



## Harness the Power of U.S. Dairy Protein



As a health professional, you likely know what to choose when looking for a protein-packed food. But, are you making the best choice based on the food's protein quality?

Not all proteins are the same when it comes to delivering benefits for health — so learning how to choose and recommend high-quality options is important. Whey and milk proteins are naturally found in cow's milk and are complete sources of all essential and non-essential amino acids the body needs. Whey proteins stand out as among the best sources of branched-chain amino acids (BCAA), and a leading source of the BCAA leucine — which is unique in its ability to initiate new muscle synthesis.

The United States is the largest, single-country producer of whey proteins and a rising producer of milk proteins.

As part of a higher protein diet, high-quality U.S. dairy proteins can help people:

- Maintain a healthy weight
- Curb hunger
- Build lean muscle (with regular resistance exercise)
- Enhance exercise recovery
- Maintain muscle mass as they age

### TIPS FOR HEALTH PROFESSIONALS



A growing body of research recommends spreading intakes of high-quality protein evenly throughout the day, as there is a limit to how much protein the body can use at one time. Aiming for 20-30 g of high-quality protein per meal can help people achieve the full benefits of a higher protein diet.<sup>20,21,22,23</sup>

For references and more information on U.S. dairy health and nutritional benefits, visit [www.ThinkUSAdairy.org/Nutrition](http://www.ThinkUSAdairy.org/Nutrition)



# Spotlight: U.S. Dairy Protein Benefit – Helping Maintain Muscle with Aging



**Sarcopenia — the age-related loss of muscle and function — is a progressive process that can be characterized by approximately 3-8% reduction in lean muscle mass per decade after 30 years of age.**

Maintaining muscle mass, strength and functionality are important to avoid a domino effect of consequences: decreased activity, increased risk of falls, loss of autonomy and increased dependency.

**This easy and delicious dairy smoothie recipe is perfect to boost protein intake at breakfast—it packs in over 20 g of high-quality whey protein:**



## Mango-Pineapple Smoothie

(makes 1 serving)

Combine the following ingredients in a blender and blend until smooth

- ½ cup fresh or frozen mango
- ½ cup pineapple, canned in juice, drained
- ¼ cup pineapple juice (drained from canned pineapple)
- 1 scoop whey protein powder, unflavored or vanilla-flavor
- Crushed ice

Nutrition information per serving:

280 calories, 22 g protein (including 21 g whey protein), 45 g carbohydrate, 3 g fiber, 2.5 g fat, 1 g saturated fat, 160 mg sodium

Also contains: vitamin A, vitamin C, calcium, potassium

## TIPS FOR HEALTH PROFESSIONALS



Here are three easy ways for aging populations to help maintain, or increase, muscle with age:

- 1 Follow a higher protein diet with high-quality protein sources, like U.S. whey and milk proteins.<sup>21, 28, 29</sup>
- 2 Spread out protein intakes evenly throughout the day – pay special attention to boosting intake at breakfast, a meal that tends to be lower in protein content.
- 3 Participate in a regular exercise program to maximize benefits.<sup>22</sup>

To learn more and find a USDEC representative near you, go to [ThinkUSAdairy.org/global-presence](https://ThinkUSAdairy.org/global-presence).

