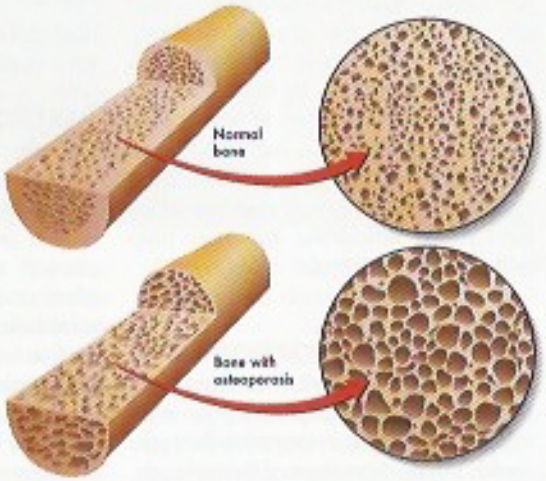
OSTEOPOROSIS AND BONE HEALTH



Although osteoporosis doesn't roll right off the tongue, its literal meaning- "porous bone"- makes its devastating effects easy to understand. It is a disease that severely reduces the density and quality of bone. As bones become more brittle, their risk of fracture is greatly increased. Unlike other diseases, Osteoporosis often progresses without much warning, thus earning its notorious nickname as the silent disease. However, acting proactively early, can help mitigate the development of this debilitating disease later on in life.

Although bone health can be improved at any age, peak bone mass attained earlier in life is an important factor that decreases the probability of osteoporosis in the future. Less than optimal bone growth during childhood and adolescence can result in a failure to reach optimal peak bone mass as an adult. Osteoporosis affects men and women of all ages, races, and ethnic groups. 10 million Americans are estimated to have osteoporosis. Unless dietary and lifestyle changes are made, according to the Surgeon General's report, half of all Americans over 50 will have weak bones by 2020.

Since deficient calcium is a huge risk factor for weak bones, it is alarming to read the USDA data that shows the majority of teenagers are not consuming the recommended dietary calcium. Therefore developing healthy bones needs to start at a young age and continue into adolescence and throughout adulthood. The first step towards achieving ideal bone health is learning the risk factors for osteoporosis. From there, you should focus on incorporating lifestyle and nutrition habits that seek to maximize bone health in order to increase prevention.

RISK FACTORS FOR OSTEOPOROSIS:

As Osteoporosis often occurs with minimal warning signs, you may not even realize that you have the disease until a strain, bump, or fall causes a bone to break. Schedule an appointment with your physician to help assess your risk of osteoporosis. Blood and urine lab tests can be used to help identify possible risks or causes of bone loss. For example, a blood test can be done to measure your Vitamin D levels. Your physician may also recommend the quick, non-invasive dual-energy x-ray absorptiometry (DEXA) test to determine your bone mineral density.

THE RISK FACTORS:

- Diets low in calcium and vitamin D.
- Low levels of physical activity.
- Women are at greater risk- especially post-menopause.
- Woman over 50.
- Men over 70.
- Smoking.
- Excessive alcohol intake.
- High salt intake.
- High intakes of caffeine.
- Chronic dehydration.
- Frequent consumption of soda and other soft drinks that contain phosphoric acid.
- Family history of fractures and osteoporosis.
- Being underweight or having a low body mass index.
- Having a history of disordered eating and restricted caloric intake.
- Women diagnosed with low estrogen.
- Having amenorrhea (abnormal absence of menstrual period), often a manifestation of estrogen deficiency.
- Men diagnosed with low testosterone, and lower than normal estrogen.
- Having a medical condition such as an eating disorder, or certain genetic, endocrine, gastrointestinal, blood, and rheumatic disorders that interfere in bone health.
- Taking medication that could interfere with bone-rebuilding and/ or decrease absorption of important bone health nutrients.

OSTEOPOROSIS PREVENTION
NUTRITION AND EXERCISE PLAN:

Aim to be physically active every day. Many people don't realize that similar to muscle, bone is living tissue that becomes stronger in response to exercise. Therefore, it is recommended to include weight bearing and strength building exercises into your bone health fitness plan. The exercise plan should also include balance and coordination training activities to help lower the risk of falls and to help maintain overall health and independence.

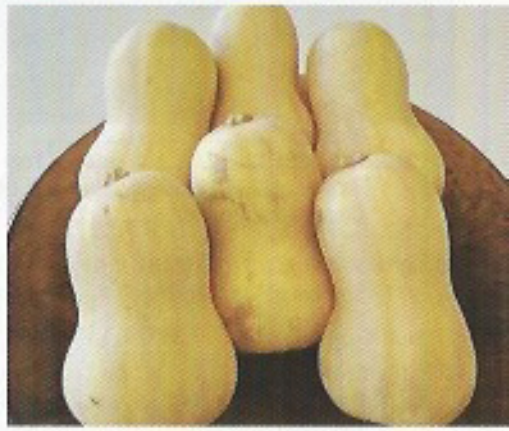
In addition to exercise, a nutrient rich, balanced diet is crucial for achieving optimal bone health. To build strong bones, it is imperative to eat plenty of fruits and vegetables, and to include food sources of both calcium and vitamin D.

