



### *Developing News*

## **Vitamin D Levels May Drop During Winter Months, Increasing Risk of Fractures in the Spring**

*Reprint from Winter 2006 Breakthrough*

#### **The study:**

- A recent study in Canada looked at Vitamin D levels in children who were treated for fractures at a hospital emergency room during the month of April. None of these children had OI. 40% of these children had low levels of Vitamin D.
- This suggests that low levels of Vitamin D may contribute to the risk of a fracture.
- Of particular interest is that this study matched Vitamin D levels to the child's weight, not age.

#### **What we know:**

- Maintaining proper levels of Vitamin D is essential for healthy bones. It is needed for calcium absorption.
- Sunlight and food are the main sources of Vitamin D.
- Too much Vitamin D is just as unhealthy as too little Vitamin D.
- Current USDA Vitamin D recommendations are based on age, not weight, and are difficult to apply to people with OI due to their shorter stature.
- Recent studies suggest that standard recommendations for Vitamin D levels used around the world may be too low. Because Vitamin D plays an important role in bone health and immune system function, it is being intensely studied at this time.

#### **What this means for people with OI:**

- This study presents preliminary information about people without OI. It suggests that increased indoor time and less time spent on outdoor activities during the winter months may decrease the amount of Vitamin D in the body. Lower Vitamin D levels contribute to a decrease in bone mineral content and may weaken bones.
- Adequate calcium and Vitamin D, along with exercise, are important for developing and maintaining bone density.
- In response to this study, Dr. Jay Shapiro and his nutritionist, Eileen McMahon, of the Kennedy Krieger Institute, Baltimore, MD, are working with the senior investigator of the Canadian study, Dr. Adrian Jones, Department of Pediatric Gastroenterology at the University of Alberta in Edmonton. They are trying to apply this information to children with OI. In the future, they hope to have a set of guidelines for Vitamin D for children who have OI, based on weight.

#### **What you can do now:**

- Talk to your primary care physician and/or a nutrition specialist about diet, exercise and Vitamin D.

#### **Locating the study:**

Are National Vitamin D Guidelines Sufficient to Maintain Adequate Blood Levels in Children? By D. Roth, P. Martz, R. Yeo, C. Prosser, M. Bell and A. Jones. Canadian Journal of Public Health, 2005 November-December; 96 (6) pages 443-449.

#### **Caveat:**

This is based on preliminary information. When Dr. Shapiro's investigation is ready for publication the information will be brought to the attention of the OI community through Breakthrough, the OI Foundation website, and e-newsletters.

## More on Vitamin D

### *Reprint from Spring 2006 Breakthrough*

In response to the above-referenced study, Jay Shapiro, M.D., his nutritionist, Eileen McMahon of the Kennedy Krieger Institute, Baltimore, MD and Bruce Hollis, Ph.D., Director of Pediatric Nutritional Sciences, Medical University of South Carolina, are suggesting a new set of recommendations regarding Vitamin D intake for people with OI. Their proposal is based on a review of the literature, discussions with the senior investigator of the Canadian study, Dr. Adrian Jones (Department of Pediatric Gastroenterology at the University of Alberta, Edmonton) and other Vitamin D and OI experts.

What we know:

Vitamin D is necessary to help your body absorb calcium and make bone. Most of the Vitamin D in our bodies is made from sunlight absorbed through the skin but many people need Vitamin D supplements to get enough to stay healthy.

A blood test that measures 25(OH)D is the only way to tell if a person has adequate levels of Vitamin D. Researchers are recommending that blood levels for children and adults be increased from a previous level of 20 ng/ml to a level between 32 and 60 ng/ml. The Food and Nutrition Board, National Academy of Sciences is considering raising their recommendations for daily IU (International Unit) intake because the current recommendations are not high enough to keep blood levels of vitamin D above 32 ng/ml in most people.

Dr. Shapiro's Suggestions:

A range of daily vitamin D intake of 13-18 IU/lb/day.

#### **Vitamin D-3 Intake for People with OI**

<b>Weight</b>	<b>IU per day</b>
50 lbs. (20 kg)	600-800
90 lbs. (40 kg)	1100-1600
110 lbs. (50 kg)	1200-2000
150 lbs (70 kg) and above	2000-2800

What you can do:

Read "Recommendations Regarding Vitamin D Intake in Osteogenesis Imperfecta" by Shapiro, McMahon and Hollis. (see below) Share it with your doctor. Discuss with your doctor whether you should have the blood test and whether you should take Vitamin D supplements.

If you and your doctor decide to increase your Vitamin D level, work with your doctor to monitor your blood vitamin D levels until stable values in the 32 ng/ml to 60 ng/ml range are achieved. If you start a program of increased vitamin D intake, have your blood re-tested after 2 months and then every 4 months until there is no change.

The amount of time you spend out of doors, plus the amount of vitamin D in your diet from food or supplements, will affect your test results.

Vitamin D supplements are available as either the D-2 form (ergocalciferol) or the D-3 form (cholecalciferol). Studies suggest that the D-3 form may be more effective in people. However, Vitamin D-3 is difficult to find commercially in the United States. Check with your pharmacist, primary care physician or with a health food store. Vitamin supplements are not regulated and the amount of Vitamin D can vary from pill to pill and bottle to bottle.

Locating the Recommendations:

"Recommendations Regarding Vitamin D Intake in Osteogenesis Imperfecta" is posted on the web site for the OI Clinic at the Kennedy Krieger Clinic [www.osteogenesisimperfecta.org](http://www.osteogenesisimperfecta.org) under the heading "OI News." 

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