

1. Introduction: A 'D-Lightful' Therapeutic Hormone

This report focuses on evidence and commentary from the peer-reviewed medical literature describing the functions of vitamin D, the prevalence and consequences of inadequate vitamin D intake, and the research supporting its benefits for alleviating chronic musculoskeletal pain and fatigue syndromes in outpatients. Guidance for healthcare professionals in recommending vitamin D therapy for these patients is provided. See the **Side Box** below for key summary points.

There are extensive reports of pain worldwide and much of it is chronic, lasting 3 or more months, and primarily involves muscles, bones, and joints. In the United States, more than half of all adults participating in surveys have reported long-term persistent or intermittent pain, with the lower and upper back, neck, shoulders, hips, and knees mentioned most frequently [APF 2007; NPF 2008; Watkins et al. 2008]. For lower-back pain alone, an annual incidence of 50% and a lifetime prevalence of up to 80% have been reported [Nachemson et al. 2000]. In more than 8 out of 10 cases, the causes are nonspecific, without evidence of injury, disease, or neurological or anatomical defect [Deyo 2002; Deyo and Weinstein 2001]. More than a quarter (28%) of patients with chronic pain rate the effectiveness of medical treatments as poor, and most (77%) believe that new options are needed to treat their pain [APF 2007; NPF 2008].

At the same time, it appears that soothing the daily musculoskeletal aches and pains plaguing many patients may be as simple, well tolerated, and economical as taking a daily supplement of vitamin D. Experts have recommended that vitamin D inadequacy should be considered in the differential diagnosis of all patients with bone or joint pain, myalgia, fibromyalgia, or chronic fatigue syndrome [Shinchuk and Holick 2007]. However, this seems to be unknown or overlooked by many healthcare providers.

Research on vitamin D is still an emerging field, and there are divergent opinions among experts regarding many aspects of vitamin D pharmacology, function, and adequate intake needed for good health. While further research is needed, the clinical evidence to date recommending vitamin D supplementation for musculoskeletal pain and associated symptoms seems convincing.

In 22 clinical investigations reviewed for this report – which included a total of 3670 patients with musculoskeletal pain – significant vitamin D inadequacies were found in 48% to 100% of the subjects. When supplementation was provided for improving vitamin D status, pain and/or muscle weakness were resolved or at least subsided in most cases, and there were associated improvements in physical functioning.

Vitamin D is known as the “sunshine vitamin” because it is naturally produced by skin exposed to ultraviolet B, or UVB, rays in sunlight [Hollis 2005]. Current thinking is



Vitamin D 'Analgesia' – Summary Points

- Chronic musculoskeletal pain and fatigue syndromes are common and difficult-to-treat clinical challenges.
- Conclusive scientific evidence indicates that adequate levels of vitamin D are essential for musculoskeletal health.
- Vitamin D is a complex nutrient that functions as a hormone to benefit numerous body tissues.
- A majority of all patients, and particularly those with pain, have inadequate intake of vitamin D.
- While further research is needed, current evidence demonstrates that supplemental vitamin D can help to resolve or alleviate chronic pain syndromes in many patients who have been unresponsive to other therapies.
- A 2400 IU to 2800 IU per day supplement of vitamin D₃ is proposed in this report as being helpful for patients with chronic bone and joint pains, and related muscle pain or weakness.
- Vitamin D therapy is easy for patients to self-administer, well tolerated, and very economical. Other therapies need not be discontinued during a trial of vitamin D “analgesia.”
- To date, the benefits of vitamin D therapy have been unknown or largely overlooked by the pain treatment field.