

# Falls Risk in Older Adults with Type 2 Diabetes



Aaron I. Vinik, MD, PhD<sup>a,\*</sup>, Etta J. Vinik, MA(Ed)<sup>a</sup>, Sheri R. Colberg, PhD<sup>b</sup>, Steven Morrison, PhD<sup>c</sup>

## KEYWORDS

• Falls • Type 2 diabetes • Older adults • Risk

## KEY POINTS

- Falls are a major health issue for older adults, leading to adverse events and even death.
- Older persons with type 2 diabetes are at an increased risk of falling compared with healthy adults of a similar age.
- More than 400 factors are associated with falls risk, making identification and targeting of key factors to prevent falls problematic.
- In addition to age- and diabetes-related factors like diminished strength and sensation (caused by peripheral neuropathy), declines in cognitive function and use of multiple prescription medications (polypharmacy) are leading reasons for increased risk of falling.
- Designing specific interventions to target physiologic functions will produce the greatest benefit for reducing falls in older persons with diabetes.

## INTRODUCTION

The older adult is often faced with a myriad of health-related issues, and problems with falling is one major concern for persons older than 65 years. The outcomes of a fall are many, extending from short-term health problems (eg, lacerations, fractures, and traumatic brain injury) to long-term consequences (eg, declines in muscle strength, physical activity, increased fatigue, and heightened fear of falling).<sup>1</sup> In 2010, the Centers for Disease Control reported that 2.3 million older adults were treated in emergency departments for nonfatal fall-related injuries. Furthermore, falls and any fall-related consequences have been reported to be the leading cause of injury-related death and hospitalization in adults older than 65 years; a staggering one-third of persons this age who fall are likely to suffer one of these adverse events within a given year. Given the range of health issues that can arise following a fall, prevention should be the first course of action.

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<sup>a</sup> Strelitz Diabetes Center, Eastern Virginia Medical School, 855 W Brambleton Avenue, Norfolk, VA 23510, USA; <sup>b</sup> Human Movement Sciences Department, Old Dominion University, 5115 Hampton Boulevard, Norfolk, VA 23529, USA; <sup>c</sup> School of Physical Therapy and Athletic Training, Old Dominion University, 5115 Hampton Boulevard, Norfolk, VA 23529, USA

\* Corresponding author.

E-mail address: [vinikai@evms.edu](mailto:vinikai@evms.edu)

The key to preventing such an adverse event is the identification of persons at risk and implementing the appropriate intervention. This approach requires recognizing those variables or elements that can lead to an increased risk of falling. However, despite our understanding of the seriousness of falls and the high cost of medical care, identifying a few critical factors that are strongly predictive of falls in high-risk populations is lacking, partly because more than 400 are linked with falls in adult populations.<sup>2</sup> Even something as simple as an individual's perception of threat around them when they move (often referred to as a *fear of falling*) can be a significant health issue. Nearly 13 million (36%) older American adults (greater than 65 years of age) have been found to be moderately or very afraid of falling, illustrating that developing a fear of suffering an adverse event is strongly linked with actual falls.<sup>3</sup>

## THE CAUSES OF FALLS

Identification of a manageable number of key risk factors for falls is not a trivial or simple undertaking. Some variables identified as significant provide little direct benefit to the older person who suffers a fall and/or the clinician because they cannot be easily implemented into a meaningful practice. For example, the most powerful predictor of a fall is a previous fall; the likelihood of a person falling in the future increases dramatically if he or she has suffered such an event in the past.<sup>2,4</sup> However, this variable does not identify the person who has not fallen but may be at an increased risk. This measure also provides little guidance or detail about the causes of prior falls. If the ultimate aim is to intervene before such an event occurs, then the use of previous falls history is of limited use as it provides no direction regarding identification of risk factors for falls. Ideally, the best strategy is to identify those persons at risk before a fall and intervene in a meaningful fashion to reduce their risk of falling.

## RISK OF FALLING IS INCREASED FOR OLDER ADULTS WITH TYPE 2 DIABETES

- Persons with type 2 diabetes are at increased risk of falling compared with healthy adults of a similar age. A combination of age (>65 years) and diabetes increases the risk of falling 17-fold.<sup>5,6</sup>
- In addition to age- and diabetes-related factors like diminished sensation (caused by neuropathy), declines in cognitive function, and use of multiple prescription medications (polypharmacy) (see the article by Peron and colleagues elsewhere in this issue that also highlights the problem and its consequences for older persons with type 2 Diabetes Mellitus) are leading reasons for increased risk.<sup>2,7,8</sup>

The likelihood of suffering a fall increases dramatically with increasing age and/or the emergence of type 2 diabetes, with the risk being increased significantly by the presence of diabetes alone.<sup>2,9-15</sup> Older persons with diabetes must contend with both age-related declines in balance control, muscle strength (sarcopenia), walking ability, and proprioception<sup>7,8,16-18</sup> and health-related issues associated with diabetes.<sup>19-22</sup> Indeed, the additional range of potential risk factors in anyone with diabetes is quite extensive, covering nerve-related damage or impairment (neuropathy), visual deficits, loss of coordination, cognitive impairment, autonomic dysfunction with orthostatic hypotension, tachycardia, bradycardia, pain, poor lower body function, high body mass index, cardiovascular syncope, vestibular dysfunction, frontal cortex dysfunction, and use of various medications, all of which may interact and can have an additive effect.<sup>2,17,18,23,24</sup> Thus, the older person with diabetes typically has a significantly greater risk of suffering a fall when compared with a healthy adult of similar

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