

A scenic landscape photograph of a mountain range. In the foreground, there are green bushes and a rocky path. The middle ground is filled with a dense forest of evergreen trees. In the background, a range of mountains is visible under a blue sky with white clouds. A small lake is visible on the left side of the image.

Bone health in cancer patients

Susan Ott
June 2025



No conflicts of interest

Lifestyle



Is calcium a sacred cow?



Too much calcium might deposit in blood vessels



EAT YOUR CALCIUM: 1000 mg/day



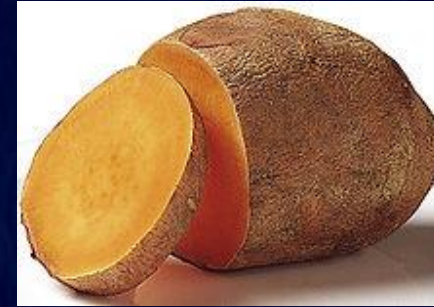
Cheese 200



Bok Choy: 100



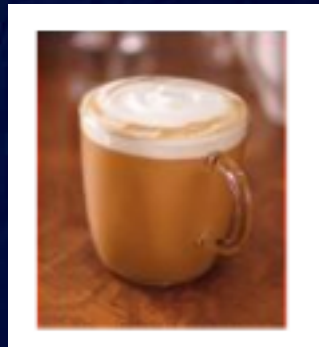
Tofu: 250



Sweet potato: 90



Yogurt: 300



Latte: 300



Kale: 200

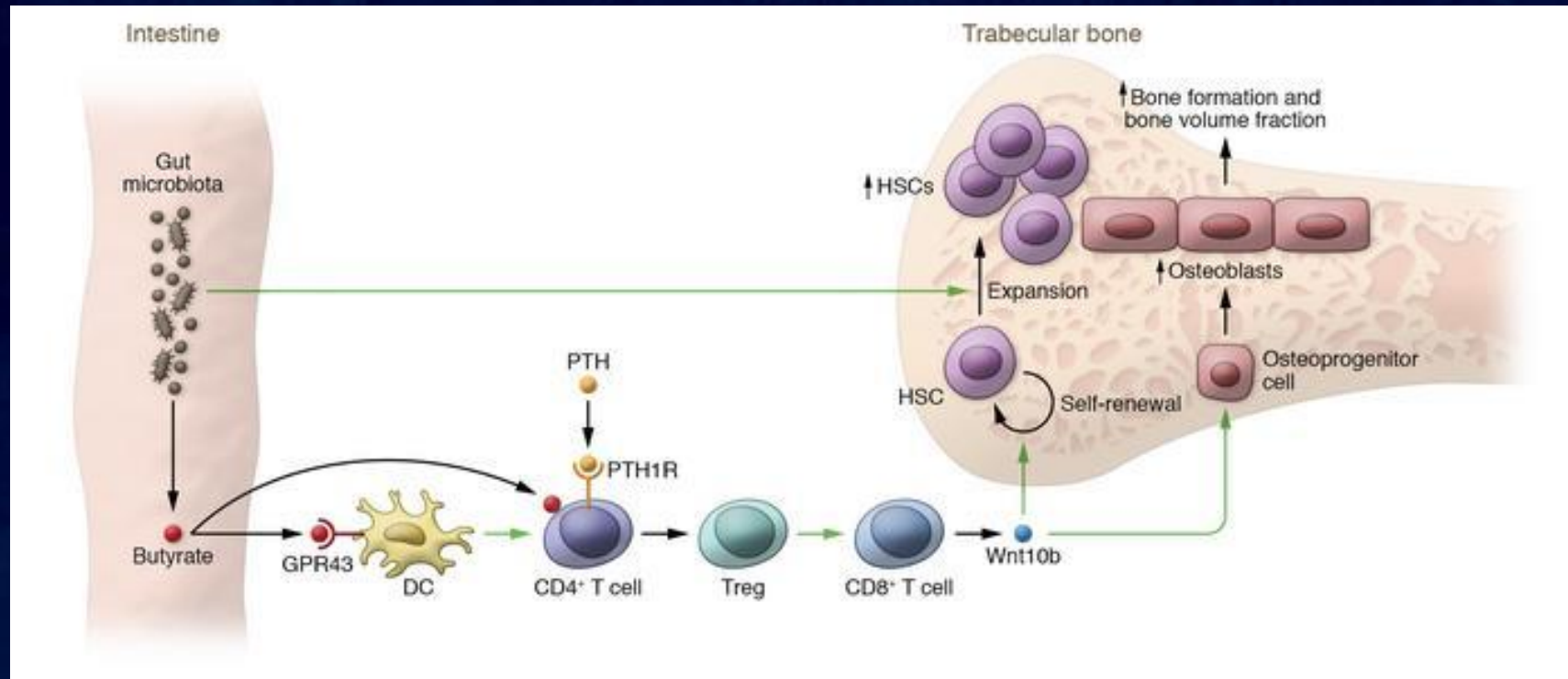


Almonds: 100

Spinach: zero

Butyrate from bacteria in yogurt increases bone formation.

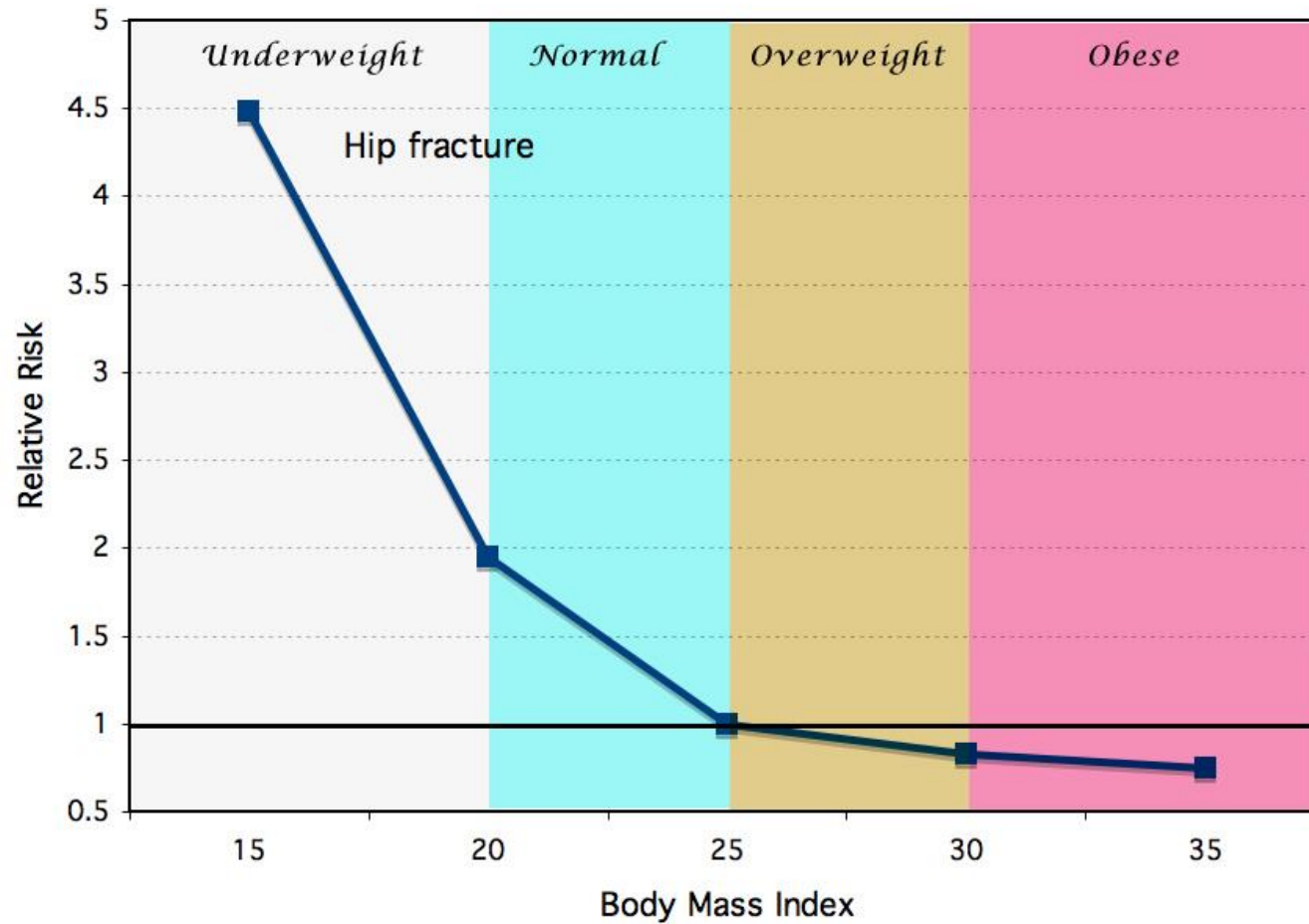
Lactobacillus rhamnosus digest carbohydrates to generate butyrate



