



**To:** City Development

**From:** Adrian Davis

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**Subject:** Essential Evidence on a page 65: Physical activity, walking, and the prevention of falls

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Top line: The risk of increasing falls among a largely sedentary older population can be reduced through physical activity. Walking, as the most readily available physical activity, can contribute to the prevention of falls through maintaining or increasing leg muscle and bone strength.

In recent decades the number and incidence of injuries caused by falls among older adults have increased dramatically throughout the world, and without any population level intervention the increasing trend is likely to continue—largely because of an increasing number of older people. About two thirds of these injuries are bone fractures, hip fracture being the most common, the most devastating, and the most expensive that our healthcare systems have to face.<sup>1</sup>

The most accessible physical activity is walking which is ideal as a gentle start-up for the sedentary, including the inactive, immobile elderly, bringing a bonus of independence and social well-being.<sup>2</sup> Bone strength is important. The benefit to bone is doubled if the activity is started before or at puberty rather than after it. But bone tissue does respond to activity in adulthood, although this seems better at preserving bone than at adding new bone. Nevertheless, the bone preserving action of activity in adulthood may be important in maintaining bone strength and preventing osteoporotic fractures since only small % of bone mass and density preserved result in significant reductions in risk of fracture.

Regular sports such as squash, tennis, aerobics, volleyball, basketball, gymnastics, or weight and power training may best fulfil the need yet they are less appealing to the majority of the population given low levels of physical activity. In older adults brisk walking, climbing up and down stairs, dancing, and similar activities seem suitable and of these walking can most easily become routine. Other research confirms that walking is effective at reducing falls.<sup>3</sup>

Regular physical activity, especially if started in childhood and adolescence, is the only cheap, safe, readily available, and largely acceptable way of both improving bone strength and reducing the propensity to fall. Researchers conclude that physical activity should therefore become an essential part of strategies aiming at controlling the alarming increase in osteoporotic fractures. Moreover, of all the methods of fracture prevention regular physical activity is the only one that provides considerable other health related benefits including that it can help reduce fear, depression and associated avoidance of activities.<sup>4</sup> For all these reasons, walking is the most suitable, readily accessible and cheap form of physical activity for the majority of the population including elders for whom prevention of falls is a potential major benefit.

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<sup>1</sup> Kannus, P. 1999 Preventing osteoporosis, falls, and fractures among elderly people, *British Medical Journal*, 318: 205-6.

<sup>2</sup> Morris, J., Hardman, A. 1997 Walking to health, *Sports Medicine*, May; 23(5):306-32. (*Essential Evidence* 6)

<sup>3</sup> Chang, T. et al, 2004 Interventions for the prevention of falls in older adults: systematic review and meta-analysis of randomised clinical trials, *British Medical Journal*, 328.

<sup>4</sup> Means, K., O'Sullivan, P., Rodell, D. 2003 Psychosocial effects of an exercise program in older persons who fall. *Journal of Rehabilitation and Research Development*, 40: 49–58.