

UHI Research Reviews

Practical Information to Help You Heal Right

Chocolate and Prevention of Cardiovascular Disease: A Systematic Review

Eric L Ding,^{1,2} Susan M Hutfless,¹ Xin Ding,¹ and Saket Girotra³

¹Department of Epidemiology, Harvard University, School of Public Health, Boston, MA, USA

²Department of Nutrition, Harvard University, School of Public Health, Boston, MA, USA

³Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, USA

Background

Consumption of chocolate has been often hypothesized to reduce the risk of cardiovascular disease (CVD) due to chocolate's high levels of stearic acid and antioxidant flavonoids. However, debate still lingers regarding the true long term beneficial cardiovascular effects of chocolate overall.

Methods

We reviewed English-language MEDLINE publications from 1966 through January 2005 for experimental, observational, and clinical studies of relations between cocoa, cacao, chocolate, stearic acid, flavonoids (including flavonols, flavanols, catechins, epicatechins, and procyanidins) and the risk of cardiovascular disease (coronary heart disease (CHD), stroke). A total of 136 publications were selected based on relevance, and quality of design and methods. An updated meta-analysis of flavonoid intake and CHD mortality was also conducted.

Results

The body of short-term randomized feeding trials suggests cocoa and chocolate may exert beneficial effects on cardiovascular risk via effects on lowering blood pressure, anti-inflammation, anti-platelet function, higher HDL, decreased LDL oxidation. Additionally, a large body of trials of stearic acid suggests it is indeed cholesterol-neutral. However, epidemiologic studies of serum and dietary stearic acid are inconclusive due to many methodologic limitations. Meanwhile, the large body of prospective studies of flavonoids suggests the flavonoid content of chocolate may reduce risk of cardiovascular mortality. Our updated meta-analysis indicates that intake of flavonoids may lower risk of CHD mortality, RR = 0.81 (95% CI: 0.71–0.92) comparing highest and lowest tertiles.

Conclusion

Multiple lines of evidence from laboratory experiments and randomized trials suggest stearic acid may be neutral, while flavonoids are likely protective against CHD mortality. The highest priority now is to conduct larger randomized trials to definitively investigate the impact of chocolate consumption on long-term cardiovascular outcomes.

This information shared with you by:



Universal Health Institute

8 W Chestnut
Chicago, IL 60610

312.266.9090

www.uhichicago.com