OSTEOPOROSIS: A SILENT BUT PAINFUL DISEASE

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WHAT IS IT?

- Weak and brittle bones that are more likely to break with minimal force. At times even coughing or bending over can cause a fracture.
WHO GETS IT?

In the United States, more than 40 million people either already have osteoporosis or are at high risk due to low bone mass.

High Risk: Osteoporosis affects men and women of all races. But white and Asian women — especially those who are past menopause — are at highest risk.
If you have osteoporosis, will you definitely get a fragility fracture?
RISK FACTORS YOU CAN’T CHANGE

- Gender: Women get osteoporosis more often than men.

- Age: The older you are, the greater your risk of osteoporosis.

- Body size: Small, thin women are at greater risk.

- Ethnicity: White and Asian women are at highest risk. Black and Hispanic women have a lower risk.

- Family history: Osteoporosis tends to run in families. If a family member has osteoporosis or breaks a bone, there is a greater chance that you will too.
A LITTLE MORE ABOUT BONE MASS:

- Puberty: bone formation > bone resorption
- Peak mass: around age 30
- After that bone mass declines though everyone's rates are different. Genetics, lifestyle affect this.
- Barring other factors, age related decline accounts for around 1%/year
- Additional loss happens during the 10-15 years post-menopause when, due to a drop in estrogen levels, women may lose 10-25% of their bone mass. This is independent of age-related bone loss.
- Bone loss is with volumetric loss as well as a weakening in the trabeculae, or bony architecture that support the mineralized bone.
OTHER FACTORS:

• Hormones: Low estrogen levels due to missing menstrual periods or to menopause can cause osteoporosis in women. Low testosterone levels can bring on osteoporosis in men.
• Anorexia: This eating disorder can lead to osteoporosis-particularly if early in life.
• Calcium and vitamin D intake: A diet low in calcium and vitamin D makes you more prone to bone loss.
• Medications: Some medicines increase the risk of osteoporosis. ex: steroids
• Activity level: Lack of exercise/being sedentary or long-term bed rest can cause weak bones.
• Smoking: Increases the risk of low bone mass
• Alcohol: Excess alcohol can cause bone loss
PREVENTION

- DIET CHANGES: INCREASE CALCIUM AND VIT. D
- EXERCISE: PARTICULARLY WEIGHT BEARING EXERCISE
- LIFE STYLE MODIFICATIONS: DECREASE SMOKING AND ALCOHOL
HOW TO PREVENT FALLS

- Poor vision
- Poor balance
- Certain diseases that affect how you walk
- Some types of medicine, such as sleeping pills.
A diet healthy in calcium and vitamin D should be pursued. Many people consume less than half the calcium needed.

- **Sources:** Low fat milk, yogurt, cheese
- **Fortified foods:** OJ, cereals, breads
- How much Calcium and vitamin D is needed?
- How much is too much?
An 8oz glass of milk contains: about 300 mg. of calcium.
An 8oz container of yogurt: about 400 mg. of calcium.
One ounce of cheese: about 200 mg. of calcium.
average American diet, non-dairy sources of calcium account for about 250 mg. a day (eg spinach)
EXERCISE

- Walk
- Hike
- Jog
- Climb stairs
- Lift weights
- Play tennis
- Dance.
So I just joined the YMCA and I love swimming. That's a great exercise..... Isn’t it?
What are the symptoms of osteoporosis?
TREATMENTS

- Natural/Lifestyle
- Bisphosphonates
- Denosumab
- Anabolic agent
HOW TO INTERPRET YOUR DEXA SCAN

- Normal Bone Mineral Density (> -1.0)
- Osteopenia (-1.0 to -2.5)
- Osteoporosis (< -2.5)
Calculation Tool

Please answer the questions below to calculate the ten year probability of fracture with BMD.

Country: US (Caucasian)  Name/ID:  About the risk factors

Questionnaire:
1. Age (between 40 and 90 years) or Date of Birth
   - Age: [___] Y: [___] M: [___] D: [___]
2. Sex
   - Male [□] Female [□]
3. Weight (kg)
4. Height (cm)
5. Previous Fracture
   - No [□] Yes [□]
6. Parent Fractured Hip
   - No [□] Yes [□]
7. Current Smoking
   - No [□] Yes [□]
8. Glucocorticoids
   - No [□] Yes [□]
9. Rheumatoid arthritis
   - No [□] Yes [□]
10. Secondary osteoporosis
    - No [□] Yes [□]
11. Alcohol 3 or more units/day
    - No [□] Yes [□]
12. Femoral neck BMD (g/cm²)
    - [□] Select BMD

Weight Conversion
- Pounds → kg
- [□] Convert

Height Conversion
- Inches → cm
- [□] Convert

For USA use only

Consider FDA-approved medical therapies in postmenopausal women and men aged 50 years and older, based on the following:

[Further information or links]

Print tool and information

03055406
Individuals with fracture risk assessed since 1st June 2011
OTHER CAUSES

Drugs
- Chronic steroid use
- Anti-epileptic drugs
- Excessive substitution therapy (i.e., thyroxin, corticosteroids)
- Anti-coagulant drugs

Endocrine diseases
- Hyperparathyroidism
- Thyrotoxicosis
- Cushing’s syndrome
- Addison’s disease

Hematological diseases

Rheumatologic diseases

GI diseases
- Malabsorption
BISPHOSPHONATES

- Fosamax (alendronate)
- Boniva (ibandronate)
- Actonel (risedronate)
- Reclast (Zolendronic acid)
Minerals: strontium (as carbonate or citrate), boron, vit d3, magnesium, and calcium. Eating lots of alkalizing foods such as fruit and vegetables may help.

Resistance training
As of the new issue of the US guide to preventative services, screening for osteoporosis is recommended for all women over 65 yo, and for women between 60 and 65 yo with risk factors.
The best estimate of risk is 0.1 percent, meaning the condition occurs in
The average adult in here takes in less than 600 mg of calcium a day. There is an age-related decrease in vitamin D receptors in the intestine and the hydroxylation of vitamin D to its active form also decreases with age, reducing the amount of calcium absorbed. If Calcium declines—then PTH increases which causes further resorption of bone.
- Bisphosphonates: Fosamax, Actonel, Reclast, Boniva
OSTEONECROSIS OF THE JAW

Occurs when the jaw bone is exposed and begins to starve from a lack of blood

ONJ associated with bisphosphonate use, may develop in patients after taking the medication for as little as 12 months. The risk is cumulative. Most cases occur after prolonged therapy (more than five years).

Cancer patients are at particular risk for ONJ. The doses of IV bisphosphonates used to treat cancer can be 10 times higher or more than the doses used for osteoporosis. Also, cancer patients receive IV bisphosphonates as often as every month, while osteoporosis patients receive only a single IV dose yearly. ONJ has been most commonly observed in cancer patients with multiple myeloma and breast cancer.

Besides cancer, other risk factors include advanced age, steroid use, diabetes, gum disease and smoking.
PROLIA (DENOSUMAB)

- An injection every 6 months
- In postmenopausal women, the decrease in estrogen means an increase in Rank Ligand = resorbing of bone
- Can cause low calcium levels, possibly decrease immune system
- $$$ (around $1650/yr)
WHO TO USE IT FOR:

- Post-menopausal women
- Those who failed bisphosphonates
- Severe GERD/reflux
- Kidney disease
- It’s reversibility is attractive
- Long term bisphosphonates and need a ‘break’
FORTEO

- Pulsing PTH hormone
- Daily injection
- $$$$$
- Anabolic agent
WHAT TO DO WITH A VERTEBRAL FRACTURE
KYPHOPLASTY