Taking vitamin D may benefit people with multiple sclerosis

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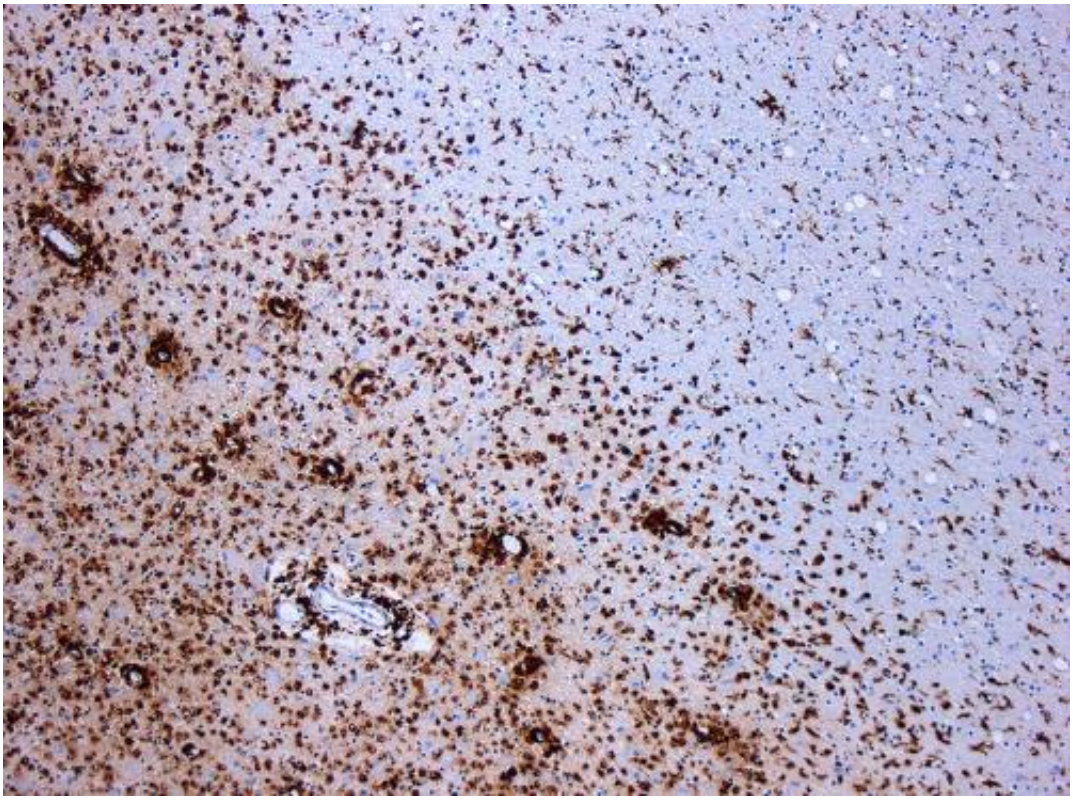

Demyelination by MS. The CD68 colored tissue shows several macrophages in the area of the lesion. Original scale 1:100. Credit: CC BY-SA 3.0 Marvin 101/Wikipedia

Taking a high dose of vitamin D3 is safe for people with multiple sclerosis and may help regulate the body's hyperactive immune response, according to a pilot study published by Johns Hopkins physicians in the

Dec. 30 online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"These results are exciting, as vitamin D has the potential to be an inexpensive, safe and convenient treatment for people with MS," says study author Peter Calabresi, M.D., director of the Johns Hopkins Multiple Sclerosis Center and professor neurology at the Johns Hopkins University School of Medicine. "More research is needed to confirm these findings with larger groups of people and to help us understand the mechanisms for these effects, but the results are promising."

Low levels of vitamin D in the blood are tied to an increased risk of developing MS. People who have MS and low levels of vitamin D are more likely to have greater disability and more disease activity.

For the study, 40 people with relapsing-remitting MS received either 10,400 international units or 800 international units of vitamin D3 supplements per day for six months. Patients with severe vitamin D deficiency were not included in the study. The current recommended daily allowance of vitamin D3 is 600 international units. Blood tests at the start of the study and again at three and six months measured the amount of vitamin D in the blood and the response in the immune system's T cells, which play a key role in MS.

While researchers are still determining the optimal level of vitamin D in the blood for people with MS, a suggested range of 40 to 60 nanograms per milliliter (ng/ml) has been proposed as a target. Participants taking the high dose of vitamin D reached levels within the proposed target, whereas the group taking the low dose did not reach the target.

Side effects from the vitamin supplements were minor and were not different between the people taking the high dose and the people taking the low dose. One person in each group relapsed.

The people taking the high dose had a reduction in the percentage of inflammatory T cells related to MS severity, specifically IL-17+CD4+ and CD161+CD4+ cells. When the increase in vitamin D levels in the blood over base line levels was greater than 18 ng/ml, every additional 5 ng/ml increase in vitamin D led to a 1 percent decrease in the percentage of IL-17+CD4+ T cells in the blood. The people taking the low dose did not have any noticeable changes in the percentages of their T cell subsets.

"We hope that these changes in inflammatory T cell responses translate to a reduced severity of disease," says Calabresi. "Other clinical trials are underway to determine if that is the case."

Provided by Johns Hopkins University School of Medicine