

# Vitamin D tied to muscle power in adolescent girls

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Vitamin D is significantly associated with muscle power and force in adolescent girls, according to a new study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism (JCEM)*.

Although vitamin D is naturally produced in the body through exposure to direct sunlight, vitamin D deficiency has become widely common in the United States. Vitamin D deficiency has been shown to have a significant negative impact on muscle and bone health, and can lead to conditions including osteoporosis and rickets.

"We know vitamin D deficiency can weaken the muscular and skeletal systems, but until now, little was known about the relationship of vitamin D with muscle power and force," said Dr. Kate Ward, Ph.D., of the University of Manchester in the U.K., and lead author of the study. "Our study found that vitamin D is positively related to muscle power, force, velocity and jump height in adolescent girls."

For this study, researchers followed 99 adolescent girls between the ages of 12 and 14 years. Dr. Ward and her colleagues took blood samples to measure the girls' serum levels of vitamin D. Many of these girls were found to have low levels of vitamin D despite not presenting any symptoms.

Researchers used a novel outcome measure called jumping mechanography to measure muscle power and force. Jumping

mechanography derives power and force measurements from a subject's performance in a series of jumping activities. Dr. Ward says this method of testing is ideal as the muscles required to jump are those most often affected in subjects with vitamin D deficiency. Girls without vitamin D deficiency performed significantly better in these tests.

"Vitamin D affects the various ways muscles work and we've seen from this study that there may be no visible symptoms of vitamin D deficiency," said Dr. Ward. "Further studies are needed to address this problem and determine the necessary levels of vitamin D for a healthy muscle system."

Publication: The article "Vitamin D Status and Muscle Function in Post-Menarchal Adolescent Girls," will appear in the February 2009 issue of *JCEM*.

Source: The Endocrine Society

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