

## Vitamin D and Calcium Supplementation to Prevent Fractures

The U.S. Preventive Services Task Force (Task Force) has issued **final** recommendations on *Vitamin D and Calcium Supplementation to Prevent Fractures*.

This final recommendation statement applies to adult men and women who live at home and not in assisted living or in nursing homes. It does not apply to people who have been diagnosed with osteoporosis or vitamin D deficiency.

The Task Force reviewed recent research studies on the use of vitamin D and calcium supplements to prevent fractures. The final recommendation statement summarizes what the Task Force learned

about the potential benefits and harms of using these supplements for this purpose: (1) There is not enough evidence to determine whether vitamin D and calcium supplements can prevent fractures in men and in women who have not yet gone through menopause. (2) There is not enough evidence to determine whether vitamin D and calcium supplements at larger doses can prevent fractures in older women. (3) Lower doses of vitamin D and calcium supplements do not prevent fractures in older women and may increase the risk of kidney stones.

This fact sheet explains the recommendation and what it might mean for you.

What are vitamin D and calcium?

Vitamin D and calcium are important nutrients that work together to keep bones strong. Both nutrients are found naturally in foods but they also can be taken as dietary supplements.

### Facts About Vitamin D, Calcium, and Fractures

Vitamin D and calcium are essential nutrients that are important to overall health. Vitamin D helps the body absorb calcium from foods and supplements. It also plays a role in helping muscles, nerves, and the immune system work properly. Calcium is a mineral that helps maintain strong bones and teeth. The body also needs calcium for muscles, nerves, and blood vessels to work properly, and it plays a role in the release of hormones and enzymes that affect many functions in the body.

Healthy bones are made up of a dense web of protein fibers and calcium. When this web becomes less dense, bones become fragile and break easily. This is especially true for the hip, spine, and wrist. Fractures, or breaking a bone, are common among women who have gone through menopause. These fractures often lead to pain and disability, less independence, and a reduced quality of life. Fractures, especially hip fractures, have also been linked with an increased risk of death.

### Potential Benefits and Harms

The Task Force did not find enough evidence to say whether supplements prevent fractures in women who have not yet gone through menopause or in men.

There were more studies that looked at the use of supplements to prevent fractures in women who have already gone through menopause. For this group, the Task Force found that the available evidence on the benefits and harms was not clear enough to make a recommendation about the effectiveness of vitamin D and calcium supplements at high doses to prevent fractures. The evidence was clear, however, that there is no benefit for this group in taking Vitamin D and calcium supplements at low doses to prevent fractures. Harms associated with taking vitamin D and calcium supplements at low doses were small, but may include an increased risk of kidney stones.

## The Final Recommendations on Vitamin D and Calcium Supplementation to Prevent Fractures: What Do They Mean?

Here are the Task Force's final recommendation statements on vitamin D and calcium supplementation to prevent fractures. Recommendation statements have letter grades. The grades are based on the quality and strength of the evidence about the potential benefits and harms of supplements for this purpose. They are also based on the size of the potential benefits and harms. Task Force recommendation grades are explained in the box at the end of this fact sheet.

When the Task Force recommends against (Grade D) using supplements for a particular purpose, it is because the supplements have no benefit and some potential harms. When there is not enough evidence to judge potential benefits and harms, the Task Force does not make a recommendation for or against screening—it issues an I Statement. The Notes explain key ideas.

Visit the Task Force Web site to read the full [final recommendation statement](#). The statement explains the evidence the Task Force reviewed and how it decided on the grades. An [evidence report](#) provides more detail about the studies the Task Force reviewed.

**1** The Task Force concludes that the current *evidence is insufficient to assess the balance of benefits and harms* of combined vitamin D and calcium supplementation for the *primary prevention* of fractures in *premenopausal women* or in men. **I Statement**

**2** The Task Force concludes that the current evidence is insufficient to assess the balance of the benefits and harms of daily supplementation with greater than 400 IU of *vitamin D<sub>3</sub>* and greater than 1,000 mg of calcium for the primary prevention of fractures in *noninstitutionalized postmenopausal women*. **I Statement**

**3** The Task force recommends against *daily supplementation* with 400 IU or less of vitamin D<sub>3</sub> and 1,000 mg or less of calcium for the primary prevention of fractures in noninstitutionalized postmenopausal women. **Grade D**

## Notes

**1** *evidence is insufficient*  
The Task Force did not find enough information on the use of these supplements to prevent fractures to reach a conclusion.

