

## NUTRITION

## Dietary fat might influence serum vitamin D level

Vitamin D absorption might be affected by the type of dietary fat a person consumes, according to US researchers. After supplementation with vitamin D<sub>3</sub>, the increment in plasma 25-hydroxyvitamin D was positively associated with monounsaturated fatty acids, and negatively associated with polyunsaturated fatty acids.

“We explored the hypothesis that polyunsaturated fatty acids might impair vitamin D absorption, using one of our large trial cohorts,” explains lead investigator Bess Dawson-Hughes from Tufts University, Boston. The investigators studied 152 male and female participants, aged 65 years or over, who were assigned dietary supplements of vitamin D<sub>3</sub> (700 IU per day) and calcium (500 mg per day). Plasma concentrations of 25-hydroxyvitamin D and serum parathyroid hormone levels were measured at the beginning of the study and at a 2-year follow-up. Blood samples were taken between 0700 h and 0930 h, following a minimum 8 h fasting period. Dietary intake of polyunsaturated, monounsaturated and saturated fatty acids, and physical activity were assessed

at 18 months with a 126-item food frequency questionnaire and a physical activity scale.

Although total fat intake did not affect 25-hydroxyvitamin D levels after supplementation with vitamin D<sub>3</sub>, monounsaturated fatty acids were positively associated with 25-hydroxyvitamin D in plasma, whereas polyunsaturated fatty acids and saturated fatty acids both had negative associations. Similarly, the ratio of monounsaturated to polyunsaturated fatty acids was positively associated with 25-hydroxyvitamin D, with or without correction for saturated fatty acids.

The researchers accept that one drawback to the use of questionnaires is that the specific fat content of each meal could not be measured. However, they are now directly testing their hypothesis that polyunsaturated fatty acids impair, and monounsaturated fatty acids increase, absorption of vitamin D<sub>3</sub>. They are also planning to investigate whether or not these fatty acids can affect the metabolism of absorbed vitamin D.

The idea that replacing dietary saturated fatty acids with unsaturated fatty acids could reduce the risk of cardiovascular

disease is widely accepted, but this new study indicates that added benefit could result from using oils that have a high monounsaturated to polyunsaturated fat ratio, such as olive oil. Consuming oils that are rich in monounsaturated fatty acids could increase the bioavailability of vitamin D<sub>3</sub>, but this hypothesis is yet to be shown experimentally.

Although these results are still early findings, the investigators are optimistic. “It’s too early to know,” says Dawson-Hughes, “but if our hypotheses are proved to be correct, it could affect how we take vitamin D to gain maximal absorption and benefit.”

Andy McLarnon

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