

Multivitamins and the Primary Prevention of Cardiovascular Disease

Population: US Male Physicians (mean age: 64.3 years)

Intervention: Multivitamin (Centrum Silver) Vitamin E, Vitamin C, and beta-carotene.

Comparator: Placebo

Outcome 11.2 years	Study results and measurements	Certainty in effect estimates (Quality of evidence)	Absolute effect estimates		Summary
			Placebo	Multivitamin	
Major CVD Events	Relative risk: 1.01 (CI 95% 0.91 - 1.1) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	117 per 1000	118 per 1000	Multivitamins have little or no difference on major CVD events
			Difference: 1 more per 1000 (CI 95% 10 fewer - 11 more)		
Fatal and Nonfatal MI	Relative risk: 0.93 (CI 95% 0.8 - 1.09) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	46 per 1000	43 per 1000	Multivitamins have little or no difference on fatal and nonfatal MI
			Difference: 3 fewer per 1000 (CI 95% 9 fewer - 4 more)		
Fatal MI	Relative risk: 0.61 (CI 95% 0.38 - 1.0) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	6 per 1000	4 per 1000	Multivitamins have little or no difference on fatal MI
			Difference: 2 fewer per 1000 (CI 95% 4 fewer - 0 fewer)		
Total Stroke	Relative risk: 1.06 (CI 95% 0.91 - 1.23) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	43 per 1000	46 per 1000	Multivitamins have little or no difference on total stroke
			Difference: 3 more per 1000 (CI 95% 4 fewer - 10 more)		
Fatal Stroke	Relative risk: 1.16 (CI 95% 0.85 - 1.58) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	11 per 1000	13 per 1000	Multivitamins have little or no difference on fatal stroke
			Difference: 2 more per 1000 (CI 95% 2 fewer - 6 more)		
Ischemic Stroke	Relative risk: 1.1 (CI 95% 0.92 - 1.3) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	35 per 1000	38 per 1000	Multivitamins have little or no difference on ischemic stroke
			Difference: 3 more per 1000 (CI 95% 3 fewer - 10 more)		
Hemorrhagic Stroke	Relative risk: 1.08 (CI 95% 0.72 - 1.63) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	6 per 1000	6 per 1000	Multivitamins have little or no difference on hemorrhagic stroke
			Difference: 0 fewer per 1000 (CI 95% 2 fewer - 4 more)		

CVD Mortality	Relative risk: 0.95 (CI 95% 0.83 - 1.09) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	58 per 1000	55 per 1000	Multivitamins have little or no difference on CVD mortality
			Difference: 3 fewer per 1000 (CI 95% 10 fewer - 5 more)		
Total Mortality	Relative risk: 0.94 (CI 95% 0.88 - 1.02) Based on data from 14641 patients in 1 studies Follow up 11.2 mean years	Low risk of bias	195 per 1000	184 per 1000	Multivitamins have little or no difference on total mortality
			Difference: 11 fewer per 1000 (CI 95% 21 fewer - 3 more)		

Note:

A recent secondary analysis of the Physicians Health Study II was conducted to examine whether baseline nutritional value modified the effect of multivitamin intake and found no significant results (Rautiainen et al., (2017)).

References

Sesso HD, Christen WG, Bubes V, Smith JP, MacFadyen J, Schvartz M, Manson JE, Glynn RJ, Buring JE, Gaziano JM. Multivitamins in the prevention of cardiovascular disease in men: the Physicians' Health Study II randomized controlled trial. JAMA. 2012 Nov 7;308(17):1751-60.

Rautiainen, S., Gaziano, J., Christen, W. G., & et al. (2017). Effect of baseline nutritional status on long-term multivitamin use and cardiovascular disease risk: A secondary analysis of the physicians' health study ii randomized clinical trial. JAMA Cardiology, 2(6), 617-625. doi:10.1001/jamacardio.2017.0176

Practical Issues



Medical routine

How often do I need to take the multivitamin?

Multivitamins, if taken, should be taken daily unless otherwise stated on the packaging.



Adverse effects, interactions and antidote

Are there any side effects from taking multivitamins?

There are some known adverse effects of excessive vitamin dosages. For example, bone mineral density may be reduced with moderate Vitamin A Supplements and high doses could be hepatotoxic (toxic to the liver) or teratogenic (damage/disturb the development of an embryo or foetus which could lead to a birth defect).



Cost and access

How much do multivitamins cost?

Prices vary for over the counter multivitamin tablets. For example, Cenovis 50+ Multivitamins RRP is \$23.95