Calcium for Osteoporosis?

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How big is the problem?

Significant bone loss or osteoporosis affects one in three women and one in five men over the age of 50.

With the onset of menopause, women begin to have an accelerated loss of bone.
What are the risk factors for excessive bone loss?

1. Surgical menopause (i.e., hysterectomy)
2. Prolonged absence of menstrual periods
3. Extremely low calcium diet
4. Lack of weight bearing exercise
5. Excessive or a deficient protein diet
6. Cigarette smoking
7. Excessive alcohol use
8. Excessive caffeine use
9. Excessive phosphoric acid (sodas)
10. Lack of co-factors needed for preserving bone (esp. magnesium, vitamin K, and vitamin D)
11. Antacids and insufficient stomach acid
12. Lack of progesterone
Calcium and Sodas
A good balance between calcium and phosphorous (about 5:1) is crucial to bone strength but too much phosphorous depletes calcium. Soda and red meat - two staples of the American diet - are full of this mineral, so much so that now some sodas have added calcium to counteract the deleterious affect of drinking so much phosphorous.
Various calcium salts available:
carbonate, lactate, gluconate, citrate, malate, and microcrystalline hydroxyapatite (extract of young bovine bone).

Absorption rates vary from 27 to 39% and there are conflicting reports of which calcium is best.
Microcrystalline Hydroxyapatite Concentrate - 25% Calcium
1. Well Absorbed calcium source.
2. Comprehensive bone nourishment.
   Provides organic constituents and mineral components

Calcium Citrate - 24% calcium
1. Well absorbed
2. Reduces risk of kidney stones
3. Absorbed by those with poor digestion
   Not a complete bone food

Calcium Aspartate - 20% calcium
   Well Absorbed
   Not a complete bone food
**Calcium Amino Acid Chelate** - 10-20% calcium
Well Absorbed
1. Not a complete bone food.
2. Often incorrectly made as a soy blend

**Calcium Ascorbate** - 10% calcium
1. Well Absorbed
2. Non-acidic vitamin C source
Not a complete bone food

**Calcium Lactate** - 15% calcium
Well Absorbed
1. Not a complete bone food.
2. May contain milk and/or yeast by-products.
3. Made from fermentation of molasses, whey, starch, or sugar with calcium carbonate.
**Calcium Carbonate** 40% calcium
Cheapest source of calcium
1. Not a complete bone food.
2. May be malabsorbed by those with poor digestion.
3. Antacid effect, may interfere with digestion, cause gas

**Bone Meal** - 39% calcium
Contains multiple minerals needed for bone
1. May contain high lead, arsenic, cadmium, etc.
2. Organic constituents substantially destroyed by heating processing.
Microcrystalline Hydroxyapatite Concentrate:

Exceptional Bone Nourishment!

Microcrystalline hydroxyapatite concentrate (MCHC) is derived from whole bone and provides much greater nourishment than just calcium. MCHC contains protein and other ingredients that comprise the organic portion of bone, as well as calcium and other minerals in the normal physiological proportions found in raw bone.
<table>
<thead>
<tr>
<th>Food</th>
<th>Serving</th>
<th>mg of calcium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>1 cup</td>
<td>290-300</td>
</tr>
<tr>
<td>Swiss cheese</td>
<td>1 oz (slice)</td>
<td>250-270</td>
</tr>
<tr>
<td>Yogurt</td>
<td>1 cup</td>
<td>240-400</td>
</tr>
<tr>
<td>American cheese</td>
<td>1 oz (slice)</td>
<td>165-200</td>
</tr>
<tr>
<td>Ice cream or frozen dessert</td>
<td>1/2 cup</td>
<td>90-100</td>
</tr>
<tr>
<td>Cottage cheese</td>
<td>1/2 cup</td>
<td>80-100</td>
</tr>
<tr>
<td>Parmesan cheese</td>
<td>1 Tbs</td>
<td>70</td>
</tr>
<tr>
<td>Powdered nonfat milk</td>
<td>1 tsp</td>
<td>50</td>
</tr>
<tr>
<td>Sardines in oil (with bones)</td>
<td>3 oz</td>
<td>370</td>
</tr>
<tr>
<td>Canned salmon (with bones)</td>
<td>3 oz</td>
<td>170-210</td>
</tr>
<tr>
<td>Broccoli</td>
<td>1 cup</td>
<td>160-180</td>
</tr>
<tr>
<td>Soybean curd (tofu)</td>
<td>4 oz</td>
<td>145-155</td>
</tr>
<tr>
<td>Turnip greens</td>
<td>1/2 cup, cooked</td>
<td>100-125</td>
</tr>
<tr>
<td>Kale</td>
<td>1/2 cup, cooked</td>
<td>90-100</td>
</tr>
<tr>
<td>Corn bread</td>
<td>2 1/2-in. square</td>
<td>80-90</td>
</tr>
<tr>
<td>Egg</td>
<td>1 medium</td>
<td>55</td>
</tr>
</tbody>
</table>
Vitamin D is crucial to moving calcium from the small intestine into the bloodstream.

