



## WHEY PROTEIN

### What is it?

Whey protein comes from cow's milk. It's a combination of proteins that are relatively easy to digest for people living with HIV/AIDS (PHAs). Human milk is also very high in whey protein. Many other components of cow's milk, including the milk protein casein, are removed from whey protein products. Most, or all, lactose—a sugar found in milk that is difficult to digest for many PHAs—is also removed from many products. Several whey protein products are available and some have additional additives such as glutamine, which is the subject of a separate CATIE supplement sheet. Some whey protein products also contain colostrum, a mixture of antibodies produced in milk during the first few hours following birth.

### What do people with HIV use this supplement for?

#### 1. To combat muscle wasting, weight loss and fatigue

Muscle tissue is made up primarily of proteins. Unfortunately, many PHAs experience muscle loss or wasting. This leads to weakness, weight loss, fatigue and thinning of muscular areas of the body. Muscle wasting in HIV is still not well understood and is probably due to a combination of factors including metabolic disturbances, reduced food intake and increased energy needs. One possible solution to this problem is to increase protein intake. Whey protein may be useful because it is an easily digestible source of protein.

Unfortunately, few studies have assessed the use of oral whey protein supplements used by PHAs. One tiny study was conducted in three PHAs who had experienced wasting but whose condition had stabilized in the two months preceding the trial. The subjects' weight returned to healthier levels after three months of whey protein supplementation. In another study combining exercise, anabolic steroids, nutritional counselling and whey protein, a significant increase in body cell mass (a measure of muscle tissue) was seen. Unfortunately, however, it is difficult to assess the specific role each of the above factors played in this improvement. Still, many anecdotal reports do tell of gains in muscle mass in PHAs taking whey protein. According to the American buyers' club DAAIR (Direct Access Alternative Information Resources), a number of clients taking whey protein and glutamine have gained lean muscle mass and experienced improvements in their symptoms of fatigue.

#### 2. To increase glutathione levels

Many of the body's functions rely on a series of reactions called oxidation. Molecules called free radicals are a natural byproduct of oxidation. Free radicals can damage the body in much the same way that rust damages a car. To prevent damage, antioxidants like vitamins C and E can capture these molecules. The body also manufactures its own protection, a substance called glutathione. Studies suggest that PHAs have lower levels of glutathione than HIV-negative people and higher levels of free radicals. Animal studies have demonstrated that whey protein can increase glutathione levels in body tissues. The three participants in the small study referred



to above also experienced glutathione increases in their immune cells.

## Available forms and usage

There are many forms of whey protein available. Some contain colostrum, others contain glutamine and some are primarily lactose free. The removal of lactose may be a particular advantage for PHAs, who are often lactose intolerant. No conclusive evidence exists to help identify the best brand at the moment, although DAAIR produces a chart comparing various whey protein supplements, particularly those most widely used or studied. PHAs using whey protein generally dissolve 20 to 40 grams of the powder a day in juice, milk or water. It should not be dissolved in a heated liquid because heat may destroy some of the proteins. This dose can be divided into several small doses per day.

## Cautions and concerns

Whey protein has few side effects although large doses may cause bloating and flatulence. Increasing your intake of protein may also increase stress on the liver and kidneys. PHAs with abnormal liver enzyme levels should have them monitored regularly.

Many nutrition experts support the idea of a high-protein diet for PHAs. Unfortunately, however, little information exists about the benefits of whey protein, particularly about the merits of competing products. These products vary widely in price and only a few of them are being studied in PHAs.

## Credits

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## References

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