Our muscles are constantly in balance between anabolism (growth) and catabolism (breakdown). For anabolism to take place, we need to fuel muscles with protein. Exercise also gives muscles a further push to grow. Optimal distribution of protein at each meal appears to be a key factor in building and maintaining muscle mass throughout life.

Our team has been investigating how North American eating habits pertaining to protein affect the maintenance of muscle mass during the aging process. In one study, we gave subjects a 30-gram serving of protein (115 g lean beef) and, over the next four hours, measured how their muscles responded. There was a robust improvement in protein synthesis in both young and elderly adults, suggesting that aging doesn’t inevitably impair our ability to turn dietary protein into muscle.

While a moderate amount of protein (about 30 grams/meal) can increase muscle protein synthesis, there may be a ceiling effect. For most adults, consuming much more protein than 30 grams/meal provides additional energy, but is not likely to provide a further increase in muscle protein synthesis. When young adults halve their protein intake (from 30 to 15 grams/meal), their muscle protein synthesis is also reduced by approximately 50%.

Unfortunately, North American distribution of protein is skewed (i.e., most of it consumed at supper and less at breakfast and lunch) and fails to maximize potential muscle growth and repair. We get the greatest benefit by distributing protein evenly across meals: about 30 grams each at breakfast, lunch and supper (the 30-30-30 g Protein Rule).

Exercise is also important for all ages. We observed as much as an additional 50% increase in protein synthesis when a modest bout of exercise was performed within an hour or two of eating.


Ideally, people should consume about 30 grams of protein at each meal.

30 30 30

Good protein choices include: milk, yogurt, cheese, eggs, lean meat, fish, poultry, and legumes.

Incorporating more milk products into breakfast and lunch is a good way to add high-quality protein and to help meet the recommended servings of Milk and Alternatives, a food group that is underconsumed by the majority of Canadians.

To help your clients find nutritious recipes, visit getenough.ca/recipes

For more information on protein reported by other experts, visit dairynutrition.ca/symposium