

Tart cherry-enriched diets reduce atherosclerosis and mortality in mice

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Epidemiologic data suggest that anthocyanin intake is inversely related to cardiac mortality. In animals, intake of anthocyanin-rich tart cherries reduces cardiovascular risk factors, but the specific effect upon atherosclerosis is unknown. Male ApoE-null mice were provided diet containing 21% total fat. A cohort of ApoE-null mice were provided 1% of the diet as tart cherry powder from pitted, individually quick frozen tart cherries. Diets were matched for calorie and carbohydrate content. Mice were sacrificed after five months of feeding. Cherry intake reduced serum oxidative stress marker malonyldialdehyde(-17%), inflammation marker C-reactive protein(-36%), and total cholesterol(-26%). Cherry intake also reduced early mortality(-65%) and reduced lipid deposition in the aortic arch(-29%) and abdominal aorta(-8%). Several inflammation-related mRNAs and proteins were altered in aortas of cherry-fed mice including tumor necrosis factor- α and monocyte chemoattractant protein-1. However, mRNA related to lipid uptake and storage were unchanged. The data suggest that cherry intake may have reduced atherosclerosis by reduced serum cholesterol and/or reduced local inflammation in the aortic wall, but not by altered cholesterol uptake, itself. In conclusion, anthocyanin-rich tart cherry intake reduced atherosclerosis, biomarkers of cardiovascular risk, and atherosclerosis-related mortality.