

Whole eggs better for muscle building and repair than egg whites, researchers find

December 20 2017



From left, nutritional sciences graduate student Joseph Beals, kinesiology and community health professor Nicholas Burd, kinesiology graduate student Sarah Skinner and their colleagues found that eating whole eggs after resistance exercise boosted muscle building and repair significantly more than eating egg whites with an equivalent amount of protein. Credit:L. Brian Stauffer

People who consume 18 grams of protein from whole eggs or from egg whites after engaging in resistance exercise differ dramatically in how their muscles build protein, a process called protein synthesis, during the post-workout period, researchers report in a new study. Specifically, the post-workout muscle-building response in those eating whole eggs is 40 percent greater than in those consuming an equivalent amount of protein from egg whites, the team found.

The discovery, reported in the *American Journal of Clinical Nutrition*, suggests that the widespread practice of throwing away egg yolks to maximize one's dietary protein intake from eggs is counterproductive, said Nicholas Burd, a University of Illinois professor of kinesiology and community health who led the research.

The yolks also contain protein, along with key nutrients and other food components that are not present in egg whites, Burd said. And something in the yolks is boosting the body's ability to utilize that protein in the muscles.

"This study suggests that eating protein within its most natural food matrix tends to be more beneficial to our muscles as opposed to getting one's protein from isolated protein sources," he said.

In the study, 10 young men engaged in a single bout of [resistance exercise](#) and then ate either whole eggs or egg whites containing 18 grams of protein. Researchers administered infusions of stable-isotope-labeled leucine and phenylalanine (two important [amino acids](#)) to participants. This allowed the scientists to maintain and precisely measure amino [acid](#) levels in participants' blood and muscles.

The U. of I. Poultry Research Farm developed eggs for the study that also were isotopically labeled with leucine. This allowed for precise tracking of where the food-derived amino acids ended up after

participants ingested them.

The team took repeated blood and muscle biopsy samples to assess how the egg-derived amino acids were appearing in the blood and in [protein synthesis](#) in muscles before and after the resistance exercise and eating.

"By using those labeled eggs, we saw that if you ate the whole egg or the egg whites, the same amount of dietary amino acids became available in your blood," Burd said. "In each case, about 60 to 70 percent of the amino acids were available in the blood to build new muscle protein. That would suggest that getting one's protein from whole eggs or just from the whites makes no difference, as the amount of dietary amino acids in the blood after eating generally gives us an indication of how potent a food source is for the muscle-building response."

But when the researchers directly measured protein synthesis in the muscle, they found a very different response.

"We saw that the ingestion of whole eggs immediately after resistance exercise resulted in greater [muscle](#)-protein synthesis than the ingestion of egg whites," Burd said.

Previous studies suggest this difference has nothing to do with the difference in energy content of whole eggs and egg whites - whole [eggs](#) containing 18 grams of protein also contain about 17 grams of fat, whereas egg whites have no fat. Studies from Burd's lab and others show that simply adding fat to an isolated protein source in the diet after exercise does not boost protein synthesis.

"There's a lot of stress on protein nutrition in modern society, and research is showing that we need more protein in the diet than we once thought to maintain health," Burd said. "As world population grows, we need cost-effective and sustainable strategies for improving the use of

protein in the diet. This work is showing that consuming egg protein in its natural matrix has a much greater benefit than getting isolated [protein](#) from the same source."

More information: Stephan van Vliet et al, Consumption of whole eggs promotes greater stimulation of postexercise muscle protein synthesis than consumption of isonitrogenous amounts of egg whites in young men, *The American Journal of Clinical Nutrition* (2017). [DOI: 10.3945/ajcn.117.159855](#)

Provided by University of Illinois at Urbana-Champaign

Citation: Whole eggs better for muscle building and repair than egg whites, researchers find (2017, December 20) retrieved 23 June 2024 from <https://medicalxpress.com/news/2017-12-eggs-muscle-egg-whites.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--