

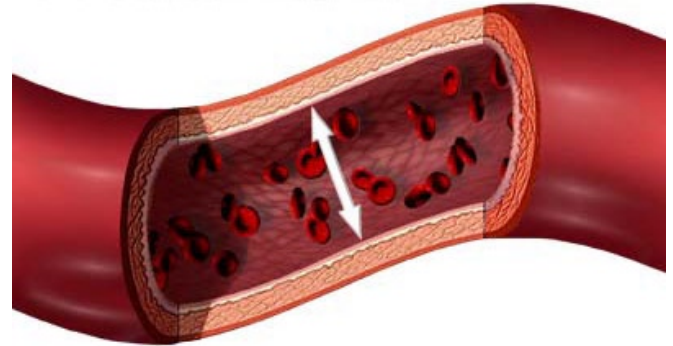
## PROPERLY PROCESSED DARK CHOCOLATE POSITIVELY AFFECTS BLOOD PRESSURE LEVELS

*Several studies have shown that dark chocolate decreases blood pressure.*

According to the American Heart Association, more than 910,000 Americans will die of heart disease this year. As a matter of fact, by 2010, heart disease will be the number one killer across the world.. More than 70,000,000 Americans live every day with some form of “heart disease” (high blood pressure, cardiovascular disease, stroke, angina (chest pain), heart attack or congenital heart defect).

In several studies, dark chocolate has been shown to decrease blood pressure, which in turn decreases the damage to heart vessels. Cacao is thought to be a renin-angiotension enzyme inhibitor, which is the same principle on which many blood pressure pills work (ACE inhibitors).

Blood pressure is the measurement of force applied to artery walls



A study conducted this year by the University of Illinois found that the consumption of flavanol-enriched cocoa bars resulted in significant reduction in systolic blood pressure (8.2% decrease) and diastolic blood pressure (8.2% decrease) compared to a placebo group. The improvement occurred within a four-week period, and continued throughout the entire study. These findings were very interesting, especially considering the fact that study participants had no pre-existing hypertension.

**Conclusion: Eating cocoa daily can lower blood pressure.**

A group of researchers from the United Kingdom reported in the American Journal of Clinical Nutrition regarding a meta-analysis of numerous studies completed on cocoa flavanols and blood pressure.

These researchers found forty-three different studies regarding the effect of chronic intake of flavonoids on blood pressure, and seven studies regarding the effect of acute intake. Black tea, red wine and grape juice demonstrated no significant effects on blood pressure. Cocoa, however, presented a 5.88mm reduction in systolic blood pressure, and a 3.33mm reduction in diastolic blood pressure—statistically significant findings.

**Conclusion: Cocoa appears to be more effective than black tea, wine and grape juices in helping reduce high blood pressure.**

Cocoa studies conducted this year found that cocoa increases vasorelaxation (dilates the blood vessel walls) in healthy subjects. Effects were also positive for patients with hypertension, coronary heart disease, the elderly, post-transplant heart patients, and patients with high cardiovascular risk.

**Conclusion: Consuming cocoa can dilate blood vessels, allowing better blood flow throughout the body.**

### CASE STUDY THE ILLINOIS

### CASE STUDY UNITED KINGDOM

## CASE STUDY UNIVERSITY OF UTAH



The University of Utah study found that basically healthy patients experienced a decrease in systolic and diastolic blood pressure by 5mm within two weeks of a program eating unprocessed cocoa (a product produced under the Xocai™ brand). These findings corroborated other studies, and delivered the same success you would find with weight loss, dieting, and even some blood pressure medications.

It is widely accepted among medical professionals that even a small drop in blood pressure translates to a marked reduction in heart attacks, strokes, and other cardiovascular diseases.

**Conclusion: Consuming unprocessed cocoa can lower blood pressure and contribute to weight loss.**

## CASE STUDY YALE

This year, a group of researchers from Yale found that acute ingestion of both solid dark chocolate and liquid cocoa improved the blood vessel function and lowered blood pressure in overweight adults. Sugar-free or low glycemic products aided in further improvements in blood pressure.

Research has uncovered the fact that the dilation of blood vessels is achieved via an NO-dependent (nitric oxide) mechanism. A decrease in NO is associated with increases in arteriosclerosis and cardiovascular risk. After consuming a flavanol-rich beverage, test subjects experienced an increase in NO, generated by NO synthase. Cocoa stimulates this mechanism to create even higher levels of NO in test subjects.

**Conclusion: Cocoa lowers blood pressure through stimulation of nitric oxide levels in the body.**

## CASE STUDY SWISS RESEARCHERS

We also see some notable evidence that cocoa also acts like an angiotensin converting enzyme (ACE) inhibitor, further lowering blood pressure.

Researchers in Switzerland found that within two hours of consumption of flavanol-enriched cocoa, subjects experienced a significant reduction of serum oxidative stress, improved coronary vessel function, and decreased platelet adhesion. Researchers also noted an increase in serum epicatechin levels at the same time.

**Conclusion: Yet another way cocoa lowers blood pressure is by decreasing oxidative stress.**

## CASE STUDY TUFTS UNIVERSITY & L'AQUILLA UNIVERSITY

A study by researchers at Tufts University and the University of L'Aquila used 1008mg of total flavonoid cocoa product divided into 3 daily doses, compared to a flavonoid-free cocoa product.

These researchers found that flavonols increased the bioavailability of NO and decreased the formation of oxygen- and nitrogen-free radicals. They also found that flavonols and resveratrol inhibit IκB kinase, and downregulate nuclear factor-κB (an oxidation pathway that causes blood vessel damage and increases fat-induced insulin resistance). This study confirmed other research that flavanol-rich cocoa improved the dilation capacity of blood vessels, and reversed the dysfunction of blood vessels in prediabetics and smokers.

These scientists concluded that high-dose flavanol cocoa improved insulin sensitivity, increased B-cell function (cells that produce insulin), decreased blood pressure, and increased the flexibility of the blood vessel walls. They also found an increase in the QUICKI (quantitative insulin sensitivity check index), which correlates to improved insulin sensitivity, as well as improved scores in the oral glucose tolerance test.