

Abstract

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Assessment of endocrine and nutritional status in age-related catabolic states of muscle and bone.

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PURPOSE OF REVIEW: Bone loss and muscle wasting are associated with increased morbidity and mortality in the elderly, most frequently as a result of fractures associated with poor neuromuscular conditioning leading to accidental falls. This paper reviews data that link pathways of the immune and endocrine systems with bone and muscle pathophysiology, as well as data on the impact of nutrition and physical activity on these systems.

RECENT FINDINGS: The growth hormone-insulin-like growth factor I axis and deficiencies in sex steroid hormones in aging appear linked with changes in the hypothalamic-pituitary-adrenal axis and immune function, accompanied by increased activity of the tumour necrosis factor- α axis. This is associated with activation of the RANK/RANKL/osteoprotegerin pathway and insulin resistance, affecting muscle and bone physiology. Vitamin D deficiency contributes to bone loss and muscle wasting, whereas other nutritional defects such as zinc or magnesium deficiencies may further complicate these catabolic states.

SUMMARY: As nutritional deficiencies responsible for bone and muscle derangement are correctable factors, careful nutritional assessment, in addition to evaluation of endocrine and immune status, may provide clinically important information allowing successful management of elderly patients in danger of neuromuscular dysfunction, accidental falls and bone fractures.

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