



COMITÉ PERMANENT DES MÉDECINS EUROPÉENS
STANDING COMMITTEE OF EUROPEAN DOCTORS

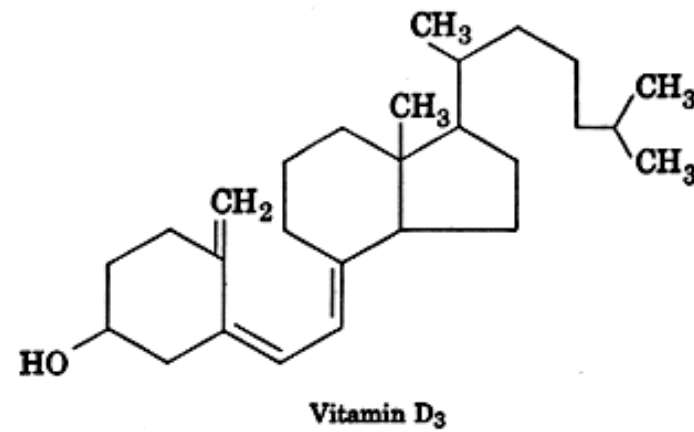
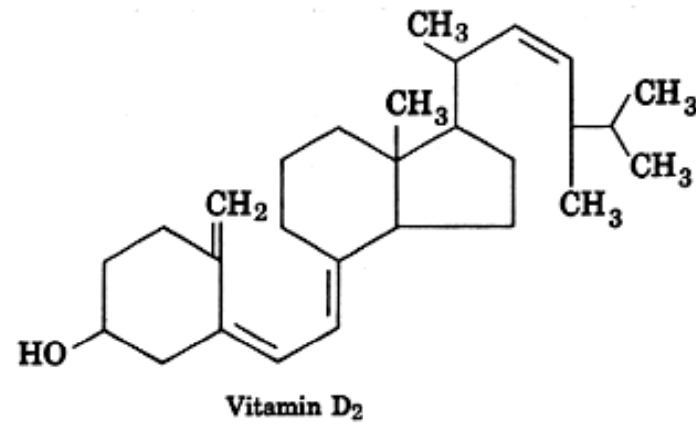


Prevention – the Case for Vitamin D

The CPME Policy Paper and the Role of Doctors

**Prof Dr Arie C Nieuwenhuijzen Kruseman
internist-endocrinologist
president Royal Dutch Medical Association**

23 March 2010, European Parliament, Brussels





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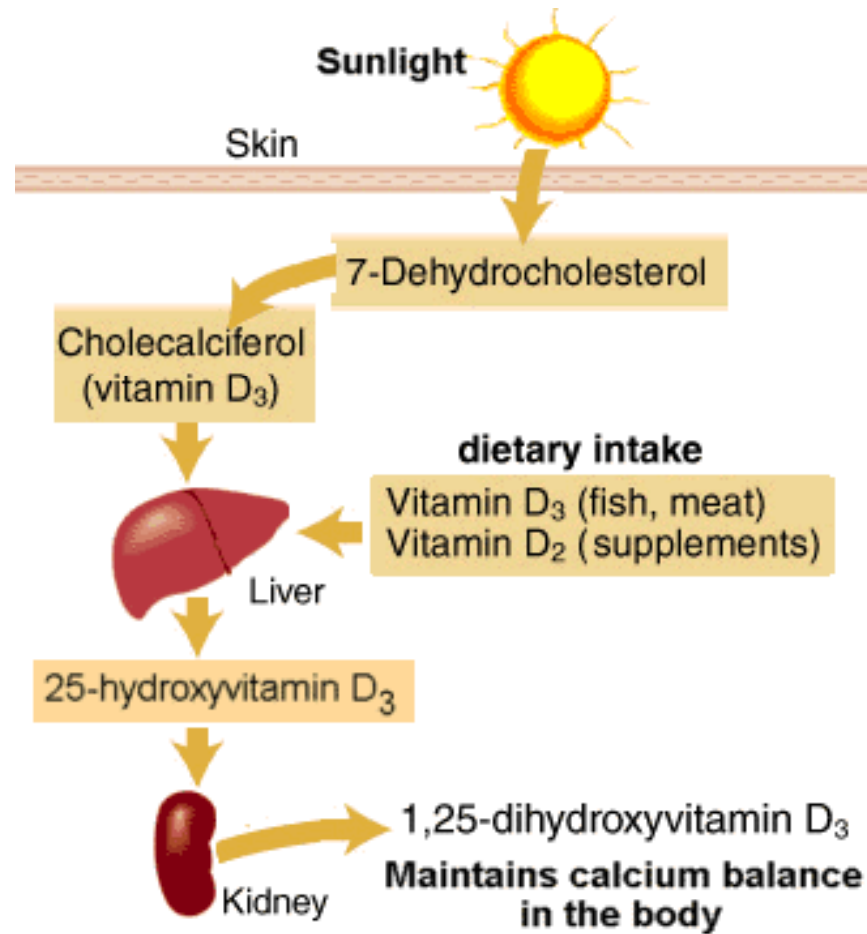
Vitamin D

