

The Cholesterol-Elevating Factor from Coffee Beans

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SUMMARY

Suspensions regarding a possible link between coffee consumption and cardiovascular diseases go back a long way, but associations seen in epidemiological studies were often due to the fact that coffee drinkers smoke more. The effects of habitual coffee or caffeine intake on blood pressure are small. Caffeine also does not affect serum cholesterol levels. However, in the early 1980s Thelle and co-workers in Norway discovered that the unfiltered coffee as consumed in that country did raise cholesterol. It was later found that this effect disappeared if the coffee was filtered through a paper filter. In collaboration with the European coffee industry we have recently identified the substances responsible for this effect. They are the diterpenes cafestol and kahweol, which are present in small amounts in the fat in coffee beans. They are not removed by decaffeination, They are extracted into the brew in techniques where no filters are used such as Scandinavian boiled coffee, French press (Melior or cafetière) coffee, Turkish/Greek coffee, and to a lesser extent also espresso and mocha coffee. Coffee diterpenes raise LDL cholesterol and triglycerides, and appear to slightly lower HDL cholesterol. The high intakes of boiled coffee in Scandinavia have probably contributed to the high rates of coronary heart disease in these countries. Not much is known about underlying mechanisms. Possibly, cafestol and kahweol exert their effects by affecting liver function: they increase serum activity of alanine aminotransferase and decrease that of γ -glutamyltransferase.

Patients at increased risk of heart disease who drink large amounts of coffee should be advised to select brews low in diterpenes. As for paper-filtered coffee, there is no compelling evidence for any type of adverse effect on the heart or blood vessels.