

Supplements: The Good, the Bad and the Ugly

Overview

Here's a brief run-down of some of the more familiar supplements you might be taking or are considering taking.

Supplements like glucosamine, chondroitin, iron, zinc, and magnesium provide important benefits to runners, particularly if their diets are vegetarian or contain a lot of highly processed foods.

However, other so-called "miracle" supplements like creatine, pyruvate, and ephedra are not only a waste of money, they could also be dangerous to your health.

Glucosamine & Chondroitin

Glucosamine is a form of amino sugar that is produced in the synovial fluid in your knees. It's believed that glucosamine helps form, maintain and repair cartilage, which is why runners take it to stave off knee problems such as osteoarthritis. Runners also use it to control pain, and slow down or reverse the effects of aging on their joints, a process that some feel is hastened because of the pounding our bodies endure when we run.

Chondroitin is also produced naturally in your body. Chondroitin is a complex carbohydrate found in the connective tissue of all mammals. Chondroitin makes cartilage spongier, which allows it to change shape easily so it can better absorb shock.

Glucosamine and chondroitin are complimentary compounds that are usually used together to help enhance cartilage regeneration. They're both derived from animal tissue. Glucosamine is usually extracted from crab, lobster or shrimp shells, while chondroitin is obtained from animal cartilage, often shark.

Recent studies show that runners who use glucosamine and chondroitin are able to control pain and slow down cartilage degeneration. How much of each you should take depends on body weight. If you weigh under 120 pounds, 1000 mg/day of glucosamine is suggested, and 800 mg/day of chondroitin. Runners weighing 120-200 pounds should take 1,500 mg/day of glucosamine and 1,200 mg/day of chondroitin, and it's recommended that those over 200 pounds take 2,000 mg/day of glucosamine and 1,600 mg/day of chondroitin.

Some people have been known to develop side effects such as gas, soft stools or diarrhea, nausea, and heartburn when taking these supplements; therefore it's a good idea to take glucosamine and chondroitin with food. If you have allergies to shellfish, make sure that the supplements you're taking aren't derived from shrimp or lobster. You should always let your physician know what supplements you're taking, as they can sometimes interact with medications. Finally, as with any supplement, you should purchase glucosamine and chondroitin only from well-established and well-known companies with a reputation for producing quality products.

Iron

Iron is an important trace element that runners and other athletes often take either alone or in a combination multiple vitamin and mineral mix. It helps transport oxygen in the blood, and also plays a role in normal tissue function. If your iron levels are low, your endurance will suffer, and if levels drop too low, you may develop anemia.

Because our bodies have no way of excreting excess iron, our ability to absorb this element is limited. Although we can get iron from certain foods, people often eat foods containing iron that have low absorption rates. Vegetarians in particular often have difficulty getting adequate amounts of iron.

Iron supplements are a good way of guaranteeing that you're getting enough iron, especially if you're a vegetarian, a woman of childbearing age, or a distance runner. Although scientists are still not sure exactly why, distance runners often exhibit low levels of iron and ferritin (where iron is stored.) If blood tests indicate that you need more iron, you should take no more than 50 milligrams every two or three days, rather than every day, as iron can cause stomach upset such as nausea and constipation.

Zinc

Zinc helps injuries heal more quickly, and aids in keeping the immune system strong. Distance runners, particularly if they're vegetarians, have been observed to have lower zinc levels than what's considered normal. When a runner's zinc levels are lower, he or she will have trouble maintaining their weekly mileage, which in turn may lead to poor performance.

Some studies have prescribed high doses of zinc (as much as 135 milligrams a day) for runners exhibiting lower than normal zinc levels. Over a period of time these runners did develop more muscular strength, their endurance improved, and they were able to run more miles. However, researchers believe that doses this high over long periods of time, may result in toxicity, and an inability to properly absorb other nutrients.

Because zinc is an important nutrient, and runners who are vegetarians often don't get enough in their diets (zinc is found most commonly in meat, liver, eggs, and seafood), taking 15 milligrams of zinc per day can be beneficial.

Magnesium

Magnesium is very important in metabolism; it's also an important component in the way our nerve and muscles cells interact electrically. Athletes who work out regularly in hot, humid weather may lose large amounts of magnesium in their sweat, which could lead to poor performance. Studies on athletes with blood magnesium levels at the low end of normal have shown that high doses of magnesium can improve strength and endurance. However, most athletes and runners need no more than 300 milligrams per day.

