

## The Hershey Center for Health and Nutrition

The Hershey Center for Health and Nutrition sponsors cutting-edge research on the health benefits of cocoa, chocolate and nuts. The Center focuses on studying the chemistry and dietary components of various foods and food components that are key sources of nutrients. The Center directs scientific research to



develop products and technologies providing consumers with health benefits in the areas of heart health, weight management, and mental and physical energy. The Hershey Center

for Health and Nutrition is designed to be a significant source of new-product innovation as it draws upon clinical studies and scientific analyses of the health benefits of cocoa, nuts and other natural ingredients.

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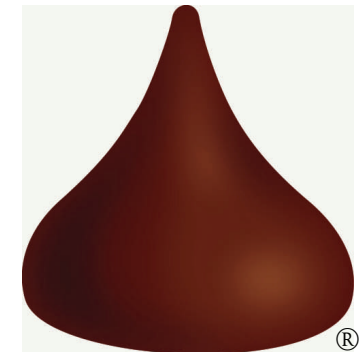
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## Top 10 Myths About Chocolate

**Learn the sweet truth  
behind chocolate and  
health.**



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**The Hershey Center for Health and  
Nutrition**

# Top 10 Chocolate Myths

## 1. Chocolate is loaded with cholesterol-raising fat.

Cocoa butter, the fat in chocolate, might be expected to increase blood cholesterol levels because it contains saturated fat. But stearic acid, the main saturated fat found in milk chocolate, is unique. Research has shown that it doesn't raise cholesterol levels the same way that other types of saturated fats do. When consumed in moderation as part of a balanced eating plan, chocolate does not increase blood cholesterol levels. In fact, eating a 1.4 ounce milk chocolate bar instead of a carbohydrate-rich snack was shown to increase HDL (good) cholesterol levels. (Kris-Etherton PM, et al., *Am J Clin Nutr* 1994;60(6 Suppl):1037S-42S)

## 2. People with diabetes must give up chocolate.

Chocolate does not need to be completely avoided by persons with diabetes. People are often surprised to learn that milk chocolate has a low glycemic index. Chocolate adds flavor and enjoyment when used as an occasional treat as part of a well-balanced diet. Recent preliminary research suggests that dark chocolate may actually improve insulin sensitivity in people with normal and high blood pressure and improve endothelial dysfunction in people with diabetes, although more studies are needed. (Grassi D, et al., *Am J Clin Nutr* 2005;81:611-4; Grassi D, et al., *J Nutr* 2008;138:1671-6. Balzer J et al., *J Am Coll Cardiol* 2008;51:2141-9.)

## 3. Chocolate causes weight gain.

Chocolate can be a part of an overall healthy lifestyle, when consumed in moderation. The key to managing weight is balancing the calories consumed each day with the amount of energy expended in physical activity. An average chocolate bar contains around 200-220 calories, which is low enough to be included in a weight control diet if substituted for other high calorie foods. If you keep your portion sizes small, the occasional treat can be a guilt-free part of your diet. In fact, experts believe that saying no to favorite foods is not the answer. Enjoying an occasional piece of chocolate actually may help you stick to a healthy eating plan.

## 4. Chocolate is high in caffeine.

Many people are surprised to learn that a typical serving of milk chocolate contains relatively small amounts of caffeine – slightly more than an 8-oz cup of decaffeinated coffee. Higher caffeine levels are found in dark chocolates; caffeine content can range from about 25 to 40 mg per serving. A typical 8-oz cup of regular coffee contains 65 to 120 mg of caffeine per serving.

Both milk and dark chocolate also naturally contain theobromine, a close relative to caffeine. Amounts range from about 60 mg in a 1.4-ounce milk chocolate bar to over 300 mg in an 82% cacao dark chocolate. Although in the same family as caffeine, theobromine has been found to have different effects in the body. It is believed that theobromine, unlike caffeine, does not have much, if any, of a stimulant effect. (Usmani OS, et al., *FASEB J* 2005 Feb;19:231-3.)

## 5. Chocolate causes cavities.

Good dental health involves a number of factors, including oral hygiene, fluoride intake, genetics and diet. Cavities are formed when bacteria in the mouth metabolize sugars and starches (“fermentable carbohydrates”) from any type of food to produce acid. This acid then eats through the enamel of the tooth, causing a cavity. Although chocolate candy does contain fermentable carbohydrate, it clears the mouth relatively quickly and has not been found to contribute to the development of cavities. One study investigated the development of plaque from chocolates with various levels of cocoa and found that all chocolate types had less of an effect on dental plaque than table sugar. A second study showed no association between consumption of chocolate and the development of cavities. Interestingly, the flavanols in cocoa may actually be good for dental health by helping to decrease plaque formation. (Verakaki E, Duggal MS. *Eur J Paediatr Dent* 2003 Dec; 4 (4): 203-10; Gibson S, Williams S. *Caries Res* 1999; 33 (2): 101-13; Kashket S. *Arch Oral Biol* 1985; 30 (11-12): 821-6)

## 6. Chocolate causes hyperactivity.

Chocolate and other sweets are often blamed when children get overly wound up. An extensive review of research studies indicates that there is no relationship between consumption of sugar-containing foods and changes in behavior. It is believed that the environment in which sugary foods are often eaten, such as a birthday party or other celebration, is what affects behavior. (Krummel D, et al. *Crit Rev Food Sci Nutr* 1996; 36 (1-2): 31-47)

## 7. Chocolate lacks any nutritional value.

Chocolate and cocoa contains flavanols (an antioxidant also found in tea and red wine) that have been associated with supporting heart health. An average dark chocolate bar contains slightly more antioxidant capacity than 3 ½ cups of green tea, 1 ½ glasses of red wine or ¾ cups blueberries. A daily serving of dark chocolate, which contains more antioxidants than milk chocolate, can also help improve blood flow and insulin resistance and lower blood pressure according to several recent studies. (Faridi Z, et al., *Am J Clin Nutr*. 2008;88(1):58-63. Taubert D, et al., *JAMA*. 2007;298(1):49-60.)

## 8. Chocolate causes acne.

Studies going as far back as the 1960s have failed to show any relationship between chocolate consumption and acne. An extensive review in the *Journal of the American Medical Association* concluded that “diet plays no role in acne treatment in most patients... even large amounts of chocolate have not clinically exacerbated acne.” Preliminary research has actually demonstrated a beneficial impact of cocoa on skin health, measured as improved photoprotection and dermal blood circulation, measures of the health of the skin surface and skin hydration. (Minkin W., et al., *JAMA* 1970; 211 (11):1856. Heinrich U, et al., *J Nutr*. 2006;136(6):1565-9.)

## 9. Milk chocolate is high in dietary cholesterol.

Milk chocolate is actually low in dietary cholesterol. A typical serving of milk chocolate contains about 5 to 10 mg of dietary cholesterol. Keep in mind that the American Heart Association recommends you limit your daily cholesterol intake to less than 300 mg.

## 10. Dutching destroys all the flavanol antioxidants.

Dutching, or processing with alkali, does break down the flavanol antioxidants naturally found in cocoa and chocolate. However, the extent of the loss of flavanol antioxidants is related to how heavily the cocoa or chocolate is dutched. According to a recent study, lightly and medium dutched cocoa powders still contained substantial amounts of flavanols. (Miller KB, et al., *J Agric Food Chem*. 2008;56(18):8527-33.)