

Could Chowing Down on Cocoa Fix Your Heart?

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✓ Fact Checked

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STORY AT-A-GLANCE

- › In the first large-scale trial to evaluate the long-term effects of cocoa flavanols on heart disease, notable benefits were uncovered
- › Those who received cocoa flavanols had a 27% reduction in death from cardiovascular disease, and incidence of three cardiovascular events – heart attacks, strokes and cardiovascular deaths – was also significantly reduced
- › Among those who took the cocoa flavanol supplement regularly, there was a 15% reduction in total cardiovascular events and a 39% reduction in death from cardiovascular disease
- › Cocoa flavanols have antioxidant, anti-inflammatory, anti-obesity and hypolipidemic effects, with research showing that even short-term consumption of cocoa and dark chocolate may benefit people with heart disease or other metabolic risk factors

Cocoa flavanols may be protective of heart health, even helping to reduce your risk of dying from cardiovascular events like heart attack and stroke. While chowing down on chocolate candy is unlikely to have the same effect, the evidence supporting cocoa's benefits for heart health only continue to grow.

Cocoa flavanols were singled out by researchers with Brigham and Women's Hospital because past studies have highlighted their potential to lower the risk of cardiovascular diseases while offering antioxidant, anti-inflammatory, anti-obesity and other heart-healthy effects.¹

In the first large-scale trial to evaluate the long-term effects of cocoa flavanols on heart disease, the results confirm this natural compound's potential to bolster heart health.

Cocoa Flavanols Reduce Cardiovascular Death by 27%

During the randomized, placebo-controlled COcoa Supplement and Multivitamin Outcomes Study (COSMOS), 21,442 participants aged 60 years and older were randomly assigned to receive a cocoa extract supplement – containing 500 milligrams (mg) of flavanols, including 80 mg epicatechins – a multivitamin supplement, neither of the options or both of the options daily from June 2015 through December 2020.²

The primary cardiovascular outcome for the study was total cardiovascular events, including heart attacks, stroke, coronary revascularization, cardiovascular death, carotid artery disease, peripheral artery surgery and unstable angina. The cocoa flavanols reduced total cardiovascular events by 10%, which was not statistically significant.

However, those who received cocoa flavanols had a 27% reduction in death from cardiovascular disease, and incidence of three cardiovascular events – heart attacks, strokes and cardiovascular deaths – was also significantly reduced. Additional benefits were also seen when looking particularly at those who took their supplements regularly.

Among this group, there was a 15% reduction in total cardiovascular events and a 39% reduction in death from cardiovascular disease.³ For comparison, those taking the daily multivitamin had no significant reduction in total or individual cardiovascular events.

“When we look at the totality of evidence for both the primary and secondary cardiovascular endpoints in COSMOS, we see promising signals that a cocoa flavanol supplement may reduce important cardiovascular events, including death from cardiovascular disease,” study author Howard Sesso said in a news release. “These findings merit further investigation to better understand the effects of cocoa flavanols on cardiovascular health.”⁴

The study also looked into the effect of cocoa flavanols on cancer, but no significant effects were found on total invasive cancer. However, the researchers noted that the

study period – about 3.6 years – was likely too short to determine whether the flavanols affected cancer risk.⁵

Sesso added, “Our message for consumers is to eat a healthy, balanced diet, rich in natural food sources of flavanols, and to stay tuned as we further evaluate other important health outcomes in COSMOS.”⁶

Cocoa Flavanols Benefit Metabolic Syndrome

Cacao beans contain the highest flavanol content of all foods on a per weight basis. Containing more than 200 natural chemical compounds, polyphenols, which include flavanols, make up about 12% to 18% of cacao beans’ weight.⁷ Flavanols are believed to have a beneficial effect on metabolic syndrome, a cluster of risk factors that can increase your risk of multiple chronic diseases, including heart disease, arthritis, chronic kidney disease and cancer.

Many of flavanols’ benefits are due to its antioxidant powers and ability to interact with signaling proteins, enzymes, DNA and membranes, reducing or preventing oxidative stress. As reported in the journal *Nutrients*:⁸

“[I]t has been proposed that flavanols may protect the integrity and function of the cell membrane by modulating changes in its fluidity and permeability produced by molecules with oxidation potential. It is well known that when membrane fluidity decreases it is more prone to be oxidized. Instead, when fluidity increases membrane lipids are less exposed to oxidation ...

Cocoa polyphenols are expected to activate Nrf2, which induces the transcription of antioxidant enzymes such as glutathione peroxidase, superoxide dismutase, and heme oxygenase 1, thus blocking the production of reactive oxygen species (ROS) and nitric oxide synthase (NOS), and attenuating oxidative stress, as well as a number of cellular kinases, including the mitogenactivated protein kinases (MAPKs).”

Cocoa flavanols also have anti-inflammatory and hypolipidemic effects, with research showing that even short-term consumption of cocoa and dark chocolate may benefit the lipid profile of people with heart disease or other metabolic risk factors. Flavanols are also noted for reducing hyperglycemia, insulin resistance and diabetes.⁹

Cocoa Flavanols Help Lower Blood Pressure

High blood pressure, a risk factor for both metabolic syndrome and cardiovascular disease, contributes to 50% of cardiovascular events around the globe along with 37% of cardiovascular-related deaths in the West.¹⁰ Cocoa flavanols increase the formation of nitric oxide (NO), which increases vasodilation, leading to reductions in blood pressure.

