

Review

Vitamin D status in Japanese people, and the role of vitamin D in bone and muscle

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ABSTRACT

The vitamin D requirement of the body is supplied by intake of vitamin D-rich foods and exposure to sunlight of provitamin D₃ in the skin. Recently, it was estimated that more than 50% of the Japanese people have vitamin D deficiency, defined by a serum 25-hydroxyvitamin D concentration of lower than 20 ng/mL. Vitamin D deficiency is now recognized as a global problem, including in athletes. Vitamin D is known to play an important role not only in normal calcium and bone metabolism, but also in normal muscle functions. The role of vitamin D in the skeletal muscle may be mediated via the vitamin D receptor (VDR) expressed in skeletal muscle cells. In this article, the basic science of vitamin D, the role of vitamin D in bone and muscle functions, and the effects of vitamin D supplementation on the performance of athletes will be reviewed.

Keywords: Vitamin D, 25-hydroxyvitamin D, deficiency, bone, muscle