



September 2025 **Nutrition News**

Whey Protein Before Exercise May Maximize Muscle Growth, Study Finds

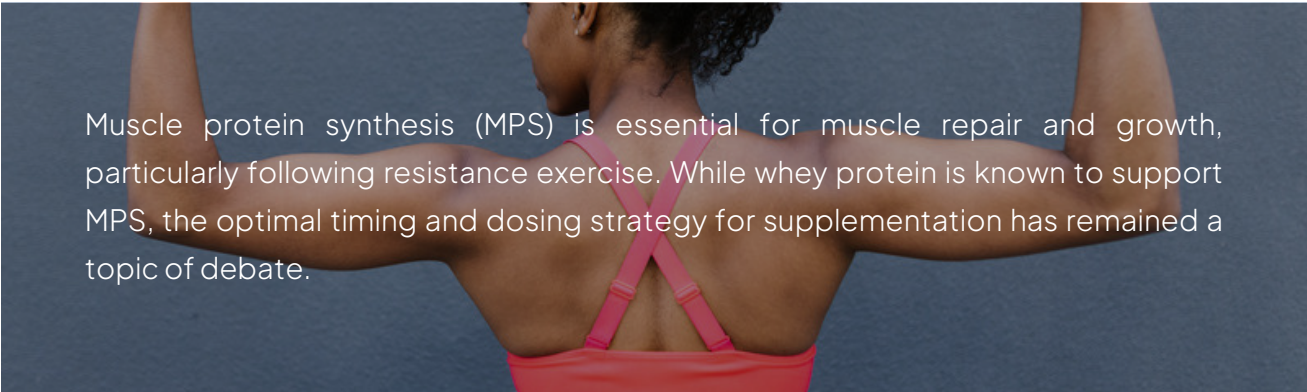
Conventional Whey Protein Shows Distinct Gut Microbiome Effects Compared to Fermented Whey

WPPC: A High-Value Dairy Stream for Next-Gen Functional Foods

Protein Quality Matters: A Multifaceted Approach to Optimizing Amino Acid Intake Across Diets

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Whey Protein Before Exercise May Maximize Muscle Growth, Study Finds



Muscle protein synthesis (MPS) is essential for muscle repair and growth, particularly following resistance exercise. While whey protein is known to support MPS, the optimal timing and dosing strategy for supplementation has remained a topic of debate.

A recent systematic review and meta-analysis examined data from 21 randomized controlled trials (RCTs) to evaluate the effects of whey protein supplementation on post-exercise MPS and activation of the AKT/mTOR signaling pathway in healthy adults. Of these, 15 studies were included in the quantitative analysis, focusing on either myofibrillar fractional synthetic rate (FSR) or phosphorylation of key anabolic signaling proteins in muscle tissue.

Findings demonstrated that combining whey protein supplementation with resistance exercise significantly enhanced MPS, with an average effect size (Hedge's *g*) of 1.24. Notably, MPS increased by 1.3–1.6-fold when whey was consumed immediately after exercise, and up to 2.5-fold when ingested 45 minutes prior to multi-set resistance training. A dose-response relationship was observed, with effective intakes ranging from 10 to 60 grams, and optimal stimulation typically occurring at 20–40 grams.

Additionally, whey protein intake increased phosphorylation of proteins involved in the AKT/mTOR pathway (including AKT, mTOR, 4E-BP1, p70S6K, and rpS6) within 1–2 hours post-exercise. These signaling effects declined after 4–5 hours, underscoring the importance of precise timing.

Whey protein supplementation enhances MPS in a dose- and time-dependent manner, with pre-exercise intake of 20–40 grams appearing particularly effective. These findings support targeted protein timing strategies to optimize muscle adaptation and recovery.

[Ji et al. Nutrients. 2025 Aug 8;17\(16\):2579.](#)

Conventional Whey Protein Shows Distinct Gut Microbiome Effects Compared to Fermented Whey

Recent advances in food technology and growing consumer interest have led to the commercial release of dietary proteins made using biotechnology, offering alternatives to those sourced from traditional agriculture. At the same time, science is uncovering just how much our gut microbiome responds to what we eat—making it more important than ever to understand how new food ingredients interact with our digestive system.

In this study, researchers analyzed a commercially available whey protein made by yeast fermentation and compared it to conventional whey protein isolate derived from cow's milk. While the two products were similar in their main protein makeup—both primarily containing β -lactoglobulin—they showed key differences in other areas. Notably, the yeast-derived whey had a simpler mix of proteins and a very different N-glycan profile (a type of complex sugar attached to proteins), due to differences in how they were produced.