Parathyroid hormone-dependent bone formation requires butyrate production by intestinal microbiota

Jau-Yi Li,^{1,2} Mingcan Yu,^{1,2} Subhashis Pal,^{1,2} Abdul Malik Tyagi,^{1,2} Hamid Dar,^{1,2} Jonathan Adams,^{1,2} M. Neale Weitzmann,^{1,2,3} Rhéal M. Jones,^{2,4,5} and Roberto Pacifici^{1,2,5}

Weight loss causes bone loss.



n = 60,000 men
and women

Dietary Protein

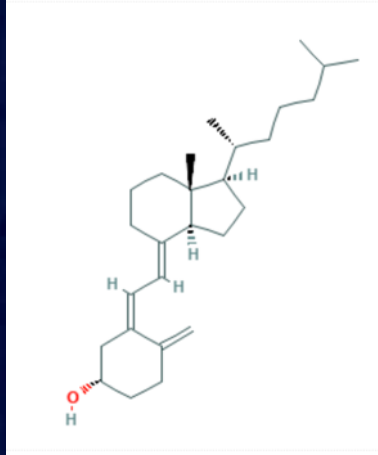
The European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) recommends

- ❖ optimal dietary protein intake of 1.0–1.2 g/kg body weight/d
- ❖ vitamin D intake at 800 IU/d
- ❖ calcium intake of 1000 mg/d
- ❖ regular physical activity/exercise 3–5 times/week

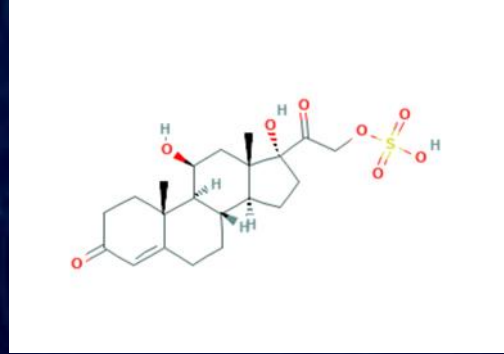
However, in the Women's Health Initiative, only 56% of participants met the RDA of 0.8mg/day

