

DARK CHOCOLATE

WHY IT CAN BE GOOD FOR YOUR HEART

For a student of biology like me life is a series of chemical reactions. May be it robs the good feelings about all that is romantic in life. If I say that love happens because a certain chemical is produced in large quantities when you look at somebody and the levels fall with others, it may sound funny.

Here I bring you some facts about chocolates. Can you imagine there is so much about the sweet that we always liked? Read on and you may like the chocolate much more!!

Tobacco is injurious. People like it and use it without let up.

How about the good old chocolate?

The cacao bean, from which chocolate is made, is devilishly complex, containing more than 400 chemicals. Many of them can affect human biology and health. Whether chocolate is good or bad for you depends largely on the type of chocolate and the amount you consume.

Fats

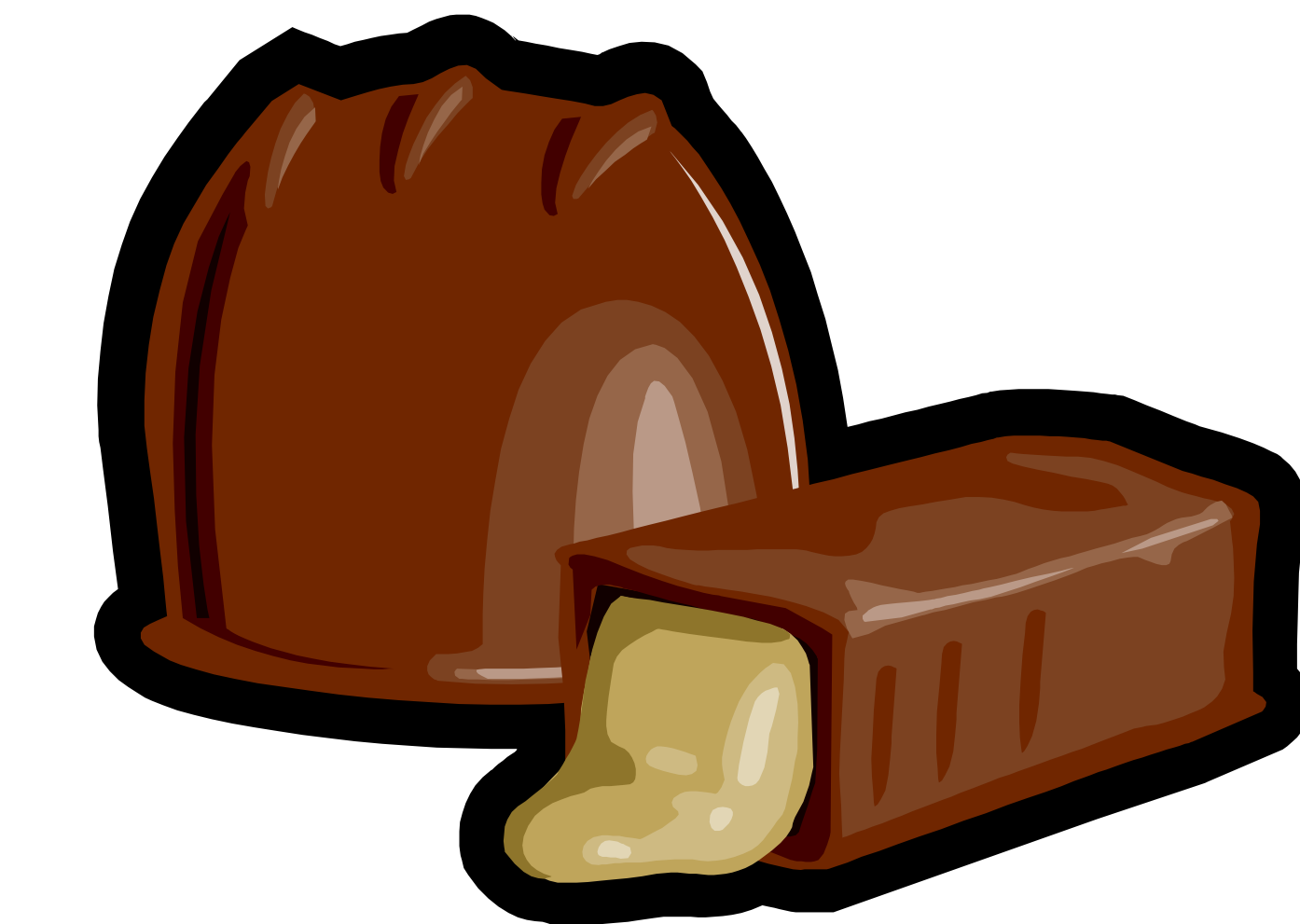
About a third of the fat in cocoa butter is oleic acid, the very same monounsaturated fat that gives olive oil its good name. Another third is stearic acid; it is a saturated fat, but unlike the three other saturated fats in the human diet, stearic acid does not raise cholesterol levels because the body can metabolize it to oleic acid. And while chocolate also contains some palmitic acid, a saturated fat that does boost cholesterol, careful studies show that eating chocolate does not raise blood cholesterol levels.

Flavonoids

The humble cacao bean contains a number of chemicals in the flavonoid family. Polyphenols protect chocolate from turning rancid, even without refrigeration. The soft imported chocolates melt and become mushy in hot places, but they never get bad in taste. Even more important are the flavanols, a group of chemicals that are responsible for many of the protective actions of chocolate. Flavanols are present in many healthful foods—like apples, cherries, and black tea—but dark chocolate is the richest source.

