

Protein drinks after exercise help maintain aging muscles

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A new research report appearing online in the *FASEB Journal* shows that what someone drinks after exercise plays a critical role in maximizing the effects of exercise. Specifically, the report shows that protein drinks after aerobic activity increases the training effect after six weeks, when compared to carbohydrate drinks. Additionally, this study suggests that this effect can be seen using as little as 20 grams of protein.

"It is not a mystery that exercise and nutrition help slow the [aging process](#)," said Benjamin F. Miller, Ph.D., a researcher involved in the work from the Department of Health and Exercise Science at Colorado State University in Fort Collins, Colorado. "Studies such as ours help to explain how exercise and nutrition work so that we can better take advantage of those pathways to slow the aging process."

To make this discovery, scientists recruited 16 participants age 37 and older and instructed them to exercise on treadmills for 45 minutes three times a week for six weeks. After each bout of exercise, one group was given a protein drink and another group was given a carbohydrate drink. To measure the making of new structures in the muscle, [metabolic pathways](#) were measured using [heavy water](#) labeling. Subjects consumed heavy water, which becomes incorporated into many synthetic processes allowing measurement of the rates at which different components of the muscle are being made. Using ultra-sensitive [mass spectrometry](#) methods, scientists took muscle samples at the end of the six weeks and were able to determine how much of the muscle and its component pieces were new. In this case, new proteins, DNA, and membranes were measured. This showed that endurance exercise, commonly prescribed for older people for a healthful lifestyle, induces positive changes in skeletal muscle structure.

"If you want to age gracefully, this study shows that

proteins taken after exercise keep your muscles strong and fit," Gerald Weissmann, M.D., Editor-in-Chief of the [FASEB Journal](#). "You've got to feed your body with the proper nutrients after a work-out. Fortunately, protein shakes are cheap, readily available and some say taste good."

More information: Matthew M. Robinson, Scott M. Turner, Marc K. Hellerstein, Karyn L. Hamilton, and Benjamin F. Miller. Long-term synthesis rates of skeletal muscle DNA and protein are higher during aerobic training in older humans than in sedentary young subjects but are not altered by protein supplementation. *FASEB J*; [doi:10.1096/fj.11-186437](https://doi.org/10.1096/fj.11-186437)

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