over time (LIU-AMBROSE *et al.*, 2019).

Therefore, the muscle-strengthening approach plays a significant role in preventing falls in older patients, complementing the multifactorial assessment of fall risks carried

out by the physical therapist. The development of specific exercise programs, aimed at strengthening key muscles involved in postural stability and locomotion, is essential to reduce the risk of falls and promote the safety and quality of life of older people (TOMICIKI *et al.*, 2016; HOU & SUN, 2022; CHITTRAKUL *et al.*, 2020).

### **INCLUSION OF THE DUAL-TASK EXERCISE APPROACH IN THE MULTIFACTORIAL FALL RISK ASSESSMENT**

Dual-task exercises emerge as an innovative approach to preventing falls in older adults, being an important tool in the physical therapist's work. This approach aims to challenge not only the physical aspects but also the cognitive ones, promoting adaptations that improve the ability to maintain balance and stability in challenging situations (ABDO, J. S. *et al.*, 2020).

The physical therapist assesses the patient's ability to perform motor and cognitive activities simultaneously, identifying possible deficits and difficulties in performing these tasks. Performing dual-task activities involves performing a motor task, such as walking, simultaneously with a cognitive task, such as counting out loud or remembering a sequence of words (GISELE *et al.*, 2018; ABDO, J. S. *et al.*, 2020).

By challenging the sensorimotor and cognitive systems in an integrated way, dual-task exercises stimulate brain plasticity and promote adaptations that improve functional capacity and reduce the risk of falls (ABDO, J. S. *et al.*, 2020). This approach is especially relevant for the older person, as the ability to perform multiple tasks safely and effectively is essential for functional independence and quality of life, and may have additional benefits, such as improving cognitive function and reducing the risk of functional decline

(GISELE *et al.*, 2018).

However, it is important to highlight that the effectiveness of dual-task exercises in preventing falls may vary depending on several factors, including the complexity of the tasks involved, the patient's cognitive ability, and the frequency and duration of training (GISELE *et al.*, 2018).

Therefore, the physical therapist develops individualized dual-task exercise programs adapted to the specific needs of each patient, thus ensuring the effectiveness and safety of this approach in preventing falls in older adults. However, according to Abdo, J. S. *et al.* (2020), some studies are still in their infancy when relating the executive function of the older person to dual-task activity.

In this sense, dual-task exercises represent an important addition to the multifactorial fall risk assessment carried out by physical therapists, offering an integrated and comprehensive approach to promoting the safety and quality of life of older people (GISELE *et al.*, 2018 and ABDO, J. S. *et al.*, 2020). The inclusion of this approach in fall prevention programs can significantly contribute to reducing the risk of falls and improving the functionality and independence of older people.

### **INCLUSION OF THE HOME GUIDELINES APPROACH IN THE MULTIFACTORIAL FALL RISK ASSESSMENT**

Home guidance plays a critical role in preventing falls in older adults, representing an important component in the physical therapist's work. This approach aims to identify and correct potential risk factors in the home environment, in addition to promoting the adoption of safe behaviors in everyday life.

During the home assessment, possible obstacles and risky conditions in the patient's home environment are identified, such as

loose carpets, slippery surfaces, and lack of handrails. Based on this assessment, specific guidance is provided to modify and adapt the environment, making it safer and more accessible for older people (MATIAS *et al.*, 2019 and DOURADO JÚNIOR *et al.*, 2022).

In addition to environmental modifications, guidance is also offered on safe behaviors in everyday life, such as the use of appropriate footwear, the importance of keeping spaces free from obstacles, and the need to avoid high-risk activities, aiming to empower the older adult and their caregivers identify and minimize fall risk factors in their home environment (MATIAS *et al.*, 2019).

Providing personalized home guidance contributes to promoting a safe environment adapted to the individual needs of older adults, thus reducing the risk of falls and promoting independence and quality of life (DOURADO JÚNIOR *et al.*, 2022).

It is important to emphasize that home guidance must be adapted to the individual needs and characteristics of each patient, taking into account their physical, cognitive, and environmental limitations. Furthermore, the effective implementation of home guidance requires the active involvement of the patient, caregivers, and family members, thus ensuring adherence and sustainability of preventive measures (MATIAS *et al.*, 2019; DOURADO JÚNIOR *et al.*, 2022)

The guidance represents an essential component in the prevention of falls in older patients, complementing muscle strengthening approaches and dual-task exercises in the multifactorial fall risk assessment carried out by the physical therapist. (MATIAS *et al.*, 2019). By promoting a safe environment and providing guidance on everyday behaviors,

physical therapists play a fundamental role in reducing the risk of falls and promoting safety and quality of life for older people.

## FINAL CONSIDERATIONS

According to the studies analyzed, preventing falls in older adults is a crucial challenge in the area of gerontological health, given their prevalence and significant impacts on the quality of life and health of these individuals. This demands multifactorial and integrated approaches to mitigate risks and promote the safety and quality of life of this population.

In this context, physical therapy emerges as a fundamental tool in the preventive approach and management of these events.

This literature review sought to explore and integrate three important physical therapy approaches - muscle strengthening, dual-task exercises, and home guidance - in preventing falls in older people, with a focus on promoting functional independence and reducing the risk of injuries.

Furthermore, during the research, a limitation in the study was found, considering articles that addressed physical therapy interventions concerning home guidance, mainly recent studies or original articles.

However, there was a lack of research and studies on the effect of training with dual-task activity on preventing falls in older people, resulting in a limited number of articles on the topic. Therefore, future studies and research are suggested to expand in a more complete and specific way on the benefits of these activities on the risk factor for falls in older people.

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