

## Tea Consumption and Risk of Cardiovascular Disease

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Randomized clinical trials in man of the effects tea consumption on chronic diseases are infeasible. Thus, the information gap on whether tea consumption can reduce cardiovascular disease, and if so which doses elicit which effects can only be bridged by meticulous study and analysis of the evidence from self-selected use of tea as a beverage. If high standards are used to assess the homogeneity-of-effect after controlling for potential sources of confounding, and dose response relationships are confirmed in diverse, free living populations; a high level of confidence in the findings can be achieved. Adequate control for measurement error will allow the magnitude of effect per cup of tea to be reasonably estimated. To date we have identified 18 publications from observational epidemiologic studies reporting on tea consumption and cardiovascular disease outcomes. They range across the globe from Australasia to American and European populations. They include heavy and light tea drinking populations, and habitual consumers of black, green and oolong teas. The epidemiologic studies in man support animal experiments that demonstrate a preventive effect of tea exposure on stroke outcomes, and are remarkably homogeneous, with individuals consuming  $\geq 3$  cups of tea per day having a 21% lower risk of stroke than those consuming  $< 1$  cup per day (absolute risk reduction, 0.79; CI, 0.73 to 0.85)<sup>1</sup>. However, the evidence for other aspects of cerebrovascular disease; specifically myocardial infarction and cardiovascular disease is less consistent. Heterogeneity of effect is seen for cardiovascular disease incidence and mortality. Findings are more consistent across countries for the subclass of disease such as coronary artery disease stenosis confirmed by upon catheterization, where a 70% reduction in risk among tea drinkers was seen in a high tea consuming country (OR 0.30; CI 0.15-0.65)<sup>2</sup>. Myocardial infarction incidence is also lower in countries with significant consumption levels such as the Netherlands and Japan but not Sweden where tea consumption is low, and not where the outcome is prognosis<sup>3</sup>. Questions remain of the residual confounding due to the association between tea consumption and healthy lifestyles in many western countries.

### Key References:

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<sup>1</sup> Arab L, Liu W, Elashoff D. Green and Black Tea Consumption and Risk of Stroke: A Meta analysis. Stroke 2009 May;40(5):1786-92. PubMed PMID: 19228856

<sup>2</sup> Amani R, Noorizadeh M, Rahmanian S, Afzali N, Haghighizadeh MH. Nutritional related cardiovascular risk factors in patients with coronary artery disease in Iran: a case-control study. Nutr J. 2010 Dec 26;9:70. PubMed PMID: 21184687; PubMed Central PMCID: PMC3022640.

<sup>3</sup> Pyshchyta G, Mukamal KJ, Ahnve S, Hallqvist J, Gémes K, Ahlbom A, Janszky I. Tea consumption, incidence and long-term prognosis of a first acute myocardial infarction--the SHEEP study. Clin Nutr. 2012 Apr;31(2):267-72. Epub 2011 Nov 8. PubMed PMID: 22075136.