

Effect of dietary boron on mineral, estrogen, and testosterone metabolism in postmenopausal women

F H Nielsen ¹, C D Hunt, L M Mullen, J R Hunt

Affiliations [expand](#)

PMID: 3678698

Abstract

A study was done to examine the effects of aluminum, magnesium, and boron on major mineral metabolism in postmenopausal women. This communication describes some of the effects of dietary boron on 12 women between the ages of 48 and 82 housed in a metabolic unit. A boron supplement of 3 mg/day markedly affected several indices of mineral metabolism of seven women consuming a low-magnesium diet and five women consuming a diet adequate in magnesium; the women had consumed a conventional diet supplying about 0.25 mg boron/day for 119 days. Boron supplementation markedly reduced the urinary excretion of calcium and magnesium; the depression seemed more marked when dietary magnesium was low. Boron supplementation depressed the urinary excretion of phosphorus by the low-magnesium, but not by the adequate-magnesium, women. Boron supplementation markedly elevated the serum concentrations of 17 beta-estradiol and testosterone; the elevation seemed more marked when dietary magnesium was low. Neither high dietary aluminum (1000 mg/day) nor an interaction between boron and aluminum affected the variables presented. The findings suggest that supplementation of a low-boron diet with an amount of boron commonly found in diets high in fruits and vegetables induces changes in postmenopausal women consistent with the prevention of calcium loss and bone demineralization.

Similar articles

Dietary boron supplementation enhances the effects of estrogen on bone mineral balance in ovariectomized rats.

Sheng MH, Taper LJ, Veit H, Thomas EA, Ritchey SJ, Lau KH.

Biol Trace Elem Res. 2001 Jul;81(1):29-45. doi: 10.1385/BTER:81:1:29.

PMID: 11508330

Dietary magnesium, manganese and boron affect the response of rats to high dietary aluminum.

Nielsen FH, Shuler TR, Zimmerman TJ, Uthus EO.

Magnesium. 1988;7(3):133-47.

PMID: 3185013

The alteration of magnesium, calcium and phosphorus metabolism by dietary magnesium deprivation in postmenopausal women is not affected by dietary boron deprivation.

Nielsen FH.

Magnes Res. 2004 Sep;17(3):197-210.

PMID: 15724868

The role of boron in nutrition and metabolism.

Naghii MR, Samman S.

Prog Food Nutr Sci. 1993 Oct-Dec;17(4):331-49.

PMID: 8140253 Review.

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

Nielsen FH.

Magnes Trace Elem. 1990;9(2):61-9.

PMID: 2222801 Review.

[See all similar articles](#)