

Product Data Sheet

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Whey Protein-Pro™

OUR TEAM OF NUTRITIONAL SCIENTISTS AS RESEARCHED THE VARIOUS SOURCES OF PROTEIN AND HAS FOUND THAT WHEY PROTEIN IS THE BEST SOURCE OF ESSENTIAL PROTEIN AND AMINO ACIDS

The statements contained in this brochure have not been evaluated by the Food & Drug Administration, nor is this product intended to diagnose, treat, cure or prevent any disease. Information may be useful when working with your health care professional.

The human body needs a constant supply of protein to repair and build living tissue. Protein plays an essential role in the production of hormones, blood hemoglobin, antibodies, new muscle tissue and virtually every metabolic process. In order to maintain existing cells, lost protein must be replaced. In order to gain new tissue, protein must be present.

- Protein compounds are composed of four or five elements: carbon, hydrogen, oxygen, nitrogen and, sometimes, sulfur.
- These elements are arranged by the body into amino acids, the building blocks of protein.
- There are 22 amino acids.
- Of these, 8 are termed essential and 14 are nonessential.

Numerous studies on whey protein demonstrate its potential as a great source of protein (functional peptides). Clinical Studies have shown its effectiveness:

- Improving immunity
- Boosting glutathione
- Reducing stress and depression
- Increasing brain serotonin
- Improving liver function
- Reducing blood pressure
- As an anticancer functional food

(Brink, 2002)

The body cannot repair itself and new muscle cannot be formed if essential amino acids are not present. No protein can be made and the recovery of damaged tissue is hampered. To make up for a deficiency in essential amino acids, the body will break apart incomplete dietary protein and release it back into the blood stream until the missing essential amino acid becomes available. If the essential amino acid is not delivered soon enough, the incomplete protein is transported to the liver where it is separated from its nitrogen base. The amino acids remaining are then converted to glucose (blood sugar) and used as energy or stored as glycogen in the liver and muscle tissue. These leftover amino acids can also be stored as fat.

If all essential amino acids are present, the body can manufacture nonessential amino acids. *Nonessential does not mean, however, that these amino acids are not important.* As medical science has discovered, the unavailability of certain nonessential amino acids can trigger serious disease processes.

During times of stress such as surgery, illness, training or an extreme emotional burden, the body needs more L-arginine, L-glutamine, and L-histidine. Consequently, these three amino acids are considered **conditionally essential**.

More and more studies are identifying the benefits and the biological properties of whey protein as a high quality source of these essential, nonessential, and conditional essential amino acids.

Benefits of Whey Protein	
<i>The daily consumption of whey protein isolate has an impressive list of benefits that continues to grow as more and more research is concluded</i>	
• It reduces symptoms of Chronic Fatigue	• It improves digestive function
• It is antibacterial	• It improves athletic performance
• It is anti viral	• It improves blood pressure
• It has been shown to reduce liver damage	• It reduces gastric mucosal injury
• It improves immune system function	• It assists in weight maintenance

Chronic Fatigue Syndrome (CFS)

While the exact cause is still not fully understood, CFS has been linked to abnormalities found in both hormonal and cellular immunity.

Tests consistently indicate that those diagnosed with CFS have an impaired lymphocyte (T-cell) response. Early research has shown the ability of lymphocytes to react to an immune challenge is directly related to their glutathione status (GSH). (Medical Hypothesis, 1999) GSH is arguably the most important water-soluble antioxidant found in the body. GSH is a tripeptide made up the amino acids L-cysteine, L-glutamine and glycine. It is believed that the constant use of GSH by lymphocytes may lead to cellular GSH depletion and, subsequently, immune failure.

Dr. Bounous, from the Department of Surgery at McGill University, has put forward the hypotheses that “*the competition for GSH precursors over time may lead to muscle fatigue (myalgia) and other symptoms associated with CFS.*” He further states, “*Because GSH is also essential to aerobic muscular contractions, an undesirable competition for GSH precursors between the immune and muscular systems may develop.*”

Whey protein is the most effective way to deliver precursors for GSH synthesis. It has also been shown to raise GSH levels in humans and animals. It has been theorized that whey may be especially effective for people suffering from CSF.

Viruses & HIV

One area of research concerns the ability of whey to suppress the viral load and improve immunity in people with HIV.

