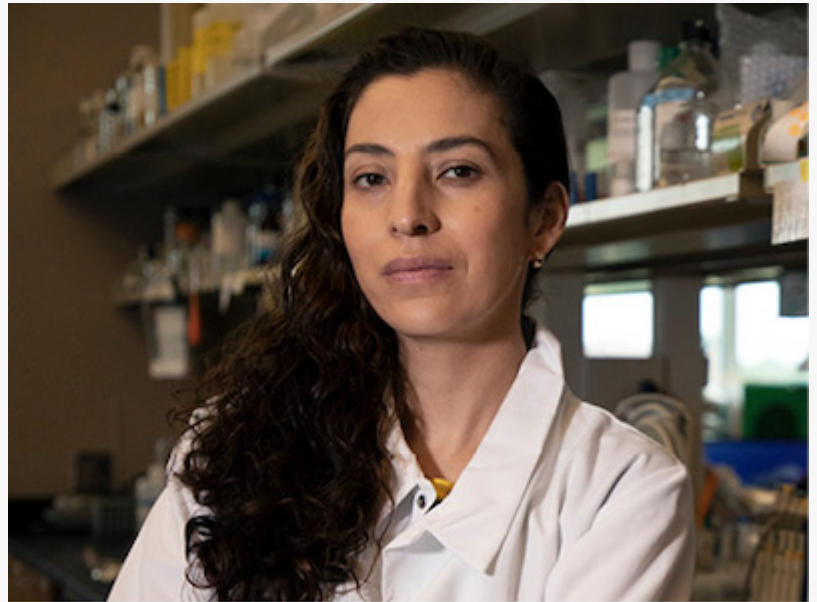


UNC Nutrition Research Institute Study Identifies Blood Markers Linked to Choline Intake

A new NRI study identifies blood-based clues that may help show whether adults are getting enough choline in their diets.

KANNAPOLIS, NC, UNITED STATES, July 6, 2026 /EINPresswire.com/ -- Ask almost anyone what nutrient matters during pregnancy and they will likely say folic acid. It is one of the rare nutrients that comes with both clear advice and a simple blood test to check whether you are getting enough. Most nutrients offer no such clarity, including one that quietly supports your brain, liver, and every cell in your body: [choline](#).



Isis Trujillo-Gonzalez, PhD, Assistant Professor of Nutrition

Choline, an essential nutrient, supports the brain and nervous system, helps build the membranes around every cell, and plays an important role in liver and muscle health. While choline is found in familiar foods such as eggs, meat, fish, dairy products, potatoes, beans and nuts, many people throughout the United States do not get the recommended amount from their diet.

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Choline is vital for cognition and liver health, but not everyone responds to it the same way. We have had no good way to tell if someone is eating enough.”

Isis Trujillo-Gonzalez, PhD

But how do you know if you are one of those people? Today, nutrition researchers often rely on food records or questionnaires, which depend on people remembering and accurately reporting what they ate. While these tools are useful, they are not always precise. [Isis Trujillo-Gonzalez, PhD](#), an assistant professor of Nutrition at the [UNC Nutrition Research Institute \(NRI\)](#), wanted to find a better way. She started with a practical question: could a

simple blood test reveal who is eating enough choline and who is not? For some nutrients, this is

already routine. A blood test for ferritin can show whether the body's iron stores are running low, and folate status can be checked much the same way. But no standard blood test exists for choline. The research team set out to close that gap, testing whether

levels of choline and related compounds in plasma could serve as biomarkers — measurable signals in the body that reflect what a person's diet is providing.



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To do this, healthy adults participated in a carefully controlled feeding study. Participants were provided food, so the research team knew exactly how much choline each person consumed. Each participant completed three diet periods: one where they received 100% of the Adequate Intake for choline, one that provided 50% and one that provided only 25%. Adequate Intake is the recommended daily amount thought to meet the needs of most healthy people. For choline, that is about 550 mg per day for men and 425 mg per day for women. In practical terms, a single large egg provides roughly 130 mg of choline, a 3-ounce serving of salmon about 190 mg, and a 3-ounce serving of beef or chicken around 55 to 70 mg. Reaching the recommended amount is not always easy: research suggests it is difficult to meet the target without regularly eating eggs, and national surveys find that most Americans fall short. A diet providing only 25% of the Adequate Intake, like the lowest level in this study, would look like getting almost no eggs, meat, or fish across the day. Because each participant tried all three diets, the researchers could compare how the same person's body responded to higher and lower choline intake.

The key finding was that two molecules in the blood, choline and betaine, changed in ways that reflected dietary choline intake. Betaine is made from choline: the body uses choline as the starting material to produce it, and betaine then helps with a process called methylation, which is one way the body turns genes and chemical pathways on and off. When researchers measured plasma choline and betaine, especially together, they could better distinguish between people eating an adequate choline diet and those eating a low-choline diet. The study provides evidence that a future blood test may help show whether someone's diet is supplying enough choline, rather than relying only on estimates from food tracking.

One more finding stood out: people did not all respond to low choline in the same way. Even on identical diets, some individuals showed larger changes than others. This is where precision nutrition becomes especially important, the same diet may not affect every person in the same way.

Trujillo-Gonzalez noted, "Choline is a remarkably important nutrient for cognition and liver health, and we know that not everyone responds to it the same way. The challenge is that we have had no good way to tell if someone is actually eating enough. That is what these blood markers begin to offer: a tool to measure choline intake objectively. This study is a first step. The next is to test if the same markers hold up in people's everyday eating, outside the controlled

setting of a study. If they do, we will be able to help people make more informed, accurate decisions about their nutrition.”

For the everyday person, this study is not a cue to rush out and buy a choline supplement. It is a reminder that choline deserves a place on your radar as part of a healthy diet. The bigger shift is in the science itself: researchers at the NRI are trading nutritional guesswork for measurement. One day, that could help clinicians and individuals make personalized, evidence-based decisions, grounded not in estimates, but in what the body is really doing.

Trujillo-Gonzalez, I., Horita, D. A., Stegall, J., Coble, R., Paules, E. M., Lulla, A. A., Baah, E., Bottiglieri, T., Sha, W., Kohlmeier, M., Friday, W. B., and Zeisel, S. H. (2026). Choline and betaine concentrations in plasma discriminate levels of dietary choline intake in healthy adults: Analysis of a double-blind randomized crossover controlled feeding study. *The American Journal of Clinical Nutrition*. <https://doi.org/10.1016/j.ajcnut.2026.101236>

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