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48

THE VIVIFRAIL PROGRAM AS A TOOL TO COMBAT FRAILTY SYNDROME: A RANDOMIZED CLINICAL TRIAL WITH INSTITUTIONALIZED ELDERLY PEOPLE

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Background: Aging is associated with a decline in functional capacity, which impacts the performance of activities of daily living (ADLs) that depend on factors such as strength, speed, endurance, coordination, flexibility, and balance. The decline in these factors increases frailty, leading to greater functional dependence in older adults. Institutionalized older adults, compared to community-dwelling older adults, are more vulnerable to frailty syndrome due to reduced participation in daily activities, sedentary behavior, and social isolation.
Objectives: To evaluate the effectiveness of the Vivifrail program in combating frailty syndrome in institutionalized older adults by analyzing the program's effects on improving balance and muscle function in this population.
Methods: The study is a randomized clinical trial conducted over a three-month period with two weekly sessions in long-term care facilities (LTCF). A total of 30 female volunteers over the age of 60 participated, forming two groups: the Vivifrail Group (VG), which underwent multicomponent training, and the Control Group (CG), which received usual care. The training followed the Vivifrail model, adjusted according to the participants' initial functional capacity, categorizing them as "frail," "pre-frail," or "independent." Participants were assessed before starting the intervention and four weeks after its completion.
Results: Thirty older women were included in the study, with a mean age of 86 years. There were no statistically significant differences between the groups at the pre-intervention stage. However, post-intervention analysis revealed statistically significant differences in frailty levels, with lower frailty scores in the intervention group. Notably, the intervention group showed an improvement of nearly two points in the SPPB assessment, an increase of approximately 5 kg/f in handgrip strength, and a reduction of nearly 5 seconds in the time required to complete the five-times sit-to-stand test.
Conclusion: In this sample, the Vivifrail program proved effective as a strategy for combating and preventing frailty syndrome, according to Fried's Frailty Phenotype.
Implications: The results suggest that the Vivifrail program can be implemented to reduce frailty and the risk of falls. Furthermore, its adoption in LTCFs may promote greater independence and quality of life for this population.
Keywords: Multicomponent Training, Elderly, Fragility

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49

IDENTIFICATION OF MUSCULOSKELETAL COMPLAINTS AND FUNCTIONAL PERFORMANCE IN FRAIL AND PRE-FRAIL ELDERLY PATIENTS IN HOSPITALIZATION

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Background: The elderly population has been growing rapidly, especially in developing countries like Brazil, presenting significant challenges for public health systems. The increase in the number of elderly individuals, along with decreasing fertility rates and rising comorbidities, has led to higher hospitalizations and mortality, particularly among those with frailty, sarcopenia, and musculoskeletal disorders. These conditions negatively impact functionality, mobility, and quality of life, making the elderly more vulnerable to severe complications. The implications of this aging trend for public health policies and hospital management are profound, requiring specialized care. Identifying clinical predictors related to frailty and musculoskeletal disorders is crucial to improving outcomes and personalizing care. This study aims to investigate the relationship between musculoskeletal complaints and physical performance in frail and pre-frail elderly individuals, contributing to the development of more effective rehabilitation strategies for this growing population.
Objectives: To associate functional performance, gait mechanics, respiratory function, and the history of musculoskeletal dysfunctions among frail and pre-frail elderly individuals in hospital admission.
Methods: Twenty-seven elderly individuals aged 60 or older, classified as frail or pre-frail according to Fried's phenotype, were evaluated. The methodology included gait tests, grip strength, the Medical Research Council scale, the Timed Up and Go test, the Short Physical Performance Battery, the 10-meter walk test, kinematic gait assessment, and inspiratory muscle function. Additionally, pain levels and data from functional capacity and performance questionnaires, such as WOMAC, the Health Assessment Questionnaire, and the Lequesne Questionnaire, were analyzed. Statistical analysis was performed using Pearson's correlation test, with a significance level of $p < 0.05$ to determine correlations between pain levels, questionnaire scores, and functional capacity tests.
Results: The data analysis revealed no significant correlations between the variables, refuting the study's initial hypothesis. The absence of association between functional capacity, length of hospitalization, and musculoskeletal complaints may be explained by the fact that frail elderly individuals have multiple impairments, such as sarcopenia, immune system alterations, and comorbidities, making the musculoskeletal impact a secondary factor in their health and recovery.
Conclusion: According to the findings of this study, functional performance, gait mechanics, and respiratory function are not associated with the history of musculoskeletal dysfunctions among frail and pre-frail elderly individuals in hospital admission. It is suggested that the functional impairment in frail individuals is influenced by multidimensional factors, with musculoskeletal complaints being a lesser factor compared to other health issues affecting these individuals.
Implications: The results of this study highlight the importance of a multidimensional approach in physical therapy for frail and pre-frail elderly individuals, considering factors such as sarcopenia and comorbidities. The analysis reinforces the relevance of personalizing care in hospital management and the need for comprehensive assessments in the training of physical therapists. Additionally, the findings contribute to the understanding of how rehabilitation

programs can be more effective by addressing frailty in an interdisciplinary manner.
Keywords: Aging, Frailty, Functional Capacity

