

WINTER
2026

NUTRITION BULLETIN

This issue features a newfound understanding about how almonds positively impact blood lipids and associated ratios plus a new video to help your patients and clients learn how to improve their cardiometabolic health.

RESEARCH SPOTLIGHT:

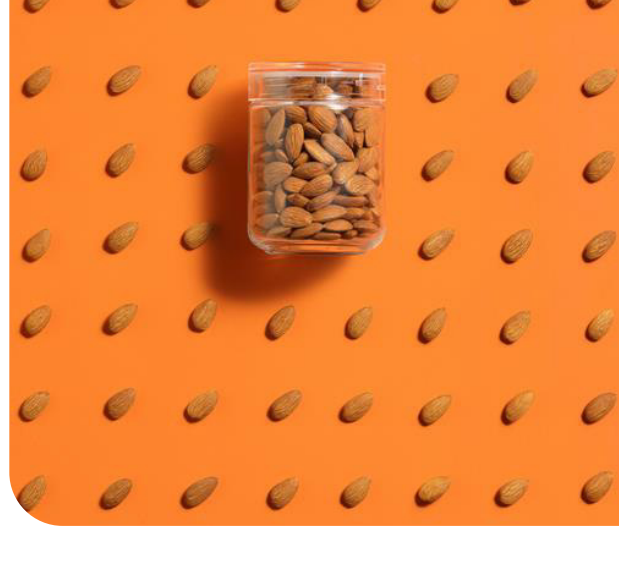


New research confirms almonds heart health benefits and improvement in the balance of two cardiovascular disease markers.

Musa-Veloso K, Gauntlett C, Geronimo K, Vicente I, Ho SPL. **Blood Lipid Levels in Response to Almond Consumption: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.** *Nutrients.* 2025 Aug 28;17(17):2791. doi: 10.3390/nu17172791

This 2025 systematic review and meta-analysis of 36 published studies (2,485 adults) reviewed the effects of eating almonds for at least four weeks on blood lipid levels. Almond consumption ranged from 25g to 168g a day. While past studies examined the effects of almond consumption on levels of ApoA and ApoB individually, this is the first study to investigate their impact on the balance of these two proteins. (The ApoB:ApoA ratio measures the balance between the carriers of LDL-cholesterol (ApoB) and HDL-cholesterol (ApoA) in the blood.)

This review found eating almonds reduced the ratio, indicating a healthier balance between harmful ApoB and beneficial ApoA, and in turn, a lower risk of cardiovascular disease.



“ApoA is a beneficial protein that supports the removal of excess cholesterol from the arteries, while ApoB is a harmful protein involved in the deposition of cholesterol in arteries and the formation of arterial plaque,” said Dr. Kathy Musa-Veloso, lead author of the paper and Senior Director of Nutrition, Health Claims, and Clinical Trials within Intertek’s Food and Nutrition group. “In our systematic review and meta-analysis, almond consumption had no effect on ApoA levels but did result in a statistically significant reduction in ApoB levels.”

The systematic review, funded by the Almond Board of California, also found almond consumption:

- was linked to significantly lower levels of total cholesterol, LDL-cholesterol, and non-HDL-cholesterol
- significantly improved the balance between LDL-cholesterol and HDL-cholesterol
- significantly lowered levels of harmful ApoB

RESEARCH UPDATE: ALMONDS LOVE YOUR HEART

The latest systematic review joins a 30-year legacy of peer-reviewed almond nutrition research.

Here are a few unique heart health studies worth noting.

Berryman CE, West SG, Fleming JA, Bordi PL, Kris-Etherton PM. **Effects of daily almond consumption on cardiometabolic risk and abdominal adiposity in healthy adults with elevated LDL-cholesterol: a randomized controlled trial.** *J Am Heart Assoc.* 2015 Jan 5;4(1):e000993.



