

The whey to help

SENIORS WITH MUSCLE LOSS

Nowhere is there more dollar potential for food and beverage manufacturers than from the age-



ing baby-boomer population segment. **MATTHEW PIKOSKY, PhD,** makes the case for whey protein's ability to help the senior set maintain an active lifestyle

Easily digested, whey protein is a fast-acting protein with a neutral taste that can be incorporated into a diversity of food and beverage products such as oatmeal, smoothies, clear beverages, yoghurt and snack bars. Functional, soluble and clear when not frozen, whey-protein isolates and concentrates provide a tremendous opportunity for the functional-foods and beverage industry to reach consumers – in particular, ageing consumers.

With age, many adults will experience an age-related loss of muscle mass, function and strength, a condition referred to as sarcopenia. It affects an estimated 30 percent of people over 60, and 50 percent of those aged 80 and older.

Research has shown that diet and lifestyle changes can prevent, reverse or slow the progression of this muscle loss to help ageing consumers maintain an active lifestyle. The key elements to preventing sarcopenia hinge on routine resistance exercise and adequate amounts of dietary protein. These two lifestyle factors play a crucial role in the development and maintenance of muscle mass.

Whey protein, a high-quality protein found in dairy, has a high biological value compared with other protein sources, so it is easily absorbed and used by the body. Food and beverage manufacturers can leverage the quality and value of whey protein in their product innovations to reach the mature consumer.

“Research continues to show that protein plays a significant role in helping mature consumers combat muscle wasting,” said Alan Reed, senior vice president of US manufacturing and ingredient marketing for Dairy Management Inc (DMI). “Food and beverage manufactur-

ers are beginning to realize, and science is starting to show, the impact whey protein can have in product innovations for the senior population.”

Protein, resistance exercise and healthy muscle

Decreases in activity level and metabolism are linked to changes in body composition, including an increase in body fat and loss of muscle mass. The age-related loss of muscle mass and strength can lead to a number of significantly negative consequences, including functional impairment, disability, falls, frailty and a loss of independence. Ultimately, this can have a considerable impact on health-care costs.

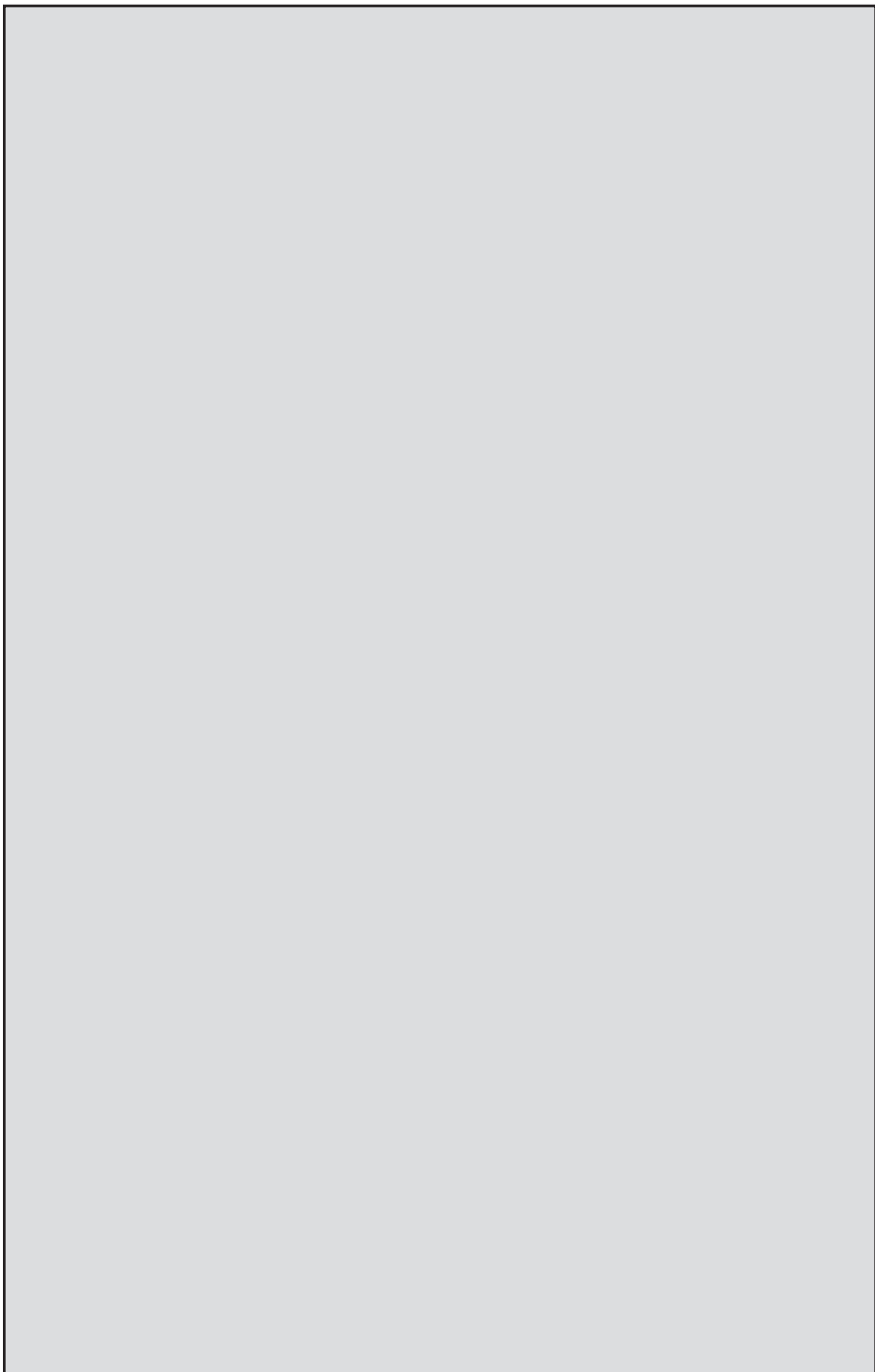
According to researchers at Queen's University in Ontario and Tufts University in Boston, the estimated healthcare costs attributable to sarcopenia in the United States could be as high as \$26.2 billion; however, more than \$1 billion could be saved if sarcopenia prevalence was reduced by 10 percent.

