ISAGENIXSCIENCE

Which Protein is Best?

Why whey is most effective for fat burning and calorie control

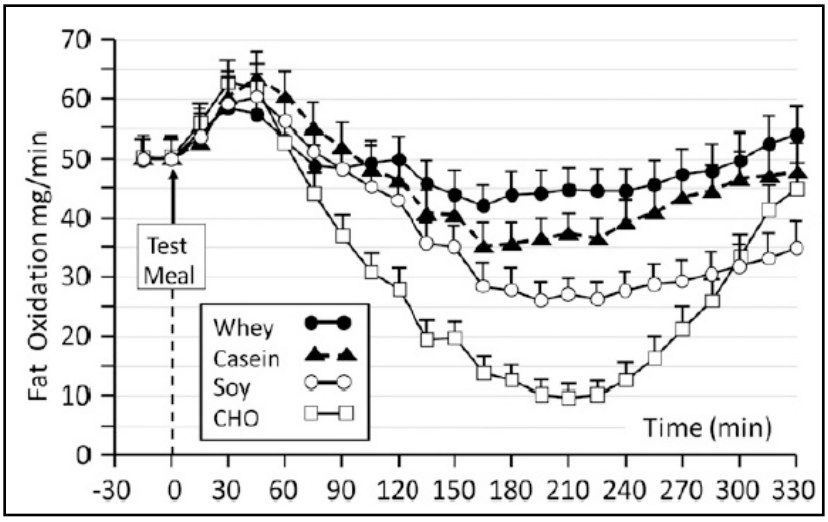

Figure 1. Mean changes in fat oxidation (fat burning) during the 5.5 hours after ingestion of isocaloric test meals containing whey, casein, soy protein, or carbohydrates (CHO). Reference: Acheson et al. 2011.

Our IsaLean Shakes contain an optimal protein blend to maximize healthy weight loss through a combination of whey protein and other dairy protein to promote muscle growth, satiety, and boost your metabolism.

When it comes to stimulating thermogenesis and satisfying appetite, it's well known that dietary protein is king over carbohydrates and fats. Now, a study confirms this and goes even further and shows what protein source you choose matters, too!

Whey protein consumed at breakfast, lunch and dinner proved more successful than either casein or soy proteins in boosting fat burning and simultaneously reducing muscle loss, according to new research (1) from the Nestle Research Center in Switzerland. The present findings confirm that protein-rich test meals have a greater thermic effect than that of carbohydrate and extend these results by showing that whey protein elicits a greater thermic response than does protein composed of either casein or soy," the scientists report in the March issue of *The American Journal of Clinical Nutrition*..

The scientists conducted a double-blinded, randomized, placebo-controlled study, measuring the

Suk's Letter

It's great to work for a company that has a system with superior ingredients that has delivered results for more than a decade. More and more, peer-reviewed science is lending support to our system. In the Feb-March issue of *Isagenix Science,* we report why consuming our shake in the morning is best for muscle growth and maintenance and why whey from New Zealand is important because it comes from pasture-fed cows not treated with hormones and is less vulnerable to industry contamination. Most whey-based products don't disclose the origin of their protein. Our formulas are also based on strong evidence. In this issue, you'll learn why our amount of whey makes our meal replacements superior over others for maximizing:

- Fat burning
- Calorie control
- Lean muscle accretion
- Blood sugar management

We are also presenting the results of our second study on IsaLean Bars flavors confirming all to be low glycemic.

Live well and adventurously!

-Suk Cho, Ph.D.

"WHICH PROTEIN IS BEST?" CONTINUED...

thermic effects of meals high in protein from whey, casein or soy, versus a meal high in carbohydrate. They found that the total fat oxidation and energy expenditure over 5.5 hours was greater after consuming the whey protein meal versus the other proteins and all were significantly higher than the high-carbohydrate meal (see Figures 1 and 2).

