

Strength Training For The Prevention And Treatment Of Sarcopenia

Roth SM, Ferrell RF, Hurley BF. Department of Kinesiology, College of Health and Human Performance, University of Maryland, College Park, MD 20742, USA.

OBJECTIVE:

There is a progressive loss of muscle strength, muscle mass and muscle quality with advanced age, which results in a condition known as sarcopenia. In this review, the authors outline the magnitude of these losses, their functional consequences, and the efficacy of strength training (ST) as an intervention strategy for delaying, preventing or reversing the effects of sarcopenia. The question of whether sex differences and genetics influence the effects of sarcopenia and responses to ST are also discussed. Although their specific contributions are still unknown, proposed mechanisms of sarcopenia are outlined. In addition, where information is available, the authors examine the effects of ST on these potential mechanisms, which include neurogenic factors, anabolic hormones, protein synthesis, gene expression, muscle morphology, and muscle regeneration. Finally, the potential impact of genetics in the muscle response to both sarcopenia and ST is discussed.

CONCLUSIONS:

Sarcopenia has important health consequences for older adults because it is associated with an increased risk of falls, hip fractures, bone mineral loss and physical disability. Strength is independently associated with functional ability in the elderly, and the loss of strength is often related to dysfunction and is a powerful predictor of future disability. The evidence presented in this article suggests that ST is an effective intervention for improving strength, muscle mass and muscle quality and delaying the onset of physical disability in the elderly. However, sex differences and genetic factors may play an important role in determining the muscular response to aging and ST.

SUMMARY:

The authors provide a clear overview of the research on age related changes in muscular strength, mass and quality and outline the effectiveness of strength training to prevent and reverse sarcopenia. This article is an excellent resource for anyone trying to outline a rationale for including progressive resistance strength training in programs for older adults.

Published in Journal of Nutritional Health & Aging 2000; 4(3):143-55