



Vitamin D

Patient Handout

- Vitamin D may finally be a vitamin that proves that supplements are needed and valuable.
- Vitamin supplements have been heralded and hyped over the years, only to fall from grace once research proves them to be little more than placebos in our quest for longer life or better health.
- But at least one substance may have true merit: Vitamin D. Long considered just a supplement consumed with calcium for bone health, this humble vitamin may have untapped potential in fighting or preventing disease, suggests an explosion of new research. It has shown promise in reducing the risk of, among other things, diabetes, pancreatic cancer, breast cancer and cardiovascular disease, and seems to improve infertility, weight control and memory.
- Two advocacy groups have sprung up in the United States to promote the substance. Food-industry executives are exploring ways to fortify more products. And Pub Med, an international database of medical literature, shows that 2,274 studies referencing the vitamin have been published this year.
- "Vitamin D is one hot topic," said Connie Weaver, a professor of foods and nutrition at Purdue University.
- On Tuesday and Wednesday, hope and hype may collide. An Institute of Medicine committee will convene to discuss whether the recommended daily intake of Vitamin D and calcium should be increased. Researchers overwhelmed by the vitamin's potential will square off against skeptics who say more study is needed before people are urged to take Vitamin D supplements.
- The last time guidelines were issued on the vitamin was in 1997, long before scientific information suggested people were getting too little. The recommended daily intake is 200 to 600 international units (IU) a day, with an upper limit of 2,000 IU a day.
- Some researchers are advocating at least 600 IU a day, with an upper limit of 10,000 IU. Giving impetus to this push are the facts that many people seem to be deficient and that the nutrient appears to play a role in many other conditions.
- Other scientists said it's too soon to urge everyone to take supplements. An influential report released in June by the Agency for Healthcare Research and Quality found little evidence to support increasing the recommended amounts.
- "I think there is a consensus that we might benefit from higher Vitamin D levels," said James Fleet, a professor of foods and nutrition at Purdue University and a long-time researcher on the vitamin and prostate cancer. "But the committee is going to ask whether there is existing scientific evidence that is strong enough to make a change."

Who Needs It?

- Vitamin D has long been known to be critical to bone and muscle health by improving calcium absorption in the intestines and the way calcium is regulated in bones. More recent research shows that receptors for it are found in almost every organ and tissue system in the body, suggesting deficiencies may impact many types of cell functions.
- The skin makes Vitamin D when exposed to sunlight, but not everyone spends the five minutes a day or so outside necessary for synthesis, and many more people wear sunscreen to prevent skin cancer.
- "A large portion of people fall into the at-risk category, and they would benefit from being brought out of that category," Fleet said. "The question is: Is the current requirement enough to keep most people out of the at-risk category?"
- A study of 13,000 Americans, published in March in the Archives of Internal Medicine, found that 50 to 75 percent have suboptimal levels by current standards. A level of 20 nanograms per milliliter (ng/ml) of 25-hydroxyvitamin D — the form most commonly measured in blood — has traditionally been considered sufficient.
- Most people 50 or older aren't meeting the current recommendations, Weaver said. The vitamin is found in relatively few dietary sources: some fortified foods, such as milk and some cereals, and naturally only in some fatty fish. Three cups of milk a day provides only 300 IU.
- "The largest source is sunshine, but not everyone can depend on that," Weaver said. "The elderly, dark-skinned people, higher-latitude dwellers all have trouble getting enough from sun."
- In darker-skinned people, melanin in the skin blocks absorption of the UV rays needed to make the vitamin; older people don't appear to synthesize it from the sun as well as younger people.
- Some scientists argue that levels of 40 ng/ml to 60 ng/ml (U.S. measurements) would be far better for disease prevention. That would require intakes much higher than the current 200 to 600 IU a day.

Impact on Health

- The July issue of the Annals of Epidemiology, devoted to Vitamin D research, links the vitamin to lower risks of cancers of the breast, colon, ovary and prostate. Animal and lab studies also demonstrate its importance in many of the cellular mechanisms that control cancer, such as cell growth, cell death, inflammation and DNA repair.
- Five studies on colorectal cancer and breast cancer, taken together, showed that people with levels higher than 34 ng/ml to 52 ng/ml had a 50 percent reduced cancer risk, said Cindy Davis, a researcher at the National Cancer Institute's Nutrition Science Research Group.
- Such studies are not proof the vitamin influences disease development, said Karen Hansen, an assistant professor at the University of Wisconsin who studies bone health. "People with higher Vitamin D may just be healthier for other reasons."
- But evidence linking higher blood levels to diabetes and cardiovascular disease is also mounting. A study in December 2008 in the Journal of the American College of Cardiology found that deficiency may increase the risk of cardiovascular disease.

- Other studies have tied lower levels to an increased risk of hypertension, diabetes, stroke and congestive heart failure.
- Even for bone health, some studies suggest that about 700 to 800 IU a day are needed to prevent fractures in people over age 50, Hansen said. She recommends 800 IU a day, with calcium, to her patients.
- Meanwhile, studies show that the previous estimation of a toxic dose - 2,000 IU a day - is most likely too conservative. Toxic doses can lead to a dangerous level of calcium in the blood, high blood pressure and kidney failure.
- "It's likely they will increase their recommendation for all ages," Hanson said of the Institute of Medicine committee, which will release its report next year.

Data Inconclusive

- Not everyone is convinced the advice should be changed.
- In a report ordered by the federal government to assist the committee, researchers concluded that there is a lack of strong evidence to support altering recommendations. The committee is not expected to change calcium recommendations.
- "We did not find data that indicate a specific level of Vitamin D intake is associated with adverse outcomes or beneficial health outcomes," said Dr. Thomas Trikalinos, co-director of the Tufts Evidence-Based Practice Center, which prepared the report.
- He said the report is meant to inform the committee but does not make recommendations.
- Already, however, the American Society of Clinical Oncology has recommended a higher intake for breast-cancer patients who are deficient. In October, the American Academy of Pediatrics said children should get 400 IU a day, double the current recommendation.
- Access the FACT website: <http://promed.gordonresearch.com/factforum/welcome.html>

References

- Roan, Shari, Los Angeles Times, **Vitamin D advocates push for higher doses**