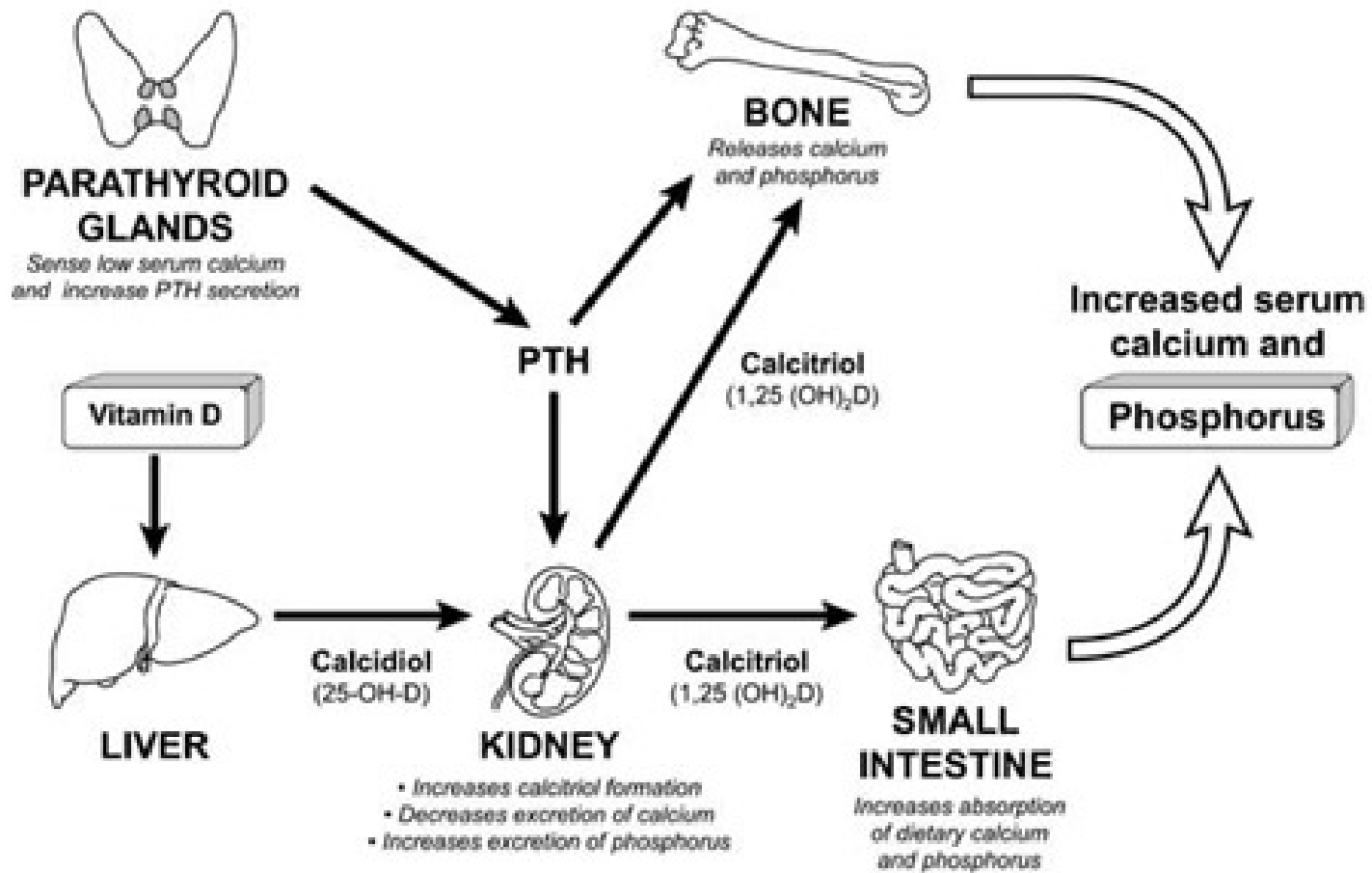


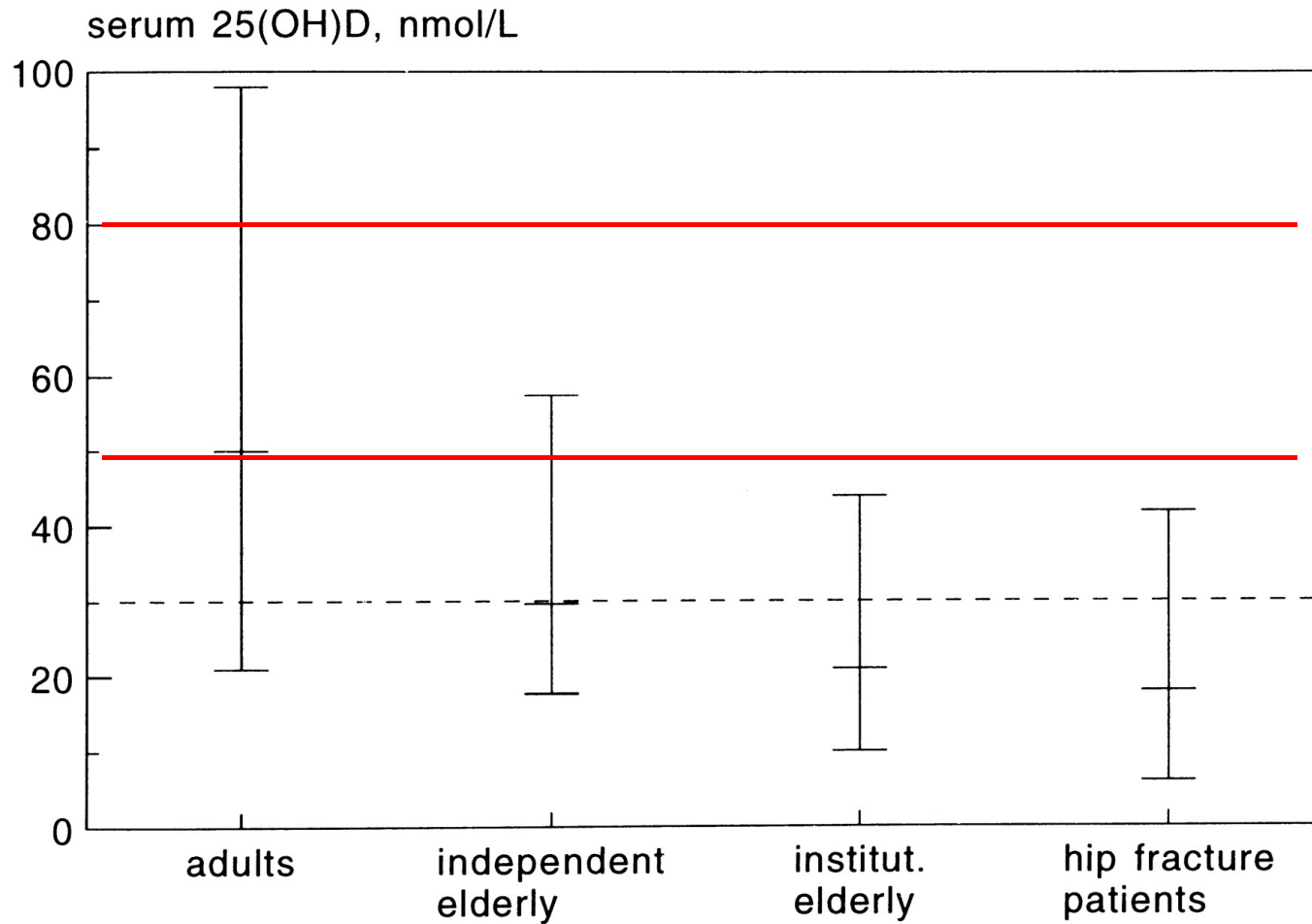
The body itself makes
vitamin D when it is
exposed to the sun

Cheese, butter,
margarine,
fortified milk,
fish and fortified
cereals are food sources
of vitamin D



