

Abstract – Original Research

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Title of Presentation: **The Effect of Unfiltered Coffee on Liver Enzymes in Healthy Habitual Drinkers**

1. Brief description/abstract for the content of the poster presentation

Introduction: Considerable controversy exists regarding the link between coffee consumption and serum concentrations of liver enzymes. Unfiltered coffee brews such as Scandinavian boiled coffee, cafetiere (French press) coffee and Turkish coffee, which are rich in the diterpenes (cafestol and kahweol), are associated with elevated liver enzymes.

Objective: This study is carried out to investigate the effect of unfiltered coffee intake on liver enzymes in healthy participants. Also it is the aim of the study to clarify whether dark roast unfiltered coffee (DR) rich in diterpenes cafestol (C: 6.83 ± 0.27 mg/55mL) and kahweol (K: 6.17 ± 0.12 mg/55mL) has different effects on liver enzymes than light roast coffee prepared from lower concentration of diterpenes (C: 1.79 ± 0.09 mg/55mL and K: 1.67 ± 0.07 mg/55mL).

Methods: After a 2 week coffee refinement, 28 healthy, nonsmoker, habitual Turkish coffee drinkers, consisting of 14 men and 14 women, were asked to consume two different Turkish coffee roasts (three or more servings/day) for a month with a crossover study design. Biochemical parameters of aspartate aminotransferase (AST), alanine aminotransferase (ALT) and alkaline phosphatase (ALP) levels were measured after refinement and at the end of each 4 weeks of coffee consumption period.

Results: Relative to refinement values, coffee consumption did not alter mean liver enzyme concentrations significantly in either group. ALP was found to be significantly higher ($p < 0.05$) in LR than DR group. (56.04 ± 23.57 U/L and 49.15 ± 17.31 U/L for LR and DR respectively)

Conclusions: The result obtained from the study shows that consumption of 3-5 cups of unfiltered coffee for 4 weeks does not have a significant effect on the integrity of the liver enzymes studied. However, the findings suggest that depending on the degree of roasting and diterpene content, consuming unfiltered coffee in moderate amounts have discrete effects on ALP and has negligible effects on AST and ALT levels. Additional experimental research is warranted to further explore the effect especially on individuals with risk of liver disease.

2. Please give two to three key references (published by you or others) which can be used to inform future work:

Weusten-Van der Wouw, M. P., et al. "Identity of the cholesterol-raising factor from boiled coffee and its effects on liver function enzymes." *Journal of lipid research* 35.4 (1994): 721-733.

Urgert R, Meyboom S, Kuilman M, et al. Comparison of effect of cafetiere and filtered coffee on serum concentrations of liver aminotransferases and lipids: six month randomized controlled trial. *BMJ* 1996; 313: 1362–6.

Urgert, Rob, et al. "Separate effects of the coffee diterpenes cafestol and kahweol on serum lipids and liver aminotransferases." *The American journal of clinical nutrition* 65.2 (1997): 519-524.

3. Please identify, where possible, up to three specific key messages that participants will take away from your poster presentation to inform their future practice.
- In habitual healthy coffee drinkers, moderate amount of coffee consumption does not have negative effects on liver enzymes.
 - Diterpen content of a coffee may have positive effects on liver enzymes as a dose-dependent manner.
 - Preparation styles (brewing methods) and roasting affect bioactive diterpene components (diterpenes cafestol and kahweol) of the coffee.