



Vereinigung zur Förderung von Kaffee
Association pour la promotion du café
Associazione per la promozione del caffè

Fact sheet: Coffee and health

The subject of “coffee and health” is forever being discussed in the media, but always with an air of controversy about it. Warnings about the damaging effects of coffee are juxtaposed with others praising its positive benefits in terms of human health. The result of this contradictory media treatment is uncertainty on the part of many consumers. This fact sheet has been designed to give a summary of the main information regarding the subject of “coffee and health”, while dealing with the various effects that caffeine has on the human organism. It is intended to provide member-companies of PROCAFE with a basis for use when responding to health-related customer enquiries.

What coffee contains

Coffee contains over 1,000 different substances. Their quantities and proportions vary with the type of coffee concerned, its growing conditions, the methods used to process it, and so on. Coffee beans consist mainly of carbohydrate, fat, protein and water. Substances present in smaller amounts include acids (mainly chlorogenic and caffeic acids), alkaloids (including caffeine), minerals and vitamins, and so on. A 150-millilitre ($\frac{1}{4}$ pint) cup of filter coffee contains between about 50 and 120 milligrams of caffeine. It was recently discovered that prepared coffee contains nutritionally relevant quantities of roughage which amount, once the coffee has been served, to between one and one and a half grams per cup. (Foods made of wholemeal flour contain an average of six grams of roughage for every 100 grams of product.) Roughage, which cannot be broken down by the body, regulates such activities as the movement of the intestines (reference 3).

Caffeine

Very high doses of caffeine have a toxic effect on the body, as do many other alkaloids. The consumption of three to four cups of coffee a day (corresponding to a daily intake of about 300 milligrams of caffeine) is not currently considered problematic in any way where healthy adults are concerned. If a person is coffee-tolerant, there are no medical grounds for him or her giving up its consumption. The effects of caffeine vary greatly from one individual to another, but there are certain ways to allow adults to obtain the maximum health benefits from coffee.

Coffee and body fluids

What about the widespread opinion that the caffeine in coffee dehydrates the body? The fact that the consumption of coffee has a diuretic effect is undisputed. However, regular coffee-drinkers become accustomed to the effects of caffeine, and the dehydration effect is reduced. The consumption of coffee in any case supposes part of an individual's daily intake of fluids (reference 3).

Coffee and its effects on the human digestive system and metabolism

Caffeine increases the muscle action of the digestive system (peristalsis), which in turn regulates the production of stomach acid and the functioning of the gallbladder. The digestive properties of coffee are ascribed to the acids, tannin and other bitter compounds that it contains. The consumption of coffee may provoke stomach discomfort in sensitive persons. Current studies from Denmark and the United States show that there is no correlation between the consumption of coffee and the incidence of stomach ulcers, although persons with sensitive digestive systems may experience some discomfort if they drink coffee on an empty stomach. This is probably caused by the increased stomach contraction that results from the consumption of coffee. If milk is added to coffee, the fat content of the milk causes

the body to absorb caffeine at a slower rate, thus weakening its effect over the extended time that results. Caffeine is normally absorbed via the stomach and small intestine, from where it dissipates almost entirely around the whole body. It is metabolised mainly in the liver. Caffeine stimulates the body's metabolism, and may increase levels of energy and performance when taken in large quantities. Possible negative side-effects of high caffeine consumption include a temporary sense of restlessness and a short-lived impairment of fine motor skills. Caffeine is also used in various medicines, due to its pain-relieving properties and its ability to stimulate the absorption of other active ingredients.

The effects of coffee on the blood pressure, coronary circulation and nervous system

The decades-old assumption that the consumption of caffeine can lead to an increase in blood pressure is not confirmed by the latest clinical studies (reference 1). Caffeine has furthermore been subject to extensive research into its effect on heart disease and circulatory conditions. Current knowledge confirms that the moderate consumption of caffeine does not increase the risk of suffering heart disease or circulatory illnesses. When taken in very large doses, caffeine stimulates the central nervous system, increasing alertness and attention.

Coffee during pregnancy

Caffeine remains in the human circulatory system for between 30 and 45 minutes after being consumed, before being transported by body fluids to various organs and being partially disposed of once more via the urine. Pregnancy slows down the rate at which the body metabolises caffeine, so a pregnant woman's caffeine levels will remain higher for longer. Caffeine can also – like alcohol – pass unobstructed through the placenta. As the liver of an embryo or suckling infant is not yet fully developed, it takes longer than its adult equivalent to break down caffeine. The consumption of caffeine in large amounts is associated with a possible risk of premature birth. According to doctors' recommendations, pregnant women will have no problem with caffeine if they limit their consumption to 200 milligrams (i.e. two cups of coffee) per day.

The positive effects of the antioxidants in coffee

Coffee contains a relatively high proportion of antioxidants, including chlorogenic and caffeic acids and melanoidins (yellowish-brown to almost black substances, which are found in many foods, such as coffee, bread and beer). The different oxidation processes that take place in the human body can provoke various degenerative diseases. These reactions with oxygen produce free radicals, which can harm the body's cells. Scientific studies have shown that the antioxidants in coffee capture these free radicals, thus reducing their effect.

The potential positive effects of coffee on type-2 diabetes, Parkinson's disease and liver conditions

Various studies have shown that the consumption of coffee reduces the risk of chronic illnesses such as type-2 diabetes, Parkinson's disease and liver conditions (cirrhosis, hepatocellular carcinoma [= primary liver cancer]) and gout (reference 2).

References:

1. European Food Information Council (EUFIC) Caffeine and health Food Today 06/2007
2. Higdon J.V., Frei B., 2006. Coffee and health: a review of recent human research. *Critical Reviews in Food Science and Nutrition* 46(2): 1001-23.
3. Swiss Nutritional Association (SGE) Coffee: what's new Media release, 53, 2007.