Vitamin D supplements & acute respiratory infections

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**Study reports that vitamin D supplements reduce risk of acute respiratory infections**  
  
*But others say a clinically useful effect remains uncertain and needs confirmation*

Vitamin D supplements can help prevent acute respiratory tract infections, particularly among very deficient individuals, concludes a study in **The BMJ** today.  
  
The researchers from Queen Mary University of London say their findings “support the introduction of public health measures such as food fortification to improve vitamin D status in settings where profound vitamin D deficiency is common.”  
  
In a linked editorial, researchers who recently questioned the evidence for use of vitamin D supplements to prevent disease, say a clinically useful effect remains uncertain and requires confirmation in well-designed adequately powered randomised controlled trials.  
  
Acute respiratory tract infections are a major cause of global illness and death. They can include anything from the common cold to bronchitis and pneumonia and have been linked with low blood levels of vitamin D.  
  
Some studies have shown that vitamin D can trigger immune responses to certain bacteria and viruses, but randomised trials ofvitamin D supplements to prevent acute respiratory tract infection have led to conflicting results.  
  
So an international team of researchers set out to assess the overall effect of vitamin D supplements on risk of acute respiratory tract infection, and to identify factors modifying this effect.   
  
They conducted a systematic review and meta-analysis of individual participant data from 25 randomised controlled trials of vitamin Dsupplementation, involving 11,321 participants aged 0 to 95 years.  
  
All but two trials were assessed as being at low risk of bias (problems with study design that can influence results). This type of research provides the strongest evidence for drawing causal conclusions because it draws together all of the best evidence.  
  
After adjusting for other potentially influential factors such as age, sex and study duration, the researchers found that vitamin Dsupplementation resulted in a 12% reduction in the proportion ofparticipants experiencing at least one acute respiratory tract infection.  
  
They calculate that 33 people would need to take vitamin Dsupplements to prevent one acute respiratory tract infection. Further analyses among specific groups showed benefit was greater in those receiving daily or weekly vitamin D without additional large (bolus) doses.  
  
And the protective effects in this group were strongest in those with severe vitamin D deficiency (less than 25 nmol/L baseline blood levels). The researchers calculate that only four people in this group would need to take supplements to prevent one acute respiratory tract infection.  
  
Use of vitamin D was safe, they add. Potential adverse reactions were rare, and the risk of such events was the same between participants randomised to intervention and control arms.  
  
The researchers point to some study limitations, including limited power to detect effects of vitamin D for some groups. Nevertheless, they conclude: “Our results add to the body of evidence supporting the introduction of public health measures such as food fortification to improve vitamin D status, particularly in settings where profoundvitamin D deficiency is common.”  
  
In a linked editorial, Mark Bolland from the University of Auckland and Alison Avenell from the University of Aberdeen, ask is this really a major new development, or is it yet another hypothesis aboutvitamin D supplementation that needs testing in adequately powered randomised controlled trials?  
  
They point to several methodological issues with the study and argue that the results are “heterogeneous and not sufficiently applicable to the general population. We think that they should be viewed as hypothesis generating only, requiring confirmation in well designed adequately powered randomised controlled trials.”  
  
“Current evidence does not support the use of vitamin Dsupplementation to prevent disease, except for those at high risk of osteomalacia (weak bones and muscles due to low blood vitamin Dlevels, currently defined as less than 25 nmol/L)”, they conclude.  
  
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**Note to Editors**  
  
Research: [Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data](http://www.bmj.com/cgi/doi/10.1136/bmj.i6583)  
  
Editorial: [Do vitamin D supplements help prevent respiratory tract infections?](http://www.bmj.com/cgi/doi/10.1136/bmj.j456)  
  
Journal: The BMJ

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