

# Extraordinary Whey Protein

## Loaded with valuable protein fractions to keep you healthy

Only recently has modern science recognized the importance of whey as a nutrient-rich protein source. Centuries before modern knowledge would catch up with ancient wisdom, early science had discovered whey's extraordinary health promoting powers. In ancient Greece, Hippocrates – the father of modern medicine – applauded the health promoting properties of whey. Later, during the 17<sup>th</sup> century Italian Renaissance, two insightful sayings about whey flourished in Florence. "Chi vuol viver sano e lesto beve scotta e cena presto" – circa 1650. Translated: "If you want to live a healthy and active life, drink whey and dine early." Allevato con la scotta il dottore e in bancarotta" – circa 1777. Translated: "If everyone were raised on whey, doctors would be bankrupt." Whey protein is a rich source of high quality, biologically active protein fractions. Compared to other sources of protein like soy, beef, egg, and casein, whey is more bioavailable and contains high

concentrations of essential amino acids including branched chain amino acids (leucine, isoleucine, valine). Whey can offer health benefits to people from

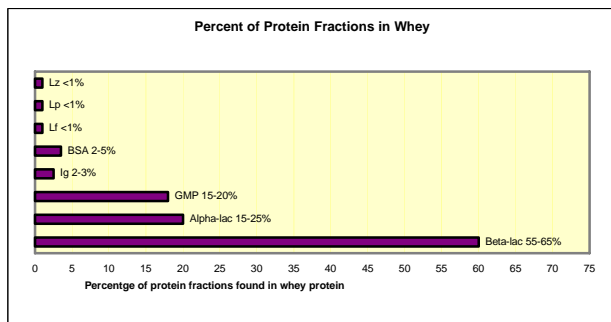
all walks of life. Many biologically significant benefits can be attributed to the protein fractions found in whey.

**Beta-lactoglobulin (beta-lac)** is the most abundant protein comprising 55-65% of whey and has binding sites for minerals and fat-soluble vitamins like vitamins A, D, and E. Research shows that Beta-lac is capable of transporting compounds like vitamin E and vitamin A into the body so they may be utilized. New research shows that Beta-lac is also useful as an antiviral in certain types of infections.

**Alpha-lactalbumin (Alpha-lac)** makes up 15-25% of total whey protein. Alpha-lac is rich in the amino acids lysine, leucine, threonine, tryptophan, and cystine. Alpha-lac is very easily digested and is the primary protein found in human breast milk. The Alpha-lac fraction is often extracted from whey and used as a pure source of protein for high quality infant formulas. Due to its ease of digestion and outstanding amino acid

profile, Alpha-lac is also used in formulations for adults on restricted protein intakes due to disease conditions or other digestive disorders. Recent research suggests Alpha-lac may have anti-cancer properties due to the antioxidant benefits of glutathione. Glutathione is produced from the amino acids in whey and is the "master antioxidant" produced by the body. Glutathione also supports the immune system; protecting you from illness and helping you recover if you become sick. Recent studies have also linked Alpha-lac bioactivities stress reduction due to increased brain serotonin levels and reduced cortisol, and improved mood under stress.

Whey protein contains about 15-20% **Glycomacropeptide (GMP)**. Dental research indicates that GMP helps limit dental plaque and caries by inhibiting bacteria in the mouth. GMP stimulates the body to synthesize and release



Cholestykinin (CCK) in the stomach. CCK is a chemical that tells your brain you are full, so it is a kind of appetite suppressant. By suppressing appetite, the GMP found in whey protein provides a built in weight management component not found in other protein sources. Additionally, studies show GMP as having bifidogenic and prebiotic properties, stimulating the growth of healthy gut flora, helps blood flow smoothly, improves skin cell activity and supports the immune system.

The **Immunoglobulin (Ig)** fractions make up about 2-3% of whey and, as the name implies, imparts immunological activity to whey. Immunoglobulins encompass a group of proteins including IgG, IgM, IgA, and Secretory IgA, where Ig stands for "Immunoglobulin". Infants receive immunoglobulins in breast milk imparting "passive maternal immunity" to the child,

which helps build the immune system. Studies suggest immunoglobulins may also support disease control in adults through similar mechanisms. One study showed that taking whey rich in Ig was beneficial in the treatment of E. coli and certain types of diarrhea.

The **Bovine Serum Albumin (BSA)** whey fraction is high in essential amino acids and makes up about 2-5% of whey. Research shows that BSA helps infection-fighting white blood cells called T-cells, increasing their numbers. BSA also increases antioxidant activity. This increase has been shown to help prevent fats from oxidizing in the body, a key to maintaining healthy cholesterol levels. BSA possesses properties that may be beneficial in controlling blood pressure. Another recent study indicates BSA may fight the incidence of Type 2 (adult onset) insulin dependant diabetes.

**Lactoferrin (Lf)** is an iron binding protein fraction making up less than 1% of whey. Due to its ability to bind iron, Lactoferrin inhibits the growth of bacteria. Because microorganisms require iron to flourish, the iron binding activity of Lf is both antimicrobial and antiviral. There is data indicating that the ability of Lf to bind iron and take it away from bad organisms might also help transport it into our body for valuable health benefits. Recent research has focused on the biological activity of Lf and how it benefits in fighting cancer, toxins, supporting the immune system, wound healing, and anti-inflammatory activity.

**Lactoperoxidase (Lp)** and **Lysozyme (Lz)** make up other fractions found in whey and consist of less than 1% of the protein. The main function of Lp and Lz are to prevent infection by acting as antimicrobial agent. With the ability to kill and prevent the growth of bacteria, Lp and Lz deal with a number of microorganisms but appear to leave biologically important

proteins and enzymes alone. Dental research indicates Lp and Lz can fight plaque accumulation, gingivitis and cavities.

### Perfect protein for all ages

Whey protein is a popular protein source for those seeking improved athletic performance. Whey protein has many benefits above and beyond the athlete. With so many valuable functions attributed to whey, it makes the perfect supplement for everyone from the young to the aged. Add whey protein to your diet and you'll see the difference in your health and well-being.

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