



**HERSHEY
CENTER
FOR HEALTH AND
NUTRITION**

HCHN Newsletter

WINTER 2008

COCOA GOT MOJO

...AND I QUOTE

"I know that it has not been scientifically proven that eating chocolate will help you live longer, but why take any chances?"
-Unknown

It has been there for as long as you can remember... unassuming, dependable and potentially so sweet. It's the canister of Hershey®'s Natural Cocoa Powder in your pantry. But now, partly due to our own cocoa clinical research, cocoa is among the popular press "SUPER FOOD" elite.

Recently, *Family Circle* magazine touted Cocoa Powder as its "Surprise Superfood." The article also quotes Dr. David Katz, the lead scientist who conducted research on Hershey®'s Cocoa at Yale University.

is no food more deserving. In recent years, dark chocolate has experienced a huge surge of interest after scientists were able to link compounds in our favorite indulgence to real health benefits—especially benefits to the cardiovascular system. Of primary interest are flavanols found in cocoa that have stellar antioxidant action and are linked to other benefits. The evidence for these benefits has continued to mount and now stands as a rather impressive body of nutrition science.

ments in blood cholesterol—especially raising the good cholesterol. However, the most impressive benefit of this SUPER FOOD is that cocoa may aid blood flow by stimulating important biological actions which allow arteries to dilate or "open up." Increased

Cocoa Beans are actually the seeds of the fruit (the cocoa pod) of the cocoa tree.

blood flow and vascular benefits have been demonstrated throughout the body—even in the brain and skin—more research is ongoing to determine the many benefits of



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That's right—cocoa has found its mojo.

Cocoa powder is made from cocoa beans, which are actually the seeds of the fruit of the *Theobroma Cacao* (cocoa) tree.

The tree's name literally means "food of the gods" and, given it is the mother plant that gives life to cocoa and all things chocolate, there

What is often overlooked is that these healthful compounds occur naturally in the bean and are very concentrated in cocoa powder. And, in terms of the health benefits, the bioactive compounds are in the cocoa powder—not the cocoa butter.

A recent study of nearly 500 older men showed that those who ate the most cocoa-containing foods were not only half as likely to die from heart disease, but half as likely to die from any cause. Other studies have linked cocoa powder to reduced blood pressure, risk of blood clots and improve-

How to get more MOJO from your COCOA?

- Shake some cocoa powder in your coffee or tea or on your French Toast
- Make a gourmet cup of cocoa with cinnamon & nutmeg
- Add 2-3 tbsp of cocoa to savory dishes such as chili
- Combine cocoa with other spices such as paprika, cumin and oregano for a tasty vegetable rub



NUTTY FACT:

Peanuts are not actually nuts... Technically, the peanut is a legume, like peas, kidney beans and soybeans.



Did you know???

- Reese's® Peanut Butter Cups are >30% peanuts
- A standard cup contains about 12 peanuts!
- The double cup has about 24 peanuts.

Peanuts and Peanut Butter...

Who knew healthy could taste so good?

When it comes to nutrition, peanuts are packed with many healthful nutrients (see insert below).

Peanuts Pack Nutrition

All of these nutrients packed into a little peanut makes them a “nutrient dense” food. This means peanuts contain a high concentration of healthy nutrients vs. a food that is lacking healthy nutrients, such as regular or diet soda.

Because peanuts are such a rich source of nutrients, it seems quite possible that including peanuts in the diet would lead to an improvement in the overall quality of an individual’s diet.

A study that included more than 14,000 men, women and children nationwide found that people who ate peanuts had a significantly higher

“Healthy Eating Index” (a measure of overall diet quality), compared to people who did not eat peanuts.

What about the calories?

Peanuts are not a low calorie food and some people may be concerned about their weight when consuming peanuts. However, this study noted no increase in Body Mass Index (BMI) – a measure of weight for height – with increasing amounts of peanut intake.

Peanuts may help curb your appetite and fill you up faster.

In fact, some research suggests that peanuts may help to curb your appetite. Many of the nutrients that help to make you feel “full” after you eat are found in peanuts. These include protein, healthy fats and fiber. The results of a study conducted in 24 healthy men and women demonstrated that a peanut

snack was more satisfying, compared to a high carbohydrate snack (rice cake).

Effects on Blood Sugar

Because peanuts have a relatively low glycemic index (14 on a 100-point scale), eating peanuts and peanut butter may also help to prevent big spikes and falls in your blood glucose (sugar) levels—this may also reduce pangs of hunger. The low impact on blood glucose may

help explain why those who eat peanuts have a reduced risk of diabetes. According to a study from the Harvard School of Public Health, women who ate 1oz of peanuts each day had a 27% reduction in risk for developing type 2 diabetes. Similarly, women who ate ~1 tbsps of peanut butter a day had a 21% reduction in their risk for developing diabetes.

