

# The pros and cons of dietary supplements



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Dietary supplements are products that include vitamins, minerals, amino acids, herbs, or botanicals or any concentration, extract, or combination of these as part of their ingredients. You can purchase dietary supplements in pill, gel capsule, liquid, or powder forms. The most commonly used and the superlative supplements Athletes, Dieters and Bodybuilders consume are; Why protein, Creatine Monohydrate, Nitric Oxide, and Glutamine. It's been exceptionally controversial whether these supplements are effective in actually enhancing health, athleticism, and life span. The FDA also does not approve various forms of these dietary supplements so that further more heats the topic. Despite all the criticisms involving the FDA and Teen deaths due to over dosing, supplements have been lab tested in numerous labs and proven effective on countless subjects. I'm going to discuss in detail what each popular supplement carries out and why it is effective, discuss the controversies of Creatine, then finally sum everything all up. All the information found on these supplements i. e; dosages, effects on the body; ect. have been tested in numerous faculties nationwide, and the information I project is strictly based off of factual evidence from labs across the USA. (Schwarzenegger.)

Whey protein is the best source of muscle building protein on the market today. Whey protein is created during the process of turning milk to cheese. Whey protein can also be found in other foods such as fish, beef, and chicken. They also can come from dairy products such as eggs, soy, and some vegetables. Whey protein has a complex strand of cha in amino acid. Basically Whey protein is an essential source of protein regardless of need. (Balik.)

Whey protein provides the body with the necessary building blocks to produce amino acids that are used for building muscle tissue. Studies have been conducted that compare Whey protein to other sources of protein. They have found that Whey protein contains the perfect combination of overall amino acid makeup and in just the right concentrations for optimal performance in the body. So in the end, Whey protein is the dominant form of protein. (Schwarzenegger.)

Whey protein is extremely important for bodybuilders, dieters, and athletes. Since athletes and body builders work out often, protein levels become exhausted. By being a direct forerunner to building muscle and essential amino acids, such as glutamine, the content from high quality Whey protein not only can, but will help one's muscles recover and grow faster by bringing up the levels of protein. Whether someone needs Whey for a recovery shake after the gym or to lose weight, it contains the perfect formula for each situation. (Schwarzenegger).

Training athletes often consumes 25 grams of Whey protein per day. Bodybuilders who want serious gains generally consume 150 grams per day based on their body weight. Extremely high doses of Whey protein are not recommended such as consuming 500 plus grams daily. This will cause the body's liver to be overloaded and you won't get the same benefits as with a consistent lower amount taken three to five times per day. It is recommended for bodybuilders to consume 1.2 grams of protein per pound of lean muscle tissue. Following these guide lines will help form any block of life build muscle tissue effectively and without detrimental side effects, so as long as

you follow the guide lines based on your body type you can't go wrong.

(Schwarzenegger.)

Creatine Monohydrate is, by far, one of the most popular and most effective bodybuilding supplements in use today due to its quick resulting size and strength gains. It is not uncommon to gain 5 pounds or more of body weight within two to three weeks of use with noticeably larger muscles (DeLuca). A high powered energy precursor naturally found in red muscle tissue is known as Creatine. Creatine help recycle the muscle's vital energy source, ATP or adenosine triphosphate. Increased Creatine levels in the muscle help optimize energy turnover so that the person has additional energy for elevated intensity exercise as well as faster recovery, during in addition to after workouts. Creatine is simply an energy booster that will turn you into the energizer bunny when used. (Miller, Kenneth, and Joseph S. Levine 223)

University studies have established that Creatine Monohydrate increased athlete's maximal effort enhanced their endurance capacity and delayed fatigue over those in the control group. Additional research shows that supplementing with Creatine Monohydrate Increased muscle power and torque, so Creatine is awfully effective in all sorts of sports training.

(DeLuca.)

The problem with Creatine monohydrate is that naïve athletes, particularly teenagers, over does on this revolutionary substance. They are under the impression consuming more than the recommended daily dosage of Creatine will mold them into an Arnold Schwarzenegger over night. This is an extremely fatal mistake that can lead to tremendous side effects, such as;

kidney stones, asthma, and in the long run can ultimately cause death.

Because of these grave side effects that create when abused, Creatine has developed an appalling reputation among young athletes, however, when Creatine is taken at its recommended dosage of the loading stage and maintenance stage, no side effects arise. (DeLuca.)

The recommended dosage of Creatine is 20 grams per day for one week during the loading phase and then 3 grams per day during the maintenance phase. The loading phase is not necessary; however, it will just take longer to fully saturate the muscle cells with all the Creatine that it can hold. As long as you don't over dose on this potent substance and follow the guidelines, you will only benefit. (DeLuca.)

Creatine supplementation, in the dosages commonly used, results in urinary concentrations that are 90 times greater than normal. The long term effects of this have not been investigated, but there is possibility for a variety of nephrotoxic, i.e., kidney damaging, events. There is potential for direct toxicity on renal tubules where urine is formed, and for acceleration of kidney stone formation. Recently, a baseball player for the Houston Astros was determined to have suffered from dehydration, kidney stones, and transient kidney damage as the result of Creatine supplementation. Additionally, the deaths of three collegiate wrestlers this past year are being investigated to determine what role Creatine supplementation may have played. (Kreider, R. B.)