This randomized, controlled, crossover-designed clinical study compared the effects of cholesterol-lowering diets with 42g of almonds per day vs. a muffin with the same number of calories for 6 weeks each on a variety of heart disease risk factors in 52 overweight adults with elevated LDL-cholesterol (mean 148 mg/dL at baseline). Both diets reduced total and LDL-cholesterol from baseline, but the reduction was greater with the almond snack vs. the muffin snack. The diet containing the almond snack, compared to the muffin snack, decreased total cholesterol, LDL-cholesterol, non-HDL-cholesterol, and remnant lipoproteins. In addition, the diet with the muffin snack reduced HDL-cholesterol more than the almond diet.

This study found that substituting almonds for a high-carbohydrate snack improved numerous heart health risk factors, including the new finding that eating almonds reduced abdominal (belly) fat and weight circumference, two crucial factors for overall cardiometabolic health.

KEY TAKEAWAY: The findings suggest that choosing almonds as a snack may be an effortless way to help prevent metabolic syndrome and cardiovascular disease while reducing belly fat.



Dikariyanto V, Smith L, Francis L, Robertson M, Kusanlan E, O’Callaghan-Latham M, Palanche C, D’Annibale M, Christodoulou D, Basti N, Whitcher B, Shuaib H, Charles-Edwards G, Chowienzyk PJ, Ellis PR, Berry SEE, Hall WL.

Snacking on whole almonds for 6 weeks improves endothelial function and lowers LDL cholesterol but does not affect liver fat and other cardiometabolic risk factors in healthy adults: the ATTIS study, a randomized controlled trial. *Am J Clin Nutr.* 2020 Jun 1;111(6):1178-1189. doi: 10.1093/ajcn/n-qaa100.

This research study, Almonds Trial Targeting Dietary Intervention with Snacks (ATTIS), was a 6-week randomized control, parallel-arm trial, where participants (with above average cardiovascular disease risk) consumed almonds or a calorie-matched control snack providing 20% of participants estimated daily energy needs. The research team then compared cardiometabolic health markers between the two groups. Compared to the control group, those in the almond group saw improved endothelial function, assessed by measuring flow-mediated dilation (FMD). This was a novel finding. Improved FMD means that arteries can dilate more easily in response to increased blood flow, which is a strong indicator of cardiovascular health and poor endothelial function is a strong predictor of atherosclerosis.

LDL-cholesterol levels decreased in the almond group relative to the control group. There was no difference between the two groups in liver fat and several other measures (triglycerides, HDL-cholesterol, glucose, insulin, and others). This study showed that replacing typical snacks with almonds in this UK population improved endothelial function, cardiac autonomic function, and reduced LDL-cholesterol levels. Almonds, compared with control, increased endothelium-dependent vasodilation (mean difference 4.1 % units of measurement, 95% CI). Plasma LDL-cholesterol concentrations decreased in the almond group relative to control (mean difference -0.25 mmol/L, 95% CI).

KEY TAKEAWAY: Snacking on almonds improved endothelial function, which is a key indicator of vascular health and a novel almond discovery.

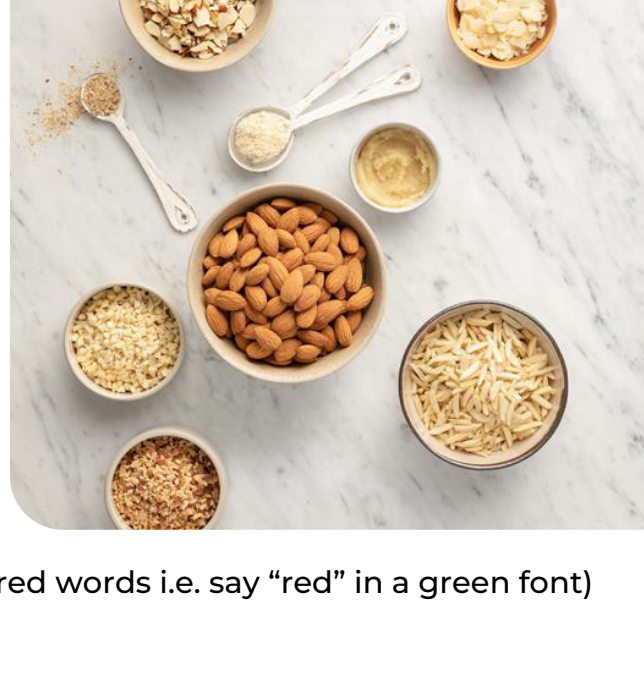
Dikariyanto V, Smith L, Chowienzyk PJ, Berry SE, Hall WL. **Snacking on Whole Almonds for Six Weeks Increases Heart Rate Variability during Mental Stress in Healthy Adults: A Randomized Controlled Trial.** *Nutrients.* 2020 Jun 19;12(6):1828. doi: 10.3390/nu12061828