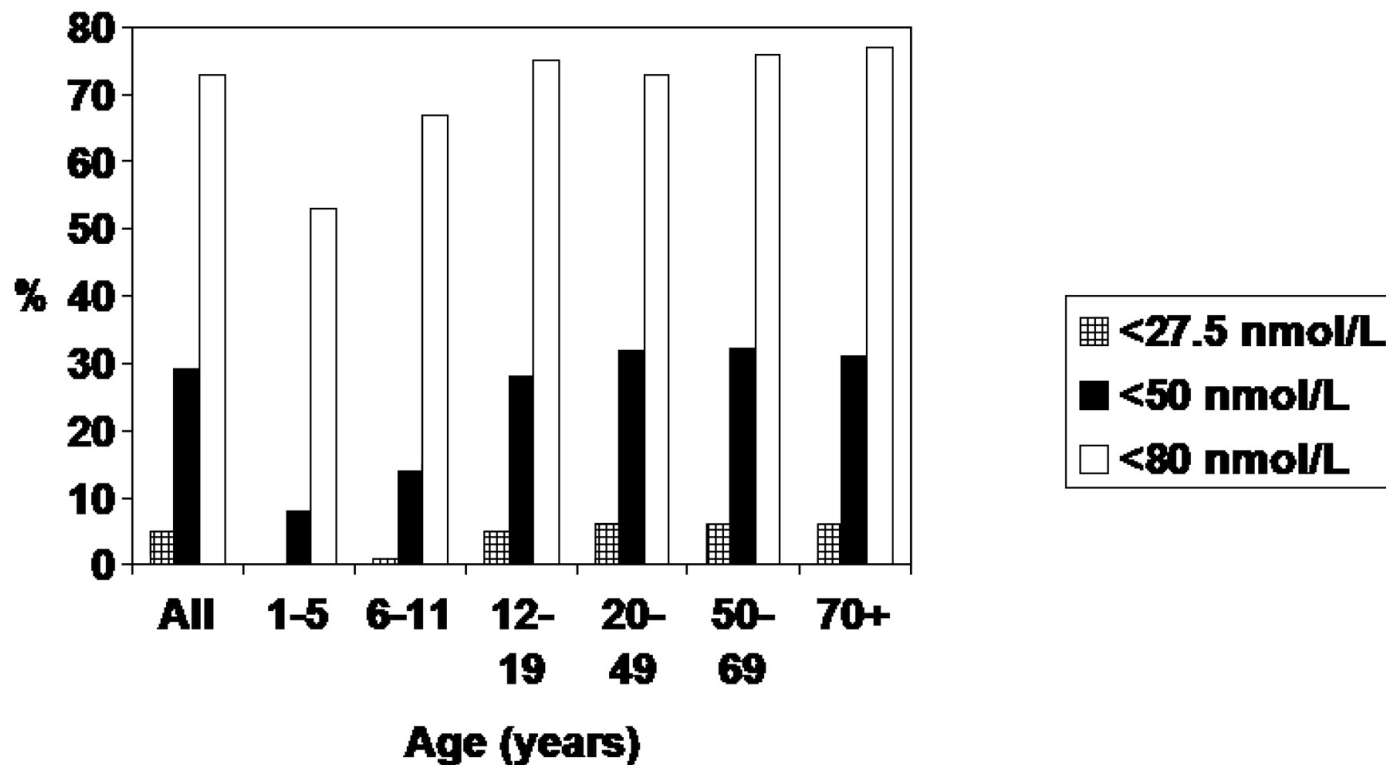






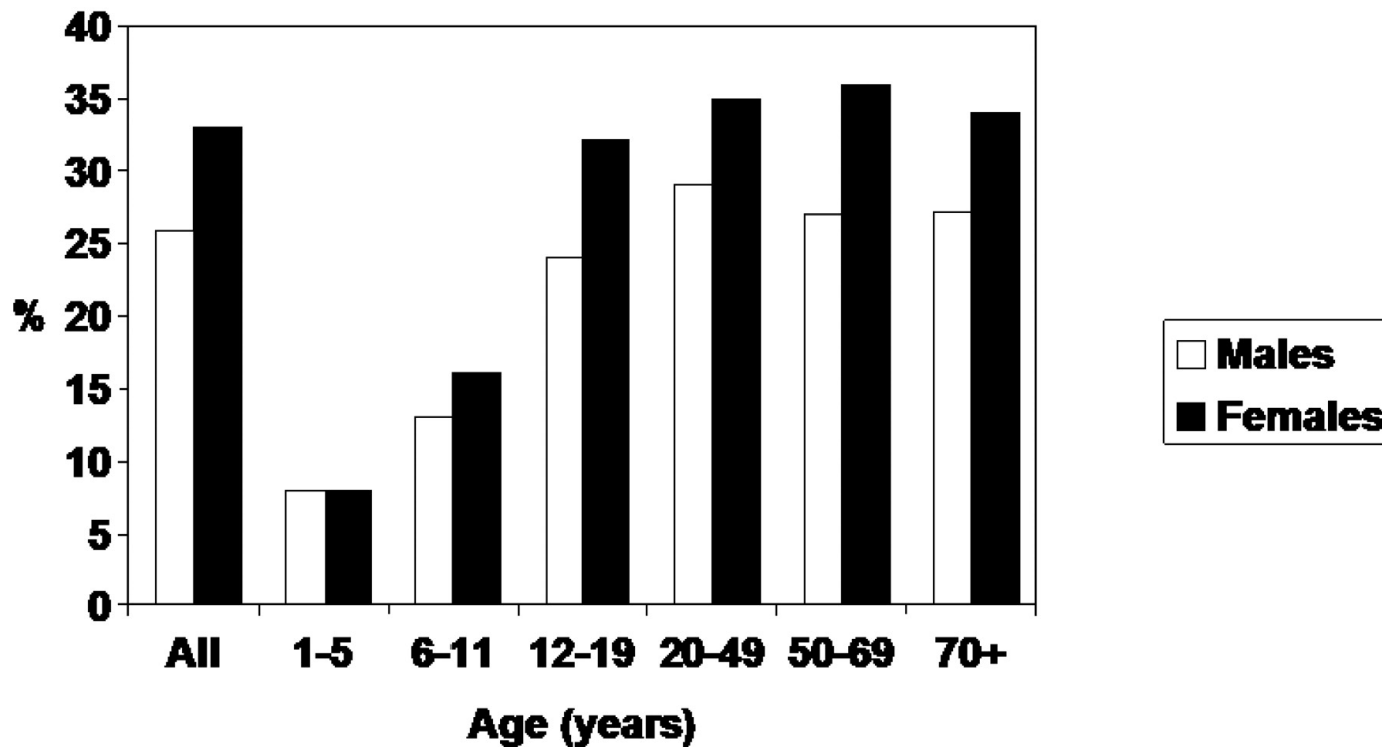


Prevalence (as a percentage of the group) of low serum 25-hydroxyvitamin D concentrations from the NHANES 2000-2004 by cutoff



