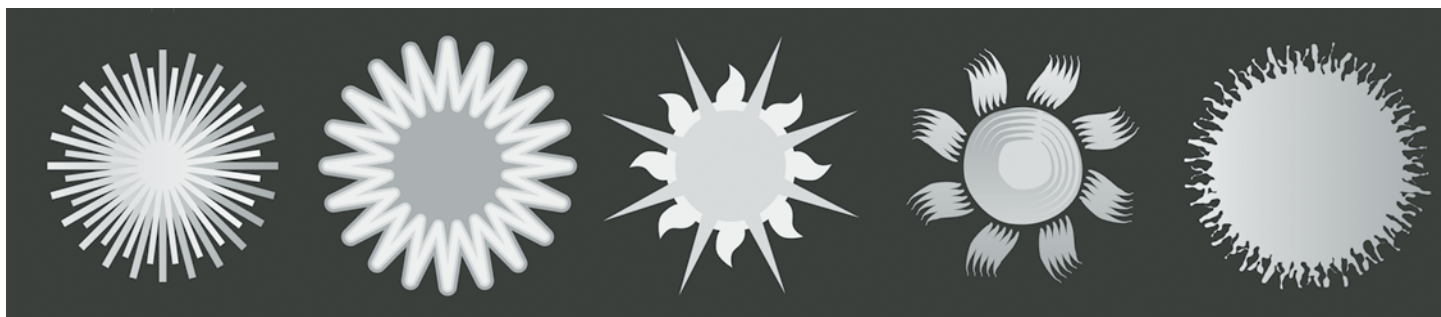


Vitamin D and Musculoskeletal Pain: A Look at the Research

by Scott Jamison, N.M.D.



Research studies from several sources have demonstrated links between vitamin D and body (fibromyalgia-FM) pain. Not all the connections are positive, but these studies are reporting associations between the level of vitamin D measured in the blood streams of FM patients (too much, too little, “normal”) and improvements in pain reported by the patients once they were treated.

One does not think of vitamin D as a first-line approach to treating FM, but results from emerging research may change our thinking on the topic. First, let’s review the basics. Vitamin D is required for the absorption of calcium in the digestive tract, and therefore important for bones, teeth, nerves and muscles.

Vitamin D₃, also known as **cholecalciferol**, is made in the skin when **7-dehydrocholesterol** reacts with **UVB ultraviolet light**. Cholecalciferol is transported to the liver where it is converted to calcidiol or 25-hydroxy-vitamin D, the form of the vitamin that the body stores. The most active form of the vitamin, **calcitriol** (1,25 dihydroxy vitamin D₃), is synthesized from calcidiol in the kidneys to perform its endocrine function of managing calcium in the body.

Several important issues arise when we look at how the body processes vitamin D. For myself, the most important is that there will be no pop-quiz at the end of the article, so I don’t have to memorize anything. Suffice it to say that there is a great deal of complexity to vitamin D

metabolism. Also, we must note here that since vitamin D is synthesized in the body, it is not actually a vitamin. **Many researchers are now referring to vitamin D as a hormone, a steroid hormone. Hormones with steroid-like activity can have a lot to do with the presence or absence of pain in the body.**

Now, back to those studies mentioned earlier. Researchers at the Department of Internal Medicine, University of Minnesota, Minneapolis, tested the vitamin D levels of 150 patients with chronic pain. The patients were of all ages, male and female, with several ethnic backgrounds. A high percentage, 93 percent, of these patients were vitamin D deficient. The study concluded that testing for vitamin D levels should be “standard practice for patients with persistent, nonspecific musculoskeletal pain”. None of the patients in this study were actually treated. But, at least they were tested.

One problem with information in this arena is the dearth of published studies on the topic. A recent search of the National Library of Medicine revealed two articles on vitamin D and chronic fatigue, four articles on vitamin D and fibromyalgia compared with 282 articles on vitamin D and Psoriasis. That being said, Michael Holick, MD, who runs the vitamin D Research Lab at Boston University Medical Center, has recently been quoted as saying, **“Vitamin D deficiency is a major unrecognized epidemic in the adult population. As many as 40 to 50 percent of adults older than 50**

may be deficient in the vitamin.” He noted that some people who appear to have fibromyalgia, a syndrome marked by chronic muscle and joint pain, may in fact, have vitamin D deficiency.

A study dealing with fatigue found 97.8 percent (493/504) patients had a vitamin D deficiency. Patients with a small deficiency responded very well to vitamin D supplementation and their fatigue was greatly reduced or eliminated. Those found to have significantly low levels had a varied response to vitamin D supplementation.

Researchers in England discovered that patients with chronic pain have phenomenally low vitamin D levels. The authors added to the evidence that severe vitamin D deficiency is associated with chronic pain. They found that 88 percent of their patients with chronic pain had levels less than 10 ng/ml. If they treated their patients, they did not report it. However, Swiss researchers recently treated chronic pain patients with vitamin D and reported that pain “disappeared” within one to three months in most of their patients. This is the second open study that showed adequate doses of vitamin D dramatically improved chronic pain.

Vitamin D deficiency causes dull, achy musculoskeletal pain that does not completely respond to pharmacologic and manual treatments. The pain may be widespread or confined to a particular area, most commonly the low back and lumbar spine. The mechanism by which this pain is produced is actually well understood: 1) vitamin D deficiency causes a reduction in calcium absorption, 2) production of parathyroid (PTH) hormone is increased to maintain blood calcium levels, 3) PTH results in increased urinary excretion of phosphorus, 4) insufficient calcium phosphate results in deposition of unmineralized collagen matrix of the bones, 5) when the collagen matrix hydrates and swells, it causes pressure on the sensory-innervated periosteum (outside lining of the bone) resulting in pain.

