

Ask an Expert

Vitamin D —

What it is, how it works

By Dr. Pia Fenimore, M.D.

Vitamin D is a hot topic these days among parents and pediatric providers. You can get varying advice about this supplement, so I thought I should help make this little bit clearer.

Let's start by talking about what this vitamin is and how it works.

Vitamin D is a substance found naturally in some dietary sources (mostly oily fish and egg yolks) and is produced by the skin through UVB ray absorption from sun exposure. It is also found in foods that have been "fortified" with vitamin D, which is milk, cheese, yogurt and cereals. To summarize, you get your vitamin D either from eating it or from being in the sun.

Vitamin D is critical for the absorption of calcium and phosphorous, which is how we make and remodel our bones. Children and adults without enough vitamin D develop rickets or other forms of bone demineralization.

Interestingly, in the last few years it has become clear that it's not just bones that benefit from vitamin D: This nutrient has been found to be important in the prevention of immune, cardiovascular, and cancer type diseases. With these new discoveries, scientists have pushed health care providers to focus on this vitamin as a vital substance for wellness.

Vitamin D deficiency is a relatively new concern. It's the result of three modern time changes:

1. With the discovery that UV exposure causes skin cancer, we are protecting our children from sunlight more aggressively.
2. Studies show that Americans spend 93 percent of their time indoors. Our modern lifestyle is an indoor one.
3. Our diet has changed. Our children, particularly young adults, eat/drink less dairy, and

other fortified products; and oily fish is certainly no longer a staple!

Through much trial and error the American Academy of Pediatrics has determined that children ages newborn to adolescence need 400 IU of vitamin D per day. So who needs supplementation? If you look at the AAP recommendations, they say pretty much everybody, but they come down the strongest on breast-fed infants.

I struggle with telling a breast-feeding mother that her milk is not good enough. There is no doubt in any pediatrician's mind that human milk is the best nutrition source for human babies. Not all mother's are able to breast-feed, but when it's possible, it's the best.

However, there is not enough vitamin D in breast milk to provide the 400 IU per day that infants need. Interestingly, supplementing Mom does not produce a higher level in that mother's milk, unless done at dangerously high doses. So you have to supplement the infant. Since we know that early sun exposure increases a person's risk of skin cancer, and babies are not eating fortified foods, we are forced to say that a supplement is necessary for a breast-fed child. Formulas are fortified with vitamin D, so if your child is formula-fed, you are covered.

As children get older this becomes a bit more foggy. The amount they need (400IU) stays the same, but how they get it can change. Older children are typically ingesting foods that provide them with vitamin D, and they are usually getting some sun exposure. Let's talk about these sources individually.

Full-body sun exposure of a light-skinned adult for 15 minutes will produce 10,000-20,000 IU of vitamin D within 24 hours! Many things affect the way your child will produce

vitamin D from sun exposure: skin pigmentation, amount of body mass exposed, cloud cover, pollution, season, and sunscreen. Obviously, you do not want your child getting sunburns in the name of vitamin D production! However, it is just one more reason to go outside and play. And a reminder that life is about balance — in this case, balance between sun protection and the benefits of the sun.

One teaspoon of cod liver oil has enough vitamin D for a child for one day. Problem solved right? Yeah, right. There are not very many kids who will eat



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the oily fish products that have vitamin D in them. A child needs to drink 32 ounces of fortified milk per day to get the needed amount. That's a lot of milk; too much actually for other dietary concerns. A half cup of dry fortified cereal has 40 IU; same for one egg. You can read labels and find sources, and, if you are

eating a healthy diet, it's not hard to get up to 400IU per day. So probably older kids need a supplement unless are not good eaters.

If you decide your child needs an external source of vitamin D, you can put vitamin drops or chew over the counter. They come in many different brands/forms. When purchasing, be wary of combination products. A really just needs vitamin D stuff can cause side effects avoid that. In an older child can buy a combo product calcium, but that's probably you need. And avoid vitamins that have lots of sugar, or sugar substitutes.

Dr. Pia Fenimore is a contributor to the Lancaster Pediatric Association. Ask an Expert feature

Vitamin D linked to stronger bones in girls

BY SHARI ROAN
Los Angeles Times

LOS ANGELES — Vitamin D may be helpful in protecting highly active preteen and teen girls, such as those who play sports, from stress fractures, researchers reported Monday.

Health

The study was surprising because calcium has long been considered the nutrient most vital to bone health in children. But, in developing children, vitamin D intake may matter more.

Researchers analyzed data from 6,721 girls ages 9 to 15 at the start of the study. The girls' intake of calcium, vitamin D and dairy products was recorded along with stress fractures, which are common sports-related injuries. The girls were followed for seven years.

During that time, almost 4 percent of the girls developed a stress fracture. Dairy and calcium intake seemed to bear no relationship to the risk of a stress fracture. However, girls with the highest vitamin D intake had a 50

percent lower risk of stress fracture compared with the girls who had the lowest intake. This was especially evident among girls who participated in at least one hour a day of high-impact physical activity. They had a 52 percent decreased risk.

Surprisingly, high calcium intake was associated with a doubling of the risk of stress fracture. However, the authors, from Children's Hospital Boston, said that this "unexpected finding" should be further investigated.

Soda intake did not alter the fracture. The risk was also unchanged when calcium and vitamin D from food only (excluding supplements) were considered.

In 2010, the Institute of Medicine recommended adolescents consume 600 international units per day of vitamin D — up from the previous recommendation of 400 IU per day.

The study was published online in the Archives of Pediatric and Adolescent Medicine.