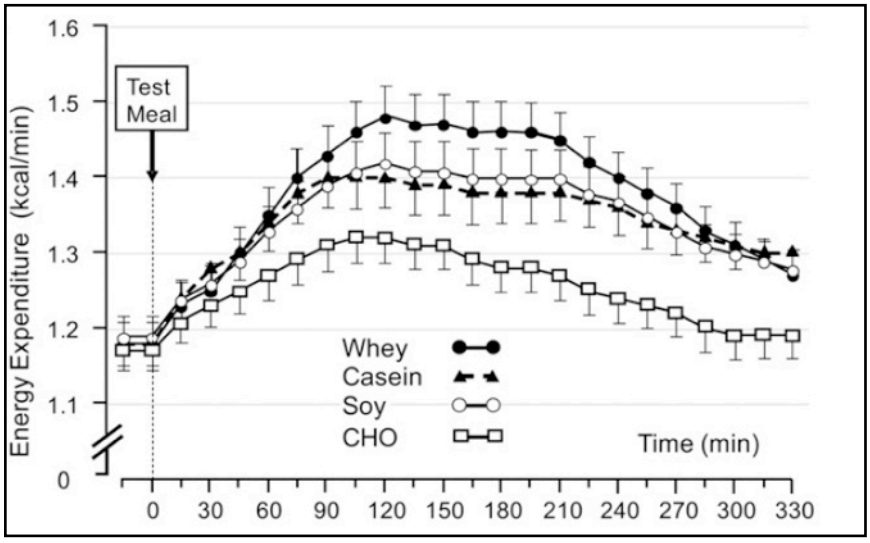

Figure 2. Mean changes in energy expenditure during the 5.5 hours after ingestion of the test meals. Reference: Acheson et al 2011.

The thermic effect of food is a measurement of the amount of energy that is required for digestion and absorption and metabolism. Eating foods with a higher thermic effect can support weight management goals and, in the case of whey protein, even promote muscle growth (2-4).

More than just a metabolic measure, the thermic effect of foods reflects the rate that fats, proteins and carbohydrates are broken down for energy in our bodies. The researchers explained the high thermic effect of whey protein might be due to the amino acid composition. Whey is high in leucine, a branched-chain amino acid, which has been shown to stimulate muscle protein synthesis and muscle turnover.

The study tested the metabolic rate, satiety and glucose control of 23 lean, healthy individuals following one of the meal options. Subjects were tested in a metabolic chamber measuring their basal (resting) energy expenditure. Researchers monitored the subjects for five hours to measure postprandial (after-eating) energy expenditure. All meals contained an equivalent amount of calories.

In addition to boosting fat burning potential, a protein-rich diet also resulted in a much lower postprandial glucose response than the carbohydrate control.

"Whey supplements have been proposed to increase synthesis, and in the presence of increased insulin secretion, one would expect its anabolic effects to favor increased lean body mass," the authors wrote.

The authors proposed that increased protein synthesis is "one possible mechanism responsible for the increased thermogenesis observed after high-protein than after high-carbohydrate diets, and the rate of protein synthesis has been observed to be more rapid, two-fold greater, after the consumption of whey than after that of casein."

On the other hand, according to the researchers, casein or soy proteins may provide greater feelings of satiety (based on subjective questionnaires) and may be more effective for blood glucose control because of a slower rate of emptying from the stomach.

References

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WHEY SUPERIOR TO SOY, REGARDLESS OF CALORIE RESTRICTION

Whey protein is superior to soy for trimming down and may help maintain or even promote weight loss without having to count calories.

Protein has long been associated with increased satiety, thereby improving weight loss and promoting adherence to difficult, otherwise hunger-inducing diets. While protein may keep you fuller longer, a new study, due to appear in the July issue of *The Journal of Nutrition*, showed that whey protein is more effective than soy protein when it comes to weight loss.

Researchers from the United States Department of Agriculture randomly assigned 90 participants to consume soy protein (SP), whey protein (WP) or carbohydrate (CHO) supplements at mealtime for 23 weeks. Total calorie consumption was not reduced or restricted—all participants were overweight or obese at the start of the intervention.

"This study suggests that after 6 mo of supplementation, there was a difference in body weight and fat mass between overweight and obese adults who consumed supplemental WP compared to those who consumed isoenergetic supplemental CHO," the authors report.

The scientists didn't observe similar weight-reducing results in the group that consumed soy protein or carbohydrate.

At the end of the trial, the whey protein group lost 4 more pounds in body weight and 5 more pounds in fat mass than the carbohydrate group.

"Additionally," the researchers wrote, "consuming WP resulted in a significantly smaller waist circumference compared with the group consuming supplemental CHO."