Impurities are present in almost every manufactured product, and in some cases even though the product may be considered harmless, the impurity is

not. Such was the case in the late 1980's when an epidemic of cases of eosinophilia-myalgia syndrome, including over thirty deaths, were blamed on a contaminant present in L-tryptophan, an amino acid supplement widely taken as a sleep aid. Creatine, and other such supplements, are not regulated by the FDA. (Kreider, R. B.)

A free form of gas that is produced in the body as is used by the body to communicate with other cells in the body is known as Nitric Oxide. To produce this gas, enzymes in the body break down in the amino acid Arginine. The nitric Oxide is a molecule consisting of one atom of nitrogen and one atom of oxygen. The production of Nitric Oxide occurs when the amino acid L-arginine is converted into L-citrulline through an enzyme group known as Nitric Oxide Synthase. Nitric Oxide is basically a gas that breaks down amino acids. (Balik.)

Nitric Oxide controls the circulation of blood, transmits messages between nerve cells, and is a moderator of inflammation, plus, associated with the process of feeling pain. The popular erectile dysfunction drug sildenafil citrate (Viagra) contains nitric oxide and is responsible for increasing blood flow to the penis. The fact that Nitric Oxide increases blood flow should make it of interest to the body builders as it inhabits the potential to reduce the pain associated with subjecting muscles to extreme stress. Nitric Oxide is effective in helping blood flow delivering essential nutrients such as Whey protein throughout the body and helps reduce inflammation. (Schwarzenegger).

Everyone requires nitric oxide to carry out key physiological processes within the body. From a bodybuilder's perspective, nitric oxide supplementation may prove useful in increasing growth due to increases in blood flow to certain areas of the body, in further more, men suffering from erectile dysfunction may also find supplementing with nitric oxide accommodating (Balik "Your guide to Nitric Oxide" 64). With any amino acid containing product, overdose is a possibility. Dosing with too much arginine can lead to diarrhea, weakness, as well as nausea. Clear dosing guidelines have not been established, so it is best to do what is known as "tolerance mapping". Taking a small dosage for one week, note the benefits and the side effects, and increase the dosage until the benefits are maximized and the side effects minimized. Over time the two will converge and you will hit the optimal dose, so make sure when using NO<sub>2</sub> you take the correct dosage so the side effects won't arise. (Balik.)

The extremely popular amino acid L-Glutamine can be found in protein powders, beans, meats, fish, poultry, and dairy products,. Glutamine is highly in demand throughout the body. It is used in the gut and immune system extensively to maintain optimal performance. 60% of free-form amino acids floating in skeletal muscles are L-glutamine. L-glutamine play san important role in protein metabolism, in addition to it appears to be an incredibly important nutrient for body builders. When supplemented, it may aid body builders to reduce the amount of muscle deterioration that occurs because other tissues that require glutamine will not steal from the glutamine stored in the muscle cells. L-Glutamine is essentially the concrete between the bricks in laying out a bodybuilding foundation. (Schwarzenegger.)

Bodybuilders and those who have been under a lot of stress or trauma can particularly gain from the intake of glutamine. Since bodybuilders use a lot of their glutamine when working out, they are more susceptible to illness, and the immune system relies heavily on this amino acid. Becoming ill or losing lean muscle mass are signs of deficiency. Catabolism or muscle break down can occur if the body robs muscles of glutamine for use elsewhere such as nitrogen transport or maintaining the immune system. Glutamine supplementation is certainly important in keeping muscles building, not deteriorating. (Schwarzenegger.)

Bodybuilders can benefit by taking ten grams of L-glutamine per day, although clinical studies have not determined the precise amount for muscle metabolism optimization. There are no side effects associated with L-glutamine, because it is a nutrient naturally occurring in the body. Reports of an upset stomach are associated with ingesting a great deal of glutamine, using smaller doses is recommended if this occurs. (Schwarzenegger.)

Chemists who are manufacturing these supplements are furthermore expanding their research in regardless to eliminating all the possible side effects, and creating a further potent product. For example, Creatine produced today is a good deal safer to cycle than the Creatine forms used in the 1980's. Also in a few studies conducted by the chemists and scientists around the world, supplements such as NO<sub>2</sub>, and Glutamine, and even Creatine has increased people's immune systems of all ages and even increased the activity and lifespan of the elderly. With these chemists constantly researching and developing better and safer supplements, it will



only be a matter of time before the FDA will start to approve these supplements. (John, M. S.)

In conclusion, Whey protein is an essential building block for lean muscle tissue regardless of what purpose of use. Taking the correct dosage of Whey regarding age, gender, and lean muscle weight, will eliminate the side effects of liver failure. Creatine has been the heated issue of the topic and might be fluctuant supplement however research and development in the supplement has been showing that in fact Creatine is more beneficial than it is harmful, being backed with statistics showing increase in muscle mass and size, strengthening immune systems, increasing strength, and extending lifespan. NO<sub>2</sub> is another supplement that has been aiding people of all age groups in delivering their vital needs of amino acids as well as healthy blood flow. You can't also forget that Glutamine is also an essential substance to use aid for your body in daily maintenance. Finally, as long as these supplements are taken as advised by your doctor or just by following the clinic proven labels, you will only reach the benefits of these wonderful substances.