

A type of flavonoid found in tea and chocolate may help lower blood pressure

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A type of flavonoid found in chocolate and tea has been linked to lower blood pressure. Design by MNT; Photography by Johner Images/Getty Image & Catherine Falls Commercial/Getty Images

- **A new meta-study suggests that the flavan-3-ols, which are a type of plant-derived compound found in cocoa, tea, apples, and grapes, may be useful in managing high blood pressure.**
- **Specifically, they were found to be effective at improving endothelial function, which can significantly influence blood pressure.**
- **The authors of the meta-study suggest that flavan-3-ols may be considered as an addition to lifestyle changes and medication in treating hypertension.**

The flavan-3-ols in cocoa, tea, and some popular foods are so effective at improving endothelial function that they are worth considering in the management of high blood pressure, according to a new meta-study.

Currently, lifestyle modification is the first method physicians recommend for patients who have high blood pressure. If this does not resolve the issue, the doctor will prescribe hypertension medications.

In some of the 145 randomized controlled studies included in the meta-study's analysis, improvements in endothelial function were comparable to those achieved with hypertension medications.

Flavan-3-ols are found in coffee, tea, dark chocolate, cocoa powder, apples, and grapes. Participants in the studies consumed cocoa, tea, apples, or grape extracts.

The authors of the study are not suggesting that flavan-3-ols could replace medication. However, they do note that the ready availability and palatability of such foods may offer welcome additional support for a person hoping to manage hypertension, reducing the need for additional medication.

The analysis found that the compounds successfully decreased blood pressure and improved endothelial functioning in healthy individuals and in people who had hypertension.

Benefits to endothelial function were more consistently observed than reductions in blood pressure.

Blood pressure was most often achieved in individuals who had high blood pressure at the beginning of the studies in which they participated.

The study is published in the [European Journal of Preventive Cardiology](#).

Why is endothelial function important?

The endothelium is a thin layer of cells lining the blood vessels.

Its health, said cardiologist [Jayne Morgan, MD](#) of Hello Heart, “is a reflection of the elasticity or stiffness and how well the arteries are performing in their vital role of maintaining a normal blood pressure.”

The endothelium also, she noted, serves “as a barrier to keep nutrients in and toxins out, reducing platelet adhesion and subsequent clot formation, and responding to injury.”

[Michelle Routhenstein](#), a registered dietitian who specializes in heart disease explained, endothelial function “is measured by flow-mediated dilation (FMD), and even a small increase in FMD (about 1%) can reduce cardiovascular disease risk by 8–[13%](#).”

What foods contain flavan-3-ols?

“As a dietitian focused on cardiovascular health, I see flavan-3-ols as an important part of a balanced heart-healthy diet,” said Routhenstein.

Flavan-3-ols are a subclass of flavonoids. They are most available in unprocessed foods, such as dark chocolate and green or black teas, rather than in milk chocolate or flavored teas, since processing can damage or remove the compounds.

Therefore, not just any chocolate or tea will do as a source of the compounds.

“When chocolate or tea goes through a lot of processing, like adding sugar, heating, or special treatments, it breaks down or removes these beneficial compounds,” Routhenstein cautioned. “Milk chocolate, as well as instant or flavored teas, typically contain much lower levels of flavan-3-ols due to extensive processing and added ingredients.”

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Other natural compounds that may support heart health

Flavan-3-ols are not the only natural compound being investigated for their value in supporting cardiovascular health.

Morgan noted several others:

- [resveratrol](#), from grapes, may improve blood pressure control and vascular function.
- [curcumin](#), from turmeric, is being investigated for its possible value in the reduction of arterial stiffness and plaque formation
- [berberine](#), from various plants, may have lipid-lowering abilities
- [Omega-3 fatty acids](#) from fish, flaxseed, walnuts, and some other seeds, may reduce triglycerides, stabilize heart rhythms, and reduce cardiac death risk
- [garlic extract](#) and [quercetin](#) are being studied for possible effects on lowering blood pressure.

Morgan warned, however: “We should remember that ‘natural’ does not equal ‘safe.’ Berberine in particular can interfere with both anticoagulants and statins.”

Healthy food, healthy heart

“As a cardiovascular dietitian,” said Routhenstein, “I believe this research highlights just how powerful food can be in improving blood-vessel health. In some cases, its effects can match or even exceed those of medications.”

“Food choices in general can both determine and in some cases drive, blood pressure, cholesterol levels, weight, blood sugar levels, and inflammation,” Morgan said.

“Diets high in saturated fats raise LDL (bad) cholesterol levels, salt raises blood pressure, trans fats raise cholesterol levels, and processed foods increase inflammation. Added sugars in sodas and cereal promote insulin resistance, diabetes, and obesity. Refined carbohydrates such as white bread, pastries, and pasta

cause blood sugar spikes and inflammation.”

— Jayne Morgan, MD

“Conversely, diets rich in whole foods, vegetables, fruits, whole grains, and magnesium and calcium work to promote healthy blood vessels. They decrease inflammation, and thereby promote healthy blood pressure and lower risk of heart disease and stroke,” Morgan said.

“I’ve seen firsthand,” said Routhenstein, “how making the right dietary changes has helped many people lower their blood pressure enough to reduce or stop their medications.”

“It’s something we don’t talk about enough,” she added, “but focusing on food should be a bigger part of how we prevent and manage heart disease and its complications.”