



### **Vitamin D, should we put it in the water?**

A question for you, how many of you believe that most older individuals sit outside in the sunshine sipping milk and eating salmon or tuna? Not many you say? Well then, it should not surprise you that about 36% of the population are deficient with vitamin D. In the older population it could be even higher.

By checking 25-hydroxyvitamin D we can determine if that person is deficient. If that result is  $<20\text{ng/ml}$  then that person is deficient. This suggests this person is at a higher risk of falls and fractures.

There are studies that suggest that vitamin D supplementation can reduce the risk of falls by as much as 20%.

Hip fracture is one of the most serious consequences of an elderly person falling, as it can lead to long-term disability, untimely nursing home admission, and premature mortality. One study suggested that falls lead to 40% of all nursing home admissions. Other factors that decrease the vitamin D level include advanced age, malabsorption due to inflammatory bowel disease, and the administration of anticonvulsants, glucocorticoids, antifungals, cholestyramine, or HIV antivirals. So this may suggest a consulting tip of checking the 25-hydroxyvitamin D level if that patient is on anticonvulsants.

We all know the relationship of vitamin D and calcium absorption. Many do not know that vitamin D is linked to muscle weakness and with proper levels may also directly improve muscle strength and balance. Vitamin D receptors are found in the muscle and muscle weakness is a symptom of vitamin D deficiency. This includes the trunk muscles that assist us when we become off center and we right ourselves like a gyroscope. By impacting the muscle strength and balance we have a direct relationship to falls and fractures.

Studies show that with an average serum level greater than  $25\text{ ng/mL}$ , that falls and fracture rates were significantly reduced. They also have stated vitamin D [25(OH) D] serum concentration of  $30\text{ ng/mL}$  was safe and would ensure the full benefit of vitamin D.

So do we supplement vitamin D2 or D3? Both vitamin D2 and D3 are effective for raising serum vitamin D. Vitamin D 3, cholecalciferol, is synthesized in the skin and at high doses Vitamin D3 seems to be almost twice as potent as vitamin D2.

What is the dose? To prevent falls most studies suggest a daily dose of at least 800IU is required.

There is limited evidence that 90% of normal-weight older adults (BMI  $< 25$ ) will achieve recommended serum levels with 1600 to 2000 IU daily supplements from all sources. Overweight and obese adults require higher daily supplements — up to 4000 IU daily to achieve serum levels of  $30\text{ ng/mL}$ .

The Institute of Medicine (IOM) determined that a 4000 IU daily for supplement is safe and can be given without risk of toxicity.

Vitamin D supplementation weekly, biweekly, monthly and up to every 3 months is acceptable. To maximize absorption, the vitamin D supplements should be taken with meals that provide some fat or oils. So by checking the 25-hydroxyvitamin D levels and adjusting the dose to a goal of 25-30 ng/ml we can make a major impact on falls and fracture. Thank You...