Top 10 Vitamins for Bodybuilders

Vitamins can be divided into two broad categories: fat-soluble and water-soluble. Fat-soluble vitamins (A,D,E, and K) are so named because they are stored in the body's fatty tissue and do not have to be replenished daily. But be careful: Because they are stored, overdoses of these vitamins can lead to toxicity.

The water-soluble vitamins (with the exception of vitamin C) are composed entirely of the B and B-complex vitamins, including Thiamine (B1), Riboflavin (B2), Niacin (B3), Pyridoxine (B6), Folate, Cobalamin (B12), Biotin and Pantothenic Acid. Because these vitamins are water soluble and thus have difficulty entering fatty tissues, they aren't stored in the body and excessive amounts are excreted. And while this means toxicity is generally not a problem, these vitamins must be continually included in a bodybuilder's diet.

Vitamins:
Cobalamin (vitamin B12)

Although the functions of vitamin B12 are numerous, those important to bodybuilders include carbohydrate metabolism and maintenance of nervous system tissue (the spinal cord and nerves that carry signals from the brain to muscle tissues). Stimulation of muscles via nerves is a critical step in the contraction, coordination and growth of muscles.

Vitamin B12 is available only from foods of animal origin; therefore,it is very important for athletes following a strict vegetarian diet to consult a physician about vitamin B12 supplementation. In fact, B12 shots are popular with countless athletes, vegetarians and nonvegetarians alike, many of who swear it helps them perform better.

Biotin

Although there's a limited amount of sports nutrition research on Biotin, it makes our top 10 list because it has critical functions in amino acid metabolism and the production of energy from many sources. It also may be one vitamin that some bodybuilders have trouble when attempting to maintain an adequate supply.

The reason bodybuilders may have difficulty with Biotin is because it can be blocked by a substance called Avidin. Avidin is found in raw egg whites, a staple for many athletes. In fact, bodybuilders who eat raw egg whites or who don;t cook egg white well enough may experience growth problems with Biotin deficiency if their egg white consumption approaches 20 per day. Eating raw eggs can also lead to a bacterial infection called Salmonella, which can have severe health consequences.

Riboflavin (vitamin B2)

Riboflavin is involved in energy production in three areas:

-Glucose metabolism
-Oxidation of fatty acids
-The shuttling of hydrogen ions through the Krebs cycle. Of particular interest to bodybuilders, Riboflavin is somewhat related to protein metabolism. In fact, there is a strong relationship between lean body mass and dietary riboflavin.

One study by Belko and colleagues found that females needed higher than RDA levels of Riboflavin to return blood levels of Riboflavin to normal after exercise. Another study by Haralambie showed that Riboflavin supplementation improved muscular hyperexcitability (seen in trained athletes). This vitamin may prove to be especially important for athletes.

Vitamin A

Most of us know that vitamin A helps with vision, but bodybuilders need to become familiar with its other benefits. First of all, vitamin A is important in the synthesis of protein, the chief process of muscle growth. Second, vitamin A is involved in the production of Glycogen, the body's storage form of energy for high intensity performance.

The problem with vitamin A status in bodybuilders is twofold. First, American diets are consistently measured to be low in vitamin A. Second, both strenuous physical activity (which disrupts the absorption of vitamin A) and a low fat diet (which renders vitamin A loss in feces) jeopardize the level of

vitamin A in the body. So be especially careful of your vitamin A intake during contest preparation.

Vitamin E

Vitamin E is a powerful antioxidant, meaning it protects the cell's membranes. This is important because many of the metabolic processes that take place in the body, including the recuperation and growth of muscle cells, are dependent upon health cell membranes.

You've probably heard a lot about antioxidants in the news lately, and research continues to validate their importance. Specifically, antioxidants help to reduce the number of free radicals in the body. Free radicals are natural byproducts of cellular respiration, but accumulation of free radicals can lead to cellular changes and destruction (even cancer), rendering cells unable to adapt normally. This means a reduction in exercise induced processes in the cell such as repair and growth.

Niacin (vitamin B3)

This vitamin is involved in nearly 60 metabolic processes related to energy production and ranks high for bodybuilders by virtue of its critical importance in providing training fuel (no train, no gain)! The bad news is that high levels of Niacin have been found in the blood of athletes after exercise, suggesting that athletes may need more niacin than nonathletes. On the other hand, the good news is that even if a diet is low in Niacin, the body can make it from the amino acid tryptophan, which is found in abundance in turkey meat.

