

NUTRITION BULLETIN

AUTUMN 2025



This year marks the 30th anniversary of the Almond Board of California's Nutrition Research Program. Since first investigating almonds' impact on LDL-cholesterol reduction in the 1990s—during an era when healthy fats were widely demonised—the programme has consistently advanced nutritional science. Today, the program continues to break new ground such as using novel AI-driven research methodologies. In this issue, we explore exciting new findings on gut health and newly identified bioactive compounds, alongside fresh resources to support your professional practice.

RESEARCH SPOTLIGHT: ALMONDS BENEFIT GUT HEALTH

Two recent studies deepen our understanding about how eating almonds daily impacts gut health, functions as a prebiotic, and supports overall health. Both review papers were peer-reviewed and funded by the Almond Board of California.

Tahiri M and Gilbert JA. **Examining the potential prebiotic effect of almonds.** *Journal of Applied Microbiology*. 2025 Apr;136(4): 1xaf078. doi.org/10.1093/jambio/1xaf078.

This **comprehensive review** showed that almonds have significant potential as a functional food with a prebiotic effect. Almonds benefited gut health by:

- Enhancing the balance and diversity of bacteria in the gut
- Increasing levels of beneficial gut bacteria such as *Bifidobacterium*, *Lactobacillus*, and *Roseburia*
- Boosting the production of beneficial compounds such as short-chain fatty acids (SCFAs), which help to protect the gut lining, aid in mitigating inflammation and support metabolic health



Although the study authors concluded that there is sufficient evidence to show that almonds have a prebiotic effect, they emphasized that future studies, particularly those using standardized methods, are required.

“Almonds contain dietary fibre, polyphenols, and non-digestible carbohydrates like oligosaccharides, which provide their prebiotic effects. These nutrients are metabolized by beneficial gut bacteria, supporting their growth and producing beneficial compounds like short-chain fatty acids.”

- Professor Jack Gilbert, University of California, San Diego, project lead for the National Institutes of Health's Nutrition for Precision Health initiative

Singar S, Kadyan S, Patoine C, Park G, Arjmandi B, Nagpal R. et al. **The Effects of Almond Consumption on Cardiovascular Health and Gut Microbiome: A Comprehensive Review.** *Nutrients*. 2024 Jun 20;16(12):1964. doi:10.3390/nu16121964.

This comprehensive review paper of studies investigating almond consumption on cardiovascular disease risk factors and gut health concluded that almonds promote the growth of beneficial gut bacteria and boost the production of SCFAs, particularly butyrate. The review also confirmed that eating almonds can support heart health by lowering harmful LDL-cholesterol and blood pressure.

The researchers speculated on whether the impact of almonds on gut health positively influences heart health. Dr. Ravinder Nagpal, co-author of the paper and Director for The Gut Biome Lab at Florida State University noted: “The gut-heart axis is an emerging and exciting area of interest in cardiovascular research. Eating almonds appears to regulate the gut microbiome, promotes the growth of beneficial bacteria, and increases the production of butyrate. Collectively, this helps to alleviate inflammation and support metabolic function. This could help to explain the many cardioprotective effects of almonds.”

The researchers acknowledge more research is needed to understand how the gut and heart interact, and the direct impact of almond consumption.

These current reviews indicate the almonds contain several substances that function as prebiotics including fibre (4g per 30g portion); polyphenols that selectively promote the growth of beneficial gut bacteria; and oligosaccharides which help feed beneficial bacteria in the gut.

RESEARCH UPDATE: NEW ALMOND BIOACTIVES DISCOVERED



AI platforms offer great promise in analysing huge amounts of food compositions data quickly to find patterns and enable new discoveries. In the spirit of pioneering innovation, the Almond Board of California collaborated with Brightseed to analyse three California almond varieties using Brightseed's proprietary AI, Forager, to identify novel compounds that benefit human health. Researchers identified 530 phytochemicals in California almonds, four times more than previously reported. Also, Brightseed identified 17 bioactive substances with established biological health effects in this **study**.

These plant-derived phytochemicals are associated with benefits to multiple health areas: brain, gut, metabolic, cellular, and immune health.

“These findings deepen our understanding of almonds' nutritional value and health benefits and further validate the inclusion of almonds in healthy dietary patterns. This study underscores the power of leveraging emerging metabolomic and AI tools to uncover new insights across health and nutrition.”

- Elena Hemler, director, nutrition research, Almond Board of California

ABC-SPONSORED SESSION AT THE INTERNATIONAL CONGRESS OF NUTRITION (IUNS-ICN) 2025 PARIS: ALMONDS AND CARDIOMETABOLIC HEALTH



At the IUNS-ICN 2025 conference, the Almond Board of California sponsored a session featuring leading experts Maha Tahiri (Tufts University), Matthieu Maillot (MS-Nutrition), Jack Gilbert (UC San Diego), and France Bellisle (FB Consulting). Their presentations synthesized 30 years of research on almonds and cardiometabolic risk.

Key findings of daily almond consumption were:

- LDL-cholesterol reduction of ~5.1 mg/dL (~5%)
- Diastolic blood pressure lowered by 0.17–1.3 mmHg
- No weight gain, with slight weight loss observed with higher intake (at least 50g/day)
- Microbiome benefits, including increased diversity and SCFA production
- Diet modeling showed almonds outperform typical snacks by increasing fibre, magnesium, and healthy fats, while reducing added sugars and sodium
- These results support almonds as a nutrient-dense food with measurable public health benefits. You can read a comprehensive summary **here**.



30 YEARS OF SHAREABLE SCIENCE: ALMOND BITES



Research has been central to the Almond Board's mission for decades. As a nonprofit Federal Marketing Order overseen by the US Department of Agriculture (USDA) and funded by almond growers and processors, the Almond Board commissions studies that examine almonds' health benefits. To date, more than 200 published papers have expanded our knowledge of almonds' role in human health.

The Almond Board continuously develops evidence-based, digestible resources to help nutrition professionals share study findings in engaging and accurate ways.

Discover the latest Almond Bite: A new explainer **video** communicating recent research showing that eating 57g of almonds daily for one month supports better post-exercise recovery in healthy adults who do not regularly exercise. This concise, easy-to-follow content is ready to share with your patients, clients and other audiences.



For a bigger bite, dive in to additional study details **here**.



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