

Vitamins for Chronic Disease Prevention in Adults Clinical Applications

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FROM ABSTRACT

Vitamin deficiency syndromes such as scurvy and beriberi are uncommon in Western societies.

However, suboptimal intake of some vitamins, above levels causing classic vitamin deficiency, is a risk factor for chronic diseases and common in the general population, especially the elderly.

Suboptimal folic acid levels, along with suboptimal levels of vitamins B6 and B12, are a risk factor for cardiovascular disease, neural tube defects, and colon and breast cancer; low levels of vitamin D contribute to osteopenia and fractures; and low levels of the antioxidant vitamins (vitamins A, E, and C) may increase risk for several chronic diseases.

Most people do not consume an optimal amount of all vitamins by diet alone.

Pending strong evidence of effectiveness from randomized trials, it appears prudent for all adults to take vitamin supplements.

The evidence base for tailoring the contents of multivitamins to specific characteristics of patients such as age, sex, and physical activity and for testing vitamin levels to guide specific supplementation practices is limited.

Physicians should make specific efforts to learn about their patients' use of vitamins to ensure that they are taking vitamins they should, such as folate supplementation for women in the childbearing years, and avoiding dangerous practices such as high doses of vitamin A during pregnancy or massive doses of fat-soluble vitamins at any age.

THESE AUTHORS ALSO NOTE:

“In the absence of specific predisposing conditions, a usual North American diet is sufficient to prevent overt vitamin deficiency diseases such as scurvy, pellagra, and beriberi.”

“However, insufficient vitamin intake is apparently a cause of chronic diseases.”

“Recent evidence has shown that suboptimal levels of vitamins, even well above those causing deficiency syndromes, are risk factors for chronic diseases such as cardiovascular disease, cancer, and osteoporosis.”

“A large proportion of the general population is apparently at increased risk for this reason.”

SUBOPTIMAL AMOUNTS of VITAMINS

Suboptimal levels of a vitamin can be defined as those associated with abnormalities of metabolism that can be corrected by supplementation with that vitamin.”

Measurements of vitamin levels in blood, serum, or red blood cells, are not a reliable guide to the risk factors for chronic diseases.

[IMPORTANT]

Supplementation can substantially reduced serum homocysteine levels in elderly patients with normal serum folate concentrations. [IMPORTANT]

It is conclusive that folate during the first trimester of pregnancy reduces the risk of neural tube defects.

It is conclusive that vitamin D supplementation, along with calcium, reduces the risk of fractures in elderly women with osteoporosis.

“The high prevalence of suboptimal vitamin levels implies that the usual US diet provides an insufficient amount of these vitamins.”

“Fruits and vegetables are the main dietary source of many vitamins, and health experts have long recommended at least 5 daily servings.”

“A recent survey showed that only 20% to 30% of the population actually meet this goal.”

Vitamins are also lost during cooking, chilling, storage, and reheating of foods.

Alcohol increases folate requirements and aging is associated with decreased absorption.

CORRECTING SUBOPTIMAL VITAMIN LEVELS

Three options exist for correcting suboptimal vitamin intake:

(1) Improved diet

“Foods contain thousands of compounds that may be biologically active, including hundreds of natural antioxidants, carotenoids, and flavonoids.”

“For these reasons, vitamin supplementation is not an adequate substitute for a good diet.”

(2) Add vitamins to generally consumed foods.

(3) “A third option is for individuals to take vitamin supplements.”

“The amount of calcium in multivitamins is typically between 40 and 160 mg, well below the generally recommended dose of 1000 to 1500 mg/d, so one cannot depend on multivitamins for meeting calcium needs.”

Most multivitamins contain iron, whose supplementation may not be advisable for men and nonmenstruating women.

“We are aware of no evidence that the various multivitamins differ in bioavailability because of the way they are formulated.”

“The recommended intake for vitamins B12 and D in the elderly is closer to 2 times the dietary reference intake.”

“For women who might become pregnant, folate at 800 µg/d is appropriate.”

RECOMMENDATIONS

“We recommend that all adults take one multivitamin daily.”
A dose of 2 ordinary multivitamins daily in the elderly is recommended.

“We recommend multivitamins, rather than individual vitamins, because multivitamins are simpler to take and cheaper than the individual vitamins taken separately and because a large proportion of the population needs supplements of more than one vitamin.”

Physicians should be sure the patient is not taking vitamins in harmful doses, such as very large doses of vitamin D or even moderate doses of vitamin A during the first trimester of pregnancy.

KEY POINTS FROM DAN MURPHY:

- (1) The best source for vitamins is fresh fruits and vegetables in the diet.
- (2) 70% - 80% of Americans do not eat enough fruits and vegetables to consume enough vitamins to prevent chronic diseases.
- (3) We should all take a daily multivitamin.