

Whey Protein May Beat Casein After Workouts

Eating or drinking protein after exercise, experts agree, can help muscle recovery and growth.

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Aug. 19, 2011 — Eating or drinking **protein** after **exercise** can help muscle recovery and growth, experts agree. What's still debated is which proteins work best.

Whey protein appears to be better than casein protein, according to new research that looked at exercisers doing resistance training.

“A whey **protein shake** would probably be better than a casein protein shake,” says researcher Daniel W.D. West, a PhD student at McMaster University in Hamilton, Ontario.

And a separate study shows that protein that includes a higher concentration of the amino acid leucine works better than protein with lower concentrations. It looked exercisers who did aerobic workouts.

“It appears more leucine is beneficial in the context of muscle recovery,” says researcher Stefan M. Pasiakos, PhD, a research physiologist with the U.S. Army Research Institute of Environmental Medicine.

Both studies are published in the *American Journal of Clinical Nutrition*.

Why Protein After Exercise?

As you exercise, muscles undergo a cycle of breakdown during the workout followed by remodeling and growth afterward.

Recently, high-protein drinks have become more popular. They are used during and after exercise to get the best muscle growth and recovery.

Researchers have been studying which combination of proteins is most helpful.

Protein After Resistance Exercise

West and his colleagues wanted to see if one large dose of whey protein taken right after a workout would be better than several smaller doses, spaced out over time.

The smaller doses of whey taken over a longer time period made the protein behave more like another protein, casein, he says. Both whey and casein are found in milk.

"Casein is digested slowly," West tells WebMD, "whereas whey is digested very rapidly."

They used the smaller doses of whey to mimic the casein. So the one-time dose of whey was compared to several doses of whey.

The researchers gave both the one-time dose and the repeated doses to eight men, average age 22, during two different workouts. The men took the protein after doing eight sets of eight to 10 repetitions on a leg extension machine.

"What we did in this study is compare whey — 25 grams — like [what is in] a typical protein shake — and compare it to 25 grams of whey, but ingested in little 2.5 gram shots."

Taking the large dose right after the workout worked better. The amino acid concentrations in the **blood** were higher after one big dose.

West speculates as to why. "Whey is high in leucine and the fact that it is rapidly digested means there is a rapid appearance of essential amino acids, including leucine," he says. Those amino acids, he says, act as a signal to elevate muscle protein synthesis — crucial for ongoing growth, repair, and maintenance of muscles.

Protein After Aerobic Exercise

In the second study, Pasiakos and his team also looked at seven men and one woman. All were active duty military. The average age was 24.

On two occasions, they rode an exercise bike for an hour at moderate intensity.

During both workouts, they drank a high-protein beverage with 10 grams of protein. The concentration of the amino acid leucine in the drink was different for the two sessions. "One drink had about 19% leucine, the other 35%."

The muscle response to the higher concentration was 33% better, he says.

Protein After Exercise: Advice for Exercisers

The findings should be repeated in other research, says Felicia Stoler, RD, a nutritionist and exercise physiologist. She reviewed the study findings for WebMD but was not involved in either study.

The findings, she says, are not a reason to overdo protein after exercise. "Some protein for repair is good but not excess. I always have to caution about protein. People think they need way more than they do."

According to a position paper issued in 2009 by the American College of Sports Medicine and the American Dietetic Association, daily protein for endurance and strength-trained athletes ranges from 0.5 to 0.8 grams per pound of **body weight**. A 120-pound person would need about 60 grams or more. A 150-pound person would need 75 grams or more.

A serving of whey protein powder has about 23 grams of protein.

SOURCES:Stefan M. Pasiakos, PhD, research physiologist, U.S. Army Research Institute of Environmental Medicine, Natick, Mass.Felicia D. Stoler, RD, nutritionist and exercise physiologist, New Jersey.West, D. American Journal of Clinical Nutrition, September 2011: vol 94: pp 795-803.Pasiakos, S. American Journal of Clinical Nutrition, September 2011: vol 94: pp 809-818.Daniel W.D. West, PhD student, McMaster University, Hamilton, Ontario.

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