PREVENTION

Low Vitamin D & Autism: Is there a Link?

The news is full of new research uncovering exciting information about Vitamin D, the "sunshine" vitamin. Dr. John J. Cannell, Executive Director of the Vitamin D Council and a forensic psychiatrist in California, is convinced that Vitamin D deficiency plays a role in the autism epidemic.



What is Vitamin D and How Do We Get It?

Vitamin D is a fat soluble vitamin that is produced naturally as D3 or cholecalciferol (pronounced koh·luh·kal·sif·uh·rawl) when sunlight hits the skin. Most people used to get sufficient Vitamin D3 from sunlight. Today, Cannell believes that vitamin D deficiency is rampant because of increased use of sunscreen to prevent skin cancer, coupled with a move away from an agrarian society. A "perfect storm" for vitamin D deficiency.

With just 10-40 minutes of unprotected summer sun our bodies produce about 20,000 units of vitamin D. That's the same as 200 glasses of milk! The body makes what it needs, accumulating and storing significant reserves in the tissues, liver, spleen, bones, and brain; it can be then be available during darker months. Vitamin D is fat soluble, requiring sufficient "good" fats in the diet for storage.

In climates lacking in bright sun, people eat Vitamin D rich fatty fish such as mackerel, cod and salmon. Very few other foods contain natural Vitamin D. One, shiitake mushrooms may increase vitamin D levels. Some milk products, orange juice and breakfast cereals are fortified with synthetic Vitamin D, and less easily absorbed.

What is the Role of Vitamin D?

Vitamin D acts more like a neuro-steroid hormone than a vitamin, directly affecting brain development and regulation of behavior. It is crucial in the functioning of the immune system. Recent research suggests that vitamin D offers neuro-protection, anti-epileptic effects, immuno-modulation of several brain neurotransmitter systems and hormones. It is important in autism because it enhances the body's ability to fight inflammation and destroy dangerous microbes.

How Much Vitamin D Is Necessary?

The American Academy of Pediatrics recently doubled the recommended daily vitamin D allowance for children to 400 IUs per day. The Vitamin D Council says the new guideline is still too low, suggesting 1,000 IUs per day for children 2 years old and younger with little sun exposure. Today, many supplement 2,000 IU per day; some believe that we need as much as 5,000 IU daily!

The ideal amount of vitamin D depends upon various factors. Those with chronic and autoimmune conditions could require higher levels. Maybe the high autism incidence among Somalis living in Minnesota is due to the possibility that their bodies are programmed to the extremely high levels from the strong sun in their native land and lacking in their new home. Researchers are looking at this finding closely.

The "Vitamin D Deficiency Theory" of Autism

Evidence supports a vitamin D deficiency theory of autism. Vitamin D during gestation and early infancy is essential for normal brain functioning. In 2001 researchers concluded that vitamin D deficiencies in pregnant women should be considered a risk factor for neuro-developmental disorders such as autism. The importance of prenatal, neonatal, and postnatal vitamin D supplementation cannot be underestimated.

Calcitriol, a form of D3, is different from all the body's other steroid hormone systems. While other steroids are produced directly from the body's natural store of cholesterol "precursor" compounds, the amount of calcitriol is completely dependent on having enough precursor 25-hydroxyvitamin D present in the first place. Brain levels of activated vitamin D directly depend on the amount of vitamin D a pregnant mother makes in her skin or puts into her mouth, to act as a "molecular switch" in brain tissue, turning on genes that influence her baby's brain development. About 1,000 genes are already known to be targets of calcitriol activity, and that number is growing fast.

Cannell's dramatic conclusion is that "Human behavior, be it the step into the sun, the step to the supplements, the step into the shade, or the step to the sunscreen, determine brain calcitriol levels." In the case of the human fetus, brain calcitriol levels are directly linked to very early cognitive development, with tremendous implications for the developing baby's brain.

Vitamin D and Flu

Many health care practitioners are suggesting high doses of vitamin D along with probiotics to combat viral infections like the flu. They argue that if one examines the demographics of children who die from the flu, almost two-thirds had epilepsy, cerebral palsy, or other neuro-developmental conditions associated with vitamin D deficiency. Exacerbating the problem further: many of these kids were taking anti-convulsant drugs, known to leach Vitamin D.

Testing for Vitamin D Deficiency

Know your vitamin D level! Anyone with recurrent or chronic illness should obtain a baseline measurement. Make sure your whole family has blood levels of Vitamin D above 50 ng/ml.

The most common way to have your vitamin D level tested is to see a doctor. But a new \$65 at-home test **is available through the Vitamin D Council**, which has partnered with ZRT Laboratory. The test measures 25-hydroxyvitamin D or 25 (OH) D, an inactive form of vitamin D. Stick a finger or heel to get a few drops of blood and mail the kit back. The results will be mailed to you without involving a physician.

Prevention is the Medicine

To prevent Vitamin D deficiency, walk with face, hands and arms exposed to the sun, three or more times a week, for between 10 and 20 minutes, depending on skin tone, the season, and the distance from the Equator. Feed your family cod liver oil and shitake mushrooms! This insidious deficiency is tragically missed in many disease diagnoses. Thankfully, it is the single most cost-effective treatment. Check levels often, replenish and maintain!