



Osteoporosis Canada

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## **VITAMIN D IS VERY IMPORTANT TO OUR BONE HEALTH**

When taken in the appropriate amount, vitamin D decreases our risk of falling and breaking bones. It is very common to find inadequate vitamin D levels in Canadians. For that reason, Osteoporosis Canada recommends that all Canadians, particularly those of us over age 50, take a daily vitamin D supplement (at least 800 International Units a day for most adults). These vitamin D supplements are available without prescription at pharmacies across Canada.

Vitamin D is also available (by prescription only) as a larger once-a-week dosage. The results of some studies outside Canada have shown that vitamin D given in even larger doses (100,000 IU) spaced out as far as every 4 months can still be effective in decreasing the risk of fractures.

**Please note that anyone considering a dose of vitamin D greater than 2000 IU in a single day should consult with their physician before doing so.**

## **HOW MUCH VITAMIN D IS TOO MUCH?**

A recent study published in the Journal of the American Medical Association (JAMA) showed that a single large dose of vitamin D, given once a year to a group of elderly patients, actually increased their risk of falls and fractures. This study recruited 2258 women, average age of 76 years, who were at increased risk of falling, and randomly assigned them to receive either a single dose of 500,000 International Units (IU) of vitamin D (ten 50,000 IU tablets taken in a single day) once a year or a placebo once a year for 3 to 5 years.

The Scientific Advisory Council of Osteoporosis Canada has reviewed the study and makes the following observations and recommendations:

The study was well designed and there are no obvious serious flaws or biases seen.

There is one other large dose, once-yearly, study of vitamin D (300,000 IU of vitamin D<sub>2</sub>, given by injection) that also has shown an increased risk of fracture. But studies using smaller, more frequent doses of vitamin D (averaging 700-800 IU/day with adequate calcium intake) have consistently tended to show decreased falls and decreased fracture risk.

There is no good explanation for the apparent danger of larger doses of vitamin D supplementation. The editorial accompanying the paper does suggest two possible mechanisms whereby a single dose providing a year's supply might not be effective in protecting against falls and fractures:

- Our body normally converts vitamin D to a very potent active form of vitamin D that provides the bone and muscle benefits that would be expected to protect against falls and fractures. However, a huge dose of vitamin D might cause the body to over-produce the enzyme that allows the body to degrade this active form of vitamin D (and this was not measured in these studies).
- Half the patients in the large annual dose study had vitamin D levels below the normal range before the very first dose of vitamin D was given and it is possible the patients receiving vitamin D improved their muscle strength, felt better, and became more active than the placebo group. Activity levels and general health were not measured in this study, but when people are more active, they may also be at higher risk of falling.

In summary, the Scientific Advisory Council concludes that this recent study does not provide any evidence to change Osteoporosis Canada's standard recommendation of a modest daily intake of vitamin D (800-2000 IU/day for most adults), or an equivalent dose of a once-weekly vitamin D by prescription from your doctor. However, a single large, yearly dose of vitamin D is not advisable.

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