The Connection Between Vitamin D and Depression

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Are Vitamin D and Depression Connected?

Vitamin D plays an important part of bone health, and it may also contribute to depression. Studies have shown a strong connection between vitamin D deficiency and depression.

What Is Vitamin D Deficiency?

Vitamin D is known as the sunshine vitamin. It helps to keep your bones healthy and strong, promotes cell growth and benefits your immune function.

Our bodies get most of the necessary vitamin D from sun exposure. You can also get vitamin D from vitamin D supplements and some foods, including dairy products, liver and fatty fish.

A person can develop a deficiency when their body doesn't absorb vitamin D properly. Severe deficiencies can cause bone deformities. thinning of bones, and lead to additional health problems. including osteoarthritis and other bone diseases.

The Vitamin D and Depression Connection

Vitamin D is responsible for regulating the pathway of serotonin, the molecule that regulates mood.

One 2013 meta-analysis reported in *The British Journal of Psychiatry* found that study participants with depression also had low vitamin D levels. The same analysis also found that people with low vitamin have a higher risk of becoming depressed.

Another meta-analysis – this one from 2014 – of over 3,000 study participants found that vitamin D supplementation was effective in reducing depressive symptoms in people with clinical depression. Clinical depression, also called major depression, is characterized by a persistently depressed mood that causes significant impairment to one's daily life.

Vitamin D deficiency has also been linked to seasonal affective disorder (SAD). SAD is characterized by low energy and motivation levels and depressed mood during the winter months.

Researchers believe SAD is caused by low levels of serotonin and/or the sleep hormone, melatonin, both resulting from reduced daylight. One study, reported in the journal, *Psychopharmacology*, finds that vitamin D supplementation can help improve SAD symptoms.

A very recent review of multiple studies on depression and vitamin D deficiency reported in the journal *Psychiatria Polska* confirms that vitamin D supplementation in people with depression can have an antidepressant effect. And continuous supplementation may also reduce the risk for recurrent depression.

Risk Factors for Vitamin D Deficiency

Limited exposure to sunlight, not getting enough vitamin D from food sources, having darker skin, getting older and geography contribute to low vitamin D levels.

Sunlight is the primary source of vitamin D for most of us. If you stay out of the sun or use too much sunblock, you may develop a vitamin D deficiency.

There are few foods rich in vitamin D. But eating more fatty fish (i.e., salmon and mackerel), fish liver oils, vitamin D fortified foods (i.e., orange juice and cereal), and animal fats can help to maintain vitamin D levels.

People with darker skin have greater levels of melanin, which reduces vitamin D production in the skin. One 2006 study from the United States, reported in *The Journal of Nutrition,* found vitamin D deficiency was more common in African American populations than any other race.

As we get older, our skin starts to lose its ability to process vitamin D. Moreover, older adults don't spend enough time in the sun and may not eat enough vitamin D rich foods.

Geography may also play a part in vitamin D deficiency. One study reported in *The Journal of Nutrition* finds people living in northern latitudes, such as the northern part of the United States, have an increased risk for lower vitamin D.

Symptoms and Diagnosis

The symptoms of vitamin D deficiency may include:

- Achy joints
- Extreme fatigue
- Weakness and pain in the muscles
- A sweaty forehead
- Breathing problems
- Depressed mood
- Hypertension

Symptoms of depression may include:

- Overwhelming feelings of sadness, hopelessness and helplessness
- Thoughts of suicide or death
- Sleep problems
- Loss of interest in activities once enjoyed
- Extreme fatigue
- Unexplained weight loss or gain, and appetite problems
- Cognitive problems, including with concentration and forgetfulness
- Headaches and other pain problems with no known source
- Anxiety

A doctor can diagnose vitamin D deficiency with a simple blood that measures the amount of vitamin D in the blood.

Diagnosing vitamin D is a bit more complicated, and bloodwork is not an option. Diagnosis usually involves a physical exam and a serious of questions.

Management

Depression related to vitamin D deficiency can be resolved by getting more sunlight, adding more vitamin D rich

foods to your diet, and taking nutritional supplements.

You should speak to your doctor about treatment options.

The Bottom Line

There is strong evidence linking low vitamin D to depression. Most people just can’t get vitamin D from the sun and food alone.

Considering vitamin supplementation might be worthwhile. Of course, depression has many causes and vitamin D cannot replace antidepressants, but keeping levels managed can help you to manage depressive symptoms.