

# Abstract 14738: Acute Effects of Diets Rich in Almonds and Walnuts on Endothelial Function in Humans

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## Abstract

**Background:** Omega-3 fatty acid and Linolenic acid (ALA) reduces cardiovascular disease (CVD) risk, possibly by favorably changing vascular inflammation and endothelial dysfunction. Objective: The objective was to evaluate the effect of a high fat walnut and almond meal on endothelial function and inflammatory markers. Design: Twenty seven overweight volunteers underwent a randomized 2-period, crossover, controlled intervention study. The subjects were given either walnut or almond diets which varied in mono unsaturated fatty acid (MUFA) and poly unsaturated fatty acid content (PUFA). The walnut diet provided 23.1% energy from PUFA and the almond diet provided 7.6% energy from PUFA. Endothelial function was assessed physiologically by FMD (flow mediated dilation) and biochemically by VCAM (vascular cell adhesion molecule) and CRP (C-reactive protein).

**Results:** The Walnut Diet improved FMD significantly ( $P=0.001$ ) and decreased VCAM ( $P=0.009$ ) whereas Almond diet tended to improve FMD ( $P=0.06$ ) and significantly decrease VCAM ( $P=0.001$ ). With walnut diet, FMD showed significant association with VCAM ( $r=0.5$ ,  $P=0.000$ ). Interestingly the level of CRP increased with walnut diet ( $p=0.01$ ) whereas almond diet tended to decrease CRP ( $P=0.18$ ). There was no significant difference in FMD, CRP or VCAM between almonds and walnuts.

**Conclusion:** Addition of both walnut and almonds to high fat meal improved FMD and VCAM and there was no significant difference in the changes in physiological and biochemical markers between the two nuts.