

A Mini-Review: Rehabilitation Challenges and Strategies in the Geriatric Population

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Abstract

As global life expectancy continues to rise, the rehabilitation of older adults has become a pressing concern in modern healthcare. The objective of this review is to synthesize current knowledge on geriatric rehabilitation and identify effective approaches to improve outcomes in this population. Frailty and sarcopenia are major predictors of poor rehabilitation outcomes and are influenced by biological, social and behavioral factors. Cognitive decline and delirium significantly affect rehabilitation potential, especially in hospitalized patients. Early mobilization, nutritional support, resistance training and interdisciplinary care are key to preserving function and quality of life. This review emphasizes the importance of early identification and targeted intervention to address age-related impairments. Future research should focus on scalable interventions and integrating novel therapies to enhance geriatric rehabilitation practices.

Keywords: Geriatric rehabilitation; Frailty; Sarcopenia; Aging; Cognitive decline

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Introduction

The aging population poses complex challenges to healthcare systems, particularly in the realm of rehabilitation. Although aging is a natural process, it brings about a range of physiologic, psychological and functional changes that require targeted and adaptive approaches in care. The main goal of geriatric rehabilitation is maintaining function in older adults in spite of physical impairment [1]. Older adults often experience a combination of impairments, including muscle atrophy, cognitive decline, sensory deficits and psychological vulnerabilities, that complicate the rehabilitation process. This mini-review explores the major factors influencing geriatric rehabilitation and highlights current strategies and future directions in this critical area.

Frailty and Functional Decline

A key concern in geriatric rehabilitation is frailty, which reflects reduced physiologic reserve and increased vulnerability to stressors [2]. The widely used Fried criteria define frailty by the presence of at least three of the following: unintentional weight loss, fatigue, low grip strength, slow walking speed and low physical activity [3]. Frailty is associated with increased risk of falls, hospitalization, disability and mortality [4]. Frailty presents a major challenge to rehabilitation by limiting the patient's capacity to participate in therapy, reducing their ability to recover functional independence and increasing the likelihood of complications during the recovery process [5].

Sarcopenia and Muscular Decline

Sarcopenia, the age-related loss of muscle mass and strength, is a major contributor to challenges in geriatric rehabilitation. It typically begins after age 50 and accelerates with age, leading to mobility problems and poor rehabilitation outcomes. Causes include hormonal changes, gut microbiota alteration, inactivity and inadequate nutrition [6,7]. Sarcopenia

hampers rehabilitation by reducing patients' strength, endurance and balance, thereby limiting their ability to participate in and benefit from therapeutic interventions aimed at restoring function and independence.

Cognitive Decline and Delirium

Aging is the primary risk factor for cognitive impairment and Alzheimer's disease, conditions that significantly influence rehabilitation potential [8]. In hospital settings, acute cognitive changes, particularly delirium, are common and often reversible. Delirium may be triggered by infections, surgery, sleep disturbances and medications. It is characterized by sudden confusion, inattention and altered consciousness. Key strategies for management include early mobilization, reduction in sedative use, proper pain control and avoidance of restraints [9]. If not recognized and prevented, delirium can accelerate long-term cognitive decline and significantly impede rehabilitation for the primary condition that led to hospitalization.

Rehabilitation Strategies

Effective geriatric rehabilitation requires early intervention and a focus on preventing of late-life disabilities [10]. Early mobilization and walking programs, during hospitalization, has proven benefits in decreasing length of stay but may be limited by staffing or safety concerns. Prevention strategies include resistance exercise, nutritional support, cognitive stimulation and assistive technologies. Emerging research highlights the potential of targeting molecular pathways involved in aging to reduce frailty, muscle loss and cognitive decline. Nutritional and pharmacologic interventions that influence these pathways may offer promising strategies to enhance rehabilitation outcomes in older adults [11-14].

Conclusion

Rehabilitation in older adults is complex but essential for preserving quality of life. By addressing frailty, sarcopenia and cognitive decline through targeted interventions, healthcare providers can support healthy aging and reduce the burden of disability in older populations.

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