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## Vitamin D: Let The Sunshine In...

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by Beth Cranston

Robert Deutch

Laboratory for Elite Athlete Performance, Georgia State University

Dan Benardot, PhD, RD, LD Director

National Team Nutritionist, USA Gymnastics

It should be clear to everyone that a well-rounded lifestyle and good nutrition is critical to gymnastics performance. The 'good nutrition' part of this equation involves eating a wide variety of foods that are high in complex carbohydrates, moderate in protein, and relatively low in fat. The purpose of eating a wide variety of foods is to assure that the athlete is exposed to all the nutrients critical to health and performance. One of the nutrients we're concerned about is calcium, because it is needed for strong bones. Inadequate calcium intake is associated with weak bones that are more prone to development of stress fractures, an injury all too common in gymnastics. But having enough calcium by itself is not enough. Vitamin D is needed to assure that the calcium being consumed is properly absorbed into the body.

Calcium, besides its well-known importance in bone health, is also an important component of the blood. Vitamin D controls the way the body uses calcium by assuring that the blood level of calcium stays constant. If dietary calcium is inadequate, then calcium is taken from the bones to keep the blood level constant, and if dietary calcium is adequate, then vitamin D increases the absorption of calcium and puts more in the blood. The extra calcium in the blood is used to build bones. This is especially important when bones are developing and growing during childhood and young adulthood. Here's the problem: If you have enough calcium vitamin D, then it's as if you weren't eating calcium because you won't absorb it. This can lead to poor bone development and increase the risk of stress fractures. Therefore, it is critical that gymnasts get plenty of vitamin D to help absorb the calcium, so critical to strong and healthy bones.

There are only a few foods that contain significant amounts of vitamin D. The most commonly consumed vitamin D containing foods are fortified dairy products. Four cups of vitamin A & D milk provides 100% of the daily requirement for vitamin D. Other foods, such as salmon, tuna, and fortified breakfast cereals also contain vitamin D, but to a lesser extent than fortified dairy products. A big problem with dietary intake of vitamin D is that it is a fat-soluble vitamin. That means that vitamin D lives in fat droplets. Since gymnasts commonly restrict fat intake, vitamin D is also restricted. Taking vitamin D supplements is not a good idea, because vitamin D is the most potentially toxic of all the vitamins. Fortunately, there is another important source of vitamin D: the sun.

Ultraviolet light from the sun changes a form of cholesterol in your skin to vitamin D. The vitamin D is then transported to the parts of the body that need it. The amount of sun exposure needed to produce vitamin D depends on several factors, including skin color, age, and climate. People with dark skin, older people, and people in northern climates require more time in the sun than others to produce vitamin D. Due to these factors, making a recommendation for how much sun exposure is needed to produce vitamin D is not possible. However, we do know

that gymnasts tend to get very little sunlight exposure because of school and the indoor gymnastics training they do. Figuring out how to occasionally practice some of the gymnastics skills outside the gym, may do much to assure that vitamin D status is sufficient to develop strong and healthy bones.

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