Bodybuilders are familiar with the form of Niacin known as nicotine acid, which causes vasodilation and may help a competitor look more vascular before going onstage. But this form of Niacin shouldn't be used during training; large doses of nicotinic acid (50 - 100 mg) significantly impairs the body's ability to mobilize and burn fat.

Vitamin D

Vitamin D plays a crucial role in the absorption of Calcium and Phosphorus. Calcium is necessary for muscular contraction. If adequate stores of Calcium are not available in the muscle, full, hard muscular contractions cannot be sustained. Of course, Calcium is also needed for the integrity of bones, which must support increased muscle tissue and provide an anchor during muscular contraction.

And don't forget about Phosphorus. Phosphorus helps provide quick, powerful muscular contractions, which comprise the majority of movements during weight training. Phosphorus is also required for the synthesis of ATP (Adenosine Triphosphate), the high energy molecule used by your muscle cells during contraction.

This nutrient is high in the list since bodybuilders typically avoid the fat content, e.g., dairy foods. Look for vitamin D fortified foods and get in the habit of drinking at least one glass of low-fat or nonfat milk per day.

Thiamine (vitamin B1)

This B vitamin packs muscle! Thiamine is one of the vitamins required for protein metabolism and growth. It's also involved in the formation of hemoglobin, a protein found in red blood cells that transports oxygen throughout the body (especially working muscles). The transport of oxygen is critical to athletic performance and becomes even more important as intensity and duration of exercise increase.

Making matters more interesting, Thiamine, according to research, is one of the few vitamins that enhances performance when supplemented and is increasingly needed by athletes. Not only that, but Thiamine requirements appear to be directly related to caloric expenditure. The more exercise frequency, intensity and duration increase, the more Thiamine is needed.

Vitamin B6 (Pyridoxine)

Protein metabolism, growth and carbohydrate utilization are all made possible in part by the presence of vitamin B6. Like Thiamine, studies on Pyridoxine in athletic performance show a definite increased need for athletes and possible performance enhancement from supplementation.

The vitamin makes the number two spot for a very good reason: It's the only vitamin directly tied to protein intake. The more protein you eat, the more Pyridoxine you need. Of course, this, coupled with Pyridoxine's role in growth, had profound implications for bodybuilders, though it is generally not

known or discussed in sports nutrition circles.

Vitamin C (Ascorbic Acid)

Surprised? Most athletes don't realize how important vitamin C status is to success. As the most widely studied vitamin in sports nutrition, Ascorbic acid has proven itself to be valuable to bodybuilders in many ways.

First, vitamin C is an antioxidant, protecting muscle cells from free radical damage, thus enhancing recovery and growth.

Second, Ascorbic acid is also involved with amino acid metabolism, especially the formation of Collagen. Collagen is the primary constituent of connective tissue, the stuff that holds your bones and muscles together. This may not seem important, but as you lift heavier weights, the stress you put on your structure becomes tremendous. If your connective tissue is not as healthy and strong as it should be (a problem often seen in steroid users), risk of injury dramatically increases.

Third, vitamin C helps in the absorption of Iron. Iron is necessary to help Oxygen bind to hemoglobin in blood. Without adequate oxygen transportation in blood, muscles are robbed of precious oxygen and performance is greatly reduced.

Fourth, Ascorbic acid also assists in the formation and release of steroid hormones, including the anabolic hormone testosterone.

Finally, vitamin C is perhaps the most water soluble vitamin there is. In other words, it diffuses very rapidly in water. Since a muscle cell is mostly water, the more muscular an athlete becomes, the more vitamin C disperses and the lower the concentration of this critical substance becomes in body tissues. So vitamin C requirements are greatly increased for bodybuilders.

Bodybuilders are notorious for overlooking these key components of growth and performance. Do yourself a favor and analyze your diet to ensure you're taking in enough of the vitamins outlined above. Remember: You could have the best diet in the world in terms of calories, fat, etc, but if you're lacking adequate levels of these metabolic spark plugs, you're shooting yourself in the foot.

About the Author

Walter Zinsmeister III runs a Body Building website that provides body building workout plans, recipes and articles to keep the body in shape and healthy.

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