

# Chocolate a sweet remedy for many ills?

March 29 2012, By Lisa Esposito, HealthDay Reporter

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Preliminary research suggests cocoa might fight heart disease, cancer and even obesity.

(HealthDay) -- International researchers have uncovered even more healthy properties of flavanols -- the antioxidants found in cocoa beans.

Eighteen chocolate-centered studies -- including investigations of how [cocoa](#) might affect [blood pressure](#), heart disease, painful nerve disorders and [cancer risk](#) -- were to be presented Wednesday at the American Chemical Society's annual meeting in San Diego.

Some caveats: Most of the studies have not yet been accepted for publication in a peer-reviewed journal, so those findings are preliminary. Many studies were also small in scope, with relatively few participants. And some were animal studies, and results might not translate to humans.

While larger, [observational studies](#) have shown possible health benefits from [dark chocolate](#) or cocoa, this new research begins to explore how those benefits occur, explained Dr. Gregg Fonarow, a professor of cardiology at the University of California, Los Angeles.

"The thing to keep in mind: All of these are very small studies," Fonarow said. "But they are important steps in investigating the mechanisms by which [chocolate](#) or cocoa may have beneficial [cardiovascular effects](#)."

Several of the studies suggested that cocoa might protect against inflammation.

"One of the presumed mechanisms by which cocoa or dark chocolate could be beneficial, or flavonoids in general, is through the mechanism of decreasing vascular inflammation," part of the process leading to strokes and heart attack, Fonarow noted.

For instance, in a study involving [obese mice](#), researchers found that adding cocoa to their high-fat diet slowed down their weight gain.

The mice "have elevated body fat, fasting blood glucose and serum [insulin levels](#). And they have markers for [systemic inflammation](#)," said study author Joshua Lambert, an assistant professor of [food science](#) at Pennsylvania State University.

After supplementing the animals' diets with cocoa, "we saw that these markers of systemic inflammation went back down to the same level as they would be in mice that were on a low-fat diet," Lambert said. "So it seems like we're able to take this inflammatory response and reduce it back to the level you see in lean mice."

In another study from Italy, 40 people, half of whom were smokers, were randomly assigned to receive either dark chocolate or milk

chocolate. Dark chocolate only was found to reduce "oxidative stress" involved in dangerous clot formation -- and only in smokers.

"The results, suggesting that dark chocolate can reduce oxidative stress and subsequent disease in smokers are intriguing and certainly worthy of further study," said Dr. Thomas Glynn, director of cancer science and trends and international cancer control for the American Cancer Society.

"The authors establish the biological plausibility of antioxidant effects of dark chocolate in a small [group] of smokers and demonstrate the potential harm-reducing effects for smokers of eating dark chocolate," Glynn said.

But, he added, "great caution is necessary, however, in interpreting the results of studies regarding the possible health benefits of dark chocolate -- none of the evidence to date is definitive and is based on small studies with limited time duration. No one, despite the enjoyment of dark chocolate, should consider using it as a substitute for healthy eating, getting exercise and above all, stopping smoking."

Also being presented at the meeting is a meta-analysis of human research on cocoa flavonoids and cardiac risk factors. The analysis, which combined data from 24 studies on 1,106 people, appeared in the *Journal of Nutrition* last September.

"Cocoa lowered blood pressure, lowered LDL ['bad'] cholesterol, raised HDL cholesterol -- the good cholesterol -- and improved insulin resistance," said senior study author Eric Ding, a nutritionist, epidemiologist and faculty member at Harvard Medical School. He said cocoa also might have a role in dilating vessels to improve blood flow.

Ding warned not to look for health benefits from your favorite milk chocolate candy bar. "It's not a chocolate study -- it's cocoa flavonoid,"

he said.

In his study, Lambert said, "we used unsweetened regular cocoa powder. How that relates to chocolate -- there's a couple of degrees of separation. Because when you make chocolate you add fat, in the form of cocoa butter and sugar."

Lambert added, "Nobody's going to eat a tablespoon of unsweetened cocoa."

But how will people take their "medicine?"

"It's one of those issues, should you get it in a conventional or fortified product or a supplement?" Ding said. "The dose [of cocoa-flavonoid compound] on average is 400 to 500 milligrams -- equivalent to 32 bars of milk chocolate or eight to nine bars of dark chocolate."

In other new research:

- A study of 30 adults, published in the *Journal of Proteome Research*, found that eating a small amount of dark chocolate daily reduced stress hormones. This study came out of the Swiss-based Nestle Research Center, run by the chocolate-making company.
- An Italian study concluded that flavanol-rich chocolate lowers blood pressure by 6 milligrams of mercury (mmHg) in systolic blood pressure (the top number) and 3 mmHg in diastolic pressure. "That magnitude of blood pressure reduction would be clinically relevant if sustained, and clearly done in placebo-controlled double-blind studies," Fonarow said.
- A small pilot study from England had people with type 2 diabetes eat high- and low-flavanol chocolate an hour before a meal.

Those who ate the high-flavanol chocolate improved in some measures of heart disease risk.

- In studies on rats, researchers in Missouri found evidence that cocoa ingredients soothe excitability of the trigeminal nerve, involved in migraines and temporomandibular joint disorder (TMJ).
- One rat study from Spain suggested that cocoa might reduce colon cancer risk by destroying precancerous cells, and another hinted that it offered protection from liver damage, by inhibiting enzymes involved in inflammation.

**More information:** The U.S. National Center for Complementary and Alternative Medicine has more on [antioxidants and health](#).

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