# References

- 1 Pasiakos SM, McClung HL, McClung JP, et al. Leucine-enriched essential amino acid supplementation during moderate steady state exercise enhances postexercise muscle protein synthesis. *Am J Clin Nutr*. 2011;94:809-818.
- 2 Josse A, Atkinson S, Tarnopolsky M, Phillips SM. Increased consumption of dairy foods and protein during diet- and exercise-induced weight loss promotes fat mass loss and lean mass gain in overweight and obese premenopausal women. *J Nutr*. 2011;141:1626-1634.
- 3 Baer D, Stote KS, Paul D, Harris G, Rumpel W, Clevidence B. Whey protein but not soy alters body weight and composition in free-living overweight and obese adults. *J Nutr*. 2011;141:1489-1494.
- 4 Westerterp-Plantenga M, Nieuwenhuizen A, Tome D, Soenen S, Westerterp K. Dietary protein, weight loss, and weight maintenance. *Annu Rev Nutr*. 2009;29:11.1-11.21.
- 5 Claessens M, van Baak M, Monsheimer S, Saris WHM. The effect of a low-fat, high-protein or high-carbohydrate ad libitum diet on weight loss maintenance and metabolic risk factors. *Int J Obes*. 2009;33:296-304.
- 6 Westerterp-Plantenga M, Lejeune M, Nijs I, van Ooijen M, Kovacs E. High protein intake sustains weight maintenance after body weight loss in humans. *Int J Obes*. 2004;28:57-64.
- 7 Lejeune M, Kovacs E, Westerterp-Plantenga S. Additional protein intake limits weight regain after weight loss in humans. *Br J Nutr*. 2005;93:281-289.
- 8 Institute of Medicine. *Macronutrients and healthful diets. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)*. 2005. Washington, DC, National Academies Press. 11-4-2012.
- 9 Smeets A, Soenen S, Luscombe-Marsh N, Ueland O, Westerterp-Plantenga M. Energy expenditure, satiety, and plasma ghrelin, glucagon-like peptide 1, and peptide tyrosine-tyrosine concentrations following a single high-protein lunch. *J Nutr*. 2008;138:698-702.
- 10 Leidy H, Armstrong C, Tang M, Mattes R, Campbell W. The influence of higher protein intake and greater eating frequency on appetite control in overweight and obese men. *Obesity*. 2010;18:1725-1732.
- 11 Churchward-Venne T, Burd N, Mitchell C et al. Supplementation of a suboptimal protein dose with leucine or essential amino acids: effects on myofibrillar protein synthesis at rest and following resistance exercise in men. *J Physiol*. 2012;590:2751-2765.
- 12 Tang J, Phillips S. Maximizing muscle protein anabolism: the role of protein quality. *Curr Opin Clin Nutr Metab Care*. 2009;12:66-71.
- 13 Tang J, Moore D, Kujbida G, Tarnopolsky M, Phillips S. Ingestion of whey hydrolysate, casein, or soy protein isolate: effects on mixed muscle protein synthesis at rest and following resistance exercise in young men. *J Appl Physiol*. 2009;107:987-992.
- 14 Tipton KD, Elliott TA and Cree MG. Ingestion of casein and whey proteins result in muscle anabolism after resistance exercise. *Med Sci Sports Exerc*. 2004;36:2073-2081.
- 15 Howarth KR, Moreau NA, Phillips SM, et al. Coingestion of protein with carbohydrate during recovery from endurance exercise stimulates skeletal muscle protein synthesis in humans. *J Appl Physiol*. 2009;106:1394-1402.
- 16 Tang JE, Manolagos JJ, Kujbida GW, et al. Minimal whey protein with carbohydrate stimulates muscle protein synthesis following resistance exercise in trained young men. *Appl Physiol Nutr Metab*. 2007;32:1132-1138.
- 17 Tipton KD, Elliott TA, Cree MG, et al. Stimulation of net muscle protein synthesis by whey protein ingestion before and after exercise. *Am J Physiol Endocrinol Metab*. 2007;292:E71-E76.
- 18 Houston D, Nicklas J, Harris T et al. Dietary protein intake is associated with lean mass change in older, community-dwelling adults: the Health, Aging, and Body Composition (Health ABC) study. *Am J Clin Nutr*. 2008;87:150-155.
- 19 Mojtahedi M, Thorpe M, Karampinos D et al. The effects of a higher protein intake during energy restriction on changes in body composition and physical function in older women. *J Gerontol A Biol Sci Med Sci*. 2011;66:1218-1225.
- 20 Layman, DK. Dietary Guidelines should reflect new understandings about adult protein needs. *Nutr & Metab*. 2009;6:12.
- 21 Paddon-Jones D and Rasmussen BB. Dietary protein recommendations and the prevention of sarcopenia: Protein, amino acid metabolism and therapy. *Curr Opin Clin Nutr Metab Care*. 2009; 12(1):86-90.
- 22 Breen L and Phillips SM. Skeletal muscle protein metabolism in the elderly: Interventions to counteract the 'anabolic resistance' of ageing. *Nutr Metab (Lond)*. 2011;8:68.
- 23 Pennings B, Groen B, de Lange A, et al. Amino acid absorption and subsequent muscle protein accretion following graded intakes of whey protein in elderly men. *Am J Physiol Endocrinol Metab*. 2012;302:E992-9.
- 24 Volpi E, Nazemi R and Fujita S. Muscle tissue changes with aging. *Curr Opin Clin Nutr Metab Care*. 2004;7:405-410.
- 25 Holloszy JO. The biology of aging. *Mayo Clin Proc*. 2000;75 Suppl:S3-8.
- 26 Melton LJ III, Khosla S, Crowson CS, et al. Epidemiology of sarcopenia. *J Am Geriatr Soc*. 2000; 48:625-630.
- 27 Fielding RA, Vellas B, Evans WJ, et al. Sarcopenia: An undiagnosed condition in older adults. Current consensus definition: prevalence, etiology, and consequences. International working group on sarcopenia. *J Am Med Dir Assoc*. 2011; 12:249-256.
- 28 Morley JE, Argiles JM, Evans WJ, et al. Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc*. 2010;11:391-396.
- 29 Symons T, Sheffield-Moore M, Wolfe RR, et al. A moderate serving of high-quality protein maximally stimulates skeletal muscle protein synthesis in young and elderly subjects. *J Am Diet Assoc*. 2009;109:1582-1586.