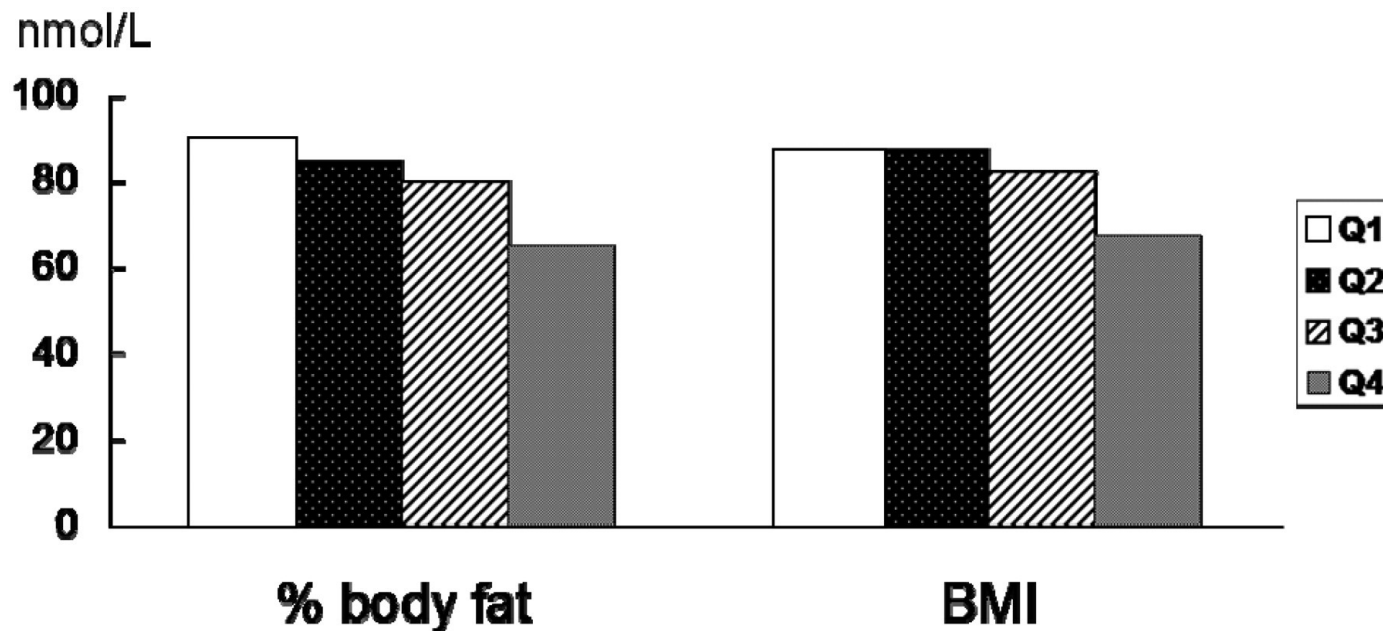


Prevalence (%) of a serum 25-hydroxyvitamin D concentration <50 nmol/L for men and women from the NHANES 2000-2004





Serum 25-hydroxyvitamin D concentration from the NHANES 1988-1994 by body fat quartile (Q) for non-Hispanic white women aged 20-49 y



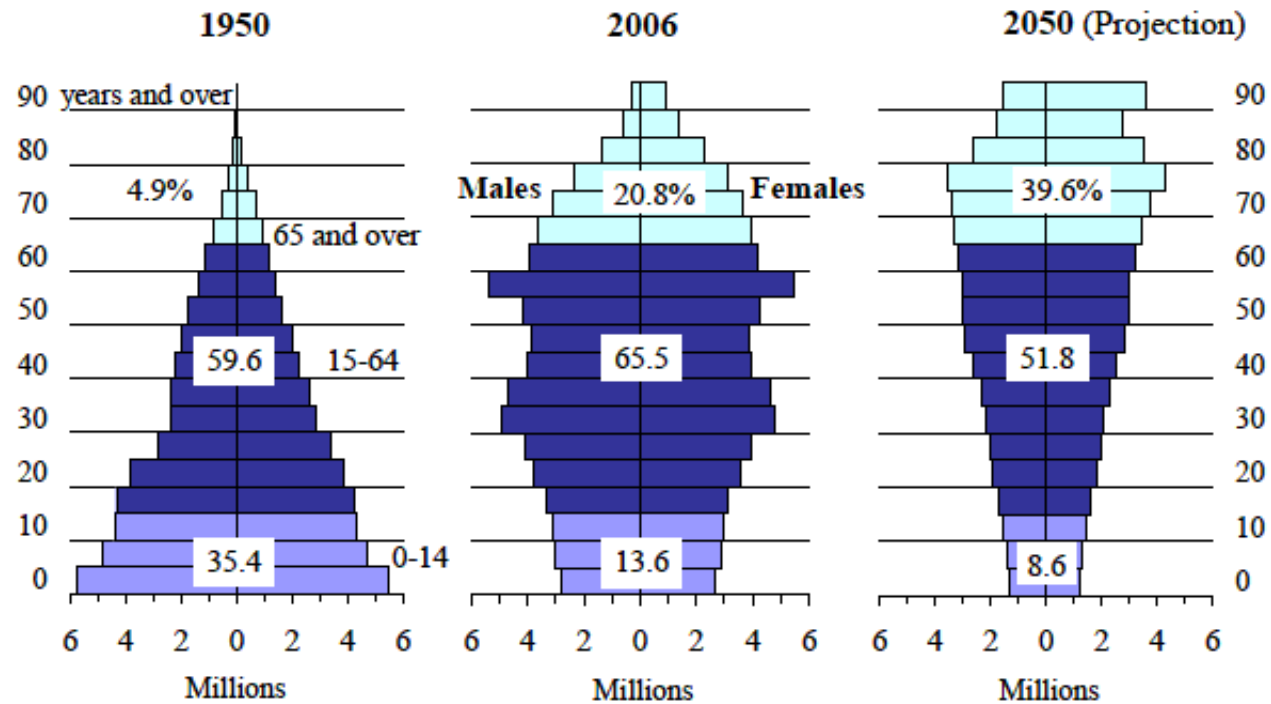


Increased prevalence of vitamin D deficiency is likely due to

- **self-imposed limitations on sunlight exposure**
- **underestimates for recommended daily intake for vitamin D**
- **scarcity of vitamin D in diets**
- **increasing body fat mass in populations around the world**
- **aging**



Changes in the Population Pyramid





Consequences of vitamin D deficiency

- **rickets:** **softening of bones in children due to defective bone mineralization**
- **osteomalacia** **defective bone mineralization in adults after closure of growth plates**
- **osteoporosis** **decreased bone mass and strength**
- **myopathy** **decreased muscle strength**



