

Mixed Nuts in Diabetes Prevention: The PRENUT Trial Begins



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Type 2 diabetes threatens to overwhelm global healthcare systems, yet current prevention strategies remain insufficient. The PRENUT trial, funded by the INC, represents a groundbreaking approach: testing whether mixed nuts, consumed strategically before meals, can prevent diabetes in high-risk individuals.

The Diabetes Emergency

We face an unprecedented global health crisis. Diabetes affects over 500 million people worldwide, with projections suggesting this number will reach 1.3 billion by 2050.¹ The economic impact has been described as an "economic tsunami," threatening not only individual lives but entire healthcare systems and national economies. Despite numerous public health initiatives, diabetes incidence continues to rise at alarming rates.

Diet represents the single most important modifiable risk factor for diabetes prevention, accounting for more than 25% of the global disease burden from non-communicable diseases. Yet current dietary recommendations for diabetes prevention remain frustratingly generic: lose weight, eat healthfully, exercise more. We need specific, evidence-based dietary interventions that people can actually implement in their daily lives.

The Missing Piece: Nuts in Diabetes Prevention

Here's a surprising gap: while nuts are recognized in clinical guidelines and health claim frameworks for reducing cholesterol and heart disease risk, they receive virtually no recognition for diabetes prevention. Current recommendations for nuts in diabetes management are consistently graded as only "low to moderate" quality evidence. Globally, no diabetes-related health claims are permitted for nuts, only for dietary fibers like oat beta-glucans and for yogurt.

This gap exists despite compelling scientific evidence. Randomized trials have shown that tree nuts reduce HbA1c and fasting blood glucose in people with type 2 diabetes. The mechanisms appear clear: nuts lower the overall glycemic load of the diet by displacing high-glycemic carbohydrates. Even more intriguingly, acute feeding studies demonstrate that nuts can blunt the blood sugar spike after carbohydrate-rich meals, especially when consumed as a "preload" 30 minutes before eating.

Two recent trials from South Asia provide particularly compelling evidence. In one study, 60 grams of almonds daily (20 grams before each main meal) helped adults with prediabetes revert to normal blood sugar levels over 12 weeks.² A similar trial with pistachios showed comparable benefits.³ These results suggest that strategic nut consumption—timed specifically to reduce post-meal glucose spikes—might actually prevent diabetes from developing in high-risk individuals.

Enter PRENUT: A Game-Changing Trial

The PRENUT (PREloads of mixed NUTs for diabetes prevention) trial represents the most ambitious investigation ever undertaken into nuts and diabetes prevention. Funded by the INC, this trial will provide the gold-standard evidence needed to transform clinical guidelines and health policy.

PRENUT will enroll 752 high-risk adults across four countries on three continents: Canada (Toronto), USA (Loma Linda), Spain (Reus) and India (Chennai). All participants have obesity, a family history of diabetes, and prediabetes confirmed by oral glucose tolerance testing. These are precisely the individuals who need effective prevention strategies most urgently.

The intervention is elegantly simple: participants will receive 20 grams of mixed nuts (at least three varieties) in convenient, pre-portioned packets to consume 30 minutes before each main meal, three times daily (a total of 60 grams per day). They will be instructed to chew the nuts for at least five minutes and reduce an equivalent amount of refined carbohydrates during the meal. The control group will receive standard lifestyle advice about healthy eating and physical activity.

Over three years, researchers will track who develops type 2 diabetes, using rigorous diagnostic criteria and annual glucose tolerance testing. Secondary outcomes will include insulin sensitivity, beta-cell function, weight, waist circumference, blood pressure, liver health markers, inflammation, lipids and even gut microbiome changes.

Why This Matters for the Nut Industry

Success in PRENUT would be transformative not just for public health, but for the entire nut sector. Currently, no diabetes-related health claims exist for nuts anywhere in the world. High-quality evidence from PRENUT could change that, opening doors to:

- **Health claims:** Regulatory approval for diabetes risk reduction claims on nut products globally, similar to existing heart health claims.
- **Clinical guidelines:** Inclusion of specific nut recommendations in diabetes prevention guidelines from major medical organizations worldwide.
- **Public health policy:** Integration of nuts into national dietary strategies, institutional food procurement policies, and nutrition programs in schools, hospitals and public institutions.
- **Market growth:** Increased consumer awareness and demand for nuts as a science-backed functional food for metabolic health.

The trial's multi-country design is particularly strategic. By demonstrating effectiveness across diverse populations—North American, Mediterranean and South Asian—PRENUT will provide a high level of evidence applicable to global markets and regulatory frameworks.

COULD A HANDFUL OF NUTS HELP PREVENT TYPE 2 DIABETES?

The question PRENUT is asking:

Can eating a small portion of mixed nuts before meals help delay or prevent type 2 diabetes?

How it works:

Breakfast
20 g mixed nuts



30 min before meal



Lunch
20 g mixed nuts



30 min before meal



Dinner
20 g mixed nuts



30 min before meal



Control group:

Another group will continue with standard healthy eating and physical activity advice.



Study length

Total study duration:
5 years
Study intervention:
3 years



Participants

752 adults



Research centers

Canada, India, Spain, USA

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A Model of Independent Research With Industry Support

The INC's investment in PRENUT exemplifies responsible industry funding of rigorous, independent research. Crucially, while the INC provides financial support, it has no involvement in the trial's design, conduct, data analysis, interpretation of results or publication decisions. These remain entirely under the control of the independent research team led by internationally recognized scientists.

This firewall between funding and scientific execution is essential for credibility. The trial will be conducted according to Good Clinical Practice standards, overseen by independent ethics committees at each site and pre-registered in clinical trial databases. Results will be published in peer-reviewed journals regardless of outcome: positive, negative or neutral.

This model of industry support for independent science benefits everyone. The scientific community gains crucial evidence about dietary strategies for diabetes prevention, free from conflicts of interest. Public health authorities receive trustworthy data for policy decisions. The nut industry demonstrates its commitment to evidence-based nutrition science and willingness to let the data speak for itself. And ultimately, consumers and patients benefit from reliable information about whether nuts can truly help prevent diabetes.

Looking Ahead

PRENUT will begin recruiting participants in 2027, with final results expected in 2031. The trial's success depends on sustained participant engagement over three years: a challenge the research team will address through behavioral support programs, regular follow-up and convenient nut delivery.

If PRENUT demonstrates that mixed nuts can prevent or delay type 2 diabetes in high-risk individuals, it will represent a watershed moment for nutrition science and public health. For the first time, we would have definitive evidence that a simple, enjoyable dietary intervention—eating 20 grams of nuts before meals—can address one of the most pressing health challenges of our time.

The diabetes epidemic demands bold, innovative solutions backed by rigorous, independent science. PRENUT is answering that call.

References: 1. GBD 2021 Diabetes Collaborators (2023). Global, regional, and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: a systematic analysis for the Global Burden of Disease Study 2021. *Lancet (London, England)*, 402(10397), 203–234. 2. Gulati, S., et al. (2026). Effects of 24-Week Almond Supplementation on Executive Function and Processing Speed in Middle-Aged Asian Indians with Prediabetes: An Open-Label Randomized Controlled Trial. *J Nutr*, 156(5), 101484. 3. Ashwini, K., et al. (2025). Effect of Premeal Pistachio Supplementation on Cardiometabolic Risk Factors among Asian Indian Adults with Prediabetes: A Randomized Controlled Trial. *J Nutr*, 155(3), 899–909.



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