In one study up to 30-40% of older patients with hip fractures had a vitamin D deficiency or insufficiency.
There are two types of vitamin D found in nature. Vitamin D2 is formed by the action of UV-B on the plant precursor ergosterol. It is found in plants.

Vitamin D3 or cholecalciferol is primarily found in animal foods. Both forms of vitamin D have been used successfully to treat rickets and other diseases related to vitamin D insufficiency.

Many consider D3 the preferred vitamin, having more biologic activity. Vitamin D3 is found in animal foods (such as cod liver oil) or in human skin from sunlight.

Both D2 and D3 can be toxic when taken inappropriately in large amounts. When humans take in vitamin D from food or sunlight, it is converted first in the liver to the form 25(OH)D and then in the kidney to 1,25(OH)D.
But increasing calcium is not the answer: too much is as problematic as too little, causing other difficulties, like kidney stones, gallstones and other calcium deposits. Our American diets have plenty of available calcium and we still have osteoporosis - what many of us lack is the ability to successfully use the calcium we get.

If you have GI issues, including IBS or celiac disease, you can’t break down the calcium you need from your food. Older women often lack the digestive acids necessary to break down calcium. Antacids and prescriptions such as Nexxium oppose the very stomach acid (hydrochloric acid) needed to initiate good calcium absorption.
Taking excessive amounts of calcium without sufficient magnesium could accelerate both osteoporosis and calcifying of soft tissue and arteries, which is a dangerous protocol. The calcium must be combined with magnesium to build bone. Excess calcium will be deposited somewhere.
Lack of sufficient stomach acid along with the use of antacids for indigestion will not allow the calcium to be broken down for proper use and absorption.

Calcium is then pulled from the bone to maintain proper blood pH. Combined with calcium supplementation not properly broken down, it becomes deposits for such things as kidney stones, bone spurs, and calcium plaque.
Magnesium increases calcium absorption from the blood into the bone. Dairy products contain little magnesium.

But too much calcium blocks the absorption of magnesium, leading to a deficiency characterized by hair loss, muscle cramps, irritability, trembling, and disorientation.
Magnesium helps to prevent calcium from being deposited in unwanted places and a deficiency can cause abnormalities of calcium metabolism.

Magnesium deficiency not only contributes to kidney stones, but promotes hardening of the arteries (calcium plaque).
Magnesium

Supplementing with magnesium has shown to prevent the formation of oxalate crystals, the most common cause of kidney stones.

People that suffer from recurrent kidney stones, reduced the occurrence by 90% by supplementing with 500 mg of magnesium.
There is research that shows that magnesium supplementation is effective in treating osteoporosis.

Dr. Abraham increased bone density by 11% by decreasing calcium and increasing Magnesium.
About Estrogen and Progesterone

The fact that osteoporosis is more common in women than men and that it becomes accelerated with menopause or removal of the ovaries, strongly suggests that a decline in female sex hormones significantly contributes to osteoporosis.
About Estrogen

Hormonal changes, especially a drop in estrogen levels, will increase bone loss. When women go through menopause, their estrogen levels drop to one-third of what these levels were during the childbearing years.
Estrogen inhibits bone loss

Progesterone promotes the building of bone and thus works toward the reversing of osteoporosis.
Studies have demonstrated increased bone mass and decreased fracture rate with synthetic estrogen.

Because of this, synthetic estrogen derived from horse urine (Premarin) has been greatly advertised for osteoporosis.

But caution is strongly recommended because synthetic estrogen has significant risks that include an increased risk of uterine and breast cancer.
Dr. John Lee proved that the use of natural progesterone cream reversed bone loss. He was able to bring bone density back to 100 percent in his patients.

“What Your Doctor May Not Tell You About Menopause”
Dr. John Lee’s study also showed that estrogen did not enhance the bone building effect of progesterone.

