

Daily multivitamin use among men does not reduce risk of major cardiovascular events

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In a randomized study that included nearly 15,000 male physicians who were middle-aged or older, daily multivitamin use for more than 10 years of treatment and follow-up did not result in a reduction of major cardiovascular events, heart attack, stroke, or death from cardiovascular disease, according to a study appearing in November 7 issue of *JAMA*, a theme issue on cardiovascular disease. The study is being released early online to coincide with its presentation at the American Heart Association's Scientific Sessions.

"Despite uncertainty regarding the long-term health benefits of vitamins, many U.S. adults take [vitamin supplements](#) to prevent [chronic diseases](#) or for general health and well-being," according to background information in the article. Individuals who believe they are deriving benefits from supplements may be less likely to engage in other preventive [health behaviors](#). "Although multivitamins are used prevent vitamin and mineral deficiency, there is a perception that multivitamins may prevent cardiovascular disease (CVD). [Observational studies](#) have shown inconsistent associations between regular [multivitamin](#) use and CVD, with no long-term clinical trials of multivitamin use."

Howard D. Sesso, Sc.D., M.P.H., of Brigham and Women's Hospital and Harvard Medical School, Boston, and colleagues analyzed data regarding multivitamin use and major cardiovascular events from the Physicians' [Health Study](#) (PHS) II, a large-scale trial testing the effects of long-term use of a common multivitamin on the risk of major cardiovascular events and cancer. The Physicians' Health Study II is a randomized,

placebo-controlled trial that began in 1997 with continued treatment and follow-up through June 1, 2011. A total of 14,641 male U.S. physicians initially 50 years of age or older (average, 64 years), including 754 men with a history of CVD at randomization, were enrolled. This analysis measured the composite end point of major cardiovascular events, including nonfatal [myocardial infarction](#) (MI; heart attack), nonfatal stroke, and death from CVD. Secondary outcomes included heart attack and stroke individually. Participants were randomized to multivitamin (n = 7,317) or placebo (n = 7,324).

During a median (midpoint) follow-up of 11.2 years, 1,732 men had major cardiovascular events, including 652 cases (first events) of heart attack and 643 cases of stroke, and 829 men had cardiovascular death, with some men experiencing multiple events. A total of 2,757 (18.8 percent) men died during follow-up (multivitamin, n = 1,345; placebo, n = 1,412). In an analysis of the rate of events for men in each group, the researchers found that there was no significant effect of a daily multivitamin on major [cardiovascular events](#), or total MI or total stroke. Taking a daily multivitamin was not significantly associated with a reduction in CVD mortality. There were fewer total deaths among multivitamin users, but this difference was not statistically significant.

The authors also found no significant effect of a daily multivitamin on rates of congestive heart failure, angina, and coronary revascularization. Also, the effect of a daily multivitamin on total MI, total stroke, and other cardiovascular end points did not differ between men with and without CVD at the beginning of the study.

"The PHS II represents to our knowledge the only large-scale, randomized, double-blind, placebo-controlled trial testing the long-term effects of a commonly available multivitamin in the prevention of chronic disease," the authors write. "These data do not support multivitamin use to prevent CVD, demonstrating the importance of long-

term clinical trials of commonly used nutritional supplements. Whether to take a daily multivitamin requires consideration of an individual's nutritional status, because the aim of supplementation is to prevent vitamin and mineral deficiency, plus consideration of other potential effects, including a modest reduction in cancer and other important outcomes in PHS II that will be reported separately."

In an accompanying editorial, Eva M. Lonn, M.D., M.Sc., of McMaster University and Hamilton General Hospital, Hamilton, Ontario, Canada, writes that "robust data from multiple trials clearly confirm that CVD cannot be prevented or treated with vitamins."

"Nonetheless, many people with heart disease risk factors or previous CVD events lead sedentary lifestyles, eat processed or fast foods, continue to smoke, and stop taking lifesaving prescribed medications, but purchase and regularly use vitamins and other dietary supplements, in the hope that this approach will prevent a future myocardial infarction or stroke. This distraction from effective CVD prevention is the main hazard of using vitamins and other unproven supplements. The message needs to remain simple and focused: CVD is largely preventable, and this can be achieved by eating healthy foods, exercising regularly, avoiding tobacco products, and, for those with high risk factor levels or previous CVD events, taking proven, safe, and effective medications."

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