

# Abstract

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## Vitamin D and rehabilitation: improving functional outcomes.

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**BACKGROUND:** Vitamin D inadequacy is pandemic among rehabilitation patients in both inpatient and outpatient settings. Male and female patients of all ages and ethnic backgrounds are affected. Vitamin D deficiency causes osteopenia, precipitates and exacerbates osteoporosis, causes the painful bone disease osteomalacia, and worsens proximal muscle strength and postural sway. Vitamin D inadequacy can be prevented by sensible sun exposure and adequate dietary intake with supplementation.

**RECOMMENDATIONS:** Vitamin D status is determined by measurement of serum 25-hydroxyvitamin D. The recommended healthful serum level is between 30 and 60 ng/mL. 25-Hydroxyvitamin D levels of >30 ng/mL are sufficient to suppress parathyroid hormone production and to maximize the efficiency of dietary calcium absorption from the small intestine. This can be accomplished by ingesting 1000 IU of vitamin D(3) per day, or by taking 50,000 IU of vitamin D(2) every 2 weeks. Vitamin D toxicity is observed when 25-hydroxyvitamin D levels exceed 150 ng/mL.

**CONCLUSIONS:** Identification and treatment of vitamin D deficiency reduces the risk of vertebral and nonvertebral fractures by improving bone health and musculoskeletal function. Vitamin D deficiency and osteomalacia should be considered in the differential diagnosis of patients with musculoskeletal pain, fibromyalgia, chronic fatigue syndrome, or myositis. There is a need for better education of health professionals and the general public regarding the optimization of vitamin D status in the care of rehabilitation patients.

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