Vitamin D3 is more potent than D2: Study
Vitamin D3 is 87% more potent at raising blood levels of the vitamin than vitamin D2, according to a new study from the US.

(Journal of Clinical Endocrinology and Metabolism, December 2010)

In addition to the increase in potency, results published in Journal of Clinical Endocrinology & Metabolism indicate that vitamin D3 also produced a 2- to 3-fold increase in the storage of the vitamin, compared with vitamin D2.

Scientists led by Robert Heaney, MD, from Creighton University in Nebraska supplemented 33 health adults with 50,000 International Units (IU) of either vitamin D2 or D3 per week for 12 weeks. Results showed that about 17% of the D3 ingested was stored by the subjects, and the rest was consumed or metabolized or both.

“This is a daily utilization rate of about 6500 IU at a [blood vitamin D] concentration of 50 ng/ml at the end of treatment,” write the researchers. Optimal levels of vitamin D are considered to be between 50–80 ng/mL. “At the doses used in this study, most vitamin D is metabolically consumed. This is the first study, to our knowledge, to have quantified this issue,” added Dr Heaney and his co-workers.

Shining light on the sunshine vitamin
Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. Both D3 and D2 precursors are transformed in the liver and kidneys into 25-hydroxyvitamin D (25(OH)D), the non-active 'storage' form, and 1,25-dihydroxyvitamin D (1,25(OH)2D), the biologically active form that is tightly controlled by the body.

The relative bioavailability of the two forms of vitamin D is an area of intense interest and debate. Several studies have reported that vitamin D2 is between 30 and 50% less effective as the D3 form in maintaining blood levels in humans. On the other hand, a 2008 study by Boston University researchers reported that both forms are equally effective at maintaining 25-hydroxyvitamin D status (Journal of Clinical Endocrinology & Metabolism, Vol. 93, pp. 677-681).

New data
Dr Heaney and his co-workers acknowledge the inconsistencies in the literature, and attempt to “clarify this issue”. Thirty-three healthy adults with an average age of 49.5 were recruited and assigned to receive weekly doses of vitamin D2 (Banner Pharmacaps, Inc.) or vitamin D3 (BTR Group, Inc.).

After 12 weeks of supplementation with 50,000 IU of vitamin D, the researchers report that levels increased significantly more in the D3 group than in the D2 group.

“By the various measures employed, D3 was from 56 to 87 percent more potent than D2 in raising serum 25(OH)D, and more than three times as potent in increasing fat calciferol content,” stated the researchers. “[T]hese results can, we believe, not only safely be generalized to routine clinical practice, but also are pertinent to what clinicians are actually prescribing.”

Dr Heaney and his co-workers noted that their results are limited by the relatively short duration of the intervention, and by their methods, which approximated vitamin D content in total body fat by extrapolating from a measure of percentage fat. “Hence, a longer study with multiple fat biopsies would be in order,” they added.

“Given its greater potency and lower cost, D3 should be the preferred treatment option when correcting vitamin D deficiency,” concluded the researchers.

(Source: www.nutraingredients.com)