

# Balance Problems and Fall Risks in the Elderly



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## KEYWORDS

• Balance • Falls • Older adults • Risk factors

## KEY POINTS

- Fall prevention strategies are important interventions in all elderly individuals.
- Prevention of falls can decrease morbidity and mortality in the elderly.
- Evaluation and effective intervention strategies are generally multifactorial.

## INTRODUCTION

### *Demographics and Scope of the Problem*

Falls are an important cause of morbidity and mortality and the leading cause of fatal and nonfatal injuries among older adults. According to data obtained from the Behavioral Risk Factor Surveillance System survey and analyzed by the Centers for Disease Control and Prevention, in 2014, approximately 28.7% of older adults reported falling at least once in the preceding 12 months, resulting in an estimated 29.0 million falls and 7.0 million fall injuries in the United States.<sup>1</sup> Injury severity varies but 2.8 million were treated in emergency departments for fall-related injuries and approximately 800,000 of these individuals were subsequently hospitalized. Of those who fell, 37.5% reported at least one fall that required medical treatment or restricted activity for at least 1 day.<sup>1</sup> Approximately 27,000 older adults died because of falls during that same period.

Women are more likely to report falling and to report a fall injury than men. The percentage of older adults who fall increases with age, from 26.7% among persons aged 65 to 74 years, to 29.8% among persons aged 75 to 84 years, to 36.5% among persons aged greater than or equal to 85 years.<sup>2</sup> It is generally known that falling in the elderly is usually caused by various factors. Therefore, multifactorial interventions may be more effective than any one single intervention.

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## PATIENT ASSESSMENT

### *Conditions*

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#### ***Gait and balance disorders***

Gait and balance disorders are among the most common causes of falls in older adults and often lead to injury, disability, loss of independence, and limitations in quality of life. Good balance is likely a rapid synergistic interaction between various physiologic and cognitive elements that allow rapid and precise response to a perturbation.<sup>3</sup> It is a remarkably complex relationship between systems that allow for rapid and precise changes to prevent a fall (concept of reaction time). Gait and balance disorders are usually multifactorial in origin and require a comprehensive assessment to determine contributing factors and targeted interventions. Most changes in gait occurring in older adults are related to underlying medical conditions, particularly as conditions increase in severity, and should not be viewed as merely an inevitable consequence of aging. Early identification of gait and balance disorders and appropriate intervention may prevent dysfunction and loss of independence.<sup>4</sup> The prevalence of abnormal gait increases with age and is higher in persons in the acute hospital setting and in those living in long-term care facilities.

#### ***Cognitive impairment***

Neurocognitive functions powerfully influence fall risk.<sup>5</sup> Cognitive impairment, regardless of the diagnosis, is a risk factor for falls.<sup>6</sup> Cognitively impaired adults show an increased risk of falls compared with their age-matched cognitively intact peers.<sup>7</sup> The increasing incidence of various forms of dementia and degrees of cognitive impairment in older adults has increased the prevalence of falls in this population.<sup>8</sup>

Early fall prevention in adults with mild cognitive problems follows a strong rationale. This population is at high risk of functional decline and generally has significant comorbidities. Falls can contribute to this decline through injury, hospital admission, loss of confidence, and deconditioning from reduced activity. Any intervention that can reduce the risk of future falls at an early stage has the potential to maintain function and activity level, thus reducing the progression into disability and dependency. By helping people to adopt techniques to stay healthy (ie, strength and balance exercises) and adaptations that reduce risk (ie, appropriate mobility aids, home hazard reduction) at an early stage of cognitive impairment, these practices could theoretically help as cognitive decline progresses.<sup>8</sup> Cognitive assessment is strongly advised but there is no clear guidance on how to respond to individuals with cognitive impairment because recommendations and evidence for effective fall prevention interventions for older adults with cognitive impairment are not well documented.<sup>9</sup>

#### ***Musculoskeletal conditions and pain***

Persistent pain, impaired mobility and function, and reduced quality of life are the most common experiences associated with musculoskeletal conditions. The prevalence and impact of musculoskeletal conditions increase with aging. Population growth, aging, and sedentary lifestyles, particularly in developing countries, have created a crisis for population health that requires a multisystem response with musculoskeletal health services as a critical component. Globally, there is an emphasis on maintaining an active lifestyle to fight numerous ailments associated with sedentary habits. However, painful musculoskeletal conditions profoundly limit the ability of people to make these lifestyle changes. A strong relationship exists between painful musculoskeletal conditions and a reduced capacity to engage in physical activity resulting in functional decline, frailty, reduced well-being, and loss of independence. In a group of community-dwelling adults older than 88 years in the Netherlands, joint pain was

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