Dear Alice,

I lift weights for strength and body conditioning. I've taken a supplement called creatine monohydrate. I'd like to know if there are any known adverse effects of long term (several months or years) usage of this supplement.

Answer

Dear Reader,

Creatine is a substance manufactured in the human body by the liver and kidneys or obtained from meat in the diet. It is present in muscle, nerve, and sperm cells. In muscles, creatine is used to form phosphocreatine, which can be used to supply energy needed for muscle contractions. It has been suggested that by increasing creatine in the diet, one may increase the amount of phosphocreatine in the muscle, which would then provide a greater availability of high energy phosphate for energy production during muscle contraction. It also may cause the muscles to retain water, a proposed mechanism for the "bulking" effect of the supplement.

No one really knows how much creatine is too much. Some people experience muscle cramps, electrolyte imbalances, fever, or gastrointestinal symptoms like nausea and diarrhea when they take creatine. Long-term effects are much less well-studied. While there is little conclusive evidence for adverse effects, people who have liver or kidney problems or who take diuretics should avoid taking creatine because of the theoretical complications. People with diabetes or who take either medications or supplements that affect blood sugar should also use caution. If you start to notice any side effects, you should stop taking creatine and see your health care provider.

As for benefits, creatine can enhance performance for short bursts of anaerobic activity, like weightlifting. However, people doing aerobic activities, like running or cycling, probably won't see any improvement.
The amount taken in through commercially marketed supplements is far greater than one would be able to ingest via food. Some regimes call for a loading period—perhaps 20 to 25 grams for five days, followed by daily doses of about 5 grams. Non-meat eaters (vegans) may respond better since their natural creatine stores are probably lower than meat-eaters. Since any long-term effects from these high levels are uncertain, your best bet is to let your health care provider know that you take creatine. That way, if you ever do experience side effects, he/she will be better able to help you decide whether to keep pumping up.

Alice!

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