Development of a basic intervention to help minimize muscle loss with ageing could have positive and widespread health implications. Currently, the Recommended Dietary Allowance (RDA) for protein in adults is 0.8g per kg body weight per day (-55g/d for a 150-pound individual). It is important to note, however, that some researchers are recommending a re-evaluation of the RDA for older adults, as recent evidence suggests that slightly higher protein intakes may help maintain muscle as well as bone mass in this population group.

While it is commonly believed that most adults consume more than >>

enough protein on a daily basis to meet their needs, this is not always the case. Research has shown that between 15 percent and 38 percent of adult men and between 27 percent and 41 percent of adult women have dietary-protein intakes below the current RDA of 0.8 gm/kg/day. According to a Mintel study on the US consumer and attitudes toward food, as

adults age their perception of their need for protein to meet healthy eating goals drops sharply – from 38 percent of those in the 18- to 24-year-old age range to 11 percent of adults in the 55- to 64-year-old age range. The number of adults who think protein is important to their diet climbs just slightly for those 65 years and older – to 17 percent.



Leveraging research

Whey protein is one of the best sources of naturally occurring branched-chain amino acids, including leucine, which is unique compared with the other amino acids in its ability to initiate muscle-protein synthesis. Douglas Paddon-Jones, PhD, associate professor of physical therapy and internal medicine at the University of Texas Medical Branch, Galveston, Texas, and his research team at the University of Texas are looking at leucine and its effect on turning on the signaling markers that switch on muscle growth and protein synthesis. “We also are exploring the use of whey protein on elderly patients in nursing-care facilities to determine the impact on protein synthesis,” he says.

Researchers at the Exercise Metabolism Research Group at the Department of Kinesiology, McMaster University in Ontario, Canada have studied the role of protein quality on muscle-protein synthesis. They found evidence suggesting that the consumption of high-quality milk proteins such as whey protein, which contains a high level of leucine, can provide an anabolic advantage over other proteins in promoting muscle-protein synthesis. This is accentuated when combined with resistance exercise.

While the research available to date is promising, additional long-term trials are needed in the elderly to clearly demonstrate the benefits of supplemental protein on preventing, reducing the risk of, or reversing sarcopenia. DMI is currently funding research looking at the benefits of daily whey-protein supplementation, with or without routine resistance exercise, on changes in body composition and the physical function of older adults. These and other ongoing trials should help to provide clear evidence that will help shape future nutrition and exercise recommendations in older adults.

In terms of their protein intake, the ageing baby boomer represents the biggest population group in need of attention.

According to research from Mintel, older consumers are more likely than younger ones to report eating functional foods for a specific health issue. As older consumers are also more likely to re-

SCIENCE SAYS: MORE AND SMALLER PROTEIN PORTIONS

Over the last decade, Douglas Paddon-Jones, PhD, has studied the effects of dietary protein on muscle metabolism. As associate professor of physical therapy and internal medicine at the University of Texas Medical Branch, his research has shown that not only do adults need to, at the very least, meet the RDA for protein, they also need to space out their protein intake throughout the day for maximum benefit.

Most adults eat smaller amounts of protein earlier in the day (ie, breakfast and lunch) and then tend to end the day with a large amount at dinner. Paddon-Jones' research suggests that approximately 30g of protein is required at each meal to optimally stimulate muscle growth. Amounts significantly below this threshold level are not enough to effectively turn on the muscle-building process, while consuming much more than 30g of protein per meal does not provide additional benefit. Therefore, loading up one meal with 70g protein while largely ignoring protein intake at other meals is not the best strategy for maximizing daily protein intake to support the maintenance of lean muscle.

"If you are eating most of your protein at dinner, you could argue that you are essentially wasting anything more than 30g of protein," he says. "Packing it all into one meal is kind of like brushing your teeth a dozen times on Saturday, but not doing it during the rest of the week." — MP

port maintaining a healthy diet, focusing on various specific health issues with products may resonate with this demographic. In addition, promoting the use of functional foods as a supplement for already healthy eating habits may also bolster sales and consumption among older consumers.

Matthew A. Pikosky, PhD, RD, FACN, is director of research transfer for Dairy Management Inc. For the latest information on dairy and dairy ingredient-related research and information, visit www.innovatewithdairy.com. For assistance formulating products with whey protein or other dairy ingredients, contact techsupport@innovatewithdairy.com.