

Creating a Pathway for Healthy and Vibrant Aging

Muscle loss is a natural aging process; however, it may be surprising to learn that it can begin as early as your 30's.¹ If proactive measures aren't taken to slow or stop this loss it can lead to a syndrome called sarcopenia, which can affect one's mobility and independence; increase the health care cost burden on the elderly; and may increase risk of premature death.² The goal is to maintain and/or slow muscle loss as we age, and to start early. Specifically, research shows that **consuming more high-quality protein and engaging in regular exercise can help Americans maintain muscle mass as they age,^{2,3,4,5,6} which may allow for a more active lifestyle.** Considering that by 2030 it is estimated that one in five U.S. residents will be 65 and older,⁷ now is the time for health professionals to educate and empower people to make the right choices for healthy aging.

Last year, the National Dairy Council convened a meeting with a group of leading nutrition researchers and communicators who specialize in protein, exercise and healthy aging to explore the role of nutrition and exercise in helping manage sarcopenia and identify ways health professionals can educate people on this important topic. The experts who attended the meeting agreed on the following tactics:

Understand the science: Better recognize the body of science, prevalence rates and potential consequences of sarcopenia.

- While relatively unknown among the general population, based on the current body of literature, sarcopenia may affect nearly 50% of people over 80 years of age.^{4,8}
- Sarcopenia can often go unrecognized as there is no official definition for this syndrome. It has been referred to in the literature as a progressive process that can be characterized by approximately 3-8% reduction in lean muscle mass per decade after 30 years of age.^{3,9,10,11} In late 2009, a group of geriatricians and scientists from academia and industry convened in Italy to agree upon a consensus definition of sarcopenia:²

"Sarcopenia is the age-associated loss of skeletal muscle mass and functions. Sarcopenia is a complex syndrome that is associated with muscle mass loss alone or in conjunction with increased fat mass. The causes of sarcopenia are multifactorial and can include disuse, changing endocrine function, chronic diseases, inflammation, insulin resistance, and nutritional deficiencies."



Start the conversation early: Shift the dialogue about muscle loss from reactive response to proactive prevention.

- Experts agreed that awareness among the younger, aging population needs to be bolstered.

Focus on the Acceptable Macronutrient Distribution Range (AMDR) for protein. Shift emphasis from the Recommended Dietary Allowance (RDA), which is based on the amount needed to avoid deficiency but not necessarily to promote health, to the AMDR. For the aging population (40 and above), use the AMDR to educate about protein recommendations.

- Recent evidence suggests that increasing dietary protein above the RDA,³ but within the AMDR (10-35 percent of total calories consumed each day¹²), may help maintain bone and muscle mass in older individuals.



Balance protein sources and timing: Be specific and recommend high-quality protein sources, like whey protein, eggs, dairy and beef to help preserve muscle mass. Also, stress the importance of balancing protein intake evenly at each meal (e.g. 30 grams three times a day) for optimal uptake and utilization.

- Studies show that eating a higher protein diet may help preserve muscle mass as we age.^{3, 13, 14}
- Research shows, whey protein (a high quality protein naturally found in dairy) as part of a higher protein diet, can help maintain muscle mass as we age.^{15, 16} Whey protein is a rich source of the amino acid leucine, which research shows may help maximally stimulate muscle protein synthesis in the elderly.³
- Some experts suggest spacing protein intake evenly throughout the day to maximize muscle protein synthesis; aim for 20-30 grams of high-quality protein at each meal.^{3, 5, 13, 17} For older adults, consuming 40 grams of protein after resistance exercise has been shown to be effective.⁵



Incorporate exercise into the plan: Recognize muscle maintenance goes beyond beauty.

- Reinforce the message that, beyond looking good, muscle maintenance is important to help prevent a cascade of negative physiological changes that occur with muscle loss.
- Research shows that exercise is beneficial to help slow muscle loss associated with aging.⁵ Incorporating moderate intensity aerobic exercise at least three days a week (aim for 2 1/2 hours per week), and strengthening exercise at least two days a week is recommended.¹⁸

Effectively “sell the message:” Understand where people are getting their information and how they currently live their lives.

- There’s an opportunity to educate personal trainers, coaches, etc., who are usually the professionals talking directly to consumers about their muscles as part of exercise programs.
- Focus on what to eat not what to skip and make sure it is easy, affordable and convenient.
- Provide simple solutions for exercises one can do at home - potato sack curls, walking down the hall and back (or around the block) for exercise.
- Promote exercise with protein intake as the “best of both worlds.”

For more information on the role of nutrition and exercise in healthy aging visit

<http://wheyprotein.nationaldairyCouncil.org/>

¹ Morley JE, Argiles JM, Evans WJ, et al. Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc.* 2010; 11: 391-396.

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³ 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.

⁴ Baumgartner RN, Koehler KM, Gallagher D, et al. Epidemiology of sarcopenia among the elderly in New Mexico. *Am J Epidemiol.* 1998; 147: 755-763.

⁵ 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.

⁶ Campbell WW, Trappe TA, Wolfe RR, et al. The recommended dietary allowance for protein may not be adequate for older people to maintain skeletal muscle. *J Gerontol A Biol Sci Med Sci.* 2001; 56: M373-M380.

⁷ Vincent, Grayson, Victoria, et al. 2010, The next four decades, the older population in the United States: 2010 to 2050. Current Population Reports, p25-1138, U.S. Census Bureau, Washington, DC.

⁸ Berger MJ and Doherty TJ. Sarcopenia: prevalence, mechanisms, and functional consequences. *Interdiscip Top Gerontol.* 2010; 37: 94-114.

⁹ Volpi E, Nazemi R and Fujita S. Muscle tissue changes with aging. *Curr Opin Clin Nutr Metab Care.* 2004; 7: 405-410.

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¹¹ Melton LJ III, Khosla S, Crowson CS, et al. Epidemiology of sarcopenia. *J Am Geriatr Soc.* 2000; 48: 625-630.

¹² IOM (Institute of Medicine). 2005. Dietary Reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids. Washington, DC: The National Academies Press.

¹³ 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.

¹⁴ Morley JE, Argiles JM, Evans WJ, et al. Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc.* 2010; 11: 391-396.

¹⁵ Paddon-Jones D, Short KR, Campbell WW, et al. Role of dietary protein in the sarcopenia of aging. *Am J Clin Nutr.* 2008; 87(suppl): 1562S-1566S

¹⁶ Houston DK, Nicklas BJ, Ding J, 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.

¹⁷ Layman, DK. 2009. Dietary Guidelines should reflect new understandings about adult protein needs. *Nutr & Metab.* 2009; 6: 12.

¹⁸ U.S. Department of Health and Human Services. 2008 *Physical Activity Guidelines for Americans.* <http://www.health.gov/paguidelines/guidelines/chapter5.aspx>. Accessed March 21, 2012.

