

The role of whey protein in age related muscle wasting and intentional weight loss for over-weight or obese individuals

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Whey protein is an isolate of whey, the liquid portion fractioned during cheese production. Whey protein consist of globular proteins which are sold in powder form as a dietary supplement. The major types of globular proteins in whey isolate are; β -lactoglobulin, α -lactalbumin, bovine serum albumin, and immunoglobulins (Haug *et. al.* 2007). Immunoglobulins are used by the body's immune system to identify and eliminate foreign objects such as bacteria and viruses, and in some cases during auto-immune diseases such as arthritis the body's own cells.

In this short article I aim to present information that supports a role for whey protein in reducing age related weight loss of muscle and also the reduction of body weight, particularly fat tissue.

In a review of literature by Hayes and Cribb (2008), sarcopenia (or age related wasting) is often a secondary condition in a lot of age-related health issues. Sarcopenia is similar to cachexia which is caused by the similar catabolic processes of wasting during chronic illnesses such as gastro-intestinal cancer or congestive heart failure (Cichello, 2009). In both instances, it is agreed that resistance exercise and also protein ingestion (especially amino acids like leucine, and essential amino acids) would provide anabolic growth, maintain muscle mass by the cessation of wasting. Further, in an interesting study in older women found that a higher protein intake during energy restriction preserves muscle mass relative to weight lost, which in turn enhances physical function in subjects (Mojtahedi *et. al.* 2011).

When comparing different forms of protein to intake the next provides some clues to this question. In a study consuming 56 g/d of either soy (SP) or whey protein (WP) or a carbohydrate (CHO) equivalent (1670 kJ/d) in conjunction with an *ad libitum* diet of the participants choice, after 23 wk the body weight and body fat composition the WP group were lower by 1.8 kg ($P < 0.006$) and 2.3 kg ($P < 0.005$), respectively, than the group consuming just carbohydrates of the same daily kJ intake as the two protein groups (Baer *et. al.* 2011). Interestingly, the waist circumference, plasma gherlin was smaller in the participants consuming WP than in the other groups ($P < 0.05$) (Baer *et. al.* 2011). This evidence suggests that WP as being a good candidate for nutritional supplementation for weight reduction as per the studies guidelines. This trend was also observed by Aldrich *et. al.* 2011 who provided a diet of whey protein (40% carbohydrate/15% mixed protein/15% whey protein/30% fat) versus a non-whey protein control. Further, they found that weight loss was regional (legs) and that the participants also displayed decreased blood pressure when compared to the control group (Aldrich *et. al.* 2011).

When looking at diets consisting of decreased calorie content and also using whey protein Frestedt *et. al.* (2008) found that calorie restriction (500 calories/day) in both the control and the WP group produced a significant amount of weight loss in both groups, but in the group consuming the protein supplement tended to lose more

weight and body fat and preserved skeletal muscle versus the control group who were on a normal calorie restriction diet.

To now re-iterate, the intake of whey protein daily in a well-balanced diet and also regular resistance exercise may prove to assist the individual to lose weight and fat more rapidly than just a calorie restriction diet by itself. This document was created for information only and not to be construed as medical information or advice.

We recommend before starting any new diets that all individuals consult a medical doctor or dietician to make sure they are safe to do so.

References

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