As found in this study, macronutrient (protein, carbohydrate or fat) choices can make an impact on body composition. Not only is protein thought to be satiating and thermogenic, whey protein consumption without calorie restriction had a favorable impact on body weight. The researchers emphasize that in the WP supplementation group "the difference in body weight was associated with a decrease in fat without an effect on lean mass."

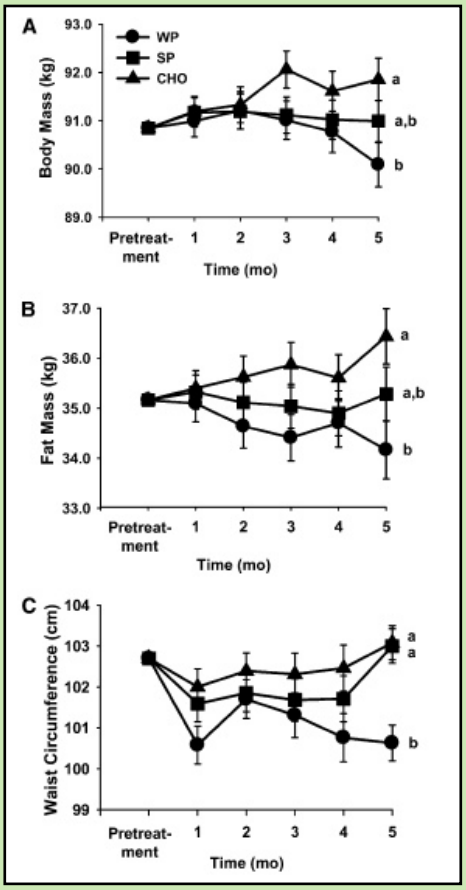

Figure 3. Effect of supplemental carbohydrate (CHO), whey protein (WP), and soy protein (SP)on body mass (A), fat mass (B), and waist circumference (C) in overweight and obese adult men and women.

The authors write that protein is key to short term weight loss because it reduces the urge to overeat and, in addition, that the impact of whey protein on body weight, without calorie restriction or the intention to lose weight, is novel.

"Protein supplementation, particularly WP, in overweight and obese individuals may assist in long-term maintenance of body weight without energy restriction," the researchers suggest.

Reference

Baer DJ, Stote KS, Paul DR, et al. Whey Protein but Not Soy Protein Supplementation Alters Body Weight and Composition in Free-Living Overweight and Obese Adults. *J Nutr* July 2011, 141 (7).

HOW MUCH WHEY IS BEST FOR BLOOD SUGAR CONTROL?

How often have you heard the key to health is maintaining healthy blood sugar? These days, with processed foods, sugary sodas and a nation enamored with quick-fix dieting, exposure to simple sugars is running rampant. High blood sugar can have disastrous effects on cell membranes, blood vessel lining, weight management (2) and even mood.

With your health in mind, Isagenix is devoted to providing nutritious meals that deliver your body necessary sugars and carbs, without driving up your blood sugar. How can we do this? As new research supports, whey protein may be the answer when it comes to balanced nutrition and balanced blood sugar (1).

Eating meals with at least 20 grams of whey protein, comparable to the amount found in IsaLean Shakes and Bars, helps stave-off harmful spikes in blood sugar, a recent study reports.

You may be familiar with the glycemic index—a measure of the impact that a food has on your blood glucose. Lower glycemic foods have been shown to help weight management and weight loss (1,2). This study, published in the *Nutrition Journal,* shows that 20 grams of whey protein decreases the glycemic effect of a carbohydrate drink (1).

Ten healthy subjects drank either a sugary control beverage or the same beverage with an additional 5, 10 or 20 grams of whey protein. Blood glucose was measured after 15, 30, 45, 60, 90 and 120 minutes.