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50

EFFECTS OF PHYSICAL EXERCISE AND DUAL-TASK COGNITIVE STIMULATION ON COGNITIVE DECLINE IN TYPE 2 DIABETES: AN INTEGRATIVE REVIEW

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Background: Type 2 Diabetes Mellitus (T2DM) is associated with cognitive decline in older adults due to metabolic, neuroinflammatory, and vascular alterations. These changes contribute to functional impairment, increasing the risk of falls and dependence on daily activities. Effective interventions are necessary to mitigate these effects and promote healthy aging. Physical exercise, particularly resistance training, and dual-task cognitive stimulation have been proposed as promising strategies to enhance cognitive function and functional independence in this population.
Objectives: This study aimed to analyze the effects of physical exercise and dual-task cognitive stimulation on cognitive decline in individuals with T2DM through an integrative review of the literature.
Methods: An integrative review was conducted by searching PubMed, SciELO, LILACS, Web of Science, and Scopus databases. Original studies, systematic reviews, and meta-analyses published between 2005 and 2025 were included. The selected studies investigated interventions involving physical exercise and dual-task cognitive stimulation targeting cognitive decline in individuals with T2DM. Studies were analyzed regarding methodological characteristics, interventions, and cognitive outcomes.
Results: The findings indicate that insulin resistance, neuroinflammation, and vascular dysfunction contribute to cognitive decline in individuals with T2DM. Physical exercise, especially resistance training, and dual-task interventions have demonstrated benefits in neural plasticity, cerebral metabolism, and cognitive function. Improvements were observed in executive functions, memory, attention, balance, and motor coordination, which are crucial for functional independence and fall prevention. However, the methodological heterogeneity across studies and the limited number of longitudinal clinical trials highlight the need for further research.
Conclusion: Evidence suggests that physical exercise and dual-task cognitive stimulation are effective in mitigating cognitive decline in older adults with T2DM. These interventions contribute to glycemic control, reduce neuroinflammation, and improve cognitive and motor functions. Future studies should focus on high-quality, longitudinal clinical trials to establish standardized protocols and confirm long-term benefits.
Implications: The incorporation of resistance training and dual-task cognitive stimulation into rehabilitation programs for individuals with T2DM may enhance cognitive and functional outcomes, promoting independence and reducing the risk of falls. Further research is needed to strengthen evidence-based practice in this field.
Keywords: Type 2 Diabetes Mellitus, Cognitive Decline, Rehabilitation

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51

EXERCISE INTERVENTIONS FOR GAIT IN OLDER ADULTS WITH OSTEOPOROSIS: A NARRATIVE REVIEW

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Background: Older adults with osteoporosis may exhibit impaired gait due to structural and biomechanical changes and, in addition to age-related changes, such as reduced muscle mass and strength, balance impairments and reduced motor control and cognitive function, they are more susceptible to falls and fractures. Therefore, interventions focused on gait in this population are important for maintaining functional independence and quality of life.
Objectives: To organize scientific literature from the last 10 years on exercises designed to improve gait parameters in older adults with osteoporosis.
Methods: The Health Sciences Descriptors (DeCS/MeSH) used to search for articles were “osteoporosis”, “exercise”, “gait” and “aged” in the Cochrane Library and PubMed databases as well as in the Web of Science database via the CAPES Portal. Articles published in the last 10 years in English that studied the effects of exercise on gait in older adults with osteoporosis were included. After reviewing the titles and abstracts, review articles, meta-analyses, case reports, pilot studies, cross-sectional studies, duplicate articles, restricted access articles and those not directly responding to the objectives of this review were excluded.
Results: After the articles search and application of inclusion and exclusion criteria, 4 articles were analyzed for this review. It is important to emphasize that 2 articles provided follow-up data from the other 2 original studies included in this review, presenting the long-term effects of the interventions performed. One of the interventions consisted of balance training associated with resistance training for 12 weeks, with sessions twice a week. The other intervention involved dual-task and multi-task balance training with and without the addition of walking for at least 30 minutes, also for 12 weeks, three sessions per week. It is noteworthy that most of the study sample consisted of elderly women with osteoporosis. Balance training associated with resistance training did not provide significant effects in the gait speed of older women with osteoporosis immediately after the intervention or three months after the intervention when compared with the control group. However, balance training with dual-task and multi-task exercises, with and without the addition of walking, promoted improvements in the preferred walking speed and fast walking speed of elderly individuals in the short term, with the benefits remaining for six months after the intervention.
Conclusion: Balance training is an intervention of interest for studying the improvement of the gait of older adults with osteoporosis, especially when combined with multi-task training involving cognitive and/or motor demands. Further research is suggested to