

by Roger Clemens & James Coughlin

Coffee and Health: Surprisingly 'Good News'

More than 30 years of research and an extensive database on the health effects of coffee developed during that time provide food and health professionals with excellent opportunities to examine the risks and benefits of this widely consumed beverage.

The controversies and health risks of coffee/caffeine have been the focus of thousands of studies addressing a litany of animal toxicity and human disease outcomes. Many negative health myths about coffee drinking may now be transformed into validated health benefits as a result of more recent mechanistic and epidemiologic research studies.

The preponderance of scientific evidence suggests that moderate coffee consumption (3–5 cups/day) may be associated with reduced risk of certain disease conditions (Dórea and da Costa, 2005; Higdon and Frei, 2006; van Dam, 2006). Here are some of the health benefits associated with America's beloved beverage:

• Reduced Risk of Type 2 Diabetes. Habitual consumption of 5 or more cups/day has been associated with improved glucose regulation and tolerance and a substantially lower risk of type 2 diabetes (35–75%) in diverse populations in the United States, Europe, and Japan. Consumption of 3–4 cups/day has also been associated with a reduced risk when compared to fewer cups.

Caffeine-containing and

decaffeinated coffees have been shown to give similar protective effects, which may be attributed to natural polyphenolic antioxidants, lignans, and magnesium.

• Reduced Risk of Cancer.

One of the most exciting areas of coffee's mechanistic research is the possible cancer-protective

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role of its naturally occurring polyphenolic antioxidants (chlorogenic acid derivatives) and its heat-produced antioxidants (Maillard reaction products, including volatile heterocyclic compounds and brown melanoidin polymers).

Studies in many countries have now shown that coffee is actually the major individual source of dietary antioxidants (exceeding wine, tea, chocolate, and individual fruits and vegetables), and in-vitro studies have also shown that some coffee constituents can induce the expression of carcinogen-detoxifying enzymes.

• Reduced Risk of Liver Disease. Coffee consumption has been associated with a clinically significant reduced risk of cirrhosis and liver cancer in several study populations. These data suggest that the reduced risk of alcohol cirrhosis may be associated with coffee constituents such as phenolics and related substances. Possible mechanisms for this observa-

tion may be lower activity of selected aminotransferases, possible inhibition of inflammatory transcription factors, and perhaps increased expression of detoxifying enzymes.

• Reduced Risk of Parkinson's Disease. Epidemiologic studies have strongly

linked the neuroprotective effect of caffeine consumption by men and postmenopausal women with a reduced risk of developing this disease. Some research in neuropharmacology suggests that just one cup of coffee/day (80–140 mg of caffeine) can halve the risk of the disease, since caffeine's adenosine-blocking power may be one mechanism through which the brain cells in Parkinson's disease are protected or conserved.

• Cardiovascular Disease Risk. Many cohort studies have not found a significant association between coffee consumption and coronary heart disease. However, some case-controlled studies suggest an increased risk of coronary heart disease among those with higher coffee consumption compared to those who consume moderate or low levels of coffee. A recent comprehensive 20-year prospective cohort study with approximately 130,000 men and women without a history

of cardiovascular disease or cancer did not provide any evidence that coffee consumption increases the risk of coronary heart disease.

• Other Beneficial Health Effects. Numerous other studies have shown that coffee drinking increases mental alertness, cognitive functions, wakefulness, and physical stamina, while it reduces the risk of Alzheimer's disease, kidney stones, gallstones, depression, and suicide.

Coffee consumption may also increase several cardiovascular disease risk factors, such as blood pressure and plasma homocysteine. However, emerging data suggest that coffee drinking may have a positive impact on health promotion and reduced disease risk. **FT**

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Roger Clemens, Dr. P.H.,
Contributing Editor
• Special Projects Advisor,
ETHorn, La Mirada, Calif.
• rrclemens@ethorn.com



James Coughlin, Ph.D.,
President, Coughlin & Associates/
Consultants in Toxicology and
Safety, Laguna Niguel, Calif.
• jrcoughlin@cox.net