

Heart to Heart Talk

with Philip S. Chua, M.D.

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Caffeine: Any Health Risks?

COFFEE CONFIRMED AS SIGNIFICANT SOURCE

OF ANTIOXIDANTS IN THE DIET

Although much remains to be learned, antioxidants may be of great benefit in improving the quality of life by helping to prevent or postpone the onset of degenerative diseases. There is evidence implicating them as probably being protective in the development of cancer, atherosclerotic cardiovascular disease and cataracts.

As a result, many countries have recommended an increase in consumption of fruit and vegetables, as they are known to reduce the risk of such degenerative diseases. However recent research in Norway (Svilaas 2004) has further supported the important role played by coffee as a significant source of antioxidants in the diet.

Svilaas and his team set out to determine the contribution of various food groups to total antioxidant intake and to correlate those intakes with plasma antioxidants. Seven day weighed dietary records and plasma samples were collected from 61 adults and data from 2672 Norwegian adults, participating in a representative nationwide dietary survey (based on a food frequency questionnaire), were also analyzed.

The total intake of antioxidants from various food groups are shown in the table below

Source	Intake of antioxidants (mmol)	Percentage of total antioxidant intake
Coffee	11.1	64
Fruit	1.8	11
Tea	1.4	8
Wine	0.8	5
Cereals	0.8	5
Vegetables	0.4	2
Other foods (inc. fruit juices, edible fat and cakes)	0.8	5

Similar results were obtained when the contribution of different food groups to total antioxidant intake was estimated from the analysis of the 2672 Food Frequency Questionnaires in the dietary survey.

The data clearly demonstrates that coffee was a major contributor to total antioxidant intake. Whilst several studies have previously reported high levels of antioxidant in coffee, this is the first time this high contribution to the dietary intake has been noted.

Chlorogenic acid (a combination of caffeic acid and quince acid) is the most abundant polyphenol in coffee and is likely to represent a substantial part of coffee antioxidants. Recent studies also suggest that these coffee antioxidants are not only present in coffee, but are also available and active in the body. Coffee has already been linked with reduced incidence of gallstones, liver cirrhosis and Type 2 diabetes and coffee is being increasingly indicated to be protective in model cancer studies.

Whilst the mechanisms are not yet fully understood, these results present a exciting and significant addition to our knowledge about the beneficial role drinking coffee can make to our health.

Reference

Svilaas A. et al. (2004) Intakes of Antioxidants in Coffee, Wine and Vegetables are Correlated with Plasma

What chemical is in coffee?

The main ingredient in coffee is caffeine. This is a substance that is available and extracted from certain plants (as in coffee beans) or produced synthetically for use as an additive in some food preparations. Caffeine acts as a central nervous system stimulant, a "waker-upper." It is also a diuretic, inducing the coffee drinker to produce urine.

Where does caffeine come from?

Caffeine is found in the fruits, seeds and leaves of more than 60 plants, like in coffee, kola nuts, cocoa beans, and tea leaves. Millions and millions of people around the world ingest caffeine from the coffee, tea, cola drinks, chocolate, and many carbonated colas that we drink. Caffeine can also be synthetically produced.

What countries produce most of the coffee we drink?

In the Pacific: Sumatra, Java, New Guinea, and Sulawesi. In Africa and Arabia: Ethiopia, Kenya and Arabian Mocha Sanani. In the Americas: Colombia, Costa Rica, Panama and Guatamela.

Does caffeine have any medical value?

Yes, caffeine is frequently added to many popular drugs people take, such as pain medications, cold medications and appetite suppressants for dieters. Caffeine potentiates the action of pain relievers, making them more effective.

In what conditions is caffeine used as a medication?

Caffeine is commonly used for the treatment of migraine headaches and in "relieving" drowsiness and fatigue for a short time. However, if a person who is very tired keeps on drinking coffee, pretty soon the side effects of caffeine will lead to more fatigue, nervousness and excitement, and later malaise.

What is "Caffeine Sensitivity"?

This refers to the amount of caffeine, a threshold, that will produce the negative side effects of caffeine in a drinker of coffee, colas, tea, etc. This varies from person to person, according to individual tolerance.

Does Caffeine accumulate in the bloodstream?

After ingestion, caffeine is rapidly absorbed from the gastrointestinal system and distributed in the body tissues, and passes into the central nervous system (the brain, etc). It does not accumulate in the blood stream and is not stored in the body. It is excreted in the urine hours after it is ingested.

Does caffeine reduce the effects of alcohol?

It is a myth. No, it does not. However, many still think that a cup of coffee will "sober up" an intoxicated individual. The caffeine in coffee stimulates the brain and tends to "wake up" the person, but caffeine does not really reduce the effects of alcohol.

Does caffeine cause dangerous heart irregularity?

Yes, even in persons who are "otherwise healthy." In patients with coronary artery heart disease, with or without angina (chest pains), and/or hypertension (high blood pressure), drinking coffee or cola drinks, or drinking or eating chocolates, can precipitate a heart irregularity called PVCs (Premature Ventricular Contractions) or even palpitation (rapid heart pounding). This is why physicians advise these persons to drink decaffeinated coffee and non-cola drinks (like Sprite, 7-Up, etc), or better yet, fruit juices. For diabetics, the fruits juices and non-diet drinks will have to be added into the computation of their total daily calorie intake.

Is caffeine bad for the fetus?

Pregnant women are advised against drinking beverages with caffeine since this cause central nervous system stimulation effects in the baby in the womb and also tends to affect the birth weight of the baby. In some cases birth defects have been reported. There are many medications which should not be taken during pregnancy and during breast-feeding as they adversely affect the health of the baby. They include, among many others, nicotine (tobacco), alcohol, insulin, caffeine, cocaine, theophylline (asthma drug), and a long list of prescription drugs. All pregnant women are well-advised to have regular prenatal checkups.

Is caffeine a diet requirement?

No, there is no human requirement for caffeine (as in vitamin and mineral requirements in our daily diet). There is no such thing as "hypo-coffeeemia." Ingesting three 8-ounce cups of coffee (which contains a total of 250 milligrams of caffeine) per day is considered average or moderate caffeine intake. Beyond this borders on the excessive.

What are the bad effect of caffeine in children?

The negative effects of caffeine on children are: coffee or cola drinks affect their nutrition since caffeine reduces the appetite by its central nervous system effects and at the same time these beverages "replace" the nutrient dense foods such as fruit juices and milk. Since coffee and cola drinks there is no essential nutritional value, these may be omitted from their diet.

Is coffee really good for hyperactive children?

While some lay people thought coffee was good for "hyperactive" children (medically known as ADD: Attention Deficit Disorder, With or Without Hyperactivity), Pediatricians do not recommend this, since there is no scientific basis for this belief. Besides, there are now a number of safe and effective drugs for ADD.

Does caffeine cause fibrocystic breast disease?

The final verdict is not in yet, but caffeine is a suspect in this female breast condition. Various studies are underway on this subject and on the effects of caffeine in cardiovascular diseases, birth defects, peptic ulcer, hypertension, reproductive function and on the behavior of children whose parents regularly ingest coffee and or cola drinks.

Our readers are invited to send in their medical questions or suggestions for possible inclusion in future issues of this Column. Mail them to the author at Heart to Heart Talk, c/o Cebu Cardiovascular Center, Cebu Doctors' Hospital, Osmena Boulevard, Cebu City, Cebu, Philippines, or email them to heart@chua.net

PHOTO

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