This research was part of the ATTIS study where participants with above average cardiovascular disease risk consumed a daily snack of almonds or a calorie-matched control snack providing 20% of estimated daily energy needs. In this study, researchers measured participants’ real-time heart rate and heart rate variability (HRV) at rest (lying down for 5-minute periods) and during a Stroop test (in which participants were asked to Stroop test (in which participants were asked to read coloured words i.e. say “red” in a green font) to simulate short period of mental stress.

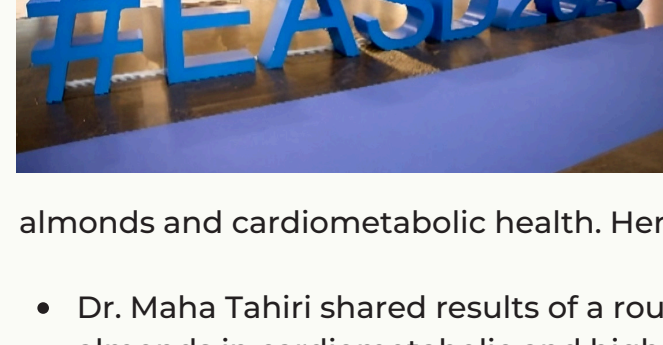
During acute mental stress, participants in the almond group showed better heart rate regulation compared to the control group, indicated by statistically significant differences in high frequency power, which specifically evaluates beat-to-beat intervals (a measure of HRV). The study suggests that eating almonds in place of typical snacks may diminish the drop in HRV that occurs during mental stress, thereby improving cardiac function.

KEY TAKEAWAY: Consuming almonds has the potential to increase cardiovascular resilience to mental stress, along with other heart health benefits seen in the primary findings of the ATTIS study.

Want to know more? Enjoy this **deep dive** into the body of almond heart health research.



CONFERENCE UPDATE: EASD 2025



In partnership with the Diabetes and Nutrition Study Group, the Almond Board supported a symposium at the European Association for the Study of Diabetes (EASD) 2025 titled “Current evidence and cardiometabolic health: A focus on almonds.” Chaired by Drs. Cyril Kendall and Hana Kalheova, the session unpacked 30+ years of research about

almonds and cardiometabolic health. Here are some session highlights:

- Dr. Maha Tahiri shared results of a roundtable process for defining the role of almonds in cardiometabolic and highlighted US modelling data (NHANES), where replacing 25–50% of snacks or adding 30–50g/day of almonds increased Healthy Eating Index and Mean Adequacy Ratio.
- Dr. John Sievenpiper presented about the role of almonds in the prevention and management of diabetes and how almond consumption resulted in modest but consistent reductions in HbA1c and fasting glucose in people with type 2 diabetes (at ~63g/day for 10 weeks).
- Dr. Anoop Misra covered almonds and cardiometabolic health in at-risk South Asian populations who face unique metabolic challenges and explained up to 25% of participants with prediabetes reverted to normal glucose levels after almond interventions.
- Dr. Laura Chiavaroli shared new research leveraging guidelines-based dietary patterns featuring almonds for diabetes remission and cardiovascular disease prevention.

Tahiri explained the symposium’s key takeaway is that when healthy foods such as almonds or other nuts are used strategically, the benefits go beyond nutrients. They shape glycaemic control, satiety, diet quality, and long-term health.

30 YEARS OF SHAREABLE SCIENCE: ALMOND BITES

This short, informative **video** shares almonds’ role in cardiometabolic health in an easy-to-understand way. Another free resource is a head-to-toe health **infographic** providing a snapshot of almond health benefits. Please spread the word and share with your fellow nutrition professionals.