Chromium Picolinate

Chromium helps your cells use glucose. If you have too little chromium, you may develop hypo- or hyperglycemia, extreme fatigue and sugar cravings. Some researchers

also believe that people who engage in intense physical activity, such as distance running, may be at risk for a chromium deficiency. Eating sugary foods in excess may also cause a deficiency.

Some athletes, primarily bodybuilders and football players, take chromium picolinate to decrease fat and increase muscle mass. Early studies indicated that in fact, large doses of the supplement would help these athletes put on more muscle mass and lose fat. However, subsequent studies have not proven this to be true. Studies also have not shown chromium picolinate to be an ergogenic aid. Because chromium picolinate is not well absorbed, there's little danger of it building to toxic levels in the body.

Creatine

Creatine is one of the supplements that's referred to as an ergogenic aid. Ergogenic means that the substance supposedly enhances performance. More and more runners are taking creatine in the belief that it will improve their racing times, give them more energy, and allow them to train faster. In reality creatine has only a placebo effect, in other words runners think that the substance is working, when it really is having no effect at all.

Creatine is made from three amino acids. When the acids are joined with phosphorus, they form a substance called phosphocreatine. Phosphocreatine serves as a storage area for maintaining adequate levels of adenosine triphosphate (ATP) in the body, which is a type of fuel used by cells during short repeats of high-intensity exercise. Some people believe that by saturating their muscles with creatine in supplement form, they can improve their ability to maintain ATP levels, and stave off fatigue. Weight lifters often use creatine, as do sprinters and swimmers.

To date there have been no scientific studies that prove creatine provides any real benefit. And one study by British researchers suggests that using creatine may cause kidney damage. In other studies conducted with elite female athletes, women who were not taking creatine believed that they were faster and had more energy, despite the fact that they were drinking a placebo. Conversely, some of the athletes who were taking creatine, showed no improvement, and although others showed some gains, there was no absolute improvement in either power or endurance among any of the study participants.

Some nutritionists believe that because creatine does occur naturally in some foods, most notably beef, pork, poultry, and fish, athletes should make sure that they're consuming enough of these foods. Vegetarian athletes should make sure that they're getting enough protein and overall total calories to sustain their energy levels. In fact, a decreased caloric intake is one of the primary reasons athletes feel tired and lacking in energy and power. Since there's no scientific evidence that creatine helps increase energy levels, and it may in fact be harmful, it's not advisable to take this supplement.

Pyruvate

Pyruvate is a compound produced during glycolysis-the breakdown of glucose. When you exercise at a high intensity level, pyruvate converts to lactic acid, which causes the burning in your legs during a hard workout. Advertisers and manufacturers promise that

pyruvate will improve aerobic endurance and burn fat. However, studies have not proven these claims to be true. No studies have been done on athletes or runners, in fact all the studies on this supplement have been done on untrained and/or obese, bed-ridden subjects, who had much room for improvement. Also, the doses used in the studies were extremely high, much higher than what is recommended for the average person. When given large doses, the subjects complained of increased gas and intestinal distress. Smaller doses relieved the problems, but smaller doses had no effect on endurance, or the ability to burn fat.

Ephedra (Ma huang)

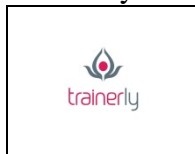
Proponents of ephedra claim that it causes weight loss, increases energy, and improves performance. Because it's a stimulant, there is some truth to these claims, however ephedra can be very dangerous. People with heart conditions, diabetes, high blood pressure and thyroid conditions should never take ephedra, as it increases blood pressure and heart rate. Even fit athletes should not take the risk of using this supplement, as the side effects can be detrimental to performance. Those side effects include extreme dizziness, tremors, and insomnia. The Food and Drug Administration reports that during the past few years hundreds of people have suffered adverse reactions to this supplement, particularly when it's combined with caffeine. There have also been several reported deaths.

The Bottom Line

Be wary of advertisements that promise improved performance, increased muscular strength, and weight loss. If something sounds too good to be true, it usually is! Supplements like glucosamine, chondroitin, iron, zinc, and magnesium provide important benefits to runners, particularly if their diets are vegetarian or contain a lot of highly processed foods. However, other so-called "miracle" supplements like creatine, pyruvate, and ephedra are not only a waste of money, they could also be dangerous to your health.

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