HIV infection is characterized by increased oxidative stress and a systemic deficiency of glutathione (GSH). GSH is known to be essential to immunity, oxidative stress and general well being. The amount of GSH present is directly related to lymphocyte reactivity to a challenge, which suggests that intracellular GSH levels are one way to modulate immune function. GSH, sited under Chronic Fatigue, is a tripeptide made up of the amino acid L-cysteine, L-glutathione and glycine. A large amount of available cysteine is used for the synthesis of glutathione (GSH). . Different strategies to supplement cysteine are being used to increase glutathione levels in HIV-infected individuals.

For example, NAC (N-acetyl cysteine) and alpha lipoic acid are well known for increasing levels of GSH.

Whey also appears to be a potent GSH-raising nutrient. (Eur. J. Clin Invest, 2001)

In a double blind study of 25 men and 5 women with HIV infection, two whey formulas were tested. Each participant received 45 grams per day. After two weeks, GSH levels in one group increased by 44%. The second group, however, did not register a significant increase.

This study confirms the fact that not all whey products on the market will have a direct effect on GSH. As always, quality matters.

The researchers concluded, “In glutathione deficient patients with advanced HIV-infections, short term oral supplementation with whey protein increases plasma glutathione levels.” (Eur J. Clin Invest, 2001)

Wasting Syndrome (loss of body weight)

Another major factor for people with HIV is the loss of body weight, known as wasting syndrome. This steady loss of weight usually is accompanied by a significant loss of lean muscle mass (LBM) or body cell mass (BCM). The lost LBM or BCM is strongly correlated with time of death.

Some researchers have used drugs such as human growth hormones (HGH), anabolic steroids and other drugs to attempt to prevent muscle wasting. Some of these pharmaceuticals have been found effective, but they are costly and have serious potential side effects.

Researchers examined the combination of whey protein and progressive resistance exercise (weight lifting) upon body composition and muscle strength in 30 malnourished HIV-infected women. Subjects were randomized, some given just whey, some weight training and some a combination of both whey and weight training. The researchers concluded “that the combination treatment of whey and weight training provided a patient-directed, non-pharmaceutical, low cost approach to augment BCM in catabolic HIV-infected patients.” (Life Extension, 2002)

Blood Pressure

As we age, a loss of arterial elasticity seems to be a primary cause of high blood pressure. Hypertension has also been linked to an enzyme secreted by the kidneys called angiotensin-converting enzyme (ACE). ACE has been classically associated with the rennin-angiotensin system, which regulates peripheral blood pressure.

Usually people with high blood pressure are prescribed drugs such as Zestril™, Capoten™, and Vasotec™, which are referred to as “angiotensin-converting enzyme inhibitors” or ACE inhibitors. By blocking the effects of ACE, blood pressure can be brought under control in the majority of people experiencing hypertension.

Whey peptides, known as lactokinins, have recently been shown to be mild ACE inhibitors. (Nabrun, 1999) While they may not be as potent as prescription medication, they may be useful particularly in mild cases or borderline hypertension.

Researchers reported that “these naturally occurring peptides (functional peptides) may represent nutraceutical functional food ingredients for the prevention/treatment of high blood pressure.” (Life Extension, 2002)

Gastrointestinal System

One potential role of whey protein is the protection of the gastrointestinal system. A recent study investigated the effect of whey protein or casein protein on gastric mucosal injury in rats. (J. Med., 2000) In this experiment, gastric mucosal injury was induced by either alcohol (ethanol) or water immersion restraint stress where the rats are put in water at 28°C for 7 hours.

The whey or casein was given to the rats 30 minutes before the induction of gastric injury. Interestingly, one of the major microfractions in whey (alpha-lactalbumin) was shown to have a “marked protective effect against alcohol induced gastric injury with the same potency as that of the typical antiulcer agent, Selbex™.

According to the research, casein did not show any effect.

The researchers concluded that **these results indicate that Alpha-LA (in a dose dependent manner) has marked antiulcer activity and suggests that Alpha-LA intake may serve to protect against gastric mucosal injury** in part through endogenous prostaglandin synthesis.

This is important for the millions who suffer various gastrointestinal problems.

Hepatitis

In an open clinical study, researchers looked at the efficacy of whey protein versus casein in addressing the symptoms of Hepatitis B or C. Twenty five patients suffering from either Hepatitis B or C were fed 12 grams of either whey or casein in the morning and again in the evening (24 grams total) for 12 weeks.

