EFFECT OF EXERCISES IN PREVENTION AND REDUCTION OF FALL AND MAINTAINING FITNESS IN THE ELDERLY- A REVIEW

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Abstract

Even though it is widely recognized as one of the most important aspects of life, many people tend to ignore it. For certain individuals, the phrase "physical activity" depletes them, therefore they steer clear of it. However, many people are unaware of the benefits of exercise alone. It aids in the prevention of many chronic illnesses in addition to aiding in maintaining physical fitness. It is always better for an individual to change their way of life to take care of oneself. People need to understand the benefits of exercise, and once they do, they'll start living a healthier lifestyle.

Keywords: Elderly People, Exercise, Injury

Introduction:

Genetics, lifestyle choices, and chronic diseases are just a few of the many factors that interact during the complex aging process to influence how we age. Aging reduces various physiological abilities, including flexibility, neuromuscular coordination, muscle strength, and aerobic capacity, impairing physical performance. It also causes a fall. Falls-related injuries in elderly people require hospitalization five times more frequently than other types of injuries.

By delivering oxygen and nutrients to the tissues and supporting healthy circulation, exercise can help increase energy. In this way, people will have more energy to finish all of their responsibilities. Sometimes it's hard for people to interact socially. They don't perceive any motivation to step outside of their comfort zone and engage in any fun activities. In this case, exercising might be used as a justification for social interaction. You can have a more memorable time and day by meeting new individuals at the gym. Sports, hiking, climbing, dancing, and backpacking are a few examples of easy physical activities.

Exercising means moving around and getting your heart rate higher than it is at rest. It is crucial for maintaining physical as well as mental health. A person's body and mind can benefit greatly from regular exercise, regardless of the type of activity they choose. Low-impact activities like walking can have similar benefits as high-intensity ones like weight training or riding uphill. Regular exercise, regardless of intensity, is crucial for preventing several illnesses and other health problems. Cardiovascular disease and an increasing number of other chronic diseases, such as diabetes mellitus, cancer (breast and colon), obesity, hypertension, disorders of the bones and joints (osteoporosis and osteoarthritis), and depression, are modifiable risk factors associated with physical inactivity.[1-13] Out of all the modifiable risk factors, physical inactivity is more common than the others.[14]

The probability of dying young will go down with increasing physical fitness and up with decreasing physical fitness. It seems that the impact is gradable, meaning that even minor increases in physical fitness are linked to a noticeable decrease in risk. According to one study, the people who were physically fittest at baseline and who continued to get fitter over time had the lowest chance of dying young. Aim and objective: In this study, we are looking at how much exercise helps to prevent falls. By protecting elderly people from falls, we also want to protect people from other fatal injuries.

Material and Method

Between 2012 and 2023, an electronic database, title, and abstract search was conducted using Google Scholar, PubMed, Physiotherapy Evidence Database (PEDro), and Cochrane databases. The search terms included balance, gait, fall risk, proprioception, demand management, postural stability, balance training, and walking training.Studies were included that investigated characteristics linked to gait and balance features, as well as the outcomes of training patients in these areas alone or in conjunction with other forms of therapy.This reserch work is ethically approved by ethical committee (BMU/FTP/205).

Aim and objective: In this study, we are looking at how much exercise helps to prevent falls. By protecting elderly people from falls, we also want to protect people from other fatal injuries.
Material and Method: A title and abstract search of an electronic database was carried out using Google Scholar, Pub Med, the Physiotherapy Evidence Database, and the Cochrane Database. The review was conducted using only full-text publications, and it was double-checked.

Effects on the cardiovascular system

Exercise has been shown to have a favorable effect on blood pressure, with an approximate 4–9 mmHg effect attributed to exercise, according to Chobanian et al. (2003). Exercise intensity, duration, and kind all influence the process via which blood pressure is lowered; nonetheless, it is generally accepted that peripheral resistance and sympathetic nervous system suppression are the main causes of this reduction. Exercise-induced hypertension is an independent risk factor for cardiovascular and cerebrovascular disorders, and it has a 5–10 times higher likelihood of shifting to high blood pressure in the future.[19-22]

Compared to those who stay inactive, sedentary people who increase their physical fitness have a lower risk of dying from cardiovascular disease and other causes. An abundance of evidence currently shows that exercise and physical activity can prevent disease and postpone the aging population's deterioration in function.

Effects of exercises on the musculoskeletal system

Aging muscles experience a number of morphological changes, which might have an impact on muscle strength and performance. Marques[23] and Mangani[24] investigated the effects of aerobic vs resistance exercise on muscle strength and physical performance in older adults. Their findings indicated that aerobic exercise increases physical performance, such as gait speed and balance, but resistance exercise is required to improve muscle strength. Randomized controlled trials of combined resistance and aerobic exercise regimens showed gains in both physical performance and muscular strength.[25-26]

Effect of exercises on mental health

According to research, physical activity can help avoid depression, anxiety, and stress disorders, making it an effective supplemental intervention for psychological problems[27].

In China, academics have generally confirmed that exercise benefits mental health. Even during the COVID-19 outbreak, physical activity was found to benefit individual mental health[28]. There is sufficient data to suggest that physical exercise promotes mental health and well-being in both students and the elderly [29–31]. Furthermore, multiple studies have shown that exercise can dramatically reduce patients' emotions of melancholy and worry, increase life satisfaction, slow cognitive decline, and improve mental health. Tanvi Bhatt, Yiru Wang, Shuaijie Wang, and Lakshmi Kannan (2021) examined the effects of perturbation training on the contextual interference and generalization of encountering a novel opposing perturbation.

They found that perturbation training with mixed opposing conditions may reduce the reliance on feedforward adjustments but enhance the feedback control, which would better prepare older adults to prevent falls in a more complex, highly unpredictable situation that includes realistic environmental fall-risk factors. Leila Alizadehsaravi ID, Sjoerd M. Bruijn, Wouter Muijres, Ruud A. J. Koster, and Jaap H. van Dineen (2022) conducted an experimental study to find the improvement in gait stability in older adults after ten sessions of standing balance training. The study found that in older populations the neural mechanisms are still adaptable and acquired skills can be transferred from standing to walking. Junekyung Lee, Min Ho Chun, and Jiyeon Lee (2023) did a randomized controlled pilot study to find the effect of a gait and balance training program on an unstable mudflat surface in older adults. They concluded that the muscle strength and balance of older people could be improved with gait and balance training on an unstable mudflat surface.

Result and Discussion

This study examined the current evidence for exercise therapy treatment in improving balance and gait in older persons in order to prevent falls and build muscle strength. This review sought to synthesize the impact of exercise therapy in improving balance and gait in elderly people. This review found that therapeutic activities improved gait and balance, hence preventing falls. All of the research included in this review looked at the post-treatment benefits of exercise, which had a good influence on older people' fall prevention and muscle adults' lifestyle.

Conclusion: These studies show that exercise intervention has a huge and significant impact on reducing the risk of falls in the elderly. In conclusion, this research supports earlier findings that exercise helps older persons avoid falling. Overall, the majority of included studies demonstrated that various exercise therapies significantly improved balance and gait function which will help to prevent falls and overall condition of older adults.

Result and Conclusion: High-confidence evidence is provided in this updated study, which shows that properly planned exercise programs lower the rate of falls among elderly residents of the community by about 25%. Global health and fitness providers, as well as social support networks, face an urgent challenge in expanding the provision and size of these programs.

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