

# A Whey to Satisfy Protein Needs

Whey protein helps provide satiety, lean muscle, and body-composition benefits.

BY DEANNA SEGRAVE-DALY, RD, LDN

**D**espite a bleak economy, consumers are showing continued interest in functional foods—and are willing to pay more for products that hold a promise of extra nutritional value, according to a December 2008 Mintel study.<sup>1</sup>

According to another Mintel report from May 2008, new functional food product introductions increased by 63% between 2002 and 2006.<sup>2</sup> Analysts say that climb will continue. In addition, recent reports from the International Food Information Council (Washington, DC) show that consumer interest in foods and beverages with health benefits is on the rise and, specifically, that there is consumer interest in the protein content of food products.<sup>3</sup>

Whey protein has become a key ingredient in the functional and nutritional food and beverage market. “Whey protein is a natural, low-fat, and convenient way for consumers to get that protein into their diet,” said Matt Pikosky, PhD, RD, director of research transfer for Dairy Management Inc. (DMI; Rosemont, IL). “We think whey is just getting started.”

### Formulating Whey into Products

Whey protein is one ingredient that many food and beverage manufacturers are already leaning on to reach today’s savvy, wellness-oriented consumers. With a fresh, neutral taste that does not compete with the intended flavor of a food or beverage, and a superior solubility for clear beverage applications, whey protein is available to formulators in



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numerous varieties, including whey protein concentrate, whey protein isolate, reduced-lactose whey, and sweet whey.

### Whey Protein and Exercise

An ever-increasing amount of scientific evidence indicates that consuming whey protein as part of a higher-protein diet, combined with performing resistance exercise regularly, can help build lean muscle.<sup>4</sup> In turn, lean muscle helps to promote a healthy metabolism and burn more calories.<sup>5</sup>

Recent studies show that active people can realize a muscle benefit from whey protein. Research from the Department of Kinesiology at McMaster University (Hamilton,

ON, Canada) found that drinking an isotonic beverage with just 10 g of whey protein and 21 g of carbohydrates following resistance exercise stimulated the repair and rebuilding of lean muscle necessary to support muscle recovery. These benefits are greater than those from a beverage that contained an equal amount of carbohydrate alone.<sup>6</sup>

“Ingesting whey protein, in combination with resistance-training exercise, is a safe and effective strategy to help adults build and maintain valuable muscle,” Pikosky said. “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.”

One factor that may affect a protein’s ability to stimulate muscle protein synthesis is its amino acid composition. Whey protein is particularly effective at stimulating muscle protein synthesis rates for a number of reasons. First, whey protein provides the amino acids necessary for muscle repair and recovery after exercise. Also, eating whey protein after exercise helps to restore a positive protein balance, which is needed for muscle gain to occur. In addition, compared with other protein sources, whey protein contains a higher amount (per 100 g) of the essential amino acids that have been shown to be the most effective.<sup>7,8</sup>

### Whey and Healthy Aging

Sarcopenia, the age-related loss of muscle, is

estimated to affect 30% of people over the age of 50, and 50% of those over the age of 80.<sup>9</sup>

“Building and maintaining valuable muscle mass is crucial, especially in those over 40, for whom a decline in muscle mass becomes more prominent,” Pikosky said. Muscle mass declines with age, but including protein at each meal may be an easy way to help minimize or reduce this muscle loss, helping adults maintain a healthy, active lifestyle.

A recent review highlighted this concept and recommended that older adults include 25 to 30 g of high-quality protein per meal—breakfast, lunch, and dinner—in order to maximize muscle protein synthesis.<sup>10</sup> Whey protein is a good source of protein for the elderly because it is a high-quality protein that is easy to add to the diet.

### Satiety and Weight Management

There is growing evidence that consumers are recognizing that satiety, the feeling of fullness, can play an important role in weight-management goals.

In 2008, a consumer study conducted by market research firm NPD Group and commissioned by DMI indicated that 67% of consumers strongly or somewhat agreed that a feeling of fullness is important when trying to lose weight because it helps to avoid between-meal and late-night snacking. In a study of overweight and obese women, a higher-protein diet was shown to preserve lean muscle during weight loss and improve perceptions of satiety when calories are restricted.<sup>11</sup>

Other studies have shown benefits of higher-protein diets can preserve lean muscle during weight loss.<sup>12–17</sup>

“Research shows that calorie for calorie, consuming more protein can increase the feeling of fullness more than consuming carbohydrate or fat can,” Pikosky said. “This has been shown both following a single meal, as well as following consumption of an overall diet higher in protein. This feeling of full-

ness may lead to a decrease in calorie intake, which can help people with their weight-management goals.”

Additional research is necessary to clearly determine potential effects of a protein source on satiety.

### Easy to Work With

Compared with other proteins, whey protein is easy to work with in many applications, according to K. J. Burrington, dairy applications coordinator at the Wisconsin Center for Dairy Research at the University of Wisconsin–Madison.

“Typically, the flavor of whey protein is mild and easy to incorporate with the existing flavor of a food,” Burrington said.

“Also, whey protein will not bind an excessive amount of water, so the behavior of a mixture will not be modified by adding additional protein. Each food system presents different challenges for incorporating protein; however, most can be overcome,” she added.

Nutritional and functional product manufacturers can leverage whey protein’s numerous, powerful benefits in their product lines to reach today’s educated health-oriented consumers. Formulators can add whey protein to nutrition bars, oatmeal, smoothies and multiple other applications with ease.

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Deanna Segrave-Daly, RD, LDN, is a registered dietitian holding bachelor of science degrees in both nutrition science and marketing from Pennsylvania State University. She has more than 15 years of experience in the food and nutrition arena, and 10 years of experience with the dairy industry including work for the National Dairy Council and Dairy Management Inc. For more information on how to formulate products with whey protein and other dairy ingredients, visit [www.innovatewithdairy.com](http://www.innovatewithdairy.com).