



Studies exploring enigma of chocolate

Is chocolate really good for you, or is that a gimmick?

What — a skeptic? And with Valentine's Day approaching? You probably study the calorie and fat content of your favorite chocolate bar, which would be enough for anyone to question claims about its health benefits.

But chocolate, especially dark chocolate, is a great example of the dietician's adage that "there are no good or bad foods, just good and bad diets."

First, some background. Chocolate doesn't contain a lot of vitamins and minerals — nutrients essential for human health. But they are rich in "phytochemicals," or plant-based compounds that nutritionists believe can give your health a boost.

There are several kinds of phytochemicals. Carotenoids, such as beta-carotene and lycopene, are one type. Another type are polyphenols, such as anthocyanins, flavanols, isoflavones and flavonoids. Studies indicate that cocoa powder and dark chocolate are especially rich in flavonoids.

Researchers are in the midst of discovering exactly how these compounds work in the body. For example, in a small 2006 study at the University of California-San Francisco, participants ate 1.6 ounces of dark chocolate (about the size of a standard candy bar) each day for two weeks. Researchers found that the flavonoid epicatechin was absorbed at high levels in the blood and appeared to help blood vessels dilate. That helps increase blood flow and reduces the risk of heart disease.

But a 2006 study at Oregon State University indicated that flavonoids are poorly absorbed by the body, and those that are absorbed appear to be rapidly metabolized and excreted. Still, that in itself may have a healthful effect, the Oregon researchers said: As the body works to remove the flavonoids, total antioxidant capacity increases in the blood. And the flavonoids do appear to affect cell signaling pathways and gene expression that play a role in cancer and heart disease.

Still another study, published in the *Journal of the American Medical Association* in 2007, found that eating just a quarter-ounce of dark chocolate a day — about the amount in a miniature candy bar — appears to help lower blood pressure in people with mild hypertension. That's significant, because this amount of chocolate contains just 30 to 40 calories, compared with nearly 200 calories in portion sizes previously studied.

The bottom line? We still have a lot to learn about chocolate's health effects. We know that chocolate, like nuts and other fat-rich foods, pack a lot of calories in small packages. But enjoying a small amount in moderation certainly won't hurt, and just might help overall health. Any food in moderation can fit into a healthful diet. And if there are some added benefits, all the more reason to enjoy.

Chow Line is a service of Ohio State University Extension and the Ohio Agricultural Research and Development Center. Send questions to Chow Line, c/o Martha Filipic, 2021 Coffey Road, Columbus, OH, 43210-1044, or filipic.3@cfaes.osu.edu.



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