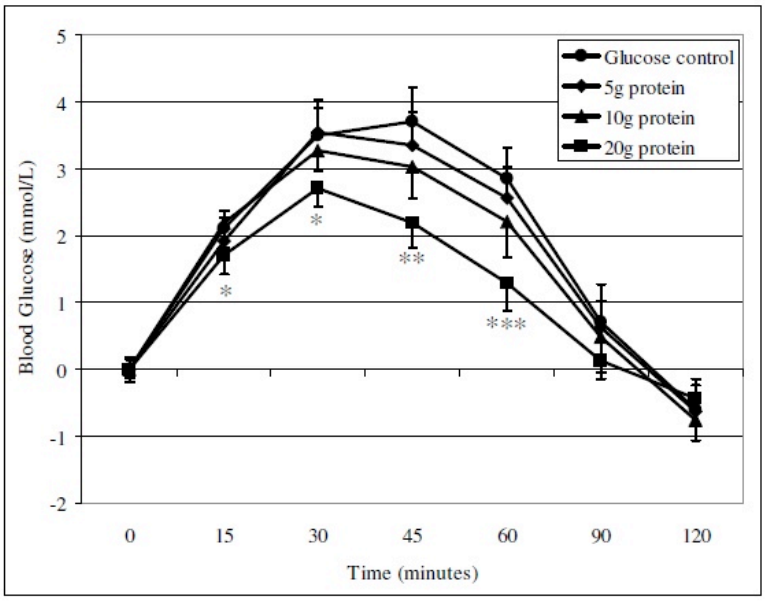

Figure 4. Incremental blood glucose response after meals containing either glucose alone (control), or glucose plus either 5, 10 or 20 g of protein. Reference: Peterson et al.

The researchers reported that "blood glucose concentrations were significantly reduced at 30, 45 and 60 minutes after the 20 gram protein meal when compared to the control." Whey protein is rapidly digested, which may help explain why it also combats spikes in blood sugar, they suggested.

While any amount of whey protein seemed to favorably influence glycemic response, the researchers found that the 20 gram supplement of whey protein had the greatest ability to maintain stable blood sugar.

Whey's enhancement of glycemic control may be explained by its ability to slow absorption of sugars or, possibly, the stimulation of insulin by the amino acid leucine. Whey protein is especially high in leucine, an amino acid that is prized for stimulating muscle growth. Insulin is like a key—it opens the door for glucose to enter cells. The authors said that leucine is "insulinogenic".

Whey's leucine may stimulate insulin secretion, or perhaps stimulate the production of other hormones involved in blood sugar regulation.

References

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WHEY AMINO ACID PROFILE BEST FOR BUILDING MUSCLE IN OLDER MEN

Whey protein stimulates more muscle-building in older men when compared to other proteins because of its superior amino acid profile, according to a new study by researchers from Maastricht University Medical Center in the Netherlands.

The study, published in the *American Journal of Clinical Nutrition*, reveals that in addition to being a "fast" digesting protein, whey also has a preferable ratio of amino acids for protein retention in the muscles.

As we age, muscle synthesis declines and muscle loss accelerates. Muscle loss is not only a problem in terms of physical activity, total body muscle is also a huge factor in regulating body weight and determining resting metabolic rate. Sarcopenia, or age-related loss of muscle and strength, is becoming an increasingly relevant concern for an aging population and is directly associated with quality of life.

Promoting muscle synthesis through diet and exercise is effective in maintaining long-term health. The authors of the current study suggest that increasing muscle protein synthesis through consuming whey protein may provide "effective nutritional strategies to attenuate age-related losses of muscle mass."

Higher rates of muscle protein synthesis are likely "attributed to the faster digestion and absorption kinetics of whey, which results in a greater increase in postprandial plasma amino acid availability and thereby further stimulates muscle protein synthesis," report the researchers.

Although previous research shows that whey protein supports greater protein retention than casein, it has not been clear if retention was due to quick digestion and absorption of whey protein, or if the amino acid content of whey may have contributed as a factor. Whey, for example, is characteristically higher in branched-chain amino acids, including leucine. The amino acid composition within each protein was shown to be as important as rate of absorption in stimulating amino acid uptake.

Reference

Pennings et al. Whey protein stimulates postprandial muscle protein accretion more effectively than do casein and casein hydrolysate in older men. *Am J Clin Nutr* 2011; 93: 997-1005.

ALL ISALEAN BARS CONFIRMED AS LOW GLYCEMIC

Isagenix IsaLean® Bars lovers who were pleased to learn earlier this year that flavors Lemon Passion Crunch and Chocolate Decadence didn't spike blood sugar in a clinical study will be glad to know that a new study has been completed for the other two flavors.

The results are in: IsaLean Bar Chocolate Cream Crisp and Chocolate Peanut Crunch flavors maintain normal blood sugar levels (normal plasma glucose) when compared to standard controls.

Results from both studies, performed by researchers at Brigham Young University, confirm that all IsaLean Bars flavors are low glycemic—glycemic effect is a measure of how a particular food affects blood glucose (blood sugar) levels (1 & 2).

