Effect of tart cherry juice on arterial stiffness, inflammation and other risk markers for cardiovascular disease in healthy adults

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Inflammation is thought to play an important role in the development of arterial stiffness[1]. Evidence indicates that cherries may have anti-inflammatory effects[2,3]. Consumption of sweet cherries over a period of 28 d reduced markers of inflammation in healthy middle aged adults and consumption of tart cherry juice reduced exercise-induced inflammation in marathon runners[2,3]. The effect of cherries on arterial stiffness has not been examined.

We conducted an open-label randomised placebo controlled study to determine whether a tart cherry juice concentrate (Cherry Active®) reduced arterial stiffness, inflammation and risk markers for cardiovascular disease in 46 healthy adults (30–50 y). Participants consumed 30 ml of cherry concentrate diluted to a volume of 250 ml with water or the same volume of an energy matched control drink daily for 6 weeks. Measurements were taken at baseline and at the end of the intervention. The primary outcome variable was change in pulse wave velocity (PWV). The secondary outcome variable was change in serum C-reactive protein (CRP; a marker of inflammation). The study was approved by the Ethics Committee of Sheffield Hallam University and all participants provided written informed consent.

Arterial stiffness was measured as brachial-knee pulse wave velocity (Nicolet Vasoguard Microlight system, VIASYS Healthcare, USA). Brachial blood pressure was measured in triplicate using a semi-automated sphygmomanometer (Accutorr PlusTM Datascope, USA). Fasted blood samples were collected at the start and end of the intervention to measure CRP and lipid variables. Serum CRP was measured using a high sensitivity commercial ELISA kit from MP Biomedicals. Total cholesterol, high density lipoprotein cholesterol (HDL) and triacylglycerol (TAG) were measured on a Reflotron Plus reflectance photometer. Low density lipoprotein cholesterol (LDL) was calculated using the Friedewald equation[4]. The table shows mean baseline and post intervention values by treatment group. There was no significant effect of the intervention on any outcome measure.

	Cherry Juice				Control				
	Baseline Mean	SD	End Mean	SD	Baseline Mean	SD	End Mean	SD	*P* group
PWV (m/s)	8.22	1.69	8.18	1.60	7.98	1.21	7.74	1.05	0.758
CRP (mg/L)	2.57	3.48	2.65	3.37	1.87	1.33	2.40	1.87	0.955
SBP (mm Hg)	110.5	14.4	110.2	12.6	110.4	12.3	113.4	11.9	0.450
DBP (mm Hg)	70.3	10.0	69.2	9.86	67.4	8.28	69.9	7.6	0.119
Total Cholesterol (mmol/L)	4.25	0.79	4.22	0.77	3.76	0.67	4.11	0.67	0.713
HDL (mmol/L)	1.07	0.54	1.28	0.44	1.11	0.28	1.13	0.31	0.211
LDL (mmol/L)	2.51	0.92	2.52	0.67	2.04	0.60	2.45	0.61	0.487
TAG (mmol/L)	1.37	0.10	1.11	0.48	1.08	0.41	1.12	0.38	0.292

Effect of treatment was assessed by ANCOVA, with baseline and age as covariates. HDL and hsCRP data were log transformed prior to analysis.

We conclude that a tart cherry juice concentrate rich in polyphenols has no effect on PWV, CRP and risk markers for cardiovascular disease in healthy adults.

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