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Clinical symptoms of vitamin D deficiency

- **Bone deformities and fractures**
- **Muscle weakness**
- **Bone and muscle pain**
- **Increased fall and fracture risk**
- **Muscle cramps, tetany (rare)**

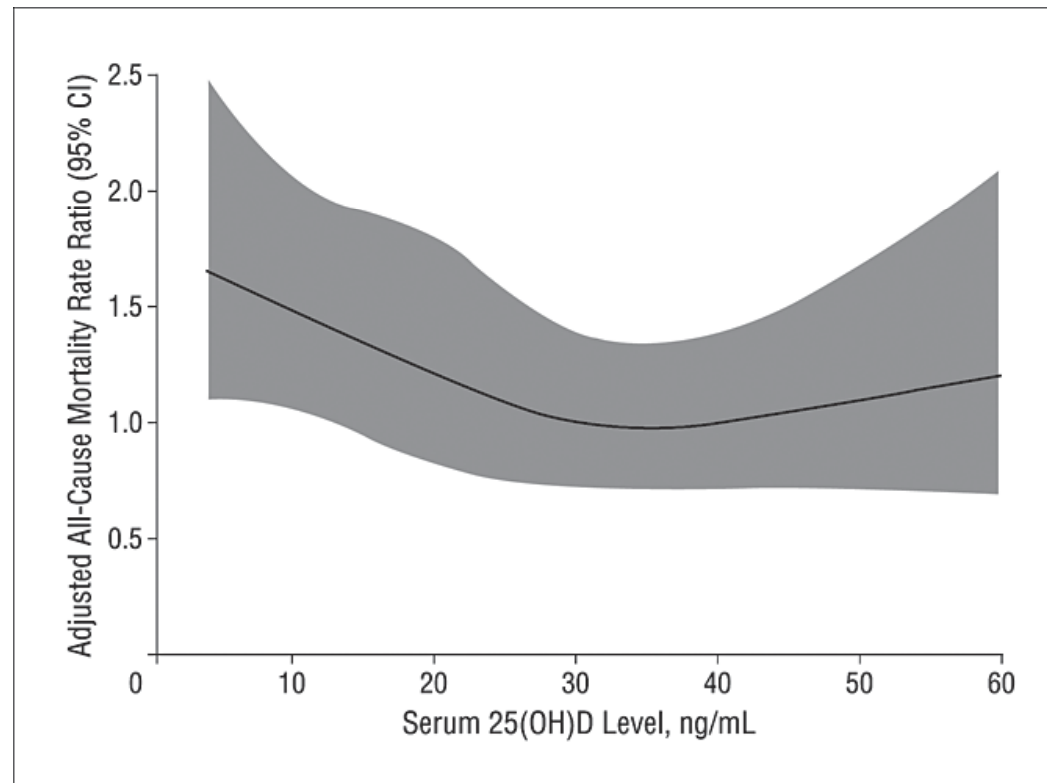


Vitamin D deficiency may also contribute to an increased susceptibility to

- **metabolic syndrome (hypertension, cardiovascular disease)**
- **cancer (e.g. colorectal, breast, prostate)**
- **infectious diseases (e.g. influenza, TBC)**
- **multiple sclerosis**
- **autoimmune diseases (e.g. type I diabetes mellitus)**
- **periodontal disease**
- **cognitive impairment in older adults**
- **chronic pain syndrome (e.g. polymyalgia rheumatica)**



Associations between serum 25-hydroxyvitamin D (25[OH]D) levels and all-cause mortality in 13 331 participants of the Third National Health and Nutrition Examination Survey



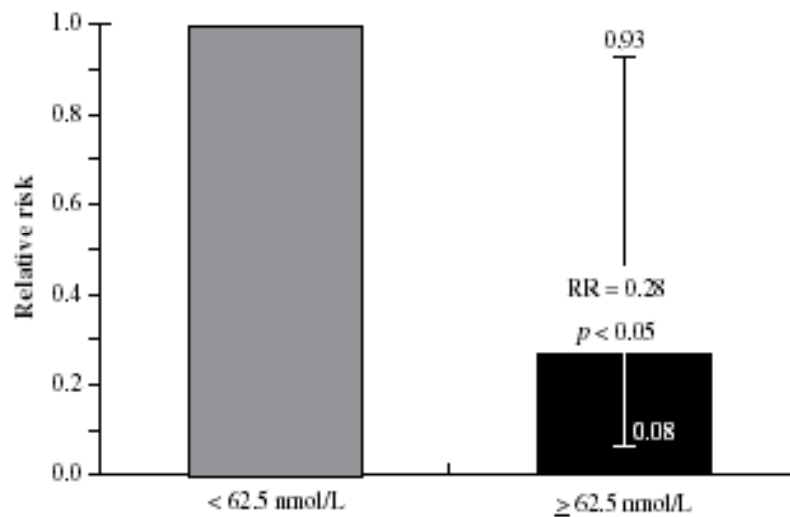


FIGURE 1. Relative risk of breast cancer mortality, by baseline serum 25(OH)D concentration, divided at the median, NHANES III cohort, 1988–2000. (Source: Drawn from data in Freedman et al. [56].)

