

AHA Says Moderate Coffee Intake may Support Heart Health

A recent scientific statement published suggests that habitual coffee consumption is associated with lower risks of several cardiovascular outcomes, although this does not establish a protective effect of [caffeine](#) itself.

The evidence, largely observational and focused on coffee, links coffee intake with different risk patterns across hypertension, atrial fibrillation (AF), [type 2 diabetes](#) (T2D), stroke, and heart failure (HF), and the intake associated with the lowest risk differs by condition. However, high doses of caffeine, including those in energy drinks, may cause harm, especially among those with severe hypertension or heightened caffeine sensitivity.

Caffeine is widely consumed as coffee across the globe. Although naturally present in cacao beans and tea leaves, caffeine is also available in prescription formulations. Previous studies have been largely observational and primarily focused on [foods](#) and beverages containing caffeine. Since such studies are prone to confounding bias, more randomized controlled trials (RCTs) are required to validate the findings and provide definitive evidence.

In this scientific statement, researchers present clinical evidence of the association between caffeine consumption and CVDs and discuss the [molecular mechanisms](#) underlying these effects.



Study

Caffeine is a potent stimulant and [psychoactive](#) substance. Most studies suggest a J-shaped association between caffeine intake in natural forms and hypertension, with an increased risk among people consuming one to three cups daily and a trend toward lower risk with higher intake.

Mendelian randomization analyses of the United Kingdom Blood Pressure Study (UKB) and the International Consortium for [Blood Pressure](#) Research (ICBP) data report lower blood pressure among people carrying genetic variants associated with lower caffeine metabolite concentrations, interpreted as corresponding to greater habitual caffeine intake. However, high intake may increase risk in people with severe hypertension or heightened caffeine sensitivity.

Despite no clear association between caffeine intake and lipid profiles, double-blind, placebo-controlled RCTs suggest that consuming unfiltered coffee may increase low-density lipoprotein (LDL) [cholesterol](#) levels, an effect attributed to cafestol rather than caffeine.

Caffeine, studied primarily in the context of coffee, has shown either no association or a lower risk of HF and coronary artery disease (CAD) in recent prospective cohort studies. The lowest CAD risk has been reported among those consuming two to three cups of coffee daily, while consuming about four cups daily was associated with the lowest HF risk, and three to four cups daily with the lowest [stroke](#) risk.

Several large cohorts, including the Framingham Heart Study (FHS) and the [Atherosclerosis Risk in Communities \(ARIC\)](#) study, reported either no increased HF risk or a modestly lower HF risk with chronic coffee consumption.

Observational studies and recent meta-analyses demonstrate that regular caffeinated coffee consumption can also reduce AF risk but may also increase the frequency of premature [ventricular beats](#). In a randomized trial of people with AF scheduled for elective cardioversion, consuming caffeinated coffee was associated with a 39% lower risk of recurrent AF.

Existing evidence also suggests a reduced risk of [ventricular tachycardia](#) in a large cohort of regular coffee consumers.

Researchers have also consistently found that moderate coffee intake was associated with lower stroke risk. However, excessive intake in the form of [energy drinks](#) may cause cardiovascular harm, whereas green coffee bean extracts may lower blood pressure. Decaffeinated coffee has also been linked to lower CAD risk and, in some cohorts, lower ischemic stroke risk, suggesting benefits from noncaffeine components.

Observational studies have consistently shown that regular coffee intake may reduce T2D risk, with [dose-dependent effects](#). Reported relative risks were 20%-30% lower among people consuming over three to five cups of coffee daily.

The European Prospective Investigation into [Cancer](#) and Nutrition (EPIC) showed a 27% risk reduction among nearly 70,000 women who consumed at least three cups vs. non-consumers.

Similar findings have also been reported in the Nurses' Health Studies, Health Professionals Follow-up Study, and other large cohorts. However, [clinical-trial evidence](#), much of it examining acute effects, remains inconsistent.

Findings

Caffeine exerts its effects primarily by antagonizing adenosine A1 and A2A receptors at typical levels of intake. Phosphodiesterase inhibition occurs mainly at higher doses, whereas GABAA receptor antagonism is uncommon and occurs only at [toxic levels](#).

Coffee also contains bioactive compounds with anti-inflammatory and antioxidant properties that may improve insulin sensitivity, [glucose](#) metabolism, and endothelial function. Gut microbes may mediate these effects.

The beneficial effects of coffee on blood glucose metabolism may be due to chlorogenic acid, magnesium, and chromium. Potential [antiarrhythmic mechanisms](#) include reduced vagal nerve activity, adenosine receptor blockade, and possible mild diuretic effects. However, these proposed mechanisms do not establish clinical benefit.

Most studies suggest that three to five cups of coffee containing up to 400 mg/day caffeine is generally safe for adults and may be associated with [lower CVD risks](#).

Acute caffeine use can transiently increase blood pressure and blood glucose and may cause palpitations or sleep disruption in some individuals. Coffee drinks containing substantial amounts of added sugar, [flavored syrups](#), or dairy products may increase caloric intake and counteract potential benefits.

Individuals carrying variants in Cytochrome P450 1A2 (CYP1A2) and [Aryl Hydrocarbon Receptor](#) (AHR) genes may differ in caffeine metabolism and consumption patterns. However, evidence is insufficient to show that these variants modify the effects of habitual coffee consumption on chronic disease or mortality.

Conclusion

Based on the findings, habitual coffee consumption has been associated with lower risks of several CVD outcomes, but the available evidence does not establish that caffeine prevents CVD. However, the associations between caffeine and cardiovascular risk factors and [diseases](#) are complex, with differences related to the nature of caffeine consumption and individual susceptibility.

Most findings are attributed to coffee rather than pure caffeine, and acute and [chronic effects](#) may differ.

Future studies should distinguish caffeine from other [food components](#) and define individual dose-response relationships to improve personalized cardiovascular care.

Source:

<https://www.news-medical.net/news/20260721/Moderate-coffee-intake-may-support-heart-health-AHA-says.aspx>