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### **Osteoporosis update**

- The Surgeon General announced that half of all Americans over the age of 50 are at risk for dangerous and debilitating fractures caused by osteoporosis and poor bone health.
- Currently, over ten million Americans have been diagnosed with osteoporosis and another 34 million are at risk of developing the condition.
- The loss of bone density begins at the age of 35, and accelerates in women after menopause.
- By age 50, a woman has a 50% chance of suffering an osteoporosis-related fracture in her lifetime.
- Men are at risk as well, with 50% of men over 50 having osteopenia (below-normal bone density) and 6% with osteoporosis.

All are daily dosages to be taken with meals.

Calcium 1000-1500mg day<sup>1</sup>

Magnesium 250-600 mg day

Manganese 5-25 mg day

Copper (may be indicated to balance zinc)

Boron 1-3 mg day Zinc 15-50 mg day

Vitamin D 200-1000 IU (larger dosages may be used but should have blood test)

Vitamin K 150-500 mcg

Vitamin B6 25-50 mg (lowers homocysteine)

Vitamin B12 200-1,000 mcg (lowers homocysteine)

Folic Acid 400 mcg-5 mg (lowers homocysteine)\* many of these nutrients can be found in bone building mineral formulas.

**Strontium:** 680 mg day (between meals apart from calcium) shown to reduce fracture risk in clinical studies and increase bone density.

Administration: 2 tabs per day of BioStrong™ (strontium biopeperine) or 4 tabs per day of strontium citrate

**Essential Fatty acids** (i.e. EPA/DHA)---In laboratory, animal and human research, Essential Fatty acids have been shown to increase calcium absorption from the gut, reduce urinary excretion of calcium increase calcium deposited into the bone, and improvement of bone strength

<b>Fish</b>	<b>% Total Fat</b>	<b>% Omega-3 Fatty Acids</b>
Mackerel (Atlantic)	13.9	2.3
Albacore tuna	7.2	2.1
Herring (Atlantic)	18.0	1.6
Salmon (Atlantic)	6.3	1.4
Lake trout	9.4	1.4
Chinook salmon	10.4	1.4
Bluefin tuna	4.9	1.2
Striped bass	2.3	0.8
Bluefish	4.2	0.8
Smelt	2.4	0.7
Rainbow trout	3.4	0.6
Swordfish	4.0	0.6
Pollack	1.0	0.4
Halibut	2.3	0.4
Freshwater catfish	4.3	0.4

**Sources:** itmonline.org; fareshare.net/fish

**Herbs:** Alpinia (*yi zhi ren*), Ardesia gigantifolia root (*zou ma tai*), Astragalus (*huang qi*), Chaenomeles fruit (*mu gua*), Cinnamon bark (*rou gui*), Cinnamon twig (*gui zhi*), Cistanche salsa herb (*rou cong rong*), Cnidium (*chuan xiong*), Codonopsis root (*dang shen*), Deer antler (*lu rong*), Dipsacus (*xu duan*), Drynaria (*gu sui bu*), Eucommia (*du zhong*), Evodia fruit (*wu zhu yu*), Ginseng (*ren shen*), Gui Jiao (*gui jiao*), Ligusticum root (*chuan xiong*), Lu Jin (*lu jin*), Red Peony root (*chi shao*), Rehmannia (cooked) root (*shu di huang*), Spatholobus root/stem (*ji xue teng*), Tang Kuei root (*dang gui*), Tortoise shell from *Chinemys reevesii* (*gui ban*)

**Lifestyle:** Weight bearing exercise such as weight training and walking uphill is ideal. Research suggests that other activities such as swimming and tai qi are also helpful. Women age sixty-five and older who engage in regular exercise enjoy twice the reduction in hip fractures achieved with Fosamax. Exercise not only increases bone density but improves muscle strength and balance, thereby preventing falls, the proximate cause of hip fractures.

**Foods:** Soy, Red clover, gelatin

**Foods to minimize:** moderate protein, limit caffeine, alcohol in moderation, reduce salt intake.

**Acupuncture:** KI-3 (*tai xi*), BL-23 (*shen shu*), CV-4 (*guan yuan*) plus calcium supplements affects bone density if applied once every other day for six months (Ouyang Gang, et al. *The effect of acupuncture on bone mineral density in postmenopausal women*, Journal of Traditional Chinese Medicine 2002;22(1):9-11.)

**Caution:** Ipriflavone has shown to adversely affect lymphocyte counts. Fluoride does not build quality bones.

**Calcium is needed for:** regulating the heart beat, clotting the blood, proper thyroid function, nerve impulse transmission, building strong bones and teeth

**Factors that facilitate the absorption of calcium include:** Vitamin D, vitamin K, sufficient hydrochloric acid, small amounts of fat, exercise, magnesium, estrogen.

**Antagonists:** Soft drinks, high fiber diets, coffee, oxalic acid, phytates\*, excessive amounts of fat, sugar, salt, excessive alcohol consumption

\*Legumes and cereal grains such as whole wheat, oats, rye and barley contain phytates, which may interfere with calcium absorption. Phytates are reduced by baking, sprouting and fermentation

## Calcium Rich Foods<sup>2</sup>

	Mgs. of Calcium
1 cup skim milk	302
1 cup 1% low-fat milk	300
1 cup 2% low-fat milk	297
1 cup whole milk	291
1 cup buttermilk	285
1 oz. Swiss cheese	272
1 oz. cheddar cheese	204
1 oz. American cheese	174
1/2 cup 2% cottage cheese	77
1 cup low-fat plain yogurt	415
1 cup low-fat yogurt with fruit	345
3 oz. sardines with bones	345
3 oz. salmon with bones	99
3 oz. shrimp, canned	145
4 oz. tofu, processed with calcium sulfate	145
1 cup oysters	90
1/2 cup collards	179
1/2 cup kale	103
1/2 cup bok choy	126
1/2 cup turnip greens	126
1/4 of a 14-inch cheese pizza	332
1/2 cup macaroni and cheese	181
1 cup cream of mushroom soup made with milk	191
1 cup cream of tomato soup made with milk	168
1 taco	174
1 cup cheese	124
1 tbsp. blackstrap molasses	137

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<sup>1</sup> Hydroxyapatite is from bone, carbonate takes up a smaller size which means fewer tablets, citrate, citrate malate, phosphate are better absorbed but requires more tablets to get an equal dosage of calcium.

<sup>2</sup> <http://www.afscme.org/wrkplace/osteo2.htm/>. **Source:** National Dairy Council. Website accessed on 7/25/05