Rizzoli, Maturitas 2014
Beasley, J A Nutr Diet 2020

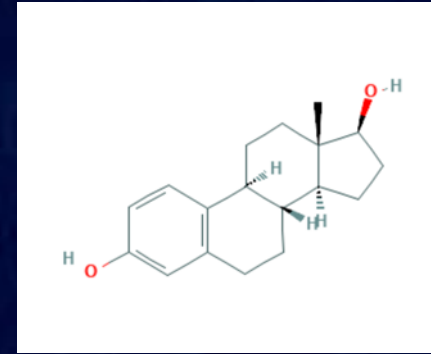
Vitamin D is really a hormone



Cholecalciferol



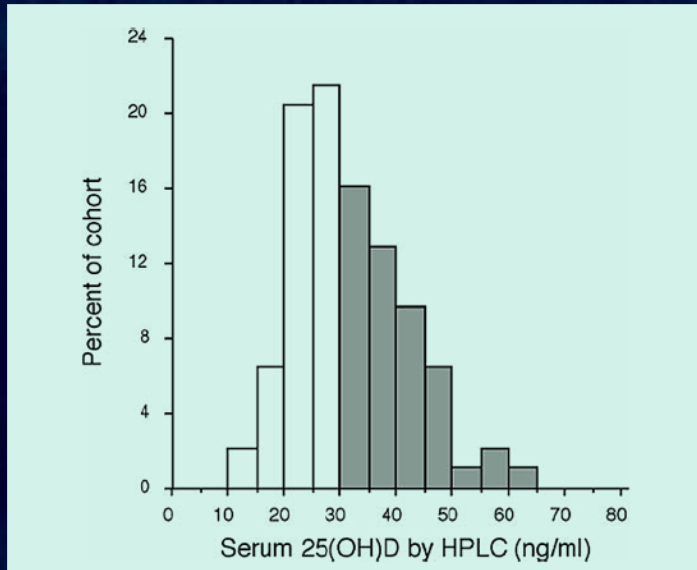
Cortisone



Estradiol

The body can make it, without any in the diet
The levels are regulated
There are receptors in different kinds of cells
It's harmful to be too low or too high.

Vitamin D levels in healthy young skateboarders from a beach in Hawaii



N = 93

Mean age = 24

51% had levels lower than 30 ng/ml

Binkley, J Clin Endocrin Metab 2007

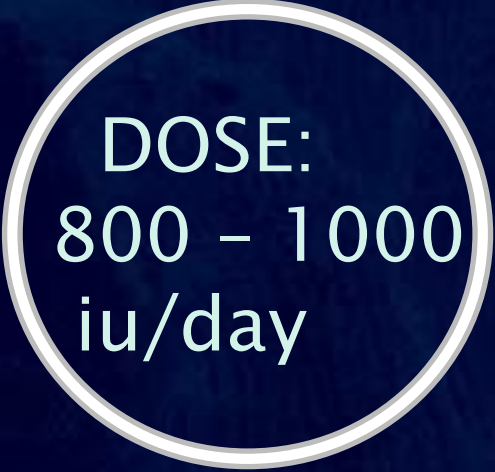
But Qwest and
LabCorps still
say normal levels
are 30 - 100

Vitamin D and cancer prevention

VITAL study of 2,000 iu/day vs placebo
Randomized clinical trial
26,000 subjects x 7 years:

Vitamin D supplementation did not prevent cancer or cardiovascular disease, prevent falls, improve cognitive function, reduce atrial fibrillation, change body composition, reduce migraine frequency, improve stroke outcomes, decrease age-related macular degeneration, or reduce knee pain, or reduce fracture rate.

Too much vitamin D causes bone loss



DOSE:
800 – 1000
iu/day

3 randomized trials in elderly women showed more hip fractures with high dose vitamin D than with placebo.

Canadian study showed more bone loss with 4000 iu/day compared to 400 iu/day after 3 years.

Vitamin D activates osteoclasts which resorb bone.

Is the Sun Setting on Vitamin D?

Sharon H. Chou,^{a,b} Meryl S. LeBoff,^{a,b} and JoAnn E. Manson^{b,c,d,*}



Prevent Falls!



- 1** Have handrails and plenty of light in all stairways.
- 2** Wear shoes that give good support and have non-slip soles.
- 3** Don't use stepstools. Keep items you need within easy reach.
- 4** Maintain a clear path to the bathroom.
- 5** Remove all small rugs. They can make you trip.
- 6** Make sure your walkways are wide enough.
- 7** Remove things that you may trip over from stairs and places where you walk.
- 8** Move phone and electrical cords away from walkways and open areas.
- 9** Make sure that all areas are well lit. Use bright light bulbs.
- 10** Be aware that some medications, including over-the-counter medicines, can make you dizzy or sleepy. Talk with a healthcare professional about what is best for you.
- 11** Get your vision checked. Annual vision checks can help eliminate bone-breaking falls.
- 12** Use non-slip mats in the bathtub or shower. Have grab bars put in next to your toilet and in the bathtub or shower.



