

Publication

A weak balance: the contribution of muscle weakness to postural instability and falls

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Muscle strength is a potentially important factor contributing to postural control. In this article, we consider the influence of muscle weakness on postural instability and falling. We searched the literature for research evaluating muscle weakness as a risk factor for falls in community-dwelling elderly individuals, for evidence that strength training reduces falls, and for pathophysiological evidence from patients with neuromuscular disease that supports the link between muscle weakness and falls. In virtually all studies that included strength testing, muscle weakness was a consistent risk factor for falls in the elderly. Studies that evaluated the merits of muscle strength training often showed a reduction in fall rates, particularly when strength training was a component of a multifactorial intervention, although it was unclear whether strength training alone led to a fall reduction. Surprisingly few studies addressed the pathophysiological relationship between muscle strength and balance control. We conclude that muscle weakness is an important risk factor for falls that is potentially amenable to therapeutic intervention, and that future studies should further clarify the role of muscle weakness in balance control and the pathophysiology of falls.

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