

The Role of Telerehabilitation for Fall Risk in the Elderly



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Abstract

In the last decade, population aging has been increasing all over the world. There are many age-related changes that cause loss of balance in the geriatric individual. Falls cause loss of mobility and independence in the elderly, prolong the duration of care, and increase the need for medical care and treatment. Telerehabilitation provides an invaluable tool for the implementation of activity programs aimed at keeping the elderly as active as possible and thus preventing the loss of autonomy and independence, reducing the risk of falls.

Keywords: Falls; Telerehabilitation; Exercise; Elderly

Aging and Balance

Aging, which is a natural process, causes an irreversible decrease in physical, functional, mental and psychosocial functions as a result of morphological, physiological and pathological progressive changes [1]. In old age, whose demographic limit is accepted as 65 years, functional losses begin, and special care is needed. Old age is a period when performance decreases and dependency increases [2]. With aging, there are changes in postural control, vision, peripheral and vestibular sense, reaction time, and muscle strength.

The tendency to fall, which increases with aging, is a reflection of a significant decrease in balance control in the elderly [3]. The fact that the frequency of falls increases significantly with age shows the relationship between falls and aging. It has been reported that one in three elderly falls each year [4]. As a result of falls, it causes loss of mobility and independence in 20-30% of elderly individuals and serious injuries in 10%, prolonging the duration of care and increasing the need for medical care and treatment [5].

Falls cause injury, fracture, fear of falling again, and loss of function, and are even shown as one of the main causes of death in the elderly [6]. Preventing the factors that predispose falls in the elderly will increase the quality of life and reduce health-related costs.

Telerehabilitation

Telerehabilitation is the transfer of rehabilitation services of individuals to treatment units far from the city center or to the patient's home by making use of electronic information and communication technology, and thus the rehabilitation processes are carried out [7]. With advances in information and communication technology, new care models such as telerehabilitation can be an alternative, efficient and cost-effective method to provide rehabilitation. Telerehabilitation has been proposed as a way to increase accessibility and continuity of care with possible time and cost savings for individuals with disabilities and those in need of health care [8,9]. It has also been an important way to provide remote access to people to prevent transmission during the pandemic period. Telerehabilitation was developed to care for inpatients, to reduce hospital stays after the acute phase of an illness, to transport them home, and to reduce costs for both patients and healthcare providers.

With this system, benefits such as continuity in patient education and rehabilitation, monitoring the progress in rehabilitation, making changes in the treatment program, saving the time and expenditure of individuals on the road can be obtained [7]. In addition, telerehabilitation is an alternative to traditional face-to-face interventions that provides equal access for rural individuals, the physically disabled, the economically

disadvantaged and the elderly, and can improve the quality of rehabilitation by increasing patient participation and satisfaction with treatment [10,11]. Telerehabilitation provides support for the treatment of numerous clinical conditions, including age-related comorbidities. In this way, it facilitates patients' access to care and prevents unnecessary delays in care. It also encourages collaboration within the healthcare team and provides faster and easier access to healthcare professionals [11].

Are Telerehabilitation Programs Effective in Falling?

Studies on the benefits of remote rehabilitation programs with video technologies are increasing day by day [12,13]. However, few studies have shown how effective telerehabilitation is in preventing falls. The World Health Organization considers falling as one of the most important health problems of old age [14]. This situation both impairs the quality of life of the elderly and creates a great burden on the health budgets of countries. However, studies show that strengthening and balance exercises are effective in reducing the risk of falling in the elderly [15,16].

However, it has been emphasized that exercise programs should be more than three hours a week in order to prevent falls and achieve the best effect [15]. Telerehabilitation can be an effective way of providing strength and balance exercises by increasing the sustainability of rehabilitation in the elderly who have difficulties in reaching health institutions for various reasons. Hawley-Hague et al., investigated the usability and acceptability of teleconferencing in fall rehabilitation and showed that it is an acceptable method for the elderly, patients and healthcare professionals if internet infrastructure is available [17].

Bernocchi et al. [18] applied home-based telerehabilitation for 6 months to the elderly with a history of falling or at high risk of falling. An individualized program including strength, balance and walking exercises was administered by a physiotherapist. As a result, it was shown that while falling events continued over time in the control group, there was a significant decrease in the falling tendency in the study group from the 2nd month. In addition, it was observed that there were significant improvements in both the risk of falling and problems related to balance in the study group [18].

Similarly, Stonsaovapak et al. [19] found that after the 8-week tele-exercise program, the physical performance of healthy older adults increased, and the risk of falls decreased compared to their initial assessment [19]. Tekin and Korkmaz's study showed that calisthenic exercises performed through telerehabilitation significantly improved the fear of falling in older adults and that telerehabilitation technologies could be a useful method for elderly people living in rural areas who have difficult access to physiotherapy and rehabilitation centers [20].

In addition to many exercises against the risk of falling, yoga has the potential to improve balance, improve stability and

mobility, and prevent falls. Yoga can also shift focus from external physicality to more functional or internal aspects of the body by increasing body awareness, uniquely affecting physical self-esteem, facilitating positive body image. Such improvements have been shown to support intrinsic motivation for physical activity. Although there is little research on the effect of yoga on falls [21], research shows that older people view yoga as an acceptable and beneficial form of exercise and an appropriate fall prevention strategy [22,23].

It showed that an online yoga program for older adults performed similarly to a face-to-face program for the majority of participants and even increased value for some participants. The study shows that after the first studio-based yoga classes, a hybrid model of online classes can provide the best value for participants as it increases access while reducing some of the most obvious concerns about communication and effective observation and correction in tele yoga [24]. Considering the studies showing positive results, public health and equal opportunity for everyone, although telerehabilitation is an accessible and useful method in today's conditions, more studies are needed in terms of telerehabilitation to reduce the risk of falls and prevent falls in the elderly.

Conclusions

It is important to reduce the risk of falling, which increases the burden on health services in the elderly. In order to reduce the risk of falls among older adults caused by inactivity, practices such as telerehabilitation, virtual reality and video-based home exercises that can help the elderly exercise in the home environment should be expanded. Exercises performed in the environment of the elderly can make them feel more comfortable. These applications also eliminate the transfer difficulty and facilitate the continuation of the exercise. Telerehabilitation is an easy, inexpensive and accessible method to protect the health of both the elderly and the community, as easy applications are developed technologically suitable for the use of the elderly and there are no infrastructure problems.

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