Peanuts & Cholesterol

Eating peanuts also has been shown to lower levels of total cholesterol, “bad” LDL-cholesterol and triglycerides, and to keep “good” HDL-cholesterol levels high. This effect is likely due not only to the healthy monounsaturated and polyunsaturated fats found in peanuts but also to the fiber and other phyto “plant” nutrients found in peanuts.

Large population studies suggest that eating peanuts, peanut butter, and peanut oil may reduce your risk of heart disease by 25-50% when they are consumed 1 to 5 times per week.

The verdict is in: peanuts and peanut butter are nutrient dense foods that can easily be incorporated into any healthy diet!

References:

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Peanut-rition Facts

- 1-oz of peanuts provides: 7 grams of protein, 2 grams of fiber and more than 10% of the daily value for vitamin E, niacin and magnesium.
- Most of the fat in peanuts (>75%) is monounsaturated and polyunsaturated fat—touted as the healthy fats.
- The US Food Pyramid, the American Heart Association, the DASH Diet (for blood pressure lowering) and the Mediterranean Pyramid all recommend eating nuts as part of a healthy diet.
- The US FDA allows peanuts and tree nuts to carry a qualified health claim for potential cardiovascular disease protection.



HCHN Profile:

Debra Miller, PhD



Moms—there is hope! As a child, Debra was among the pickiest eaters. There were no vegetables that she would readily eat. Today, how-

ever, Debra is Hershey's Senior Nutrition Scientist and has been a modified vegetarian (who also eats some fish for the health benefits) for over 8 years.

Debra, a native Pennsylvanian (Altoona, PA), came to Hershey in 2004 from the Solae Company in St. Louis, MO—a soy protein company, where she was the Director of Nutrition Communications.

At Hershey, Debra directs the clinical nutrition program, consults on health & wellness oriented product development and nutrition policies and helps lead the Hershey Center for Health & Nutrition. She also coordinates the Hershey internal Health & Wellness Steering Committee and external Advisory Board and aids in nutrition communications.

Debra is an alum of Juniata College and received her doctoral degree from Penn State. She completed a research fellowship at Harvard Medical School and was an Assistant Professor at Johns Hopkins School of Medicine prior to joining the food industry.

She has two children, Ellie (14) and Riley (9) and lives in Campbelltown with her husband, Ben—a stay-at-home Dad, who works part-time for The Hershey Company as well.

You Say Cocoa, I Say Cacao

What does it all mean?

You may have seen more and more chocolates labeled as 60%, 70%, 82% and higher “% cacao.” You may have heard about choosing chocolates with a high “% cocoa” for health benefits. So what’s the difference between “% cacao” and “% cocoa?” And what does it mean?

In simplest terms, this percentage refers to the total amount of ingredients which come from the cocoa bean. This includes chocolate (chocolate liquor), cocoa butter and cocoa powder. Some products in the U.S. use the term “% Cocoa” interchangeably with “% Cacao.” At the Hershey Company, we and the National Confectioners Association encourage use of the term “% Cacao” rather than “% Cocoa” to bring some consistency to these terms and minimize confusion.

CHOCOLATE MATH:

$$\% \text{ Cacao} = \text{Chocolate} + \text{Cocoa Butter} + \text{Cocoa Powder}$$

Historically, the chocolate industry has used “cacao” and “cocoa” interchangeably to refer to the cocoa bean. However, under U.S. regulations, “cocoa” and “cocoa powder” are synonymous and refer specifically to partially defatted cocoa beans – i.e., the cocoa powder in the familiar brown can.

The use of “% Cacao” originated in Europe where chocolates must be labeled with the minimum total cocoa solids. “Cocoa solids” is not a consumer-friendly term, so this is often stated as “% Cacao” (France, Spain), “%

Kakao” (Germany), or “% Cocoa” (UK). In the U.S., chocolate manufacturers are not required to declare the % Cacao. However, a number of U.S. chocolate manufacturers are choosing to do so in light of the increased interest in dark chocolates and European chocolates.

What can % Cacao tell you about the product?

1) **Sweetness:** A higher % Cacao means more cocoa bean-derived ingredients; therefore, less room for added sugar and less sweet. For example, a 72% Cacao dark chocolate has less sugar than a 60% Cacao dark chocolate. Think about unsweetened baking chocolate and cocoa powder – both are 100% Cacao and have no added sugar.

2) **Flavor intensity:** Since a higher % cacao means more cacao bean-related ingredients, this generally means a more intense chocolate flavor. White

chocolate is the exception. It has a very different flavor profile because its entire % Cacao comes from only cocoa butter.

3) **Health benefits.** Much of the potential health benefits of chocolate are attributed to the flavanol compounds. These compounds are found in the non-fat portion of the cocoa bean. However, cocoa bean selection, handling, and processing can all impact flavanol content. As a result, % Cacao does not necessarily indicate the flavanol content of chocolate, but may provide a very rough guide for comparison between chocolates.

THE HERSHEY SEAL: LEADING THE LABELING WAY



Flavanols are among the most important bioactive compounds in chocolate and cocoa. They are linked with many health benefits and act as antioxidants.

