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Vitamin D Benefits Diabetic Neuropathy Pain, Mood

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A simple dietary supplement could decrease pain and provide other benefits for patients with diabetic peripheral neuropathy, according to a new randomized controlled trial.

The study (ClinicalTrials.gov Identifier: NCT04689958) found that patients taking 5,000 IU of vitamin D orally had decreased visual analog scale (VAS) scores (-3.34 ± 2.03 vs. -2.37 ± 2.2 ; $P=0.044$) and reported less burning pain (1.76 ± 7.16 vs. 6.18 ± 13.93 ; $P=0.046$) than those on placebo. The researchers from Duta Wacana Christian University, in Yogyakarta, Indonesia, also found that patients taking the supplement reported improvements in mood (88.2% vs 70.6%; $P=0.031$) at eight weeks compared with those not taking the supplement.

All patients (N=68) received conventional medical management, specifically either 75 mg of daily pregabalin, 100 mg of gabapentin or 25 mg of amitriptyline. Most of the patients identified as female (60.3%), and the average age was 64.96 ± 8.3 years.

Unlike the VAS scores and patient-reported burning pain scores, the researchers found no significant difference in patient-reported severity of electric shock pain ($P=0.070$), tingling ($P=0.415$) and numbness ($P=0.373$).

Previous studies also have found associations with decreased pain scores and vitamin D supplementation (*Med Princ Pract* (<https://pubmed.ncbi.nlm.nih.gov/25720672/>) 2015;24[3]:250-246; *Arch Intern Med* (<https://pubmed.ncbi.nlm.nih.gov/18413561/>) 2008;168[7]:771-772). Researchers believe this is due to vitamin D's role in promoting neurotrophin and neurotransmitter synthesis. Other research in rats has found a distinct vitamin D phenotype in nociceptive calcitonin gene-associated peptide-positive neurons (*J Chem Neuroanat* (<https://pubmed.ncbi.nlm.nih.gov/20969950/>) 2011;41[1]:1-12).

With these positive findings, the current researchers advocate for the use of vitamin D, especially with its lack of adverse effects. "Our findings support the use of vitamin D supplements for the treatment of diabetic neuropathy patients," the authors wrote.

The study was published in the *Journal of Pain Research* (2021;2021[14]:3865-3875).

—PMN Staff

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