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Calcium metabolism, osteoporosis and essential fatty acids: a review.

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Abstract

Essential fatty acid (EFA)-deficient animals develop severe osteoporosis coupled with increased renal and arterial calcification. This picture is similar to that seen in osteoporosis in the elderly, where the loss of bone calcium is associated with ectopic calcification of other tissues, particularly the arteries and the kidneys. Recent mortality studies indicate that the ectopic calcification may be considerably more dangerous than the osteoporosis itself, since the great majority of excess deaths in women with osteoporosis are vascular and unrelated to fractures or other bone abnormalities. EFAs have now been shown to increase calcium absorption from the gut, in part by enhancing the effects of vitamin D, to reduce urinary excretion of calcium, to increase calcium deposition in bone and improve bone strength and to enhance the synthesis of bone collagen. These desirable actions are associated with reduced ectopic calcification. The interaction between EFA and calcium metabolism deserves further investigation since it may offer novel approaches to osteoporosis and also to the ectopic calcification associated with osteoporosis which seems to be responsible for so many deaths.

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