



# The Podiatrist's Role in Addressing Fall Risk Among a Growing Diabetic/Aging Population

Proper assessment and treatment can reduce falls in these patients.

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**Disclaimer:** Dr. Moore is the developer of the Moore Balance Brace and the Moore Balance Shoe. He is a consultant and lecturer for OHI.

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Falls have become an increasingly important public health concern among the elderly, even more so with our diabetic aging population. Over 30,000 adults aged  $\geq 65$  years die every year as a result of falling.<sup>1</sup> Increasing evidence suggests an important role for diabetic peripheral neuropathy in the development of altered mobility and functional disability through impaired balance and posture. The loss of stability and balance among these patients is often progressive, due to an accumulation or worsening of impairments. As impairment in mobility predicts future physical disability, thus highlighting the importance of recognizing early signs of impairment, such as reduced postural stability.

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with a number of chronic conditions including diabetes, and neurological and autoimmune diseases.<sup>1,3</sup> Peripheral

neuropathy associated with diabetes is the most common cause of sensory perception loss, affecting up to 50% of individuals with the condition.<sup>4</sup>

Altered somatosensory input can have major implications regarding postural control. At the feet, reduced information about the supporting surface or altered awareness of lower limb positioning can impair the ability to successfully respond to threats to balance. These sensory changes, commonly observed in aging populations, can be accelerated in adults with pathological loss of foot sensation, increasing their risk of falls and injury.<sup>5</sup>

#### Assessment of Balance Deficits

Assessment of balance deficits in the podiatric office has been strongly advocated by this author among others over the last decade. There are innumerable opportunities for the podiatric physician to be part of a plan for rehabilitation and lower extremity intervention

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for patients with peripheral neuropathy and balance deficits. Because of the significant multi-factorial relation between diabetes and disability, this suggests that patients with impairments in strength and balance may benefit from interventions targeting these conditions.

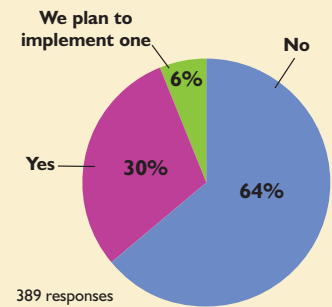
Podiatric interventions including use of footwear, ankle-foot orthoses, physical therapy, and other modalities have shown more than promising results in the medical literature. Increasing awareness of disability, screening of risk factors and use of interventions to reduce or prevent disability should become a health priority for treating people with diabetes.

Falls among our patient population with sensory perception loss present a major public health issue. In people with diabetes, many of whom present with peripheral neuropathy, up to 39% of those aged over 65 years and 35% of those above 55 years are reported to have fallen each year. While pathological sensory loss cannot be reversed, one potential modifiable external fall risk factor is the interface between the foot or ankle and supporting surface. Foot and ankle

## Majority of DPM Practices Lack Fall Prevention Protocol

**S**ixty-four percent of podiatrists recently surveyed have no fall prevention protocol, according to *Podiatry Management's* exclusive Quick Poll survey results. Of the remaining doctors, 30 percent said they have a protocol, while 6 percent said that they plan to implement a fall prevention protocol in their practice. *PM* Quick Polls and their results can be accessed on [podiatrym.com](http://podiatrym.com). •

### Does your practice have a fall prevention protocol?



### AFOs and Balance

Recently, Wang, et al. examined the effectiveness of custom ankle foot orthoses (AFO) in relationship to balance. The author's findings demonstrated that postural stability was improved when wearing the custom AFO, and it was further noted that increased stability did not limit functional reach distance nor timed up and go completion times. Moreover, the study suggests that along with improved balance performance at

navigating in complex and changing environments and to conform one's gait to different task demands. Normal walking requires sensory input to adapt and modify motor patterns and muscle output to carry out the desired task without falling or losing balance.<sup>12</sup>

Herein lies the perfect opportunity for the podiatric physician. Who better to be involved in correcting abnormal mechanics to enhance balance and mobility?

While the fit is natural and overwhelmingly positive for podiatric medicine, few have stepped up to implement a protocol for their practices.

### Conclusion

Falls among older adults are typically caused by diverse, interacting, risk factors that require the attention of an inter-professional healthcare team.<sup>13</sup> The National Council on Fall Risk Awareness and Prevention (NCFRAP) was formed in 2018 to bring attention to the role of the lower extremity and balance. The Council recognizes that attention to foot and ankle problems, including those that contribute to gait and balance difficulties, is essential to the multifactorial assessment necessary to successfully mitigate fall risk in our growing population of older adults. The Council is committed to fostering screening of and management of foot and ankle problems among diverse healthcare professionals. Recently, the Council published a monograph entitled, *Lower limb factors associated with*

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**In people with diabetes, many of whom present with peripheral neuropathy, up to 39% of those aged over 65 years and 35% of those above 55 years are reported to have fallen each year.**

devices, including footwear, insoles, and ankle-foot orthoses (AFOs), are all modalities that can be manipulated to alter this interface and, potentially, an individual's propensity to falling. Indeed, several studies show that wearing suboptimal footwear is an influential factor contributing to slips, trips, and falls in older people.

Previous research has shown that a multifaceted podiatric intervention utilizing home-based foot and ankle exercises, assistance with the purchase of safe footwear, and provision of pre-fabricated foot orthoses can reduce the rate of falls in older people with disabling foot pain.<sup>7</sup>

six months when compared to a control group wearing walking shoes alone, the AFO group also reported less fear of falling. When this same custom AFO was used while following a group of older adults across 12 months, findings demonstrated a reduction in the number of reported falls.<sup>8,9</sup>

It goes without saying that with increased plantar numbness and reduced proprioception in the lower extremity, there is poorer balance and increased fear of falling (which is a separately identifiable risk factor for falls), both of which lead to an increased risk of falls.<sup>10,11</sup>

Proper gait function requires the ability to maintain a safe gait while

# THE DIABETIC FOOT

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*balance and falls in older adults—A systematic review and clinical synthesis with the goal of synthesizing the literature to develop clinical pathways for each factor in an effort to speed the translation of findings to clinical care.*<sup>14</sup> **PM**

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