

The efficacy of black tea in ameliorating endothelial function is equivalent to that of green tea

Consumption of tea has been shown to improve endothelial function. It is assumed that catechins are the tea components responsible for these beneficial effects. In black tea, catechin concentrations are significantly lower than in green tea. The present study was designed to compare green and black tea with regard to amelioration of endothelial function. Endothelial function in response to both teas was assessed in bovine aortic endothelial cells (BAEC) and rat aortic rings. To elucidate whether these findings are also applicable to humans, flow-mediated dilation (FMD) and nitro-mediated dilation (NMD) were assessed by ultrasound in twenty-one healthy women before and 2 h after consumption of green and black tea (2 h of FMD and NMD), in comparison with water (control). In BAEC, green and black tea significantly increased endothelial NO synthase activity to the same extent. Similarly, both teas induced comparable endothelial-dependent vasodilation in rat aortic rings. In human subjects, ingestion of green and black tea led to significant increases in FMD: from 5.4 (sd 2.3) to 10.2 (sd 3) % (baseline-adjusted difference (BAD) for 2 h of FMD, green tea v. water: 5.0 (95 % CI 3.0, 7.0) %; $P < 0.001$) and from 5 (sd 2.6) to 9.1 (sd 3.6) % (BAD for 2 h of FMD, black tea v. water: 4.4 (95 % CI 2.3, 6.5) %; $P < 0.001$), respectively. The increase in FMD was not significantly different between the two tea preparations (BAD for 2 h of FMD, green tea v. black tea: 0.66 (95 % CI - 0.76, 2.09) %; $P = 0.36$). NMD did not vary between any of the groups. In conclusion, green and black tea are equally effective in improving endothelial function.

20th December, 2007