Hello, my name is Fred K., and I am here to see the doctor," the man said with some hesitation and a touch of anxiety in his voice. Mr. K. was a slightly balding, 50-year-old bank executive. He had recently seen his primary care physician because, for the past weeks, he had been feeling a little dizzy. His physician, realizing that Mr. K. had not been seen for an annual checkup in well over a year, had asked him to return for his physical.

The receptionist smiled, "Oh yes, you are here for your annual checkup."

"Yes," Mr. K. replied.

Well since you are the first person for the morning, it shouldn't be too long before you begin. Why don't you have a seat, and I'll let the nurse know you have arrived," she said pleasantly.

He had barely sat down before his name was called. "Well, great to see you Mr. K." the nurse said as they walked to the exam room. "Dr. Lee will be with you shortly. But before you begin your exam, why don't we measure your blood pressure, pulse and record your weight measurements." The nurse pulled out a body scanner that was the size of a small wand and, in scarcely a second, by waving this instrument over his body, recorded all the measurements in the electronic chart. "The doctor wanted to talk to you about how things are going before getting started, so why don't you have a seat here, and I'll find her."

I walked into the room, sat down, glanced at the blood pressure reading displayed on the computer screen, and smiled, "This is great. You have really done quite well," I exclaimed.

"What do you mean?" asked the patient. "Well," I replied, "the 3-ounce servings of hot chocolate three times a day has brought your blood pressure under control. Your blood pressure is now normal, and I am delighted to see how your cholesterol is responding after only 3 weeks! This really did the trick, in combination with your exercise and other dietary changes," I added. "Let's get on with the rest of the physical, shall we? So, how has your stress level been? Have you been able to do your daily meditation exercises?" I continued.

Was I in a dream? What year is this visit? Did I just prescribe 5 cups of hot chocolate, plus other dietary changes and exercise as first-line therapy for hypertension?

This scenario, although somewhat premature, may not be far from reality in the near future. Flavonoids, a class of chemicals present in significant amounts in cocoa, chocolate, red wine, and tea have recently been the subject of intense research. Flavonoids are powerful antioxidants that are also found in fruits and vegetables. Researchers have discovered that consumption of foods containing these compounds have the capacity to lower high blood pressure, reduce cardiovascular disease, and lessen the risk of strokes. Although much of the flavonoid research has been focused on red wine and tea, recent scientific studies on chocolate and cocoa are showing some interesting results.

The idea that chocolate could lower high blood pressure is a relatively recent finding. In the early 1980s, a scientist interested in hypertension came across a journal entry of Dr. B. H. Kean, a physician who worked among an indigenous...
of hot cocoa today. The drink was served with a great foam head or froth made by a very ritualized process that involved pouring the cocoa liquid into a series of vessels. As the liquid was poured from vessel to vessel, the drink would acquire more and more frothiness. A stirrer fashioned from a specific plant was used, and it was believed to promote the foaming process by chemically reacting with the chocolate. The foam, naturally floating to the top of the vessel, looked much like the foam froth found on a tap beer. This foamy mass was considered one of the most desirable aspects of the drink. In addition, the drink often contained ground-toasted corn.12

Although cane sugar was eventually added with the coming of the Spaniards, the original recipe was sweetened with agave syrup or honey. Spices such as
chili and allspice were also commonly added. The Aztecs often included the ground seeds of the kapok tree (*Ceiba pentandra*), a highly pungent spice imparting a fenugreek-like odor to the beverage. At times, the drink was made red with the addition of annatto (*Bixa orellana*). One of the most highly prized flowers used for spicing cocoa was *Cymbopetalum penduliflorum*, the sacred ear plant of the Aztecs. It grew in tropical lowland forests of Veracruz, Oaxaca, and Chiapas where it can be found today. Its use was first recorded by Sahagun, a Franciscan missionary and highly esteemed ethnographer of the 14th century, who wrote that it had the taste of black pepper. Vanilla (*Vanilla planifolia*) was also a frequent addition. Flor de cacao (*Quararibea funebris*), also used in Aztec times, is grown in Oaxaca and added to a local chocolate beverage known as *ponzongo*. This is a thick, frothy drink made of chocolate, finely ground cornmeal, and water. It is sold today in local farmer’s markets.13

For the Olmecs, Mayans, and Aztecs, cocoa served as a special beverage was reserved for the upper classes. The beans were used as currency. Each member of the Aztec society with access to land was required to provide 24,000 beans as an annual tax to the Emperor.12

Today, there is a new movement to bring back recipes reminiscent of the original Mesoamerican beverages. Mark Sciscenti, founder of Kakawa Chocolate House, became intrigued after studying the history of chocolate and developed chocolate drinks based on the ancient information found in classic historic Mesoamerican, European, and Mexican texts. The beverages are rich, strong, and bittersweet and use high-quality chocolate imbued with rose and almond flavorings and sweetened with agave syrup or honey (personal communication, Mark Sciscenti, October 2004). One mixture is a combination of black pepper, allspice, and chili. There are 12 different versions of the beverage, reflecting its historic use: six Mesoamerican, four historic European, one Colonial, and one Oaxacan. These premixed and spicy versions come packaged in little oval chocolate wafers. The wafers are melted with a measured amount of water and, in roughly 20 minutes of low heat, a thick, spicy beverage is produced.

Those fortunate enough to taste these beverages notice, as with other chocolate products, a sense of immediate alertness. Chocolate contains several psychostimulatory components that affect our central nervous system. It contains phenylethanolamine, a brain stimulant. Most of this chemical is degraded before it is absorbed, but a small amount is thought to reach our central nervous system when we eat chocolate. Phenylethanolamine stimulates the release of mesolimbic dopamine into our pleasure centers. If taken in high enough doses, it can cause the same exhilarating effects as amphetamines.14

Other stimulant compounds, known as methylxanthines, are present in chocolate. These are better known as caffeine, theobromine, and theophylline. One ounce of bitter-sweet chocolate provides 1 mg theophylline, 5 to 10 mg caffeine, and 117 mg theobromine. In contrast, a cup of coffee
contains approximately 150 mg caffeine. Methylxanthines in chocolate may account for one of the reasons Aztec soldiers were given cocoa before military maneuvers. Recently, theobromine was found to reduce capsaicin-induced coughing by suppressing vagal nerve activity. Another chemical, anandamide, known to cause euphoria, is prolonged by a compound found in chocolate. This compound known as N-acylethanolamine, prevents anandamide from being degraded within our central nervous system, thus prolonging a natural high. Anandamide is known to interact with the tetrahydrocannabinol (THC) receptor (CB1); these are the same cannabinoid receptors affected by marijuana. Unlike the THC in marijuana, the anandamide-like compounds found in chocolate cannot directly bind to THC receptors and therefore cannot induce a “high.”

Some health professionals have challenged the benefits of chocolate because of its fat and calorie content. Chocolate is known to exacerbate migraine headaches and acid reflux. Despite the copious amounts of flavonoids touted in dark chocolate and even in the new chocolate functional food products, a generous helping of daily fruits and vegetables can never be replaced as a staple of a nutritional prescription. However, in the use of this noble plant, we once again see the wisdom of nature.

REFERENCES

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