Women who received both estrogen and progesterone had no better results than women who received progesterone alone.
Because of the side effects of synthetic estrogen, alternative practitioners recommend the use of progesterone in a natural form and also the use of other forms of estrogen (soy isoflavones).

These can be compounded into creams that are absorbed through the skin and thus bypass the liver. Quality products should be used that contain 900 to 1400 mg of natural progesterone per 2 oz container. Pre- and postmenopausal women should start with 1/4-1/2 tsp a day. Those with severe bone loss should use 1/2 teaspoon morning and night for the first container, followed by 1/4 tsp a day for each subsequent container.
How Hormones Are Made in Your Body

Cholesterol

→ Pregnenolone

→ PROGESTERONE

→ 11 DOC (Deoxycorticosterone)

→ Corticosterone

→ 18 Hydroxy-corticosterone

→ Aldosterone (Mineralocorticoid)

→ 17, OH Pregnenolone

→ 17, OH Progesterone

→ 11 Desoxycortisol

→ CORTISOL (Glucocorticoid)

→ DHEA

→ Androstenedione

→ TESTOSTERONE

→ ESTRADIOL (E2)

→ ESTRONE (E1)
Vitamin K

Vitamin K shows remarkable results against bone loss in postmenopausal women. Do not exceed 100 micrograms per day of vitamin K if you are taking Coumadin or some other type of anticoagulant medication.
<table>
<thead>
<tr>
<th>Food</th>
<th>Vitamin K (mcg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collard Greens</td>
<td>440</td>
</tr>
<tr>
<td>Spinach</td>
<td>380</td>
</tr>
<tr>
<td>Salad Greens</td>
<td>315</td>
</tr>
<tr>
<td>Kale</td>
<td>270</td>
</tr>
<tr>
<td>Broccoli</td>
<td>180</td>
</tr>
<tr>
<td>Brussels Sprouts</td>
<td>177</td>
</tr>
<tr>
<td>Cabbage</td>
<td>145</td>
</tr>
<tr>
<td>Olive Oil</td>
<td>55</td>
</tr>
<tr>
<td>Asparagus</td>
<td>60</td>
</tr>
<tr>
<td>Okra</td>
<td>40</td>
</tr>
<tr>
<td>Green Beans</td>
<td>33</td>
</tr>
<tr>
<td>Lentils</td>
<td>22</td>
</tr>
</tbody>
</table>
“The Nurses Health Study” followed the dietary habits of 85,000 female nurses over the course of ten years. When evaluating the relationship between vitamin K (found in green leafy vegetables) and osteoporosis, researchers “came to the conclusion that the nurses who ate the most vitamin K were about a third less likely to get a hip fracture... the significance of taking vitamin K was greater than taking synthetic estrogen... Women who took a lot of vitamin D, but had low intakes of vitamin K, had doubled risk of hip fracture!”

Summary: 10 steps to maintain & build bone mass

1. Magnesium to calcium ratio (adults) 500mg to 500mg
2. Progesterone cream for ladies (saliva testing)
3. Vitamin K2 at 200 to 3,000 mcg/ day
4. Vitamin D3 levels at 800 - 5,000 IU/day
5. Sufficient stomach acid
6. Limit sugar, caffeine, & alcohol (leaches calcium from the bones)
7. Bone bearing exercise i.e. dumbbells or trampoline
8. Calcium rich foods with limited supplementation
9. Moderate protein diet (phosphorus levels and acid)
10. No sodas (phosphorus content)
Example of Vitamin D / Vitamin K product

Designs for Health’s - Vitamin D Synergy Product

Serving Size 1 capsule
Servings per container 120
Vitamin D3 (as Cholecalciferol) 2000 IU
Vitamin K2 (as Phytonadione) 200 mcg

Dr. Mercola’s recommended product contains 100 mcg of K2
Fosamax is a type of drug known as bisphosphonates. Recently a link has been found between bisphosphonates and a serious bone disease called osteonecrosis of the jaw (aka. Dead Jaw). This important discovery clearly shows that Fosamax side effects may include osteonecrosis of the jaw.

The discovery, published in the Journal of Oral and Maxillofacial Surgeons, prompted both the FDA and Novartis, the manufacturer of bisphosphonates to issue a warning to health care professionals on September 24, 2004. The warning letter contained information about bisphosphonates and the risks of osteonecrosis in the jaw.

Bisphosphonates such as Fosamax, Zometa, Didronel, Aredia, Actonel, and Boniva are commonly used to treat bone loss.