In a meta-analysis of 35 studies that evaluated cocoa products on blood pressure when consumed daily for at least two weeks, favorable outcomes were reported. The studies involved 1,804 adults and involved 40 treatment comparisons, which revealed that cocoa flavanols and cocoa products led to a statistically significant lowering of blood pressure (systolic and diastolic) of 1.8 mmHg.

“This small reduction in blood pressure might complement other treatment options and might contribute to reducing the risk of cardiovascular disease,” the researchers noted, adding that the study provides moderate-quality evidence that flavanol-rich chocolate and cocoa products have a small lowering effect on blood pressure.¹¹

The notion that cocoa may lower blood pressure first came about, in fact, after it was discovered that Kuna Indians who live on an island in Central America tended to have low rates of high blood pressure and healthy blood pressure levels that seemed to be unaffected by age. Island-dwelling Kuna Indians also tend to consume three to four cups of cocoa drinks daily, spurring researchers to evaluate whether the cocoa is related to the population’s healthy blood pressure levels.¹²

Cocoa for Improving Health and Quality of Life

First consumed by Latin-American Indians in the form of a cold, unsweetened drink made from raw dried cacao powder, the “hot cocoa” of modern-day was created by the Spanish, who brought the drink to Europe and added sugar to the beverage before heating it up.

Modern processing methods, including roasting and alkalizing (ditching), and the addition of sugar, milk, lecithin and other additives has significantly reduced the health-promoting potential of this once-healthy beverage.¹³ However, cocoa flavanols, found in high-quality dark chocolate and cocoa products as well as in supplement form, have been highlighted as useful for not only reducing the risk of chronic diseases but also improving human health and quality of life.¹⁴

In a review of related studies from 2000 to October 2020, researchers highlighted a number of cocoa’s benefits on heart health, including a 37% lower risk of cardiovascular disease and a 29% lower risk of stroke associated with chocolate consumption.¹⁵

Notable benefits to heart health include favorable outcomes on arterial stiffness, lipid profile and blood pressure, while additional benefits to overall health were also noted, including obesity. According to the study:¹⁶

“... cellular and pre-clinical works have demonstrated that cocoa could exert anti-obesogenic effects through different mechanisms, such as lipid metabolism modulation (decreased lipogenesis and enhanced lipolysis), reduced adipogenesis (inhibited adipocyte differentiation and growth), attenuated inflammatory response and oxidative stress, and microbiota reshaping.”

Cocoa and cocoa-derived products have also been linked to:¹⁷

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|---------------------------------|---|
| Reduced risk of Type 2 diabetes | Improved cognitive function and memory |
| Antiaging effects | Improved quality of life in elderly populations |

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|---|--------------------------------------|
| Potential anti-carcinogenic effects | Beneficial effects on gut microbiota |
| Improved skin health, including photoprotection and improved structure and function | Relief from chronic fatigue syndrome |
| Inhibitory effects on influenza virus | Improved bone density |

A 2013 paper in *The Netherlands Journal of Medicine* also reviewed the health benefits of cacao, noting that some consider it a "complete food," as it contains:¹⁸

- Healthy fats
- Antioxidants
- Nitrogenous compounds, including proteins, methylxanthines theobromine and caffeine
- Minerals, including potassium, phosphorus, copper, iron, zinc and magnesium
- Valeric acid, which acts as a stress reducer despite the presence of stimulants

What Type of Cocoa or Chocolate Is Best?

In terms of health benefits, there is wide variation depending on the type of cocoa or chocolate product you consume. Cacao is the term used for the evergreen plant and the dried seeds, which ultimately become chocolate. Raw cacao nibs have the highest levels of polyphenols.

Ideally, you'll want to buy them whole and grind them at home using a coffee grinder or nibble on them like you would chocolate chips. A healthy amount would be around one-half to 1 ounce per day, which you can easily add to a smoothie.

Cacao becomes cocoa when the beans are roasted and ground into a powder from which most of the fat is removed. Cocoa butter, which you can purchase from health food stores and some grocers, is the yellow fat that's extracted from the beans.

Cacao beans go through 14 steps in processing before resulting in the chocolate that is ready for distribution to your local store. If the chocolate is processed from cacao seeds that are not roasted, then you're buying "raw chocolate." This is ideal, since processing significantly reduces the flavanol content. According to the Cochrane Database of Systematic Reviews:¹⁹

"Fresh and fermented cocoa beans contain between 2.5 and 16.5 mg of epicatechin per gram, depending on the variety, the growing region and harvesting practices, whereas processed cocoa retains only 2% - 18% of the original epicatechin, due to roasting and ditching.

... different processes influence the flavanol content of the cocoa in the chocolate; a 70% cocoa-containing chocolate bar from one company therefore might not contain the same amount of flavanols and flavanol composition as a 70% chocolate bar from another company. Content and composition of flavanols depend on the variety and ripeness of cocoa beans used, as well as the manufacturing steps."

When choosing chocolate, look for organic products. Dark chocolate, which contains 50% to 85% cocoa, is preferable to milk chocolate, which contains only 20% to 30% cocoa. White chocolate, meanwhile, contains no cocoa at all and shouldn't be confused with a health food of any kind.

Sources and References

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