The following indices of viral hepatitis and liver functions were studied:

- § Serum alanine amino transferase (AAT)—an indication of liver stress and function
- § Serum glutathione (GSH)
- § Serum lipid peroxide levels—an indication of oxidative stress
- § Interleukin (IL-2) levels—A pro-inflammatory interleukin
- § Natural killer (NK) cell activity

After a 12 week study period, the researchers found the following in the Hepatitis B group receiving whey:

- § A significant decrease in serum lipid peroxides
- § An increase in plasma glutathione levels in 5 of 8 subjects
- § A decrease in Interleukin (IL-2) levels
- § A significant increase in natural killer (NK) cell activity
- § And most importantly, a drop in serum alanine aminotransferase (ALT) activity which indicated a reduction in liver damage caused by hepatitis B virus.

Unfortunately, there were no changes in the 17 patients with Hepatitis C. While it does appear that whey's actions would benefit Hepatitis C patients, additional clinical studies are needed.

Whey and Athletic Performance

Whey is known by many athletes as a high quality protein source with a very high biological value (BV) rating. BV is the amount of body protein in grams that can be replaced by 100 grams of protein in the adult diet. Whole egg, egg white and whey are the highest BV proteins available. Unfortunately, a large egg contains 5 grams of fat and does not contain the balance of amino acids optimal for humans. Whey, when properly processed, has virtually no fat and a complete amino acid profile. *Note: When the yolk of an egg is separated from the white, the BV falls to 12 percent.*

Whey may have a direct effect on performance. Many studies have found that oxidative stress contributes to muscle fatigue and some studies have found the use of antioxidants may improve performance. As mentioned previously, GSH is the body's major intracellular, water-soluble antioxidant which is involved in the recycling of other antioxidants.

In a research study, 18 subjects were given either whey or casein for three months. The casein was considered a placebo in this study.

After analyzing the results (Applied Physiology, 1999), researchers concluded that:

- Both peak power and work capacity increased significantly in the whey group. There were no changes found in the casein group.
- Lymphocyte GSH, a marker of tissue GSH levels, increased by over 35% in the group receiving the whey. Again, there was no change in the group given casein.

Researchers reported, "This is the first study to demonstrate that prolonged supplementation with a product designed to augment antioxidant defenses resulted in improved volitional performance."

Are All Protein Sources Equal?

Protein sources need to be evaluated for digestibility, availability, amino acid pattern and **biological value (BV)**. When all indicators are evaluated, it is widely accepted among nutritional experts that Whey Protein Isolate (WPI) is superior to other sources, including soy protein isolate, in promoting health and athletic performance.

The manufacturing process also has a strong impact on protein quality. In order for whey protein to have supreme status, it is important that the process used results in an undenatured protein complex containing a full complement of whey protein including the bioactive immunoglobulin, (IgG), lactoferrin (LF), glycomacropetides, alpha & beta lactoglobulin, lactoperoxidase, lysozyme, and several growth factors including IGF-1, IGF-2, IGF-b.

ULTRA WHEY-PRO™ by New Spirit Naturals is Whey Protein Isolate manufactured by a proprietary ion-enhanced process which prevents the proteins from being denatured and ensures that the finished product contains inherently present biological active proteins. *Not only does New Spirit's process maintain smaller protein micro fractions, but it also improves the biological activity, helps retain clarity, improves mixability and yields a protein content of approximately 85%, or 24 grams of protein per serving.*

ULTRA WHEY-PRO™ has a **carbohydrate content** of approximately 1 gram and an attractively low fat content of less than 1/2 gram of fat per serving.

This is important because whey, in general, is naturally high in fat and lactose (a milk sugar that is hard for many people to digest). Moreover, our scientists have developed technology to remove the lactose with the fat. Once the fat and lactose are removed, the whey protein is hydrolyzed. Hydrolyzation chops the naturally occurring long chains of proteins into short chains.

These short chains, known as branched-chain amino acids (BCAA), provide maximum availability and a protein with an extremely high biological value (BV) of 157.

End notes and additional references

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Brink, Will, *The Faces of Whey.* Life Extension, Jan. 2002 43-48.

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Ultimate Whey-Pro™ The ideal Protein Item #4013

- Virtually lactose free
- Low in calories
- Near zero carbohydrates
- Predigested for better absorption
- Offers the highest content of BCAA, 53% as compared to 20% in regular whey
- Low glycemic index (ideal for dieting)
- Ideal for baking, cooking, mixing into shakes
- Ideal for both the hard-training athlete and the sedentary person who wants to supplement their diet with more protein and less carbohydrates
- High biological value (157 BV), which means that less is needed to accomplish tissue repair, growth, and recovery.

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