

# Osteoporosis



## Dietary Protein Strengthens Bones

Osteopenia – a decrease in bone mineral density – and osteoporosis – the pathological loss of bone density – are common debilities in old age, and sometimes even in not so old age. Both men and women are susceptible to bone loss, but it strikes women more often. Loss of bone density leads to broken bones, debility and weakness, and hospitalization. A broken hip is often a one-way ticket to death. However, a little-known fact is that dietary protein strengthens bones, so bone loss can be avoided.

### **Dietary protein strengthens bones**

Fracturing a hip is perhaps the most serious consequence of osteoporosis. [Mortality from hip fracture at 12 months is about 30%](#). The incidence of hip fractures is [around 600 per 100,000 people](#) per year; that's all people, not just the old.

Bone density and strength are the most important determinants of fractures.

[People who don't get enough protein are much more likely to have thin, weak bones.](#)

Lower protein intake was significantly related to bone loss at femoral and spine sites ( $p \leq 0.04$ ) with effects similar to 10 lb of weight. Persons in the lowest quartile of protein intake showed the greatest bone loss. Similar to the overall protein effect, lower percent animal protein also was significantly related to bone loss at femoral and spine BMD sites (all  $p < 0.01$ ) but not the radial shaft ( $p = 0.23$ ). Even after controlling for known confounders including weight loss, women and men with relatively lower protein intake had increased bone loss, suggesting that protein intake is important in maintaining bone or minimizing bone loss in elderly

persons. Further, higher intake of animal protein does not appear to affect the skeleton adversely in this elderly population.

Furthermore, non-animal protein intake showed no relation to bone loss after adjustment for other factors. Only animal protein appeared protective against bone loss.

Contrary to expectations, elders with animal protein intake up to several-fold greater than the RDA also had the least bone loss after controlling for known confounders. Nonanimal sources of protein were not related to BMD. These results suggest that typical population intakes of animal protein, within the range commonly consumed, do not result in bone loss. Rather animal protein intake appears important in maintaining bone or minimizing bone loss in elderly persons.

Older people typically do not eat enough animal protein, and one of the reasons is that the health establishment has told us over the past several decades to avoid meat and other sources of saturated fat.

With this result on bone mineral density, we can add another reason to the list for [red meat being a health food](#).

## **Resistance training strengthens bones**

[Resistance training, i.e. weightlifting, strengthens bones.](#)

Naturally, lifting weights is thought of mostly in terms of making muscles stronger, but it strengthens the entire body, including bones, as well as the heart and the rest of the cardiovascular system.

Any weight-bearing exercise will help strengthen bones, and since weightlifting is the weight-bearing exercise *par excellence*, it's the best in that arena.

Vitamin D levels are [an important determinant of bone mineral density](#). Getting more vitamin D through sun exposure or vitamin D supplements can help.

[Vitamin K](#) is very important for bones, and [supplements](#) can provide a good amount, since it's difficult to get in food. Grass-fed dairy, such as Kerrygold butter, contains relatively large amounts of vitamin K. (Added this paragraph after a valued commenter asked me about vitamin K; I'd forgot.)

[Serum ferritin \(iron\) is associated with lower bone density and a greater risk of fractures in older women.](#)

Calcium supplements, widely used either independently or under a doctor's advice, are [ineffective and may actually increase the risk of fracture](#). Furthermore, [calcium supplementation is associated with an increased risk of](#)

[heart attack.](#)

Calcium supplements (without coadministered vitamin D) are associated with an increased risk of myocardial infarction. As calcium supplements are widely used these modest increases in risk of cardiovascular disease might translate into a large burden of disease in the population. A reassessment of the role of calcium supplements in the management of osteoporosis is warranted.

Calcium is on my list of [supplements to avoid.](#)

Osteoporosis and fractured bones are not inevitable.

Attention to protein intake, the right kind of exercise, vitamin D, and body iron stores can lessen the risk of broken bones.

**PS: To be healthy as you get older, check out my books, [Muscle Up](#), [Stop the Clock](#), and [Dumping Iron](#).**



**PPS: [Check out my Supplements Buying Guide for Men.](#)**

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