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# What are the benefits and risks of whey protein?

By Joseph Nordqvist | Last updated Mon 27 November 2017

Reviewed by [Natalie Olsen, RD, LD, ACSM EP-C](#)

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People commonly use whey as supplementation, alongside resistance exercise, to help improve muscle protein synthesis and promote the growth of lean muscle mass. But what is it, and what are the benefits of using it?

Milk is made of two proteins, casein and whey. Whey protein can be separated from the casein in milk or formed as a by-product of cheese making. Whey protein is considered a complete protein as it contains all 9 essential amino acids. It is low in lactose content.

There are many benefits associated with the consumption of whey protein, and researchers are constantly finding new possible therapeutic properties. Here, we explain what the benefits might be, and look at some of the side effects and potential risks.

## Fast facts on whey protein:

- Many of the potential benefits are based on single studies and more evidence is required before making definitive judgment.
- Whey protein is a mixture of beta-lactoglobulin, alpha lactalbumin, bovine serum albumin, and immunoglobins.
- Possible benefits include weight loss and lowering [cholesterol](#).
- Possible dangers include nausea and [headaches](#), but at moderate doses, whey protein is not considered dangerous.

## Benefits

**Aiding weight loss:** In one study of 158 people, published in [Nutrition & Metabolism](#), those who were given whey "lost significantly more body fat and showed a greater preservation of lean muscle compared to subjects consuming the control beverage."

**Anti-cancer properties:** Promising results were published in the journal [Anticancer Research](#) for the use of whey protein concentrate in [cancer](#) treatment. More research is needed.

**Lowering cholesterol:** A study, published in [The British Journal of Nutrition](#), gave whey supplements to 70 overweight men and women for 12 weeks and measured a number of parameters, such as lipid and [insulin](#) levels. They found that "there was a significant decrease in total cholesterol and LDL cholesterol at week 12 in the whey group compared with the casein (group)."



Whey protein, pictured here, is used for many things including muscle building and weight loss.

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**Asthma:** Whey protein could improve the immune response in children with [asthma](#). One small study involving 11 children, published in the [International Journal of Food Science and Nutrition](#), found that children with asthma who were supplemented with 10 gram whey protein twice daily for 1 month had an improved immune response.

**Blood pressure and cardiovascular disease:** Research published in the [International Dairy Journal](#) found that beverages that were supplemented with whey protein significantly reduced [blood pressure](#) in patients with hypertension; their risk of developing [heart disease](#) or [stroke](#) was also lower.

**Reducing weight loss in people with HIV:** A study published in the journal [Clinical and Investigative Medicine](#) found that whey protein may help reduce weight loss among HIV-positive patients.

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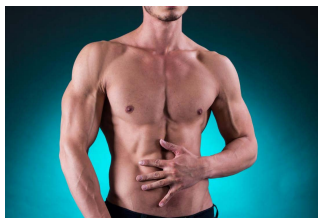
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## Possible dangers

Some people who are allergic to milk may be specifically allergic to whey. In moderate doses, whey protein does not typically cause any adverse events. However, consuming very high doses can cause:

- stomach pains
- cramps
- reduced appetite
- nausea




Dangers of whey protein include stomach pains and cramps when consumed at high doses.

- headache
- [fatigue](#)

Consistent high doses of whey protein may also cause [acne](#). From a nutritional point of view, whey protein is very unusual and does not have a natural equivalent.

Some people believe that there are risks from nutritionally refined foods such as these, because, although they contain a lot of nutrients, the balance is heavily tipped towards protein.

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## Types

There are three primary types of whey protein; whey protein concentrate (WPC), whey protein isolate (WPI), and whey protein hydrolysate (WPH).

Let's look at each of these in turn:

- **Whey protein concentrate** - WPC contains low levels of fat and low levels of [carbohydrates](#). The percentage of protein in WPC depends on how concentrated it is. Lower end concentrates tend to have 30 percent protein and higher end up to 90 percent.
- **Whey protein isolate** - WPIs are further processed to remove all the fat and lactose. WPI is usually at least 90 percent protein.
- **Whey protein hydrolysate** - WPH is considered to be the "predigested" form of whey protein as it has already undergone partial hydrolysis - a process necessary for the body to absorb protein. WPH doesn't require as much digestion as the other two forms of whey protein.

Also, WPH is commonly used in medical protein supplements and infant formulas because of it's improved digestibility and reduced allergen potential.

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## Muscle building and weight loss

Whey protein supplementation along with resistance exercise can help improve muscle protein synthesis and promote the growth of lean tissue mass.

A study published in the *International Journal of Sport Nutrition and Exercise Metabolism* concluded that "whey protein supplementation during resistance training offers some benefit compared to resistance training alone." In addition, "males who supplemented with whey protein had a greater relative gain in lean tissue mass."

Much better gains in strength are associated with whey isolate supplementation compared with casein.

This was demonstrated in another study published in the *International Journal of Sport Nutrition and Exercise Metabolism*, which concluded that in "two groups of matched, resistance-trained males whey isolate provided significantly greater gains in strength, lean body mass, and a decrease in fat mass compared with supplementation with casein during an intense 10-week resistance-training program."

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jeff

DECEMBER 29, 2013 10:05 AM

I have been using whey protein for a while now, results are excellent, my workouts are better, lean muscle very noticeable and fat loss really good. I practice TKD and muscle recovery is real important to me.

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**suma**

JANUARY 4, 2014 9:16 PM

I am using whey protein since from one month because I have gone through VSG operation. And results are good.

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