*assess the balance...*  
The Task Force was not able to determine whether the potential benefits would outweigh any potential harms.

*primary prevention*  
Preventing a disease or condition before it even begins.

*premenopausal women*  
Women who have not yet gone through menopause.

**2** *IU*  
International Units. IUs are used to indicate amounts of certain vitamins and other biological substances.

*vitamin D<sub>3</sub>*  
A form of vitamin D often used in supplements.

*mg*  
Milligram. A measure of weight in the metric system.

*noninstitutionalized postmenopausal women*  
Women living at home (not in assisted living or a nursing home) and who have already gone through menopause.

**3** *daily supplementation*  
The Task Force found that taking a daily supplement at this level every day does not prevent fractures and may increase the risk of kidney stones.

## Should You Use Vitamin D and Calcium Supplements to Prevent Fractures?

Getting the best health care means making smart decisions about what screening tests, counseling services, and preventive medicines to get and when to get them. Many people don't get the tests or counseling they need. Others get tests or counseling they don't need or that may be harmful to them.

Task Force recommendations can help you learn about screening tests, counseling services, and preventive medicines. These services can keep you healthy and prevent disease. The Task Force recommendations do not cover diagnosis (tests to find out why you are sick) or treatment of disease. Task Force recommendations also apply to some groups of people, but not others. For example, this recommendation does not apply to people who are living in assisted living or nursing homes.

### [Making a decision about using vitamin D and calcium supplements to prevent fractures](#)

Think about your own health and lifestyle. Consider your personal beliefs and preferences for health care. Talk with a health care professional about whether the use of these supplements to prevent fractures is right for you. And consider scientific recommendations, like this one from the Task Force.









## What is the U.S. Preventive Services Task Force?

The Task Force is an independent, volunteer panel of national experts in prevention and evidence-based medicine. The Task Force works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, or preventive medicines. The recommendations apply to people with no signs or symptoms of the disease being discussed. Recommendations only address services offered in the primary care setting or services referred by a primary care clinician.

To develop a recommendation statement, Task Force members consider the best available science and research on a topic. For each topic, the Task Force posts draft documents for public comment, including a draft recommendation statement. All comments are reviewed and considered in developing the **final recommendation statement**. To learn more, visit the [Task Force Web site](#).

USPSTF Recommendation Grades	
Grade	Definition
A	Recommended.
B	Recommended.
C	Recommendation depends on the patient's situation.
D	Not recommended.
I statement	There is not enough evidence to make a recommendation.

### Click Here to Learn More About Vitamin D, Calcium, and Fractures

-  **Dietary Supplement Fact Sheet: Vitamin D**  
(Office of Dietary Supplements, National Institutes of Health)
-  **Dietary Supplement Fact Sheet: Calcium**  
(Office of Dietary Supplements, National Institutes of Health)
-  **Calcium and Vitamin D: Important at Every Age**  
(NIH Osteoporosis and Related bone Diseases National Resource Center)
-  **Get Enough Calcium**  
(healthfinder.gov)
-  **Osteoporosis**  
(NIH Osteoporosis and Related Bone Diseases National Resource Center)
-  **Preventing Osteoporosis: Questions for the Doctor**  
(healthfinder.gov)

### Click Here For Related Recommendations from the Task Force

[Screening for Osteoporosis](#) (January 2011)

[Prevention of Falls in Community-Dwelling Older Adults](#) (May 2012)

### Changes from the Draft Recommendation Statement on Vitamin D and Calcium

When the draft recommendation statement for this topic was posted for public comment, it included a statement on vitamin D and calcium supplements to prevent cancer. Recognizing the complexity of this topic, the Task Force decided to focus this final recommendation only on bone health and preventing fractures.

Recommendations on the effectiveness of vitamin D and calcium supplements to prevent cancer will be incorporated into an upcoming recommendation that will look at the impact and effectiveness of a range of supplements to prevent cancer and cardiovascular disease.