Pre & Post Exercise Protein Intake

For those who experience gastrointestinal symptoms after drinking milk, a2 Milk™ could make a difference

Progressive resistance training (PRT) has been shown to enhance muscle strength, mass and size in young adults, older adults and the elderly(1-6). While PRT alone stimulates muscle protein synthesis(7,8), it has been suggested that the greatest gains in muscle mass will occur with an increased intake of dietary protein before and after resistance training(9-11), and/or when energy intake is sufficiently high to meet the additional demands of training(12,13).

Emerging evidence suggests that the ingestion of dairy foods, particularly whole or fat-free milk, may represent an ideal food source to enhance muscle protein synthesis and thereby skeletal muscle hypertrophy. Research findings in men and women have shown that consumption of whole milk following resistance training can promote muscle protein synthesis and/or inhibit protein breakdown leading to improved net muscle protein balance(14-16). The mechanism(s) by which whole milk can enhance the effects of exercise on muscle are reportedly related to the mix of casein protein, which is considered a ‘slow acting’ protein that inhibits protein breakdown, and whey protein which is referred to as a ‘fast acting’ protein that stimulates synthesis(14,15).

However, there may also be bioactive factors present in milk that could contribute to these beneficial effects on muscle. A study in young, healthy, moderately active men (novice weightlifters) found that chronic consumption of fluid skim milk following resistance training was associated with greater gains in lean mass compared with isoenergetic soy or carbohydrate consumption, despite similar increases in dietary protein intakes between the groups throughout the intervention(17). Thus, milk consumption pre- and post exercise may help provide the additional protein and energy needed to maximise PRT-mediated muscle hypertrophy (650 ml of a2 Milk™ Reduced Fat provides ~20 grams of complete protein and ~1230 kilojoules/293 Calories).

Cows’ milk is cited commonly as a cause of symptoms of digestive discomfort and it appears that the milk sugar lactose is not always the mediator(18-20). For instance, in a group of 406 randomly recruited men and women (mean age 27 years), 20.2% reported abdominal discomfort following dairy intake, but only 6.4% had medically diagnosed lactose intolerance(21). Instead, this could be due to cows’ milk protein intolerance, which has been described as a non-immunological (or nonallergic) reaction against cows’ milk protein(22), importantly, it is distinguished from cows’ milk protein allergy, which can produce life threatening consequences and requires complete avoidance of cows’ milk and its products*. One of the major casein fractions in milk is beta-casein, which comprises around 30% of total cows’ milk protein, or around 2.5 grams per 250 ml glass. Beta-casein may be present as one of two major genetic variants; A1 and A2. a2 Milk™ comes from cows specially selected to produce only the A2 rather than A1 type of beta-casein. Some studies suggest that a digestion by-product of the A1 type beta-casein, an opioid peptide called beta-casomorphin-7 (BCM-7), has the potential to stimulate symptoms of digestive discomfort(23-29).

In contrast to the A1 type, A2 beta-casein digestion does not produce BCM-7(30,31). Thus, in those who are susceptible to symptoms of digestive discomfort following regular milk intake, drinking a2 Milk™ can provide an alternative(32) so that your clients can experience the muscle benefits associated with drinking milk pre- and post exercise (and all the other health benefits associated with drinking milk).

*a2 Milk™ contains all other proteins and lactose in amounts similar to those present in regular milk, thus is NOT an appropriate choice for people with cows’ milk allergy and/or diagnosed lactose intolerance. For information on cows’ milk protein allergy diagnosis and management, see the Australian Society of Clinical Immunology and Allergy website http://www.allergy.org.au/content/view/161/302/
Pre & Post Exercise Protein Intake

References


