

## Vitamin/trace mineral supplements: The good, the bad, and the uncertain

**Donald B. McCormick**  
Emory University, USA

The statement that “Americans love hogwash. They think if a little is good, more is better.” should be attributed to E.H. Rynearson, M.D. an earlier director of the Mayo Clinic and past-president of the American Medical Association. It is useful to keep this in mind as there is at present much ado over the use of supplements, including of the vitamin/trace mineral kind.

Clinical signs of insufficiency of a micronutrient, whether vitamin or trace element, may not appear until deficiency has advanced and may be difficult to interpret, especially where there are multiple insults. Biochemical index measurements are more specific for a particular micronutrient and in the best instances can detect mild, subclinical deficiency, which reflects suboptimal nutrition, the continuance of which leads to increased risk of future clinical deterioration. Hence, biochemical measurements can often serve as early indicators of the need to increase intake of a given micronutrient, by supplementation when appropriate, and help to clarify the etiology of deficiency pathologies with multiple causation. There is some question, however, as to how suitable some biochemical index measurements are for all ages in the life span. For instance, the decreasing need for caloric and, in general, macronutrient intake among the less-active but healthy elderly may correlate with a decreasing rather than increasing need for some of the micronutrients. Pushing intake to raise a biochemical index found with younger adults may not always be the answer for older adults.

When there is neither biochemical nor clinical evidence for supplement need, the current US RDAs (or British RNI) suffice for almost all people. This applies not only for avoidance of deficiency diseases but should be considered in the use of micronutrients to treat non-deficiency diseases where there is not secure evidence of benefit from randomized, controlled clinical trials in addition to epidemiological indications.

The bottom line, derived from extensive research reports, is that most in the US and other so-called developed countries can receive needed vitamins and trace elements from a varied diet of foods, some already fortified, without the addition of supplements. Only a small fraction may benefit from supplements and a few may even be harmed by too much. These conclusions are discussed in the following: McCormick, D.B. (2006) The dubious use of vitamin/mineral supplements as regards cardiovascular disease. *Am. J. Clin. Nutr.* 84, 680-681; (2010) Vitamin/trace mineral supplements: of questionable benefit for the general population. *Nutr. Rev.* 68(4), 207-213; (2012) Vitamin/trace mineral supplements for the elderly. *Adv. Nutr.* 3, 822-824.

### Biography

McCormick received his Ph.D. in biochemistry at Vanderbilt University and did postdoctoral research at the University of California, Berkeley. His academic appointments have been at Cornell University where he became the L.H. Bailey of Nutritional Biochemistry and at Emory University where he became the F.E. Callaway Professor, Chairman of Biochemistry, and Exec. Assoc. Dean of Sciences in the medical school. He has approx. 500 publications, most in the area of vitamins and metal ions. A complete vitae and publication list can be seen in <[www.prof-donaldmccormick.com](http://www.prof-donaldmccormick.com)>