Hershey reserves its “Flavanol Seal” for dark chocolate and cocoa products that are particularly high in flavanols. These include Special Dark®, Extra Dark™, Hershey®'s Cocoa, some Cacao Reserve by Hershey's® products and selected others. Hershey

scientists and outside labs sample and test the level of flavanols in our products to ensure that these products meet or exceed the flavanol levels noted on our website or package.

The seal helps consumers identify products with ample flavanols per serving. In fact, a recent editorial in a major medical journal noted that not all chocolates are high in flavanols and has called for the chocolate industry to provide such labels. The Hershey Company is leading the way on providing and labeling of high flavanol products.

• Hollenberg & Fisher. *Circulation*, 116: 2360, 2007.



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HCHN scientists getting the word out...

- July:** **International Food Technologist's Annual Meeting** (Chicago): Poly-"Phenomenal" Foods (HCHN Sponsored/Debra Miller moderator)
- Sept:** **American Dietetic Association Annual Meeting** (Philadelphia) How low can you go? Cholesterol Reducing Foods (HCHN Sponsored)
- Purdue University Corporate Affiliates** W. Lafayette, IN) From Ancient Remedies to Modern Medicine (Debra Miller)
- Oct:** **Functional Foods and Nutraceuticals** (Washington, DC) Chocolate & Health: Case Study (Debra Miller)
- Nov:** **Supply Side West 2008** (Las Vegas) From Ancient Remedies to Modern Medicine (Debra Miller)
- World Trade Group Food Innovation Forum** (Dublin, Ireland) Chocolate & Health: Case Study (Debra Miller)
- Cardiovascular Rehab Nurses Regional Meeting** (Harrisburg, PA) Health Benefits of Cocoa and Chocolate (Debra Miller)
- Jan:** **The Love and Art of Chocolate (State College, PA)** Chocolate and Wine Pairing (Dave Stuart)

HCHN bringing the experts and scientists to Hershey...

- June:** Dr. Bill Harris (Univ SD): Omega-3s: Scientific and Regulatory Status
Dr. R. Piaz (Guatemalan Committee on Local Redevelopment): The Emerging Guatemala: Cocoa and Culture
- July:** Dr. Patrick O'Connor (Univ. GA): Mental Energy & Foods
- Sept:** Arman Sadeghpour (Tulane): Theobromine and Oral Care
- Jan:** Dr. Keith Martin (ASU): Super Power of Polyphenols in Functional Foods
Elaine Gonzalez (Chocolate Artist): Chocolate: Mexico's Living Legacy
- Feb:** Dr. David Baer (USDA): Cocoa and Flavonoid Clinical Research Program
Dr. Richard Van Bremen: Polyphenol Compounds & Health

Hot off the presses...Chocolate Archeology

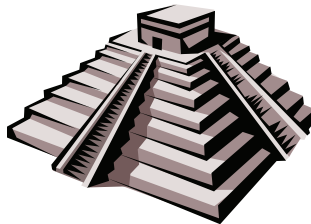
In the last 6 months, W. Jeff Hurst, from the Hershey Center for Health & Nutrition have produced several publications relating to the history of chocolate. Two are featured below:

Chocolate in the Underworld Space of Death: Cacao Seeds from an Early Classic Mortuary Cave

K.M. Prufer & W. Jeffrey Hurst

The paper, published in Ethnohistory, provides details of an archaeological investigation at a mortuary cave in southern Belize. A bowl was recovered from the cave containing five cacao (chocolate) seeds dating back to 300-400AD. Finding cacao in the burial cave indicates that cacao (chocolate) played a role as a ritual substance in pre-Columbian Mesoamerica. Its presence in a burial likely indicates that it was either an important possession of the deceased or intended to provide ritual sustenance during the passage into the afterworld.

Most archaeologists believe that cacao served as a form of currency in these cultures and was prepared as a ceremonial beverage for tribal elites. However, documents from the time of Spanish contact as well as of ethnographic accounts indicate that cacao was an integral component in many rites of passage, such as birth, marriage, death, as well as the initiation of shamans. As such, cacao is tied to issues of social identity and reproduction that transcend economic and political status.



Chemical and Archaeological Evidence for the Earliest Cacao Beverages

J.S. Henderson, R.A. Joyce, G.R. Hall, W.J. Hurst & P.E. McGovern

Pottery from Puerto Escondido, in modern day Honduras, show that cacao beverages were being made before 1000 B.C., more than 500 years before previous assessments.

Chemical analyses of residues extracted from the pottery indicate the presence of chemicals known to occur in high concentrations in cacao. The famous chocolate beverage served on special occasions in later times in Mesoamerica, especially by elites, was made from cacao seeds. The earliest cacao beverages consumed at Puerto Escondido were likely produced by fermenting the sweet pulp surrounding the seeds.

Copies are available by contacting the HCHN (address above).