"Once again, we're showing that a delicious bar can still be good for you," said Chief Science Officer Suk Cho, Ph.D. "IsaLean bars make wonderful weight-management tools because they are high in protein and deliver a complete, nutritious meal in minimal calories."

In the latest study, the scientists used the same cross-over design as the previous study. They tested blood glucose response in each subject after eating the bars or the standard control (white bread) at the same time in the morning on three different occasions with a two-day washout period between tests.

Using internationally accepted standard protocol, the scientists evaluated the effect of the bars on glucose levels over a two-hour period. Each time blood was taken

and analyzed for glucose before the subjects ate the test food and then at intervals (15, 30, 45, 60, 90 and 120 minutes).

The 13 subjects in the study fasted and abstained from rigorous exercise for 12 hours prior to testing; each participant acted as his or her own control by testing the bars or control food (bread) in a random order.

After a meal containing carbohydrates, plasma glucose (blood sugar) levels are expected to rise in a healthy adult and then return to a "normal" range between 5.5 to 6.6 millimoles per liter, or 100 to 120 milligrams per milliliter (mg/ml). The IsaLean Bars maintained normal levels of plasma glucose levels at each testing period (see Figure 5).

"These findings show that it's indeed possible to create tasty, healthy meal-replacement bars that are low glycemic without use of artificial sweeteners," said Director of Research and Science Susie Rockway, Ph.D., CNS. "The area under the curve was significantly less than equal amount of carbohydrate provided in the white bread, which is the gold standard for testing glycemic effects."

Meal replacement bars are an easy and convenient solution to manage portion control. However, the majority of bars currently in the marketplace are comprised chiefly of fat and carbohydrates or are high-protein bars using inferior components and are often sweetened or flavored with artificial ingredients.

IsaLean Bars are superior in quality and nutrient density compared to other bars, not to mention an excellent alternative to high-calorie, nutrient-lacking fast foods.

Each IsaLean Bar contains 18 grams of appetite-satisfying protein from whey for muscle growth or weight loss. The bars are all-natural, containing no artificial flavors or colors.

Finally, Isagenix customers can take comfort knowing that all IsaLean Bars will not compromise blood sugar. As confirmed by these controlled studies, the meal replacements are a delicious, guilt-free pleasure.

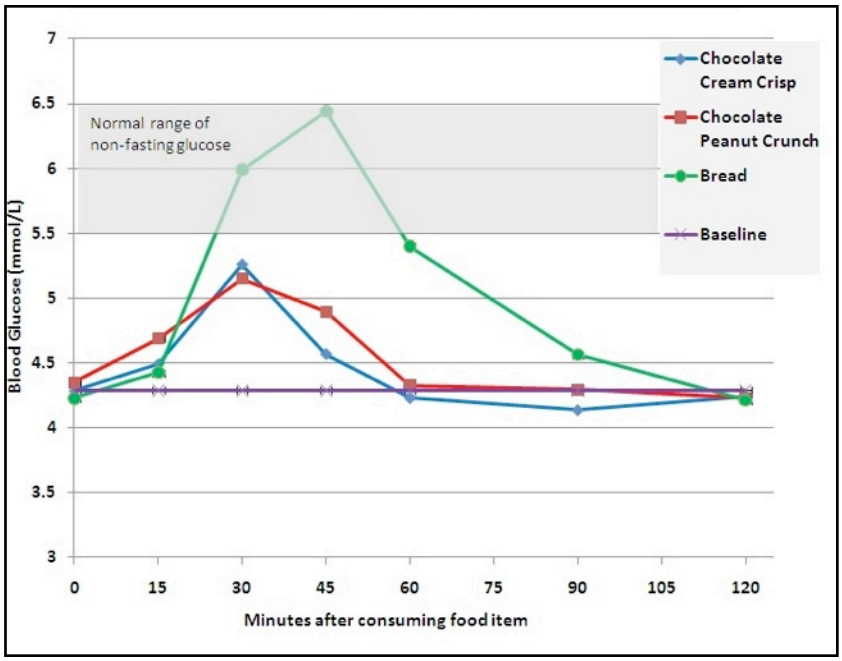

Figure 5. Plasma glucose levels after consuming IsaLean bars or white bread (n=13 subjects).

Editorial

References

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