

Chocolate: More Often For Best Results

By Bryon Verhaeghe

Most people like chocolate and some of us even crave it. Why is this? This history of making chocolate from the cocoa bean is interesting and the health benefits are incredible.

Cocoa grows from the tree named Theobroma-Cacao. It takes 4-5 years before the mature plant begins to produce pods. Each pod contains 20 to 60 seeds or beans. The pods and seeds keep the name cacao but once processed into a powder the name can be either cacao or cocoa. Some authors speculate that this was originally a typing or spelling mistake but cocoa seems easier to say and is used more often today.

Using DNA tracing the tree is from the Amazon region of South America and moved to Guatemala and Mexico by the Olmec / Mayan peoples. Theobroma-Cacao means, "Food of the Gods" and it was used as a currency like gold for trade due to its value and limited availability. The term, "When Money Grows on Trees" was from the fact that it takes years to grow cocoa beans that can be used as money for trade.

The beans contain 40-50% vegetable fat and this is very bitter. In this fat there are high levels of **polyphenols; also known as tannins and flavanoids**, are the health benefit. These give color and flavor to foods. In the body a polyphenol enhances the immune system against many diseases including cardiovascular problems and cancer. This natural molecule is high in red grape skins and other foods to give them health advantages.

The enjoyment of the flavors of food and beverage often revolves around the bitter tastes and earns a lot of discussion among connoisseurs. Many technologies were discovered for flavor while removing this bitter taste. Like grapes the fermentation process is best but takes time and skill. The Dutch in around 1828 learned to remove the bitter fat with a hydraulic press. The Dutch process made the bitter flavor less strong and increased solubility in water. Unfortunately this also removed all the health benefits of polyphenols. With a lower cost product and less bitter taste this Dutch Cocoa was marketed into the UK by JS Fry and Sons.

Mixing cocoa with milk was not possible until the Swiss chemist Henri Nestle figured it out. He discovered that a low fat cocoa would mix with the low water or evaporated milk. This new achievement of milk-chocolate was an instant business success for Swiss Chocolate. Today many companies process, blend and mix cocoa. Unfortunately they remove the high fat and nutrient rich polyphenols to make milk-chocolate and the health benefits are gone.

Naturally produced cocoa is fermented in four to seven days. Like grapes; this reduces the sugars, kills germs and improves the flavor and aroma. Chocolate liquor (cocoa liquor) is pure chocolate in its liquid form and like the bean it contains both cocoa solids and cocoa butter in roughly equal proportions.

The beans are fermented, dried, roasted, and separated from their skins. Then they are ground into cocoa mass and melted to become the liquor. This liquid liquor is cooled and molded into blocks known as unsweetened baking chocolate (bitter chocolate). The contents are roughly 53% cocoa butter (fat), about 17% carbohydrates, 11% protein, 6% tannins, and 1.5% theobromine.



	Cocoa
Milk chocolate	15 – 35 %
Dark chocolate	40 – 55 %
Dark semi-sweet	50 – 70 %
High Polyphenols	72 – 99 %
Polyphenols improve mood	

Health Benefits of Chocolate:

Cocoa improves cholesterol - Johns Hopkins University/Sinai Hospital Program in Internal Medicine, Baltimore analyzed the outcome of 28 healthy volunteers consuming flavanol-rich dark cocoa for one week. Their bad cholesterol (LDL) fell 6% and the good cholesterol (HDL) went up 9%. (PMID: 19005437)



Cocoa reduces blood pressure - Researchers at the America Cancer Society in Atlanta compared 133 adult Kuna Indians living in Panama to 183 that had moved to Vera Cruz. Blood pressure was significantly lower in the Panama group and urine testing ruled out any salt difference in the diets. A diet survey of 118 items found similar diets but that the lower blood pressure group consumed a 10 fold amount of flavanol-rich cocoa. (PMID: 16794446)

Cocoa lowers risk of heart disease - Researchers at the Department of Medicine, Harvard Medical School and the Brigham and Women's Hospital, Boston studied 15 people under the age of 50 and 19 over the age of 50. After four to six days of flavanol-rich cocoa, blood flow improved significantly in both groups but to a greater degree in the older group. Published on Aug 24, 2006 in the Journal of Hypertension. Their conclusion is that flavanol-rich cocoa will improve heart and artery function in old age. (PMID: 16877960)



Cocoa helps us lose weight - The greater the frequency of chocolate intake is associated with lower BMI (Body Mass Index), but the amount of chocolate intake is not associated with BMI. Age, sex, physical activity, caloric intake, satfat intake, fruit and vegetable intake, and mood do not affect the link between frequency of chocolate intake and BMI. Published on Medscape: "More Intake of Chocolate May Yield Lower Body Mass Index", March 2012

Cocoa improves blood flow to the brain - The Department of Neurology in Boston conducted a study on 34 healthy volunteers aged 66-78. They measured the blood flow to their brains with a special ultrasound device. High content cocoa was added to their diet. After one week the blood flow increased 4-12% and after two weeks this was 6-14% improved. They concluded that stroke and dementia would be reduced by high content cocoa consumption. (PMID: 18728792)

Cocoa improves immune system - The University in Barcelona, Spain has found that long term flavanol-rich cocoa improved the white cell response to inflammation in lab animals and concluded that long term studies deserve to be investigated in humans. (PMID: 19126261)

PMID stands for Pub Med ID and the abstracts are found on www.ncbi.nlm.nih.gov/pubmed.



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