Calcium-Magnesium-Ratio Intake and Cardiovascular Risk

I found it surprising that in the large study of cardiovascular risk among women and the relation to magnesium intake,1 apparently no consideration was given to the importance of the relation of magnesium to the calcium intake. Magnesium is “nature’s calcium blocker,” and, in addition to a magnesium ion deficiency, ischemia, catecholamine elevations, and insulin resistance, for example, may precipitate a calcium overload of the myocardium, conducive to myocardial infarction.2 Seelig3 has stressed that Finland, with the highest calcium/magnesium intake ratio (well above the ideal 2:1 calcium/magnesium ratio), has the world’s highest cardiovascular morbidity and mortality. A high calcium/magnesium intake ratio interferes with magnesium absorption, increases the potential for clot formation with vasospasm,4 and increases oxidative stress, with the latter also more likely to occur as a result of the reduced effectiveness of magnesium as an antioxidant in the presence of catecholamine auto-oxidation.2,5 An adequate total intake of calcium for adults is 1,000 to 1,200 mg/day6; therefore, maintaining a favorable 2:1 ratio would require a daily total magnesium intake of 500 to 600 mg rather than “the recommended dietary allowance of 320 mg/day for adult women.”1 Finally, it is noteworthy, that magnesium, in addition to calcium, is necessary for bone structure, thereby reducing the likelihood of osteoporosis; a calcium/magnesium intake ratio that is excessive will offset the effectiveness of magnesium in providing this function.2,4

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