So, we have learned that vitamin D deficiency can and does cause chronic pain, and we have studies showing that treating those deficiencies with vitamin D supplementation can resolve the pain. So should we all go out and start taking vitamin D? Actually, getting tested for vitamin D levels is the place to start, especially the ac-

tive form of vitamin D (1,25 or D3.) If you are found to be deficient, how much do you take? The conventional recommendation of 400 IU is actually a minimum and many authors propose 2,000-4,000 IU per day. Doses less than 2,000 IU are considered safe by the government. TwinLab Vitamin D Allergy Caps, in particular, have been found to be well-tolerated and effective for candidates of vitamin D supplementation.

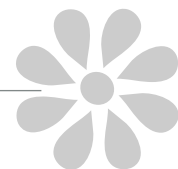
Reactions to vitamin D therapy vary. For those deficient in D3, it may help to start with 400 units per day and raise this dose slowly by 400 units every four to ten days. It can take six or seven weeks for vitamin D blood levels to peak once you start taking it. If you have an adverse reaction, be careful about “toughing it out”. It can take weeks for levels to come down after you discontinue it.

Most do well with taking 2,000 IU or less; some may feel feverish, nauseous, or have head pain for a one day or up to ten days after raising their vitamin D levels. For others sensitivity to vitamin D may mean something else such as parathyroid problems, sarcoidosis, tuberculosis, or lymphoma. These conditions need to be diagnosed and treated by your doctor. Please discuss the above considerations with your physician before starting.

At this point, mention should be made of pain patients who do not respond to vitamin D supplementation. A small but significant number of patients find their conditions worsening from vitamin D intake. If you find yourself to be one of these, discontinue the supplement and consult your doctor. But do not despair; patients who are made worse from vitamin D may be candidates for another therapy. This new and little-known approach (the Marshall Protocol) will be reviewed in a companion article: *The Marshall Protocol: Vitamin D—Too much of a Good Thing*.

Dr. Scott Jamison has practiced naturopathic medicine for over 20 years and has a private practice in Tucson, Arizona. He serves on the Advisory Board of the Fibromyalgia Alternative Network.





The Marshall Protocol: Vitamin D—Too much of a Good Thing

by Scott Jamison, N.M.D.

Trevor Marshall, Ph.D, has been researching vitamin D and chronic illness for many years. Quite some time ago Dr. Marshall, a biomedical engineer, was diagnosed with sarcoidosis, an often fatal disease with no known cause and no adequate treatment. Not wanting to die, Dr. Marshall and his registered pharmacist wife, Elizabeth, began researching everything available on the topic in hopes of finding a cure or treatment for Trevor.

The outcome of their years of work is a treatment called the Marshall Protocol, which has successfully reversed sarcoidosis in a number of patients. Since its implementation, the Marshall Protocol has been found to benefit not only sarcoidosis patients, but also patients with chronic fatigue, fibromyalgia, lupus, Lyme Disease, and various auto-immune conditions. Dr. Marshall treated himself by developing and using his protocol and is now sarcoidosis free and committed to sharing this information with any patient or doctor who wants to learn about it or apply it.

Dr. Marshall has described a condition which he simply calls “Th-1 inflammatory disease.” This condition can result in inflammation almost anywhere in the body and appears to be caused by too much vitamin D, even in patients who do not take vitamin D supplements.

Reviewing briefly, vitamin D2 is the inactive precursor to the active form vitamin D3. **Dr. Marshall’s research has shown that certain patients are “hyper-converters”.** Their bodies convert vitamin D2 into vitamin D3 to such an extent that they become vitamin D toxic with all the attendant symptoms of excess vitamin D. **These symptoms can include chronic fatigue, chronic pain, headaches, irritability, insomnia, and agitation.** So what causes a person to “hyper-convert”?

Dr. Marshall’s research found that cell-wall deficient bacteria living inside the white blood cells trigger exces-

sive conversion of vitamin D to its active form. Because these bacteria are hiding inside the cells, the immune system does not detect them. Hence, the label, “stealth bacteria.” These intra-cellular stealth bacteria go undetected by the immune system for years (or even decades) and continuously trigger the conversion of vitamin D to the active form leading to the ailments already mentioned. Testing for intra-cellular bacteria is not commercially available. Instead, Dr. Marshall’s approach involves testing for both the precursor, vitamin D2 (25 D), and the active form, vitamin D3 (1,25 D). Dr. Marshall has concluded that the ratio between the two levels is an important indicator of intra-cellular infection. Be sure to have testing done at a lab (i.e. Quest) that freezes the sample for transport.

Dr. Marshall developed a complex system of treating these intra-cellular pathogens that involves diet, sunlight avoidance, and specific medications. Information on the full protocol is available online at www.marshallprotocol.com. The website is staffed by volunteers who respond to questions and offer support for patients interested in pursuing treatment for themselves, utilizing the protocol. Dr. Marshall does not treat patients per se, but provides information for doctors and patients, including published studies and papers on the efficacy of the protocol.

Could the Marshall Protocol be an answer for reversing your fibromyalgia and/or chronic fatigue syndrome? To see if you’re a candidate, consider having your vitamin D ratios checked (see above—be sure to have the lab follow specific testing procedure). Review the Protocol website for yourself—then discuss this new healing tool with your doctor.

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