



# Addressing Nutritional Deficiencies with Multivitamin and Mineral Supplements

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## DESCRIPTION

Evidence suggests that dietary habits include relatively high amounts of fruits, vegetables, nuts, and whole grains. Whole grains have been linked to a significant reduction in the risk of heart disease, cancer, and stroke, conditions that rank among 4 main causes of death among adults living in USA. Plant foods, foods rich in lean protein and Low-fat dairy products are all important sources of micronutrients that help maintain health and prevent disease.

The use of functional foods is popular among consumers; in the National Health and Nutrition Examination Survey (NHANES), approximately half of the non-legalized population living in the United States took supplements, often multivitamin and mineral supplements (MVM), for a variety of reasons. 33 percent to 39 percent of the total U.S. population takes a multivitamin. Despite their popularity, there is no standard or regulatory definition of an MVM supplement. A variety of definitions have been used to describe MVM, and the term "MVM" can refer to products with a variety of components and characteristics.

Micronutrients are necessary for most of the body's metabolism and development. The 2010 Dietary Guidelines for Americans (DGA), published by the United States Department of Agriculture and the United States Department of Health and Human Services, recommend that "nutrient requirements are met." primarily through food consumption", but also states that "in some cases, fortified foods and supplements can be helpful in providing one or more nutrients that can be digested." Consume in amounts lower than the recommended amount."

The Health and Education Act 1994's definition of a functional food is a functional food intended to be added to the diet, not to prevent or treat disease. However, according to a recent national survey of people in the United States, only 22% of supplement users said they take supplements "to add to their diet." Among the most common reasons people cite for taking

supplements are "to improve overall health" and "to maintain health". The potential benefit of MVM supplements in preventing certain chronic diseases has not been clearly defined, but understanding of the issue continues to emerge.

Studies evaluating the impact of vitamin and mineral supplements individually or in small combinations on cancer risk have been inconsistent, and several trials and meta-analyses have shown increased rates of cancer up in relation to several individual vitamin supplements. Although  $\beta$ -carotene and lutein are phytonutrients rather than vitamins, their long-term use as well as long-term retinol use have been linked to an increased risk of lung cancer, particularly especially in those at high risk. The Selenium and Vitamin E Randomized Cancer Prevention Trial (SELECT) reported that high-dose vitamin E supplementation was associated with a 17% increased risk of prostate cancer in healthy men after 7 years.

There is little evidence that supplementation with individual micronutrients reduces the risk of Cardiovascular Disease (CVD). Research into the potential cardiovascular benefits of dietary supplements has focused specifically on B vitamins because of the established correlation with levels of homocysteine, a risk marker for cardiovascular disease, including deficiency stroke. local blood. A meta-analysis of 19 RCTs of B vitamins (including folic acid, vitamin B6, vitamin B12, and vitamin B-complex) found no effect of supplementation on rates of cardiovascular disease, coronary artery disease, and infarction Myocardial Infarction (MI), cardiovascular death, or all-cause death despite significant reductions in homocysteine levels; however, the risk of stroke was reduced by 12%. A second meta-analysis of 26 RCTs on folic acid supplementation resulted in a 7% reduction in stroke risk. Supplementation with vitamin E,  $\beta$ -carotene, and vitamin C, a group of vitamins sometimes called antioxidant vitamins, were similarly neutral for cardiovascular outcomes.

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