# THE CHOLESTEROL-RAISING FACTOR FROM COFFEE BEANS: A LOOK BACK AND A LOOK AHEAD

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Coffee has been accused of just about every ill that plagues mankind. The report of Dag Thelle and coworkers in 1983 that a high coffee intake was associated with high cholesterol levels in Tromsø therefore met with some scepticism. Epidemiologists elsewhere could not confirm this finding, but Scandinavian workers reproduced it in controlled trials. The role of the brewing method was established when Aro and coworkers in Helsinki showed that only Scandinavian boiled coffee raised cholesterol, while filter coffee did not.

I found it hard to believe that a difference in brewing method could have such large effects on cholesterol, but when Bak and Grobbee from Rotterdam showed me the data of their trial I had to admit that there was 'something' about unfiltered coffee that raises cholesterol. Zock then started to play around with coffee in our laboratory, and he made the crucial observation that boiled coffee contained small amounts of lipid. Van Dusseldorp showed that filtering removes both the lipid and the cholesterol-raising effect; she and the Helsinki group published their findings almost simultaneously. Now the road ahead was clear, and within a few years several workers, including Weusten-van der Wouw in our group, had identified the diterpene lipids cafestol and kahweol as the responsible factors. The race to publish was won by Heckers. Urgert showed that diterpene levels in various brews indeed predict the effect on cholesterol; he also showed that this effect may be due largely to cafestol, while kahweol more strongly raises levels of liver aminotransferases in blood. A long-term trial showed that the rise in cholesterol was permanent while that in triglycerides is not, which resolved a nagging discrepancy between epidemiology and trial data. Whether the rise in alanine aminotransferase is permanent still remains to be established.

I have learned from the Coffee Lipid story that one can be too sceptical: there are amazing things in ordinary foods still waiting to be discovered. The help of our colleagues in the coffee industry, including Nestlé, in this process of discovery has been essential and gratifying. The lack of effect of cafestol on blood lipids and liver enzymes in animals as shown by Beynen, Terpstra and de Roos, has made us more cautious about animal models, and the slow rise and subsequent fall in triglycerides induced by diterpenes in man has emphasized the limitations of trials that last only a few weeks.

There is plenty left to discover. New pathways in human lipid metabolism can be studied by using the diterpenes, and epidemiological studies --so often the source of new ideas in nutrition-- suggest there might even be benefical effects on other processes in the body.