

Format: Abstract

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Studies on the relationship between boron and magnesium which possibly affects the formation and maintenance of bones.

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Abstract

Recent findings are reviewed indicating that changes in dietary boron and magnesium affect calcium, and thus bone, metabolism in animals and humans. In animals, the need for boron was found to be enhanced when they needed to respond to a nutritional stress which adversely affected calcium metabolism, including magnesium deficiency. A combined deficiency of boron and magnesium caused detrimental changes in the bones of animals. However, boron deprivation did not seem to enhance the requirement for magnesium. In two human studies, boron deprivation caused changes in variables associated with calcium metabolism in a manner that could be construed as being detrimental to bone formation and maintenance; these changes apparently were enhanced by low dietary magnesium. Changes caused by boron deprivation included depressed plasma ionized calcium and calcitonin as well as elevated plasma total calcium and urinary excretion of calcium. In one human study, magnesium deprivation depressed plasma ionized calcium and cholesterol. Because boron and/or magnesium deprivation causes changes similar to those seen in women with postmenopausal osteoporosis, these elements are apparently needed for optimal calcium metabolism and are thus needed to prevent the excessive bone loss which often occurs in postmenopausal women and older men.

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