

Practice Guidelines

IOM Releases Report on Dietary Reference Intakes for Calcium and Vitamin D

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Guideline source: Institute of Medicine

Literature search described? No

Evidence rating system used? No

Available at: <http://www.iom.edu/Reports/2010/Dietary-Reference-Intakes-for-Calcium-and-Vitamin-D.aspx>

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Calcium and vitamin D are known for their association with bone health, but there have been conflicting messages about other health benefits of these nutrients and the amounts needed. For this reason, the Institute of Medicine (IOM) assessed current information on potential health outcomes associated with calcium and vitamin D.

Health Effects

The reference values (Dietary Reference Intakes) for calcium and vitamin D were set in 1997; however, newer reference values were created based on higher-quality data. A review of this data determined that evidence of benefits outside of bone health (e.g., cancer, cardiovascular disease, diabetes mellitus, falls, hypertension, immune response, metabolic syndrome, neuropsychological functioning, physical performance, preeclampsia, reproductive outcomes) was from studies that often had mixed and inconclusive results. Strong evidence confirmed the importance of calcium and vitamin D for bone growth and maintenance.

Dietary Reference Intakes

On average, children one to three years of age need 500 mg of calcium daily, and those four years and older need 800 mg daily. To support bone growth, adolescents need approximately 1,300 mg daily. Women 19 to 50 years of age need 800 mg daily, and women older than 50 years need 1,000 mg daily. Men up to 71 years of age need 800 mg daily, and men 71 years and older should get 1,000 mg daily.

When determining appropriate vitamin D intake, the IOM assumed minimal sun exposure. Persons living in North America should get 400 IU of vitamin D daily;

however, those 71 years and older may need up to 800 IU daily.

Current Intake

Information from national surveys indicates that girls nine to 18 years of age may not be getting enough calcium, and that postmenopausal women who take supplements may be getting too much calcium, which increases the risk of kidney stones. Although the average intake of vitamin D is below the median requirement, average serum vitamin D levels are higher than the 20 ng per mL (49.92 nmol per L) that the IOM found to be necessary for good bone health, suggesting that sun exposure contributes significant amounts of vitamin D in persons living in North America. It also implies that most persons are getting the necessary amount of vitamin D. Although some subgroups may still be at increased risk of not getting enough vitamin D, the number of persons with vitamin D deficiency may actually be overestimated because many laboratories testing serum vitamin D levels could be using cut-points that are higher than those recommended by the IOM.

Tolerable Levels

The IOM set upper levels of calcium and vitamin D intake to indicate the highest safe amount a person can take. These levels vary by age; however, the IOM determined that more than 2,000 mg of calcium daily and 4,000 IU of vitamin D daily increase the risk of harm. Kidney stones are associated with too much calcium supplementation, and very high levels of vitamin D (more than 10,000 IU daily) are associated with kidney and tissue damage. Evidence of risks associated with vitamin D at lower intake levels is limited; however, some studies indicate signs of adverse effects. ■

Answers to This Issue's CME Quiz

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|--------------------|--------------------|---------------------|
| Q1. D | Q6. A, C | Q10. B |
| Q2. A | Q7. C | Q11. A |
| Q3. A, B, D | Q8. A, C, D | Q12. A, B, C |
| Q4. C | Q9. A, B, D | Q13. A, B, C |
| Q5. A | | |