Amino acids

Chocolate is high in tryptophan, phenylalanine, and tyrosine. Like other amino acids, these nitrogen-rich compounds are the building blocks of all the body's proteins. But two of these amino acids have a unique property: they are precursors of adrenaline, a "stress hormone," and dopamine, a neurotransmitter that relays signals between nerve cells in the brain. Scientists postulate that dopamine induces feelings



of pleasure. Now you can understand all those advertisements about celebrating a victory or love with a chocolate. This favorite sweet gives good feelings instantaneously. It is no secret that all of us love to take a bite of a good chocolate. The one thing everyone looks for when a friend or relative arrives from abroad is a chocolate. Unfortunately the amino acids in it also have a bad side too. These chemicals may also explain some of the adverse effects of chocolate, including its ability to trigger headaches in some migraine sufferers, its ability to raise blood pressure to dangerous levels in some patients taking monoamine oxidase inhibitors for depression, and its ability to instigate diarrhea, wheezing, and flushing in patients with carcinoid tumors, which are rare.

Methylxanthine

Chocolate contains two members of this group of chemicals. One is obscure, the other notorious — but both theobromine and caffeine have similar effects on the body. They may explain why chocolate makes some hearts beat faster — and why it gives many people heartburn by relaxing the muscle between the stomach and the esophagus, thus allowing acid to reflux up from the stomach into the sensitive "food pipe." Did you ever experience it? Now you know why the love food causes heart burn!

Sweet Science

The flavonoids have many properties that might improve health. To see if they really work, researchers have studied foods ranging from apples to onions and from tea to wine. And it's no surprise that chocolate has attracted the interest of scientists from around the world, giving the research an international flavor. Most studies concentrate on aspects of cardiovascular health; here are some representative findings:

Antioxidant Activity

Antioxidants protect many of the body's tissues from damage by oxygen free radicals. Among other beneficial actions, flavonoids protect LDL cholesterol from oxidation, which puts the "bad" into "bad cholesterol." Here are two examples. Scientists from Italy and Scotland fed dark chocolate, milk chocolate, or dark chocolate and whole milk to healthy volunteers. Dark chocolate boosted the volunteers' blood antioxidant activity, but milk, either in the chocolate or a glass, prevented the effect. Similarly, researchers in Finland and Japan found that dark chocolate reduces LDL oxidation while actually increasing levels of HDL ("good") cholesterol, but white chocolate lacks both benefits.

Endothelial Function

The endothelium is the thin inner layer of arteries. It's responsible for producing nitric oxide, a tiny chemical that widens blood vessels and keeps their linings smooth. Can chocolate help? Doctors in Greece think it may. They fed 100 grams (about 3½ oz) of dark chocolate to 17 healthy volunteers and observed rapid improvement in endothelial function. Swiss investigators found similar effects from dark chocolate. German scientists reported that flavanol-rich cocoa can reverse the endothelial dysfunction produced by smoking, and European doctors reported that dark chocolate appears to improve coronary artery function in heart transplant patients. There's good news for nonsmoking, original-heart people, too, since Harvard researchers found that cocoa can blunt the endothelial dysfunction associated with aging.

Blood Pressure

Because good endothelial function widens blood vessels, it's logical that chocolate

might help lower blood pressure. Studies show that dark chocolate can lower blood pressure in healthy adults and in patients with hypertension. Research shows that the effect is modest, however, lowering systolic pressure (the higher number recorded, when the heart is pumping blood) and diastolic blood pressure (the lower number, recorded while the heart is resting between beats) by just under 5 millimeters of mercury (mm Hg). The benefit wears off within a few days of stopping "treatment" with a daily "dose" of dark chocolate. And another reality check comes from a six-week 2008 study of 101 healthy adults that did not find any benefit for blood pressure.

Insulin Sensitivity

The sugar and calories in chocolate give people with diabetes good reason to eschew it. But an Italian study in nondiabetics suggested that dark, but not white, chocolate can improve insulin sensitivity. However, a small 2008 investigation of flavanol-enriched cocoa in diabetics found no improvement in blood sugar control or blood pressure.

Blood Clotting

Most heart attacks and many strokes are caused by blood clots that form on cholesterol-laden plaques in critical arteries. These clots are triggered by platelets; the antiplatelet activity of aspirin explains its important role in patients with coronary artery disease. Researchers in Switzerland and the U.S. found that dark chocolate reduces platelet activation.

From Lab to Life

International experiments show that dark chocolate has an impressive array of activities: it is an antioxidant that may improve your cholesterol; it improves endothelial function and may lower your blood pressure; it is a sweet that may lower your blood sugar; and its antiplatelet activities could reduce your chances of developing an artery-blocking clot. Taken together, these properties could reduce the risk of heart attack and stroke. But all of these hopeful results are based on short-term experiments in a small number of volunteers. Do these bits and pieces of data apply to real life? Perhaps.

Research suggests that chocolate may indeed have a role in promoting vascular health, but the devil is in the details. The first consideration is the type of chocolate. Dark chocolate appears beneficial, but milk chocolate, white chocolate, and other varieties do not. The second issue is calories. Most trials have used 100 grams of dark chocolate, the equivalent of eating about one-and-a-half chocolate bars of typical size. If you ate that much every day, you'd pack in more than 500 extra calories, enough to gain a pound a week.