

Chocolate passes clinical trial test for artery and heart health

By Stephen Daniells, 29-Sep-2009

Related topics: Antioxidants, carotenoids, Phytochemicals, plant extracts, Cardiovascular health

Daily supplements of a flavonoid-rich chocolate may reduce biochemical markers of arterial hardening and boost heart health, say results of a randomized controlled trial.

Consumption of the antioxidant-rich chocolate containing 495 mg of polyphenols led to reductions in levels of inflammatory compounds which contribute to development of atherosclerosis, according to results published in the *American Journal of Clinical Nutrition*.

Researchers from the University of Barcelona in Spain recruited 42 people with an average age of 70 to consume either skim milk, or skim milk plus the cocoa powder for four weeks.

All the participants were deemed to be at high risk of coronary heart disease (CHD), since they were diabetic, smokers, hypertensive, obese, and/or had raised LDL or low HDL cholesterol levels, and a family history of early CHD.

The health benefits of antioxidant-rich chocolate have received much recognition in recent years, with positive findings from a number of studies impacting on consumer awareness. Chocolate manufacturers are using high cocoa content (over 70 per cent) as a means of differentiation, and cocoa has also received attention for its potential in functional food applications.

"However, few human feeding trials have focused on the study of anti-inflammatory effects of cocoa, and the results obtained have been contradictory," explained the researchers.

"We embarked, therefore, on a randomized, crossover, controlled clinical trial to evaluate the effects of chronic cocoa consumption on the expression of soluble adhesion molecules and pro-inflammatory cytokines related to the early stages of atherosclerosis in a series of subjects at high risk of CHD," they added.

Study details

The high-risk participants were randomly assigned to receive either the skim milk (500 ml, Lactalis) or skim milk plus cocoa powder (40 grams per day containing 425.7 mg proanthocyanidins, Nutrexpa). After four weeks they were switched over to the other intervention group for another four weeks. A washout period was deemed unnecessary because of the fast elimination of flavan-3-ols from the body.

Results showed that blood levels of biomarkers such as soluble endothelium-derived adhesion molecules P-selectin and intercellular adhesion molecule-1 were significantly lower following consumption of the cocoa plus milk intervention than following consumption of the milk alone. Both molecules play a role in the migration of white blood cells in to the cells lining blood vessels (endothelium), promoting inflammation.

A reduction in the expression of adhesion proteins in white blood cells (monocytes) was also observed following consumption of the cocoa milk.

"Our results suggest that regular consumption of nutritional doses of cocoa may have an effect on all initial phases of the atherosclerotic process in subjects at high risk of CHD," wrote the researchers.

"These anti-inflammatory effects may contribute to the overall benefits of cocoa consumption against atherosclerosis," they concluded.

Source: *American Journal of Clinical Nutrition*

Published online ahead of print, doi:10.3945/ajcn.2009.27716

"Effect of cocoa powder on the modulation of inflammatory biomarkers in patients at high risk of cardiovascular disease"

Authors: M. Monagas, N. Khan, C. Andres-Lacueva, R. Casas, M. Urpi-Sarda, R. Llorach, R.M. Lamuela-Raventos, R. Estruch

Copyright - Unless otherwise stated all contents of this web site are © 2000/2009 - Decision News Media SAS - All Rights Reserved - For permission to reproduce any contents of this web site, please email our Syndication department: [Administration & Finance](#) - Full details for the use of materials on this site can be found in the [Terms & Conditions](#)