Diabetes, a metabolic disorder characterized by high blood sugar, can be recognized in three main forms: Type I, Type II, and gestational diabetes (occurring during pregnancy). Ultimately, diabetes is the result of pancreatic cells being unable to produce sufficient insulin to prevent high blood sugar. While Type I is designated by autoimmune destruction of the pancreatic insulin-producing cells, Type II and gestational are characterized by tissue-wide insulin resistance (gestational typically resolves with delivery). Types I and II are incurable, but manageable, chronic conditions.

Diabetes is a prevalent disease escalating in frequency, with 7% of the U.S. population suffering from the disease. From 1997 through 2004, the number of new cases of diagnosed diabetes increased by 54%. Its rapidly rising incidence follows the trend of urbanization and lifestyle changes, most significant being a lack of physical exercise and a diet high in sugar and fat. Clinically based reports suggest that Type II diabetes, generally thought to be seen in overweight adults, is being diagnosed more frequently in children and adolescents due to their increasingly sedentary lifestyle and junk-food-filled diet.

Diabetes can cause many acute and long-term complications. Despite the availability of treatment, illness due to complications of diabetes has remained a major cause of death in the U.S. Some illness can be postponed and prevented through diet management and regular physical activity. Intake of functional foods (foods that promote health and fight disease) such as whole grains and fruits and vegetables can help combat the effects of diabetes. Nutrients commonly found in those super foods, antioxidants and flavonoids, are also found in a surprising choice — chocolate.

REFERENCES
Did you Know?

- More than 6 million Americans have diabetes, but are undiagnosed.
- The Centers for Disease Control and Prevention assessed that 1 in 3 Americans born after 2000 will develop diabetes in their lifetime.
- According to the most recent statistics, diabetes was the sixth leading cause of death, and the fifth leading cause of death from disease.
- Diabetes costs $90 billion annually in direct medical costs, and costs $40 billion annually in indirect costs (loss of work, disability, and loss of life).

CHOCOLATE: A New Choice for Health

Literally dozens of studies demonstrate the health benefits of consuming cocoa, which is the main ingredient in “dark” chocolate. Cocoa contains a host of nutrients such as B-vitamins, copper, calcium, iron, magnesium and vitamin E. More impressive is its health-promoting high levels of phytonutrients (phyto means “plant” in Greek), which are largely responsible for cocoa’s antioxidant capabilities.

Antioxidant compounds are found in a variety of foods, typically plants and fruits that are rich in color. In fact, evidence suggests that the darker the skin of a fruit is, the more antioxidants it contains. The same is true with chocolate—the more bitter or dark the cocoa is, the more antioxidant compounds it contains.

Cocoa is rich in antioxidant flavonoids called flavonoids, which include procyanidins, epicatechins and catechins. Studies have shown that people with high blood levels of flavonoids have lower risk of heart disease, lung cancer, prostate cancer, asthma and diabetes. This reduction in health risks is due to the many beneficial properties of flavonoids: they possess anti-inflammatory, antioxidant, antibacterial, anticancer and antiviral properties.

WHAT CHOCOLATE CAN DO FOR DIABETICS

One of the most promising areas related to the healing properties of chocolate is diabetes, especially Type II diabetes, since complications of the disease affect not only the heart, but blood vessels, nerves, kidneys and eyes.

A recent study done by Italian researchers suggest that flavonols present in chocolate can protect the cardiovascular system and can improve the utilization of insulin in diabetic patients. The findings indicate that flavonols can lower blood pressure and lower overall blood fat levels.

The researchers stated, “Our findings support a potentially beneficial action of chocolate flavonols on blood pressure, vasorelaxation and insulin sensitivity, and suggest further research in this area.” High blood sugar causes all of the serious side effects of diabetes. This study shows that cocoa flavonoids make the body more sensitive to insulin (or decrease insulin resistance), thus reducing blood sugar levels.

Other recent research supports these findings. A 2007 study from Japanese researchers found that consumption of cocoa liqueur lowered blood-sugar levels in diabetic and overweight mice. The results prompted the researchers to state, “The dietary intake of food or drinks produced from cacao beans might be beneficial in preventing the onset of Type II diabetes mellitus.”

Many studies on health benefits have been linked to the content of the flavonoid epicatechin in cocoa. Dr. N. Hollenberg of Harvard Medical School says epicatechin can reduce the risk of four major health problems: stroke, heart failure, cancer and diabetes. He studied the Kuna people of Panama, who consume a diet high in cocoa, and subsequently do not generally develop high blood pressure. His findings engendered his belief that epicatechin is essential to our diet and should be classed as a vitamin.

As mentioned, research suggests that cocoa can help stabilize blood sugar levels, assist with weight control and improve insulin resistance, all of which improves the outcome for diabetics.

Drink to Health

Among the Kuna people of Panama, who can drink up to 40 cups of cocoa per week, rates of the “big killer” diseases are less than 10%. Cocoa is the richest source of flavonoids (though current processing reduces the content substantially), and since cocoa is the main beverage of the Kunas, they probably have the most flavonoid-rich diet of any population. Researchers compared causes of death in the Kuna population to those of the mainland Panama population. They found that the leading causes of death in Panama—heart disease, cancer, stroke, and diabetes—actually had very low incidence in the Kuna people. This comparatively lower risk of disease among the Kuna reflects the probable protection afforded by their high intake of flavonol-rich cocoa.