Physiological function and resiliency decline with age, even among the most robust sectors of the older adult population. The degree to which this decline is attributable to true biological aging versus aging-related changes in lifestyle factors has been the focus of most research in this area. Nearly three decades ago, Walter Bortz first noted that many of the physiological changes ascribed to aging per se are similar to those induced by enforced inactivity, such as during prolonged bed rest, and he proposed that much of this functional dysregulation could be attenuated or even reversed with regular exercise.\(^1\) Unfortunately, the modern-day lifestyle is characterized by a majority of time spent sedentary throughout the day. Older people may be especially vulnerable to the harmful effects of prolonged sitting due to a loss of physiologic reserve and the fact that they may spend up to 60-70 percent of their waking hours sitting or reclining. This has especially important consequences for aging, as increasing sedentary time may be displacing time spent in health-accruing lower intensity activities, which are the most prevalent physical activities reported among older people.

Physical activity of any intensity has consistently demonstrated a powerful counter effect on every risk factor associated with the prominent chronic diseases of older age.\(^2\) Current activity level is more protective than past activity levels; however, cumulative lifetime patterns may be even more influential for risk reduction, especially for chronic diseases with a long latency period, such as cancer or osteoporosis. Moreover, the volume of physical activity necessary to prevent functional decline and to maintain health may be substantially lower than the amount needed to reverse an existing chronic condition. Thus, physical activity is far more cost-effective at the prevention (rather than curative) end of the public health spectrum, and this concept is emphasized repeatedly in the 2008 federal physical activity guidelines.\(^3\)

Walking remains an important and prominent activity in older age. Because walking is weight bearing, uses large muscle groups, can be sustained at lower and moderate intensities, and can improve maximal and submaximal physical functioning, its merits should be promoted among older people for meeting the physical activity guidelines of 150 minutes per week.\(^3\) In addition, the American College of Sports Medicine recommends a regular program of resistance, flexibility, and balance training 2 days per week to promote and maintain lean mass and to prevent falls.\(^2\) Finally, the dosing and timing of the exercise bout has recently assumed investigative priority. Similar to some pharmacologic treatments,
a smaller exercise dose repeated several times per day (particularly when it may be most effective, like after each meal or for breaking up sitting time) may provide greater overall benefits for health than the same dose performed prior to eating or than a single large dose performed once per day. This may be especially so if frailer people are more tolerant of smaller exercise doses and are better able to adhere to multiple frequencies of them on a regular basis.

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**References**