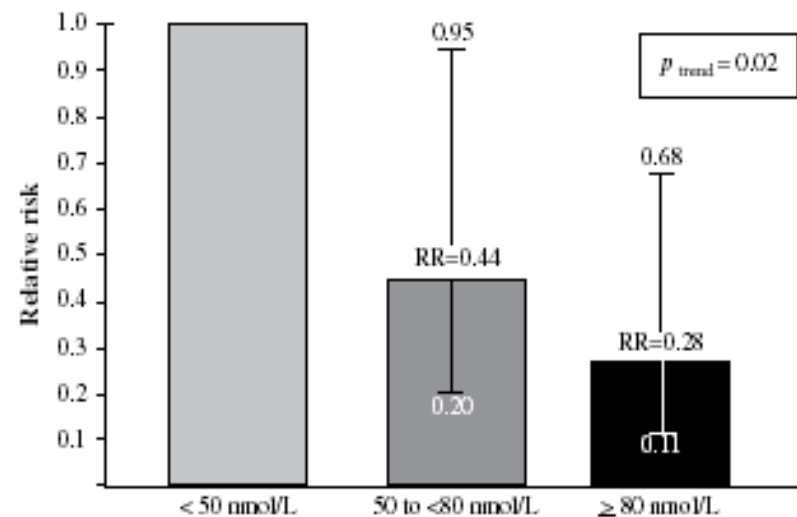
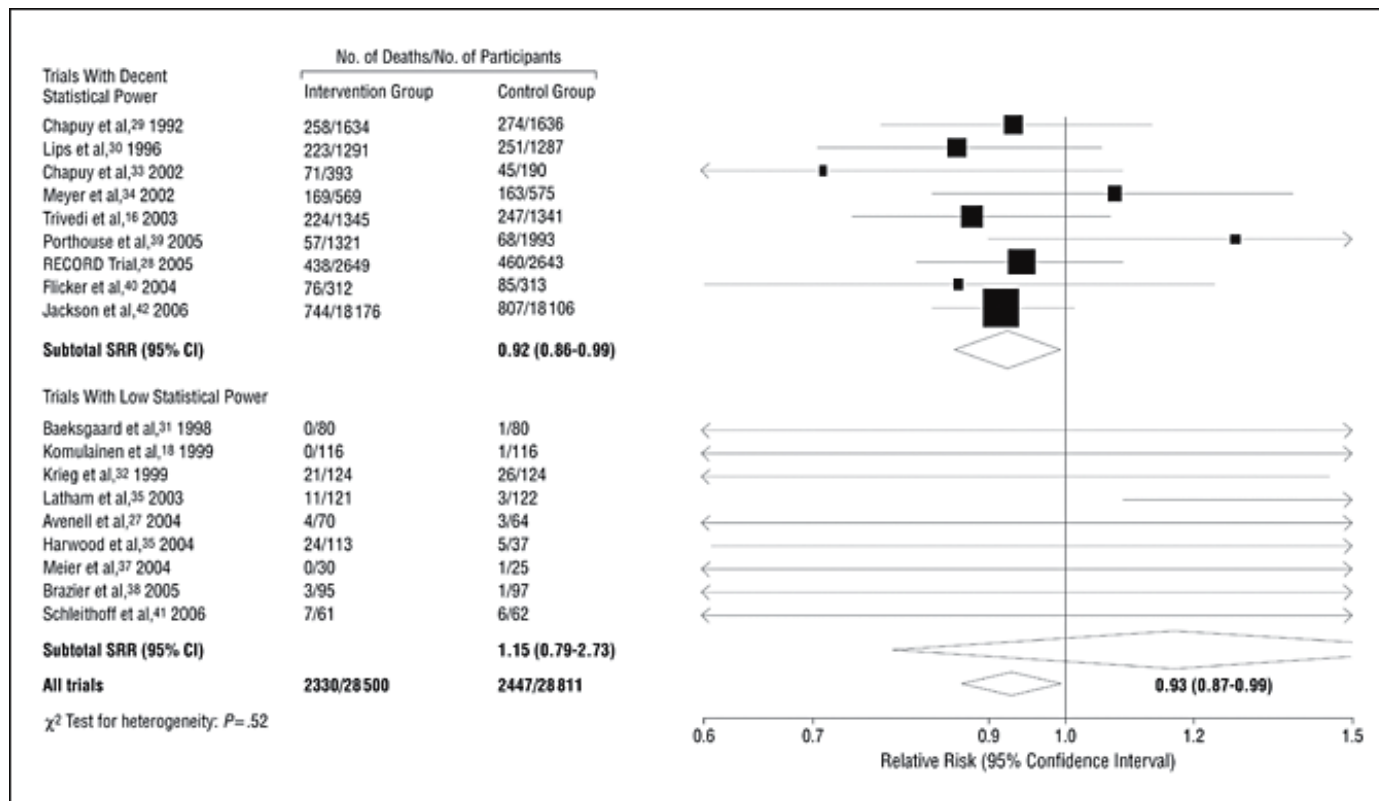


FIGURE 3. Relative risk of colon cancer mortality, by baseline serum 25(OH)D concentration, in tertiles, NHANES cohort, 1988–2000. (Source: Drawn from data in Freedman et al. [56].)



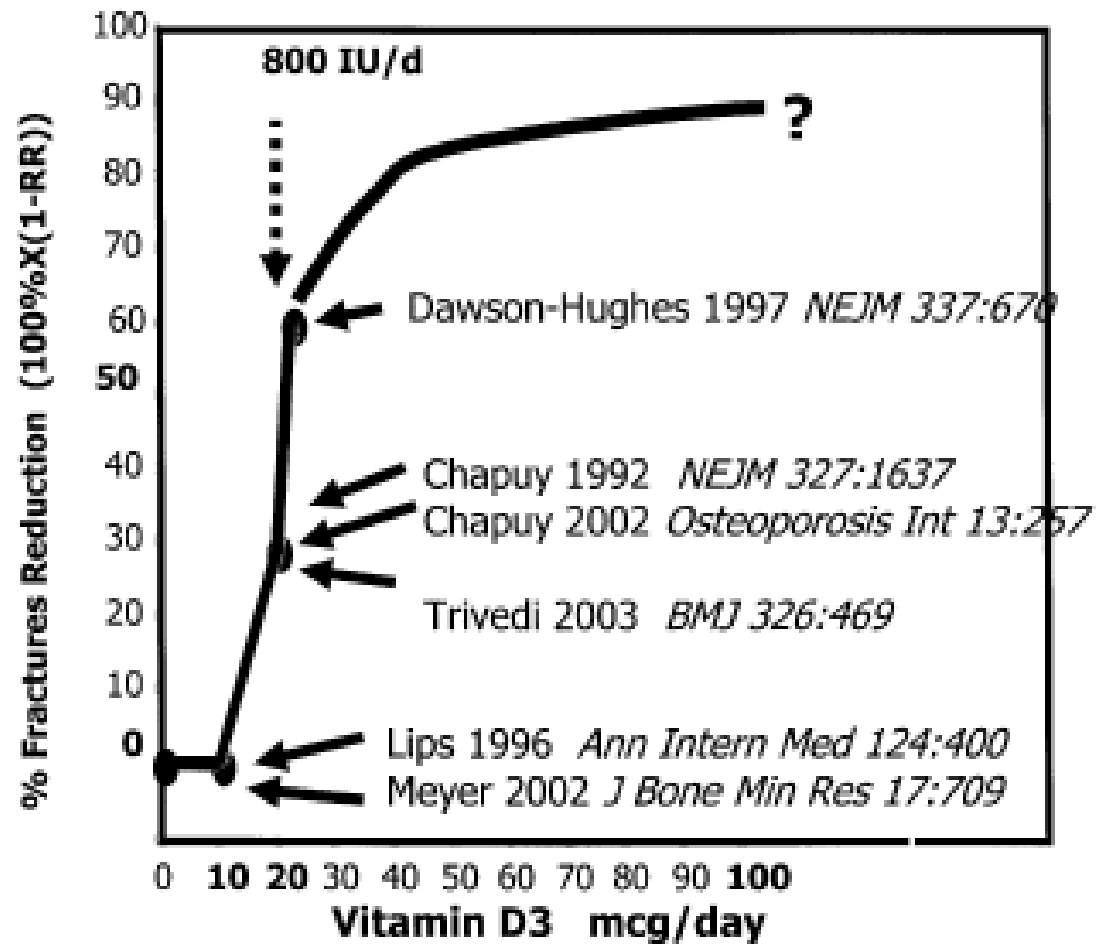
Meta-analysis of data on all-cause mortality in 18 randomized controlled trials with vitamin D





