

## Regular ingestion of tea does not inhibit *in vivo* lipid peroxidation in humans

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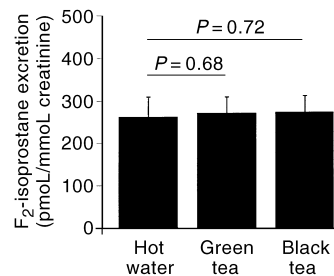
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Results of prospective studies suggest that tea may protect against cardiovascular disease. A potential mechanism for such an effect involves inhibition of lipid peroxidation by polyphenolic antioxidants derived from tea. Our objective was to determine if regular ingestion of tea could inhibit *in vivo* lipid peroxidation. Two controlled intervention studies assessed the effects of regular ingestion of tea on lipid peroxidation determined by measurement of urinary F<sub>2</sub>-isoprostane excretion, which is currently regarded as one of the best available markers of *in vivo* lipid peroxidation.

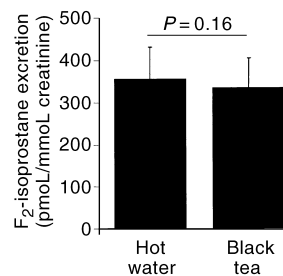
*Study 1.* The effects of five cups/day of green tea and black tea were compared to hot water containing the same concentration of caffeine in 13 otherwise healthy subjects with raised blood pressure using a randomised three-period (seven days each) crossover study. F<sub>2</sub>-isoprostane excretion was not altered following regular ingestion of green tea (273 ± 48 pmol/mmol creatinine) or black tea (274 ± 39 pmol/mmol creatinine) in comparison to hot water (263 ± 47 pmol/mmol creatinine) [Figure 1].

*Study 2.* The effects of five cups per/day of black tea were compared to hot water in 22 otherwise healthy subjects with mildly raised serum total cholesterol concentrations using a randomised two-period (four weeks each) crossover study. F<sub>2</sub>-isoprostane excretion was not altered by regular ingestion of black tea (334 ± 71 pmol/mmol creatinine) in comparison to hot water (355 ± 75 pmol/mmol creatinine) [Figure 2].

These results do not support the hypothesis that polyphenolic antioxidants derived from tea inhibit *in vivo* lipid peroxidation.



**Figure 1.** Urinary F<sub>2</sub>-isoprostanes following five cups/day of hot water containing caffeine, green tea and black tea for seven days each in random order in subjects with raised blood pressure (mean ± SEM).



**Figure 2.** Urinary F<sub>2</sub>-isoprostanes following five cups/day of hot water and black tea for four weeks each in random order in subjects with mild elevations in serum total cholesterol concentrations (mean ± SEM).