THE BONE HEALTH EXERCISE PLAN:

- Exercise each day for 30-60 minutes.
- Do weight bearing exercise such as jogging, brisk walking, stair climbing, racquet sports, and dancing.
- Include strength training.
- Incorporate balance and flexibility training such as yoga and tai chi.

THE BONE HEALTH NUTRITION PLAN:

- Choose calcium rich foods (see food sources table on page 22). Calcium builds and maintains strong bones.
- Choose vitamin D rich foods (see food sources table on page 22). Vitamin D helps a body efficiently absorb calcium.
- Eat foods rich in vitamin C such as oranges, tomatoes, bell peppers, strawberries, pineapple, and kiwi. Studies show vitamin C to have beneficial effects on bone mineralization through its role in the formation of collagen.
- Consume vitamin K rich foods such as kale, broccoli, brussels sprouts, and spinach. Vitamin K has been shown to improve bone health through modulating bone metabolism.
- Get adequate amounts of potassium through dietary sources such as potatoes, bananas, avocado, beans, lentils, and milk. Potassium conserves calcium within the body and reduces urinary calcium loss, thereby helping to keep bones strong.
- Magnesium plays an important role in bone health. Half of all the magnesium in a body is found in bone. Eat magnesium rich foods such as pumpkin seeds, soybeans, halibut, scallops, quinoa, almonds, and sunflower seeds.
- Increase your overall intake of fruits and vegetables. Consuming a colorful diet rich in vitamins, minerals, and antioxidants will provide a variety nutrients needed for bone metabolism. It will also improve bone health by increasing the alkaline content of the diet, which can help reduce calcium excretion.
- Meet protein requirements by consuming poultry, fish, milk, eggs, beans, lentils, tofu, nuts, seeds, and cheese. However, limit red meat, which has been associated with bone loss.
- Cut out soda. Not only do most soft drinks lack calcium, many contain phosphoric acid, which can increase calcium loss. To help prevent osteoporosis, replace soda with calcium rich beverages such as milk, soymilk, almond milk, yogurt based smoothies, and calcium fortified orange juice. Also make sure to drink plenty of water, since extended dehydration has been associated with weak bones.
- Limit your intake of caffeine. Some research shows that high caffeine intake can increase bone loss by draining bones of calcium. To help minimize calcium loss, it is recommended to ingest less than 300mg of caffeine a day, which is equal to 2 – 16oz cups of coffee. Make sure to get adequate calcium to offset any possible calcium loss from caffeine.
- Limit your alcohol intake. Long term and excessive alcohol consumption is correlated with decreased bone formation.
- Cut down on salt. A high salt intake, results in calcium loss, which weakens bones and puts one at increased risk of osteoporosis. Research studies indicate that reducing dietary salt intake could slow the loss of calcium. Read food labels and be mindful of the amount of salt you are consuming. Follow the Dietary Guideline of consuming less than 2300 mg of sodium per day. Limit processed foods and added salt. Just 1 teaspoon of salt has 2300 mg of sodium.



- Follow a Mediterranean based diet. A diet rich in fruits, veggies, whole grains, legumes, nuts, fish, and olive oil has been shown to enhance bone health.
- Avoid smoking.

Meeting the dietary recommendations for calcium and vitamin D is crucial for bone health. Examine the tables below to determine your dietary calcium and vitamin D requirements. Then view the calcium and vitamin D food sources charts to help you adhere to the bone health nutrition plan. If you do not get enough calcium and vitamin D through diet, then take calcium and vitamin D supplements.

RDA OF CALCIUM

Age group	Mg/day
1-3 years	500 mg
4-8 years	800 mg
9-18 years	1300 mg
19-50 years	1000 mg
51+ years	1200 mg
Pregnancy/Lactation	1000-1300 mg

ADEQUATE INTAKE OF VITAMIN D:

Age group	Mg/day
Infants 0-12 months	400 IU
1-69 years	600 IU
70+ years	800 IU
Pregnancy/Lactation	600 IU

CALCIUM FOOD SOURCES:

Sources of Calcium	Serving size	mg/serving
Yogurt	8oz	300 mg
Milk	8oz	300 mg
Cheese	1oz	145 mg
Tofu	½ cup	200 mg
Beans	1 cup	60-90 mg
Almonds	1/3 cup	126 mg
Kale	1 cup cooked	94 mg
Broccoli	1 cup raw	90 mg
Orange juice, fortified	1 cup	200-250 mg

VITAMIN D FOOD SOURCES:

Sources of Vitamin D	Serving size	IU's/serving
Cod Liver Oil	1 Tbsp	1360 IU
Milk	8 oz	115-120 IU
Salmon	3 oz	447 IU
Orange Juice, fortified	8 oz	100 IU
Egg (yolk)	1	20 IU
Yogurt, fortified	6oz	80 IU
Mushrooms	5oz	28 IU

HELP PREVENT WITH PROACTIVITY

Most importantly, be proactive! Schedule an appointment with your physician to evaluate your risk of developing osteoporosis. Begin adopting a healthy lifestyle and follow the bone health nutrition and exercise plans to help minimize your risk of osteoporosis and for long-term bone health.

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