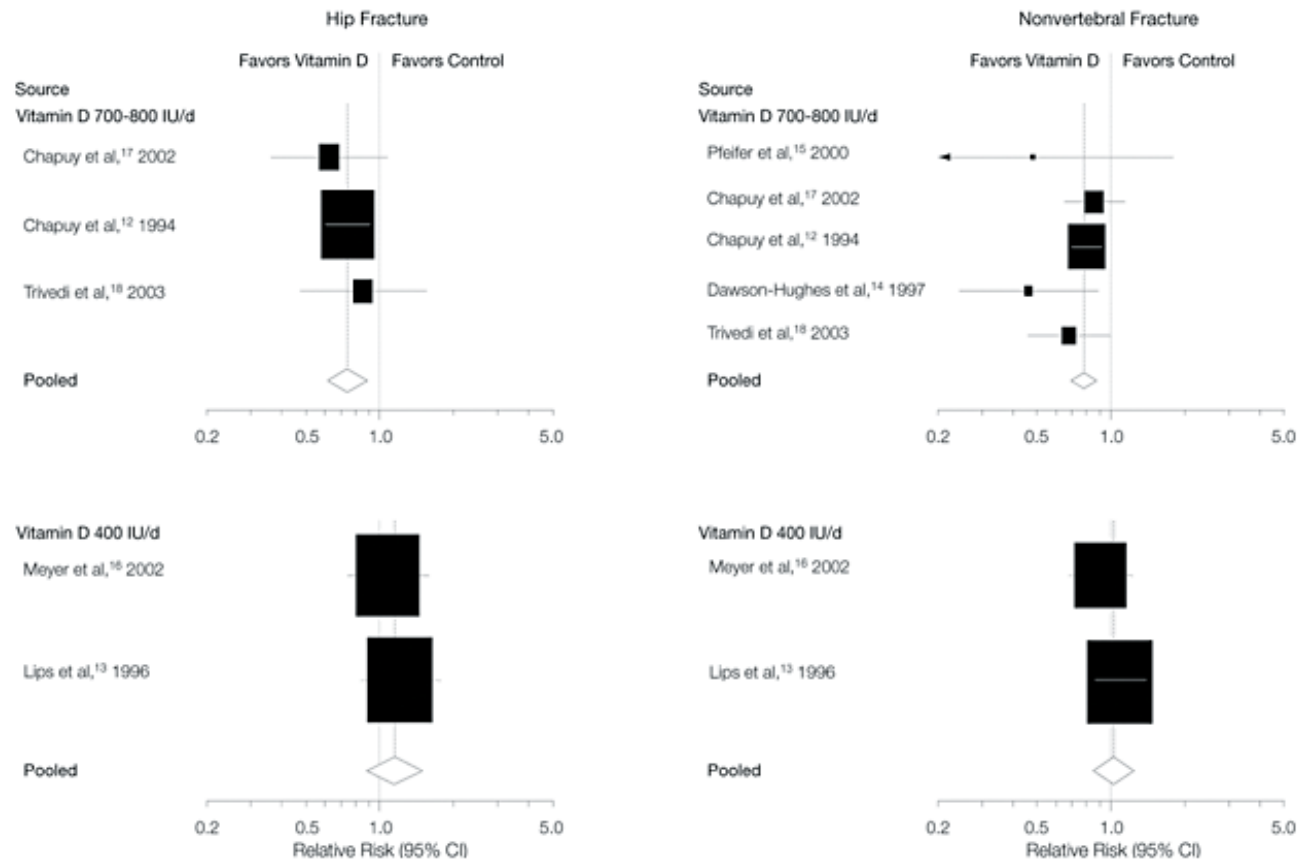
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Forest plots comparing the risk of hip and nonvertebral fractures between vitamin D (700-800 IU/d and 400 IU/d) and control groups





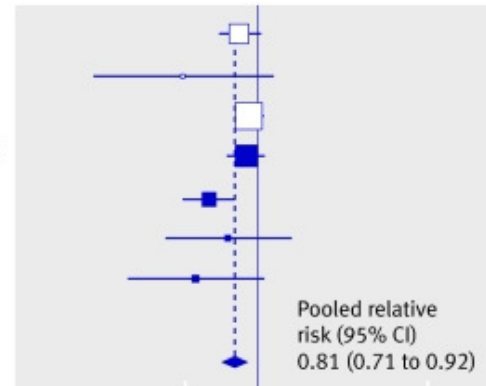
**Fall prevention with
high (700-1000
IU/day) and low
dose (200-600
IU/day) of
supplemental
vitamin D**

High dose vitamin D

Prince et al^{W3}
Broe et al^{W1}
Flicker et al^{W4}
Bischoff-Ferrari et al^{W2}
Pfeifer et al^{W5}
Bischoff et al^{W6}
Pfeifer et al^{W7}

Combined

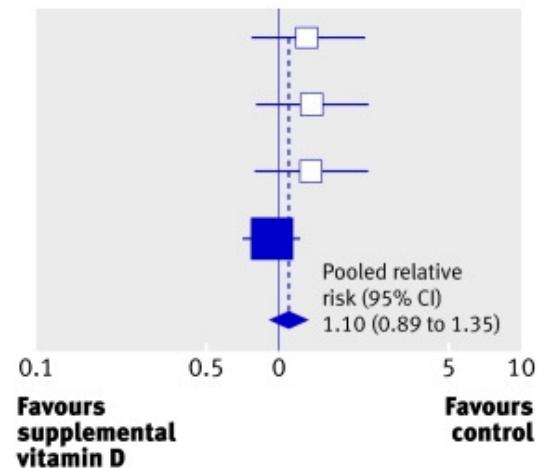
Relative risk (95% CI)



Low dose vitamin D

Broe et al^{W1}
(200 IU D₂/day)
Broe et al^{W1}
(400 IU D₂/day)
Broe et al^{W1}
(600 IU D₂/day)
Graafmans et al^{W8}

Combined





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CPME/AD/Brd/241009/179_Final/EN

