

LETTER

The effect of Frappe coffee on blood lipid levels

Dear Editor,

Coffee includes various biologically active substances, such as caffeine and the diterpenes cafestol and kahweol. Coffee has been related to blood lipid composition changes, increased blood pressure, arrhythmias and other cardiovascular conditions¹. The instant coffee is now preferred by a large part of the population, thus raising questions about its health effects, since these have not been thoroughly investigated. The purpose of this study was to investigate the effect of (instant) coffee, on the blood lipid level of a population of healthy young adults.

The study sample consisted of 875 conscript healthy soldiers of a military camp in the town of Alexandroupolis, Greece. The soldiers were informed regarding the purpose of this research and volunteered after their verbal consent and written permission of the camp administrator. Exclusion criteria were the existence of any health problem or receiving medication for any reason. Blood samples were taken two days after 8-hour overnight fast and were analyzed at the laboratories of the University Hospital of Alexandroupolis. Total cholesterol and HDL were determined by chromatography while LDL was calculated by Friedwald method.

The mean age of the participants ranged to 24.79 ± 6.37 years. The largest group was that consumed Frappe coffee (546 individuals), followed by that of NES coffee (127 individuals) and 'Greek' (boiled) coffee (57 individuals) groups. Coffee drinkers had higher levels of total cholesterol, triglycerides, high-density lipoprotein (HDL) and low-density lipoprotein (LDL) compared with no coffee drinkers. Those who did not drink coffee at all had a more favorable profile, comparing with coffee drinkers, while, regarding total cholesterol, HDL, and LDL, Frappe drinkers had a more favorable profile comparing with NES or 'Greek' coffee drinkers ($p < 0.001$) (Table 1).

Table 1: Lipid profile depending on coffee drinking habit and the various types of coffee consumed by 875 conscript healthy soldiers enrolled in this cross-sectional observational study.

	Not coffee drinkers (n=145)	Coffee drinkers (n=730)	Coffee drinkers (divided in categories)		
			NES coffee (n: 127)	'Greek' coffee (n: 57)	Frappe coffee (n: 546)
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD
Cholesterol***	200.71 \pm 41.8	209.96 \pm 49.3	233.6 \pm 45.7	239.0 \pm 52.6	201.3 \pm 46.1
LDL*	122.4 \pm 43.5	138.13 \pm 49.7	171.2 \pm 42.5	174.2 \pm 54.8	127.3 \pm 41.4
HDL****	61.2 \pm 8.6	49.10 \pm 4.44	54.5 \pm 5.4	56.8 \pm 5.0	61.2 \pm 2.1
TG**	88.8 \pm 33.3	104.46 \pm 74.2	43.4 \pm 11.02	44.2 \pm 11.0	63.9 \pm 20.1

SD: standard deviation, n: number, HDL: high-density lipoprotein, LDL: low-density lipoprotein, TG: triglycerides, (LDL), * $p < 0.001$ between drinkers group (post hoc Bonferroni t-test), ** $p < 0.05$ between coffee drinkers (whole sample) and controls (t-test), *** $p < 0.001$ between coffee drinkers (whole sample) and controls (t-test).

The results of this study show that consumption of coffee, regardless of its kind, was associated with elevated total cholesterol and LDL levels in the blood serum of young adults and with reduced levels of HDL. However, among coffee drinkers, Frappe drinkers had the most favorable lipid profile. This study confirms and strengthens the findings of Burr et al², who found only a mild effect of instant coffee on total cholesterol. However, our study was a cross-sectional observational one, based on participants' self-report, while fasting duration was eight instead of the usual 12 hours, mainly due to soldiers' duty restrictions. Also, the groups were not balanced since the majority of subjects belonged to the "frappe" group. Further research, referring to representative samples of the general population with a more detailed quantitative assessment of the instant coffee consumed is necessary for definite conclusions to draw.

References

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Conflict of interest

None.

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