

Whey Protein: Types and Health Benefits

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Abstract:

Whey is a byproduct produced during the coagulation of milk using acid/rennet or a physicochemical process for the production of cheese, paneer, chhana, chakka and casein. About 80–90% of the amount of milk used to make these goods is made up of whey. About half of the milk solids are found in it, and it contains significant amounts of lactose, protein, and minerals. A portion of milk protein called whey protein provides health-promoting and nutritional benefits. Whey protein can be hydrolyzed by enzymes or fermentation to produce bioactive peptides that support daily activities and control physiological processes.

Keywords: Whey protein, Rennet, Milk solids and Physicochemical.

Introduction:

The liquid whey in cow's milk is separated from the curds by an extraction procedure to create whey concentrated protein extract. After that, it is powdered and flavored to make it easier to eat. Whey protein is available in several concentrated forms tailored to individual needs and preferences for ingestion. Whey protein isolate, whey protein concentrate, whey protein hydrolysate, and hydrolyzed protein are among the several forms of whey proteins. Because of its higher protein content and health benefits compared to natural foods, it has become increasingly popular.

Component of whey protein:

High-quality whey protein is known for its effective absorption and ease of digestion. Nine essential amino acids make up its main constituents, including serum albumin (8%), alpha-lactalbumin (25%), and beta-lactoglobulin (65%). Branched-chain amino acids (BCAAs), such as leucine, isoleucine, and valine, are also present. This protein is necessary for the body to

produce new tissue, support muscular growth, and aid in the healing of injured tissues. Whey protein concentrate (WPC), whey protein isolate, and whey protein hydrolysate are the three main varieties of whey protein supplements.

Three forms of whey protein: hydrolyzed whey protein, whey protein isolate, and whey protein concentrate (WPC).

1. Concentrate of Whey Protein (WPC): With a protein composition ranging from roughly 58% to 89%, WPC is the most affordable of the three whey protein powders. Other ingredients include fat, lactose, and peptides that boost the immune system. The protein concentration can range from 50% to 90%, making it appropriate for beginners starting an exercise regimen, people wishing to grow muscle, and those looking to gain weight.

2. Whey Protein Isolate: Whey protein isolate has a low lactose and fat content (around 5%) and a high protein concentration (usually about 95%). It is perfect for people who want to work out while strictly regulating their consumption of fat and carbohydrates in order to build lean, defined muscles.

3. Whey Protein Hydrolysate: With an extraordinarily high protein concentration of almost 99%, whey protein hydrolysate is the priciest of all whey proteins. The molecules undergo a breakdown process known as hydrolysis, which improves the body's ability to absorb and digest them. Because of its high water solubility and quick absorption, this type of whey protein helps cancer patients' quality of life, strengthens their immune systems, and supports their nutrition. When it comes to whey protein supplements, it is regarded as the best option.

Health benefit of whey protein:

- The abundance of vitamins and macronutrients in whey protein makes it a useful nutritional source with many health benefits. A great source of protein that provides vital elements is low-sugar whey protein. Protein is essential for maintaining healthy bones, building muscle, growing hair, and supporting the body's many organs. Whey protein is also linked to a number of particular health advantages, such as:

Promotes weight loss: Studies have shown that whey protein promotes weight loss by efficiently reducing body fat while maintaining muscular mass. Its high protein composition and low carbohydrate content encourage fat burning. Additionally, whey protein helps regulate appetite by promoting feelings of fullness. It is also low in fat, cholesterol, and lactose, which makes it a good option for people who want to limit their intake of carbohydrates.

Encourages muscle growth: Whey protein is a great tool for growing muscle. It provides the body with essential amino acids required for tissue healing, muscular growth, and muscle formation. It also contributes to the prevention and slowing down of physical deterioration. Whey protein consumption enhances muscle mass growth, a crucial sign of general health, when paired with weight-training activities.

- **Muscle repair:** Whey protein promotes both muscle growth and repair. Muscle breakdown results from the body's energy supplies being depleted by daily activities and exercise. One of the best natural protein sources for muscle growth and repair is whey protein.

Protects heart health: LDL cholesterol (LDL-C), a risk factor for heart disease and stroke, can be lowered by whey protein. Additionally, it has a beneficial effect on blood pressure, which lowers the risk of cardiovascular disease.

- **Treatment of type 2 diabetes:** This chronic illness is typified by high blood sugar levels and compromised insulin production. People with type 2 diabetes can benefit greatly from taking a whey protein supplement before or after a high-carb meal since it helps control blood sugar levels.
- **Reduces inflammation of Body:** Prolonged inflammation is linked to a number of illnesses that negatively impact general health and well-being. Increased blood levels of C-reactive protein are a sign of inflammation in the body. High dosages of whey protein have been shown in studies to decrease blood C-reactive protein, indicating that it may have anti-inflammatory properties.

- **Boosts body antioxidant defenses:** One of the body's main antioxidants, glutathione, is produced in part by whey protein. As an antioxidant, glutathione increases the body's natural antioxidant defenses and lowers the risk of a number of chronic illnesses.
- **Lower blood cholesterol:** Whey protein lowers blood levels of LDL cholesterol (LDL-C), commonly referred to as "bad" cholesterol. A good first step in reducing the risk of heart disease is lowering LDL-C.
- **Reduces hunger:** Whey protein can help people feel full for longer, which is especially helpful for those trying to lose weight and choosing low-calorie foods.

Positive effects on the skin and hair on the surface as well as internal health are among the advantages of whey protein. Whey protein aids in weight loss, muscular growth and repair, and the slowing of aging symptoms. Numerous benefits of whey protein affect both physical and mental well-being. It helps with weight management, slows down the aging process, and strengthens and repairs muscles. Whey protein also supports bone and cardiovascular health and strengthens the immune system. It's crucial to remember that consuming too much whey protein might have unintended consequences, such as weakening of the bones, kidney problems, and digestive problems. To guarantee the optimum results, it is therefore advised to consume it in moderation or to consult a nutritionist.

A basic ingredient that is vital to the body, protein contains a variety of important amino acids that are necessary for many biological processes. When dietary consumption is insufficient, whey protein can be used as a supplement to help satisfy daily protein needs. Whey protein combined with exercise has been shown to be a very successful preventative strategy for general health.

Conclusion:

Whey is a dairy waste and contains valuable nutrients. Supplementing with whey protein increases anabolism throughout the body and may help athletes recover more quickly from



intense weight training.

References:

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