

Effect of Daily Avocado Intake for Six Months on Flow-Mediated Dilation: A Sub-Study of the Habitual Diet and Avocado Trial, a Randomized Controlled Study

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Objectives: The Habitual diet and Avocado Trial (HAT), a multi-center parallel randomized controlled trial, was designed to examine the health effects of consuming 1 avocado per day for 6-months compared to a habitual diet limited in avocados in individuals with abdominal obesity. We assessed the effects of the intervention on endothelial function using flow-mediated dilation (FMD) of the brachial artery.

Methods: All participants were ≥ 25 years of age with an elevated waist circumference (≥ 88 cm women; ≥ 102 cm men). Participants were randomized into either a control group (HD: consumed < 2 avocados/month for 6 months) or an experimental group (AVO: consumed 1 avocado/day for 6 months). At the Pennsylvania State University, University Park site ($n = 134$), FMD was measured at

baseline and end of the study. Within-person change scores were calculated by subtracting FMD at baseline from FMD at the end of the study. Linear regression was used to examine between-group differences in change across 6 months.

Results: The sample was 78% female (BMI 33 ± 5 kg/m²). At baseline, FMD was $7.73 \pm 3.37\%$ in the AVO group, and $6.85 \pm 2.67\%$ in the HD group. FMD decreased by $-0.10 \pm 2.94\%$ in the AVO group and increased by $0.52 \pm 3.17\%$ in the HD group. There were no significant between-group differences in 6-month change in FMD (0.62%, 95%CI = -0.46 – 1.70 , $p = 0.26$). The results remained unchanged after adjustment for sex, BMI, and baseline FMD (0.15%, 95%CI = -0.77 – 1.06 , $p = 0.75$).

Conclusions: Results suggest that consumption of 1 avocado per day for 6 months in adults with abdominal obesity is not associated with a significant improvement in endothelial function, compared to adults following their habitual diet. Participants in this study had relatively high FMD at baseline, which may have reduced our ability to observe improvements in endothelial function.

Funding Sources: Avocado Nutrition Center and the National Center for Advancing Translational Sciences, National Institutes of Health (1UL1TR002014-01)