Where's the beef? Not enough of it is on elders' plates, muscle-metabolism study suggests

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Scientists at the University of Texas Medical Branch at Galveston have good news for people who want to stay strong in their old age: older bodies are just as good as young ones at turning protein-rich food into muscle.

A new study published today suggests that a diet containing a moderate amount of protein-rich food such as beef, fish, pork, chicken, dairy or nuts may help slow the deterioration of elderly people's muscles.

Reducing the decline in muscle mass among the elderly is crucial to maintaining their health and independence, these researchers say. And they add that consuming adequate protein is essential for making and maintaining muscles. Since nutritional studies show that many elderly individuals eat less protein than the average person, researchers have reasoned that if the elderly simply increased their protein intake, they might slow down muscle loss — as long as old age doesn't inherently interfere significantly with the ability to make muscles out of the protein in food.

"We wanted to know if there is some reason your grandmother's body, for example, can't stimulate muscle growth in response to eating the same protein-rich meal that you eat, which might over time contribute to muscle loss," said Douglas Paddon-Jones, an associate professor in UTMB's departments of physical therapy and internal medicine. Paddon-

Jones is the senior author of a paper on the study published in the August issue of the American Journal of Clinical Nutrition and now available online.

The investigation compared changes in muscle protein synthesis in 10 young and 10 elderly volunteers after eating a four-ounce serving of lean beef. By analyzing blood and muscle samples, the researchers were able to measure the rate at which a particular individual's body built muscle protein. During the five hours after the young and elderly volunteers ate the beef, both groups' muscle protein synthesis increased by 50 percent.

"We've done studies in the past with specialized drinks containing amino acids — the chemical building blocks of proteins — but this was the first time anybody's looked at a real food and its ability to stimulate muscle growth in both the young and elderly," Paddon-Jones said. "What we learned was really encouraging, because it suggests that elderly people actually can benefit from eating a moderate serving of protein-rich foods. That's something they aren't doing enough now — in fact, between 16 and 27 percent of older adults are eating less than the USDA's recommended daily allowance of protein."

Elderly people may eat less protein for a number of reasons, said Paddon-Jones, including cost, the fact that many foods may not taste as good to them as they once did, difficulty chewing, limited menus in nursing homes or assisted living communities, and decline in appetite. Another important contributor to muscle loss in the elderly is a lack of exercise, he noted.

Even among the elders who volunteered for the study, whom Paddon-Jones described as typically more physically active than most others in the elderly population, "a disturbing thing was that on average they had 12 kilograms (26.5 pounds) less lean muscle mass than the younger people we tested." That difference, he said, would probably be even

greater in the general population. In other words, compared to a young adult, a typical elderly person lacks the advantages provided by more than 26 pounds of muscle — a deficit that in some cases could lead an older person to being permanently bedridden by an injury or illness.

“A high percentage of elderly folks who break a hip or suffer a major injury never get out of bed again, and one of the big reasons is that they rapidly lose so much muscle mass and strength that they become physically incapable of getting up,” Paddon-Jones said. “Sufficient muscle is fundamental for the activities of daily living, movement and independence — it’s definitely a quality-of-life issue.”

Source: University of Texas Medical Branch at Galveston