

# Low vitamin D levels linked to more severe multiple sclerosis symptoms

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Low blood levels of vitamin D are associated with an increased number of brain lesions and signs of a more active disease state in people with multiple sclerosis (MS), a new study finds, suggesting a potential link between intake of the vitamin and the risk of longer-term disability from the autoimmune disorder.

But researchers, led by Ellen M. Mowry, M.D., M.C.R., an assistant professor of neurology at the Johns Hopkins University School of Medicine and principal investigator of a multicenter clinical trial of [vitamin D](#) supplementation in [MS](#) patients, caution that more research is needed to determine if large doses of vitamin D help without harming MS patients.

Mowry's study, conducted mostly when she worked at the University of California, San Francisco, shows a strong correlation between vitamin D levels in the body (measured through [blood samples](#)) and the characteristic [brain lesions](#) of MS as measured with [MRI images](#). Results were described in the August issue of [Annals of Neurology](#).

"Even though lower levels of vitamin D are associated with more inflammation and lesions in the brain, there is no evidence that taking vitamin D supplements will prevent those symptoms," she says "If we are able to prove that through our currently-enrolling trial, it will change the way people with [multiple sclerosis](#) are treated."

In people with MS, the body's immune system attacks the coating of

[nerve fibers](#) in the brain and spinal cord. The coating, made of a fatty protein called myelin, insulates the nerves and helps them send [electrical signals](#) that control movement, speech and other functions. When myelin is attacked, inflammation interferes with message transmission, activity that shows up on an MRI as lesions, which look like white spots.

In the most common form of MS, called relapsing-remitting MS, patients may at times have no symptoms, but at other times may suffer from "attacks" (or "[relapses](#)") of symptoms such as blurred vision, numbness and weakness. There is currently no cure for the disease but there are medications to help reduce the number of attacks and to help reduce symptoms left over if a person hasn't fully recovered from an attack.

For the study, Mowry and her colleagues used data from a five-year study of 469 people with MS. Each year, beginning in 2004, researchers drew blood from, and performed MRIs on, the brains of study participants, looking for both new lesions and active spots of disease, which lit up when a contrast dye was used. The investigators found that each 10-nanograms-per-milliliter increase in vitamin D levels was associated with a 15 percent lower risk of new lesions and a 32 percent lower risk of spots of active disease, which require treatment with medication to reduce likelihood of permanent nerve damage. Higher vitamin D levels were also associated with lower subsequent disability.

The impact of vitamin D levels remained even after other factors that can affect disease progress were accounted for, including smoking status, current MS treatment, age and gender.

At least early in MS, the more new lesions and active spots of disease, the more likely a patient is to develop longer-term disability, Mowry says. Some people with relapsing-remitting MS progress to a more serious form due to damage of the underlying nerve cells.

From one year to the next, Mowry says, she and her colleagues were able to predict the appearance of new lesions and active disease spots based on vitamin D levels from the year before. Active and new lesions indicate that a patient's MS is not under optimal control.

Previous studies have indicated that lower vitamin D levels are associated with increased relapse risk in certain [MS patients](#). Those studies relied on patients to report their attacks, which is sometimes a less reliable assessment than MRI.

Some patients already take extra vitamin D because of publicity about earlier studies. However, Mowry says that there is no research proving vitamin D alleviates symptoms or suggesting what dose is best or safest. And nothing is known about whether vitamin D can prevent the autoimmune disorder, she says.

"People think vitamin D is available over the counter so it must be safe," Mowry says. "But vitamin D is a hormone, and any medication really does need to be thoroughly tested before we definitely recommend it. That's the main reason why we are now performing a randomized trial of vitamin D supplementation. People with MS should talk with their doctors about the pros and cons of taking [vitamin D](#) before starting the supplement."

Provided by Johns Hopkins University School of Medicine

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