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Health benefits of cocoa flavonoids

Historical evidence points to the use of cocoa in a medicinal capacity for over two thousand years, since the time of the ancient Mayan and Aztec civilisations and following its introduction to Europe in the Middle Ages. Over 100 medicinal uses for cocoa and chocolate have been noted, including the treatment of fatigue, emaciation, fever, angina and heart pain, anaemia, shortness of breath, and kidney and bowel complaints, but virtually no adequate scientific data existed to substantiate their effectiveness in the prevention or treatment of such problems. Even today, some indigenous populations of Central and South America use various components of the cocoa tree in the preparation of their traditional medicines.

Although now generally thought of as a palatable and indulgent food item, there is growing evidence to suggest that the historical use of cocoa as a medicine may indeed have some scientific validity. It is thought that many of its therapeutic properties can be attributed to certain constituent compounds, known as flavonoids, for which cocoa beans are a particularly rich source.

Flavonoids are naturally occurring compounds that are widely distributed in plants and in plant-based foods and beverages (e.g. pulses, fruits like apples or grapes, cocoa, etc). They appear to have a functional role in the living plant by assisting in wound repair and providing protection against pests and diseases. In recent years, scientists have established that regular consumption of flavonoid-rich fruits and vegetables reduces the risk of many chronic illnesses such as cancer, stroke and coronary heart disease.

Flavonoids as antioxidants

Many of the health benefits associated with flavonoids appear to be linked to their activity as antioxidants. Antioxidants are one of the body's defence against 'free radicals', which are small molecules generated during normal metabolic processes. Excessive free radical production causes damage to cells and their components, including cell DNA (genetic material), and is thought to have a key role in the ageing process and in many degenerative and age-related diseases. Flavonoids act as antioxidants by 'mopping up' free radicals in cells, thereby limiting the damage they can cause.

Cardioprotective effects

Cardiovascular disease (CVD) is a complex disorder involving a number of different mechanisms that affect blood vessel function. An early stage of the disease is the development of atherosclerosis, in which a build up of cholesterol-containing plaque within artery walls causes a progressive narrowing and hardening of the arteries. This not only restricts the flow of blood through the artery, but also raises blood pressure and can lead to the formation of blood clots, or thrombosis. Blood clots can obstruct the artery where they form, or may break off and lodge elsewhere in the circulatory system. This can be life-threatening if a blood clot blocks an artery that supplies a vital organ such as the heart, causing a heart attack, or the brain, causing a stroke.

Cocoa flavonoids are thought to have a protective effect on cardiovascular health through their ability to alter a number of pathological processes

Terms used in this article

Antioxidant
Atherosclerosis
Blood pressure
Cholesterol
Free radical
Genetic
Oxidation
Stroke
Thrombosis

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involved in the development of CVD. These include:
• Inhibiting the oxidation of LDL-cholesterol ('bad' cholesterol) by free radicals, an important initial step in the formation of atherosclerotic plaque.
• Suppressing the tendency for small blood cells, called platelets, to clump together and form blood clots. This is often described as an 'aspirin-like' effect.
• Regulating inflammatory and immune responses in blood vessel walls, which may be abnormal in CVD.
• Regulating vascular tone, or degree of constriction of small blood vessels, which contributes to high blood pressure.
In producing these beneficial effects, cocoa flavonoids appear to act through a range of mechanisms, some of which are not thought to be linked to antioxidant activity.

Other benefits

Although most research has focussed on cardiovascular health, scientists are also looking at whether the biological activities of cocoa flavonoids may also be applicable in the fight against other ailments, including cancer and diseases associated with inflammation or impaired immune function. One potential application that has recently been reported is in the relief of diarrhoea, since cocoa flavonoids have shown an ability to inhibit fluid secretion in the small intestine.

References

(1) Ariefdjohan MW, Savaiano DA. (2005) Chocolate and cardiovascular health: is it too good to be true? *Nutrition Reviews,* Dec; 63(12Pt 1):427-30.
(2) Ding E.L., Hutfless S.M., Ding X., Girotra S. (2006) Chocolate and Prevention of Cardiovascular Disease: A Systematic Review. *Nutrition Metabolism* (Lond) 3;3:2.