

# ... just the FACTS

## Study summaries examining the latest science on beef's place in a healthy diet

### MEAL WITH BEEF LEADS TO HIGHER MUSCLE SYNTHESIS IN OLDER ADULTS VS VEGAN MEAL

#### OBJECTIVE:

To compare muscle protein synthesis rates in healthy older adults following ingestion of two whole-food meals:

Omnivorous (MEAT) Meal providing 100 g lean ground beef	Versus	Vegan (PLANT) Meal matched for protein and calories
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#### PARTICIPANTS:

Sixteen healthy older adults (8 males and 8 females), 65-85 years of age.

#### STUDY DESIGN:

This randomized dietary trial used a counter-balanced, cross-over design to assess the effects to the two meals.

#### METHODS:

Participants each took part in two test days that were separated by at least two weeks. The order in which they consumed the meals was randomly assigned. After an overnight fast, participants consumed one of the meals:

**MEAT:** On one day, they ate a whole-food meal containing beef as the primary source of protein.

**PLANT:** The other day, they ate a whole-food vegan meal matched for protein and calorie content.

The essential amino acid composition of the two meals was similar.

Blood and muscle biopsies were collected frequently for 6 hours after each meal to assess circulating plasma amino acid profiles and muscle protein synthesis rates.

#### RESULTS:

This study showed that, even when whole-food meals are matched for total protein and calorie content:

- Eating a meal containing beef led to a more rapid and greater rise in circulating essential amino acids, ~127% higher compared to the vegan meal.
- This greater amino acid availability after eating the meal with beef resulted in ~47% higher muscle protein synthesis rates compared to the vegan meal.

**The authors note:** Nearly all previous studies assessing muscle protein synthesis following ingestion of animal- and plant- derived protein have used protein isolates or concentrates. This is the first study to compare the anabolic response following a complete omnivorous meal with meat versus a vegan meal.

#### CONCLUSION:

This study showed that a whole-food meal with beef results in greater muscle protein synthesis rates in healthy older adults as compared to a whole-food vegan meal matched for protein. The authors concluded omnivorous meals are likely to have greater anabolic (i.e., muscle building) effects than vegan meals in healthy older adults.

Pinckaers PJM et al. Higher muscle protein synthesis rates following ingestion of an omnivorous meal compared with an isocaloric and isonitrogenous vegan meal in healthy, older adults. J Nutr 2023;S0022-3166(23)72723-5.

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