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Evidence that the antioxidant flavonoids in tea and cocoa are beneficial for cardiovascular health.

Kris-Etherton PM¹, Keen CL.

Author information

Abstract

Epidemiologic studies suggest an inverse association of tea consumption with cardiovascular disease. The antioxidant effects of flavonoids in tea (including preventing oxidative damage to LDL) are among the potential mechanisms that could underlie the protective effects. Other possible mechanisms include attenuating the inflammatory process in atherosclerosis, reducing thrombosis, promoting normal endothelial function, and blocking expression of cellular adhesion molecules. Cocoa and chocolate can also be rich sources of flavonoids. Flavanols and procyanidins isolated from cocoa exhibit strong antioxidant properties in-vitro. In acute feeding studies, flavanol-rich cocoa and chocolate increased plasma antioxidant capacity and reduced platelet reactivity. Based on limited data, approximately 150 mg of flavonoids is needed to trigger a rapid antioxidant effect and changes in prostacyclin. Some dose-response evidence demonstrates an antioxidant effect with approximately 500 mg flavonoids. Brewed tea typically contains approximately 172 mg total flavonoids per 235 ml (brewed for 2 min); hence, consumption of 1 and 3.5 cups of tea would be expected to elicit acute and chronic physiologic effects, respectively. Chocolate is more variable with some products containing essentially no flavonoids (0.09 mg procyanidin/g), whereas others are high in flavonoids (4 mg procyanidin/g). Thus, approximate estimates of flavonoid rich chocolate needed to exert acute and chronic effects are 38 and 125 g, respectively. Collectively, the antioxidant effects of flavonoid-rich foods may reduce cardiovascular disease risk.

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