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Vitamin D and calcium interplay explored

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Increasing calcium intake is a common--yet not always successful--strategy for reducing bone fractures. But a study supported in part by the Agricultural Research Service (ARS) underscores the importance of vitamin D and its ability to help the body utilize calcium. The study also may explain why increasing calcium alone isn't always successful in dealing with this problem.

Currently, calcium intake recommendations are not tied to vitamin D status, which may explain why markedly different recommended calcium intakes exist among countries. In the United States, the recommended calcium intake is 1,200 milligrams (mg) daily for adults aged 50 and older.

The body's skeleton needs adequate dietary calcium to reach its full potential in terms of bone mass. Still, many other factors affect bone mass, such as exercise, smoking and vitamin D--the latter through its effect on calcium absorption and direct effect on the skeleton.

The study involved a close look at about 10,000 men and women aged 20 and older participating in a nationally representative survey. Coauthors included nutrition specialist Bess Dawson Hughes with the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts University in Boston, Mass. Dawson Hughes is director of the HNRCA Bone Laboratory.

Blood levels of 25-hydroxyvitamin D are used as the primary indicator of vitamin D adequacy. Within the study sample of U.S. adults, a large fraction of younger and older adults were below a suggested desirable serum vitamin D concentration of at least 75 nanomoles-per-liter (nmol/L).

The study supports the idea that correcting inadequate blood levels of vitamin D is more important than increasing dietary calcium intake beyond 566 mg a day among women and 626

mg a day among men for better bone mineral density. For example, a higher calcium intake beyond 566 mg a day may only be important among women whose vitamin D concentrations are low (less than 50 nmol/L), according to authors.

Details of this study can be found in the publication *Journal of Bone and Mineral Research*.

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