

Beef council-backed research links animal-based protein intake to better muscle performance versus plant protein

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NDSU researchers in the Department of Health, Nutrition, and Exercise Sciences are part of a team that has published an important study on how

eating animal-based protein can impact muscular performance in adults.

"Measures Derived from Panoramic Ultrasonography and Animal-Based Protein Intake Are Related to Muscular Performance in Middle-Aged Adults" has been published in the *Journal of Clinical Medicine* as part of a special issue titled "Prevention and Treatment of Sarcopenia."

"Maintenance of physical functioning such as the ability to walk, do chores, dress and bathe oneself, and get up and down from a chair, is critical to overall health and well-being. Loss of physical abilities is associated with increased risk of not only falls and fractures, but also heart and respiratory disease not to mention decreased quality of life," Sherri Stastny, professor of dietetics, said. "Beginning as early as age 40, we start to lose strength and muscle mass, at a very slow, but unfortunately, annual rate. Our study showed that animal-based protein intake had a [positive influence](#) on both upper and lower body strength and endurance measures.

"We wanted to study protein intake overall, and divided it into either plant-based or animal-based protein because we know that plant-based foods tend to have proteins that may be used as energy instead of stimulating muscle maintenance and building," she said. "Key sources of protein-rich animal-based foods that contain more of needed proteins include low-fat milk and yogurt, lean beef and pork, whey protein drinks and other foods. Getting enough key [protein](#) in the diet could slow loss of muscle as we age."

The team, which included more than a dozen graduate and [undergraduate students](#), collected data during 2016 to 2018 by recruiting 91 middle-aged adults. Three-day food diaries estimated dietary intakes and muscular performance was assessed using isokinetic dynamometry, a chair stand test and handgrip strength test.

The researchers investigated skeletal muscle size using panoramic ultrasonography images of the upper-leg [muscle](#). The study results found that animal-based [protein intake](#) is related to better muscular performance.

The work was funded by the National Cattlemen's Beef Association and Minnesota Beef Council, with longtime support from the North Dakota Beef Commission.

More information: Nathaniel R. Johnson et al. Measures Derived from Panoramic Ultrasonography and Animal-Based Protein Intake Are Related to Muscular Performance in Middle-Aged Adults, *Journal of Clinical Medicine* (2021). [DOI: 10.3390/jcm10050988](https://doi.org/10.3390/jcm10050988)

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