

Calcium and vitamin D in preventing fractures

Data are not sufficient to show inefficacy

EDITOR—The study by Porthouse et al had two major design flaws.¹ Firstly, the dose of vitamin D (800 IU per day) is subphysiological and therefore subtherapeutic. Secondly, their use of "self report" as a measure of compliance is unreliable.

The dose of vitamin D at 800 IU daily was not determined scientifically but determined arbitrarily before sufficient scientific methodology was available.²⁻⁴ Heaney et al determined the physiological requirement of vitamin D by showing that healthy men use 4000 IU cholecalciferol daily,² an amount that is safely attainable with supplementation³ and often exceeded with exposure of the total body to equatorial sun.⁴

We provided six guidelines for interventional studies with vitamin D.⁵ Dosages of vitamin D must reflect physiological requirements and natural endogenous production and should therefore be in the range of 3000-10 000 IU daily. Vitamin D supplementation must be continued for at least five to nine months. The form of vitamin D should be D₃ rather than D₂. Supplements should be assayed for potency. Effectiveness of supplementation must include measurement of serum 25-hydroxyvitamin D. Serum 25(OH)D concentrations must enter the optimal range, which is 40-65 ng/ml (100-160 nmol/l).

Since the study by Porthouse et al met only the second and third of these six criteria, their data cannot be viewed as reliable for documenting the inefficacy of vitamin D supplementation.

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Competing interests: AV is a researcher at Biotics Research Corporation, a drug manufacturing facility in the United States that has approval from the Food and Drug Administration.

References

1. Porthouse J, Cockayne S, King C, Saxon L, Steele E, Aspray T, et al. Randomised controlled trial of calcium and supplementation with cholecalciferol (vitamin D₃) for prevention of fractures in primary care. *BMJ* 2005;330: 1003. (30 April.)[\[Abstract/Free Full Text\]](#)
2. Heaney RP, Davies KM, Chen TC, Holick MF, Barger-Lux MJ. Human serum 25-hydroxycholecalciferol response to extended oral dosing with cholecalciferol. *Am J Clin Nutr* 2003;77: 204-10.[\[Abstract/Free Full Text\]](#)
3. Vieth R, Chan PC, MacFarlane GD. Efficacy and safety of vitamin D₃ intake exceeding the lowest observed adverse effect level. *Am J Clin Nutr* 2001;73: 288-94.[\[Abstract/Free Full Text\]](#)
4. Vieth R. Vitamin D supplementation, 25-hydroxyvitamin D concentrations, and safety. *Am J Clin Nutr* 1999;69: 842-56.[\[Abstract/Free Full Text\]](#)
5. Vasquez A, Manso G, Cannell J. The clinical importance of vitamin D (cholecalciferol): a paradigm shift with implications for all healthcare providers. *Altern Ther Health Med* 2004;10: 28-36.[\[ISI\]](#)[\[Medline\]](#)

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Randomised controlled trial of calcium and supplementation with cholecalciferol (vitamin D₃) for prevention of fractures in primary care

Jill Porthouse, Sarah Cockayne, Christine King, Lucy Saxon, Elizabeth Steele, Terry Aspray, Mike Baverstock, Yvonne Birks, Jo Dumville, Roger Francis, Cynthia Iglesias, Suezann Puffer, Anne Sutcliffe, Ian Watt, and David J Torgerson
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