At the CPME Board Meeting in Winchester on 24 October 2009, CPME adopted the following policy document "Vitamin D nutritional policy in Europe" (CPME 2009/179 Final EN)

Vitamin D nutritional policy in Europe

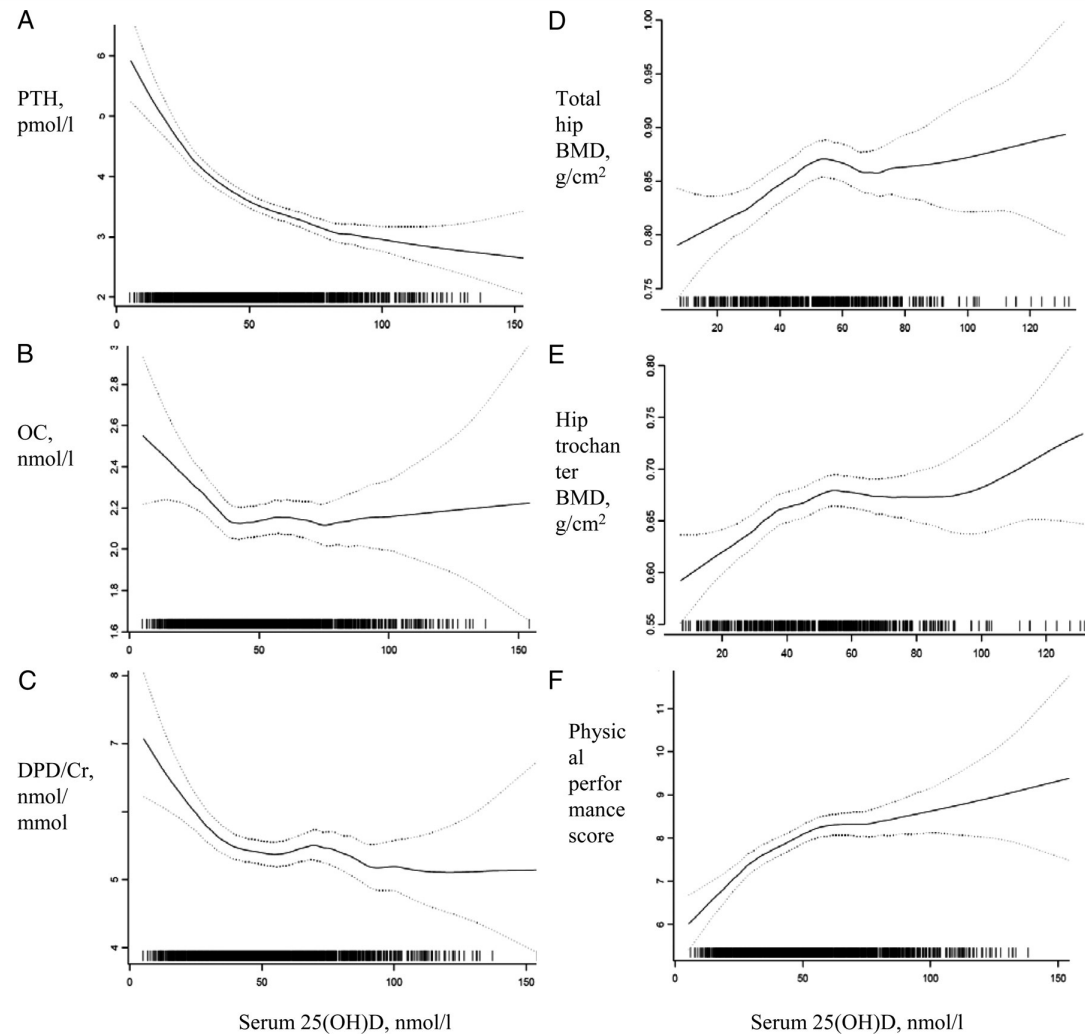


CPME-document on vitamin D nutritional policy in Europe (1)

- 1. The greatest risk for bone and several major human diseases and preventable human health conditions are associated with 25OHD levels below 20 ng/ml (or 50 nmol/l);**
- 2. The mean or median level of 25OHD around the world hardly exceeds 20 ng/ml (50 nmol/l) with slightly higher levels in US Caucasians (NHANES data). An estimated number of at least 1 billion (and probably many more) people around the world have 25OHD levels < 20 ng/ml (50 nmol/l), so that their bone health and may be even their global health could be improved by vitamin D supplements that bring their 25OHD level above 20 ng/ml (50 nmol/l);**



Relationship between serum 25(OH)D and outcome parameters





CPME-document on vitamin D nutritional policy in Europe (1)

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CPME-document on vitamin D nutritional policy in Europe (2)

- 3. Several authoritative meta-analyses indicate that a daily dietary vitamin D supplementation (600-800 IU D3) plus calcium reduces the risk of fractures and falls. Such vitamin D dose is likely to increase mean 25OHD levels by 6-16 ng/ml (15-40 nmol/l) and bring serum 25OHD to ≥ 20 ng/ml (> 50 nmol/l) in most subjects;**



CPME-document on vitamin D nutritional policy in Europe (3)

4. It is not unlikely that even higher vitamin D supplements, bringing 25OHD levels to over 30 ng/ml (75 nmol/l) may convey further benefits without creating additional risk. This would however require vitamin D supplements ≥ 2000 IU D3 per day for millions, if not billions of people, and until the completion of long term large scale RCTs the efficacy and safety of such interventions cannot be assured for the general population;
5. Vitamin D supplementation (600-800 IU D3) plus calcium should be considered in elderly people (older than 75 years) with an increased fracture and/or fall risk, in particular people living in nursing homes.



CPME-document on vitamin D nutritional policy in Europe (3)

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Role of doctors in the prevention of vitamin D deficiency

- **to recognize subjects at risk**
- **to recommend subjects who have documented vitamin D deficiency adequate substitution**
- **to point their patients on the relevance of adequate intake of vitamin containing nutrients**
- **to inform their patients about the possible consequences of inadequate vitamin D intake**



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Nov 14, 2008

Vitamin D Dilemma – To D or Not To D

Posted in [Bird Flu, Science](#) at 1:00 pm by [David Bradley](#) -- [16 Comments; add your comment](#)

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Radiological health expert Daniel Hayes who works at the New York City Department of Health and Mental Hygiene recent published on the subject of low dose radiation and the possibility that a form of vitamin D could be the key to protecting us from background radiation and perhaps save lives following a nuclear incident or terrorist attack involving a so-called dirty bomb.

Hayes explains that calcitriol, the active form of vitamin D, could be the oral agent, that medics have been searching for to provide a quick, simple, and inexpensive way to protect us when the warning sirens sound.

