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Vitamin Supplements Associated With Increased Risk for Death

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Authors and Disclosures

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October 10, 2011 — In women aged 55 to 69 years, several widely used dietary vitamin and mineral supplements, especially supplemental iron, may be associated with increased risk for death, according to [new findings](#) from the Iowa Women's Health Study.

Although many vitamin supplements did not appear to be associated with a higher risk for total mortality, several were, including multivitamins, vitamins B₆, and folic acid, as well as minerals iron, magnesium, zinc, and copper.

Jaakko Mursu, PhD, from the Department of Health Sciences, Institute of Public Health and Clinical Nutrition at the University of Eastern Finland in Kuopio, Finland, and colleagues reported their findings in the October 10 issue of the *Archives of Internal Medicine*.

"Supplements are widely used, and further studies regarding their health effects are needed," Dr. Mursu and colleagues write. "Also, little is known about the long-term effects of multivitamin use and less commonly used supplements, such as iron and other minerals."

The current study sought to evaluate the link between supplement use and total mortality rate, using data from the Iowa Women's Health Study. A total of 38,772 older women were included in the analysis. Women were aged between 55 to 69 years, with an average of 61.6 years at the beginning of the study in 1986. Self-reported data on vitamin supplement use were collected in 1986, 1997, and 2004.

A total of 15,594 deaths were reported through December 31, 2008, representing about 40% of the initial participants. The use of multivitamins overall was associated with 2.4% increased absolute risk for death (hazard ratio, 1.06; 95% confidence interval, 1.02 - 1.10). Self-reported use of dietary supplements increased substantially between 1986 and 2004. In addition, supplement users had a higher educational level, were more physically active, and were more likely to use estrogen replacement therapy.

Vitamin B₆, folic acid, iron, magnesium, and zinc were associated with about a 3% to 6% increased risk for death, whereas copper was associated with an 18.0% increased risk for total mortality when compared with corresponding nonuse.

In contrast, use of calcium was inversely related to risk for death (hazard ratio, 0.91; 95% confidence interval, 0.88 - 0.94; absolute risk reduction, 3.8%).

The researchers assessed the findings for iron and calcium in more detailed analyses conducted during shorter periods (10-year, 6-year, and 4-year follow-up) and found results similar to those for the analyses conducted during the entire time.

"In agreement with our hypothesis, most of the supplements studied were not associated with a reduced total mortality rate in older women," Dr. Mursu and colleagues conclude. "In contrast, we found that several commonly used dietary vitamin and mineral supplements, including multivitamins, vitamins B₆, and folic acid, as well as minerals iron, magnesium, zinc, and copper, were associated with a higher risk of total mortality."

"Although we cannot rule out benefits of supplements, such as improved quality of life, our study raises a concern regarding their long-term safety," the authors add.

In a [related editorial](#), Goran Bjelakovic, MD, DMSc, and Christian Gluud, MD, DMSc, from the Centre for Clinical Intervention Research, Cochrane Hepato-Biliary Group, Rigshospitalet, Copenhagen University Hospital, Denmark, note that the current study adds "to the growing evidence demonstrating that certain antioxidant supplements, such as vitamin E, vitamin A, and beta-carotene, can be harmful."

"We cannot recommend the use of vitamin and mineral supplements as a preventive measure, at least not in a well-nourished population," they add. "Those supplements do not replace or add to the benefits of eating fruits and vegetables and may cause unwanted health consequences."

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