To explore whether these differences could impact gut health, the team tested both protein types in a lab model using human gut microbes. The results showed clear changes in the microbial communities depending on the protein source, likely driven by how each type of glycan was broken down.

This research underscores the importance of studying not just what proteins are present in novel food ingredients, but how their structural differences may affect the gut microbiome and, by extension, health.

[Bolino et al. Microbiol Spectr 13:e00200-25.](#)



WPPC: A High-Value Dairy Stream for Next-Gen Functional Foods

As the demand grows for food systems that are both sustainable and nutritious, there's increasing interest in finding new ways to make better use of existing resources. One promising example comes from the dairy industry, which produces nutrient-rich byproducts that are often underused.

A newly published review highlights whey protein phospholipid concentrate (WPPC)—a byproduct of whey protein isolate production—as a valuable source of bioactive compounds. WPPC contains significant amounts of milk fat globule membrane (MFGM), a component shown to support brain development, strengthen the immune system, promote beneficial gut bacteria, and reduce inflammation and metabolic risk.

The authors found that WPPC is particularly rich in MFGM, with MFGM proteins making up 23% of total protein and phospholipids contributing 20% of the fatty acid content. The review explores WPPC as a case study for how dairy co-products can be transformed into next-generation functional ingredients for human health.

Beyond its nutritional potential, the study also looks at the economic case for using WPPC in food applications instead of low-value outlets like animal feed—offering a more sustainable and profitable path forward for dairy processors.

[Ozturk et al. JDS Commun. 2025 May 12;6\(5\):714-719.](#)

Protein Quality Matters: A Multifaceted Approach to Optimizing Amino Acid Intake Across Diets

Protein quality refers to a food's ability to meet human requirements for essential amino acids (EAAs) and nitrogen—an important factor in both preventing malnutrition in low- and middle-income countries and supporting health and function in higher-income populations. Traditional methods of assessing protein quality, such as the Digestible Indispensable Amino Acid Score (DIAAS), focus on amino acid content and digestibility. However, these chemical scoring systems do not reflect how amino acids from foods behave metabolically in the body. Overreliance on a single metric can result in generic, less effective dietary guidance.



A recent review integrated chemical scores with data from stable isotope studies to provide a more complete picture of dietary protein quality. Key characteristics of high-quality proteins include high EAA density (EAAs per calorie), digestibility, bioavailability, and the ability to stimulate muscle protein synthesis. Practical strategies to improve protein quality include processing and cooking methods that reduce antinutrients, denature proteins, and break down food structures. In contrast, prolonged storage, heat sterilization, and high-temperature cooking can diminish protein quality.

Dietary modeling shows that omnivorous and lacto-ovo-vegetarian diets tend to offer higher EAA density and overall protein quality. Diets relying heavily on whole plant proteins may require greater total protein and energy intake, and benefit from complementary protein pairings to meet amino acid needs.

For older adults, factors such as reduced chewing efficiency, smaller food particle size, and increased needs for EAAs—particularly leucine—should be considered to support muscle health and metabolic function.

Protein quality is a complex but modifiable aspect of diet. Accounting for amino acid density, food preparation, and individual needs is critical to refining dietary guidelines and improving public health outcomes.

[Matthews et al. J Nutr. 2025 Jul 15;S0022-3166\(25\)00428-6.](#)

IN THE NEWS



Determining optimal protein intake from data, not dogmatism – Peter Attia

This article challenges the long-standing U.S. protein RDA of 0.8 g/kg/day, arguing it's insufficient for optimal health, particularly in older adults, active individuals, and those recovering from illness or injury. Drawing on decades of research, the author advocates for higher daily protein intake—closer to 1.6–2.2 g/kg—to better support muscle health, metabolic function, and longevity.

[Peter Attia MD, Aug 2025](#)

An excellent source of protein: Health, hype and hard truths

Protein is essential for muscle, metabolism, and healthy aging—but more isn't always better. This article clarifies how much protein you need, when to eat it, and why a balanced, whole-food approach is key.

[The Conversation, Aug 5th, 2025](#)



OIKOS FUSION™ Targets Muscle Support for GLP-1 Users with New High-Protein Dairy Drink

OIKOS has launched FUSION™, the first yogurt-based beverage specifically designed to support muscle maintenance and digestive health during weight loss—especially for GLP-1 users. Each 7 oz bottle delivers 23g of protein, 5g of fiber, and key nutrients in a compact, lactose-free format.

[PR Newswire, Aug 2025](#)

ASN Dietary Protein Session Available Online

Couldn't make it to American Society for Nutrition conference this year? Miss the full day on all things dietary protein? Register and watch back online!

[ASN Discover NUTRITION](#)