

Concurrent Session 1: Functional Foods I

Cocoa flavanols - circulatory and heart health benefits

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Background – Recent research on cocoa flavanols adds substance to traditional beliefs in the health benefits of chocolate.

Review – In addition to generic antioxidant effects, these polyphenols can enhance endothelial nitric oxide production to influence physical and possibly mental health status through circulatory improvements. Flow mediated dilatation (FMD), a non-invasive index of endothelial function which is impaired in obesity, hypertension, high cholesterol, smoking and diabetes, increases following consumption of cocoa flavanols.¹ We recently found that flavanol-rich cocoa supplementation for 12 wks led to sustained FMD improvement, lower blood pressure (BP) and enhanced glucose metabolism in overweight/obese but otherwise healthy non-smokers (Davison et al, unpublished). Others have shown that such benefits are dose related¹ and attainable with modest flavanol intakes from chocolate.^{2,3} This is consistent with epidemiological evidence of lower BP and reduced cardiovascular mortality in cocoa/chocolate consumers.^{4,5} Recent studies link cognitive decline to impaired cerebral vasodilatation and show that consuming flavanol-rich cocoa can increase cerebral blood flow⁶. Thus enhanced endothelial function may be a common mechanism by which vasoactive nutrients improve cardiometabolic risk factors, mood and cognition.

Conclusion - Further evaluation of the potential role of specific cocoa flavanols in healthy ageing is warranted.

References

1. Heiss C *et al.*, Sustained increase in flow-mediated dilation after daily intake of high-flavanol cocoa drink over 1 week. *J Cardiovasc Pharmacol* 2007;49:74–80
2. Grassi D *et al.*, Cocoa reduces blood pressure and insulin resistance and improves endothelium-dependent vasodilation in hypertensives. *Hypertension*. 2005;46:398-405
3. Taubert D *et al.*, Effects of low habitual cocoa intake on blood pressure and bioactive nitric oxide: a randomized controlled trial. *JAMA* 2007;298:49-60
4. Buijsse B *et al.*, Cocoa intake, blood pressure, and cardiovascular mortality: the Zutphen Elderly Study. *Arch Intern Med*. 2006;166:411-417
5. Bayard V *et al.*, Does flavanol intake influence mortality from nitric oxide-dependent processes? Ischemic heart disease, stroke, diabetes mellitus, and cancer in Panama. *Int J Med Sci*. 2007;4:53-8
6. Fisher ND *et al.*, Cocoa flavanols and brain perfusion. *J Cardiovasc Pharmacol*. 2006;47:S210-4.