Weight-Bearing Exercise



Fit to a T™

Consult your doctor first

Tai Chi



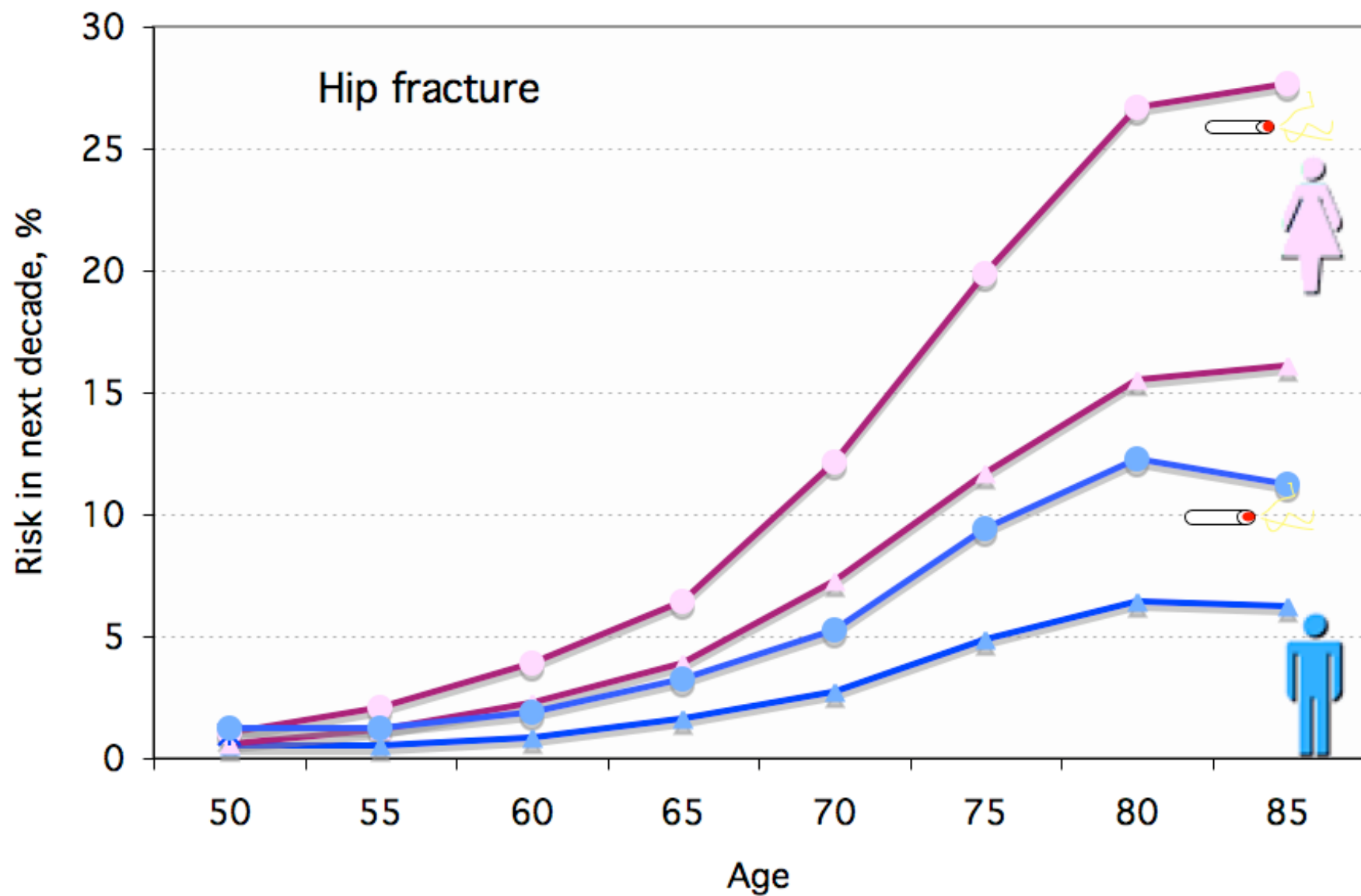
images from Google search

Hip Protection

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Rebecca Jacob

- Two cups a day of coffee with caffeine is OK, as long as you get the recommended amount of calcium.
- A small amount of alcohol (5 drinks a week) is also OK.

