Avocado consumption and risk factors for heart disease:
A systematic review and meta-analysis1,2
Hiya Mahmassani, Esther Avendano, Gowri Raman, Elizabeth J. Johnson

KEY TAKEAWAYS

- Avocado intake resulted in a statistically significant increase in HDL-C and decrease in TC:HDL-C and LDL:HDL-C when compared with controls that consumed low-or moderate-fat avocado-free diets.

- Subjects with elevated cardiometabolic risk at baseline yielded a statistically significant increase in HDL-C and decrease in TC:HDL-C with consumption of avocado compared to no intake.

- Consumption of avocado did not alter body weight.

- Avocado intake is not related to a change in serum total cholesterol (TC), LDL-C, triglycerides (TG) or HDL-C compared with consumption of moderate-fat avocado-free diets.

OVERVIEW

The study was supported by the Hass Avocado Board (HAB) and published in the American Journal of Clinical Nutrition1. Given avocados contain nutrients and phytochemicals that have been associated with cardiovascular benefit, a meta-analysis was conducted to assess the effect of avocado intake on cardiometabolic outcomes of cardiovascular disease.

In this study, researchers found that, compared to low-fat and moderate-fat avocado-free diets, avocado consumption resulted in a statistically significant increase in HDL-C and decrease in TC:HDL-C and LDL:HDL-C ratios. In sub-analysis, subjects with elevated cardiometabolic risk at baseline also yielded a statistically significant increase in HDL-C and decrease in TC:HDL with consumption of avocado, compared to no intake. However, avocado intake was not related to a change in serum total cholesterol (TC), LDL-C, triglycerides (TG) or HDL-C.

For healthy living, increased HDL-C is desirable while decreased total cholesterol (TC), LDL-C, TC:HDL, LDL:HDL and triglycerides are desirable. TC:HDL is the most powerful predictor of ischemic disease mortality.

One-third of a medium avocado contains 5 grams of monounsaturated fat (MUFA) and is a good source of fiber. Higher MUFA intake has been associated with overall reduced risk for cardiovascular mortality (12% risk reduction for 5% exchange of MUFA for saturated fat), and fiber intake has been associated with lower risk of cardiovascular disease (9% decrease per 7 grams fiber increase). Blood lipids are a primary risk factor for cardiovascular health.

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This study conducted a systematic review, which is considered the best evidence and an unbiased overview of the body of knowledge on a specific topic, in order to use a statistical technique that combined the results from 202 subjects from seven independent studies to estimate the overall impact of avocado consumption on blood lipids. TC:HDL-C and LDL-C:HDL-C were evaluated in fewer trials (four and three respectively). When reported, the daily avocado intake dose ranged from 1 to 3.7 medium avocados. Only studies of at least three weeks in length were included in the analysis. Cochrane risk for bias was assessed and data were interpreted within accordance of the Agency for Healthcare Research and Quality recommendations. Analyses of data include comparisons to only moderate-fat control diets, a combination of moderate-fat and low-fat control diets and sub-analyses of subjects with elevated cardiometabolic risk. Other cardiometabolic risk factors could not be systematically evaluated due to limited data.

Caveats to the study outcomes include limitations of the total number of studies reporting quantitative data, overall small sample size and generally restrictive eligibility criteria within studies. Additionally, failed reporting of total avocado intake in each study precluded the ability to conduct dose-response analysis. Variance in data analysis may be explained by a wide range of subject characteristics included in the study (healthy vs. diseased, young vs. aged, males vs. females, different ethnicities) and dietary patterns. Results should be interpreted with caution. Additional long-term trials are needed to assess the effect of avocado intake on blood lipid levels and other CVD risk factors.
Blood lipids in response to eating avocado vs. no intake.

<table>
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<tr>
<th>LDL-C</th>
<th>HDL-C</th>
<th>LDL:HDL-C*</th>
<th>Total (TC) Cholesterol</th>
<th>TCHDL-C*</th>
<th>Triglycerides</th>
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*Compared to Only Moderate Fat Controls
*Compared to Low & Moderate Fat Controls

*LDL:HDL-C and TC:HDL-C are expressed as ratios.

Blood lipids in response to eating avocado vs. no intake in subjects with increased risk for cardiovascular disease.

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<th>LDL-C</th>
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AVOCADOS AND BLOOD LIPIDS

Based on these findings, researchers concluded that, although the current scientific literature is limited, avocados may improve some blood lipids when compared to a low-fat control. Avocado intake may also improve blood lipid levels in subjects with an elevated risk for cardiovascular disease.

*TC:HDL-C are expressed as ratios.
*LDL:HDL-C could not be analyzed due to insufficient data.
HASS AVOCADO BOARD SUPPORTS NUTRITION RESEARCH

HAB has a science research pipeline of ongoing clinical studies investigating the relationship between fresh avocado consumption and weight management and risk factors for cardiovascular disease and diabetes. And, based on avocados’ nutrition and phytochemical components, emerging research suggests that they may benefit many emerging areas, including skin, eye, joint and cellular health.

For more information on avocado nutrition research, visit LoveOneToday.com/Research.

To view the abstract or published study, click here.

REFERENCES


2. The avocado nutritional information throughout this summary has been updated to reflect changes by the FDA to the avocado serving size on 7/26/16 (more info at https://www.loveonetoday.com/nutrition/avocado-nutrition-facts-label).