

# July's Topic: Osteoporosis

By: Michelle Adams, Alex Bahr, Dalton Simmons, Pharm.D. Candidates

## HEALTHCARE CLINIC HOURS:

Monday-Wednesday, Friday

8:00 a.m. to 5:00 p.m.

Thursday

9:00 a.m. to 5:00 p.m.

Phone: (334) 263-8470

Fax: (334) 263-8670

Email: hcc@alseib.org

## PHARMACY HOURS:

Monday-Wednesday, Friday

7:30 a.m. to 5:30 p.m.

Thursday

9:00 a.m. to 5:30 p.m.

Phone: (334) 263-8460

Fax: (334) 263-8660

Email: rx@alseib.org

## Osteoporosis

Osteoporosis is a disease that results in weak bones. In patients with osteoporosis, bone loss occurs at a faster rate than bone growth. This leads to decreased bone density, meaning the normal spaces in our bones become gradually larger, making our bones weak and more susceptible to breaks.

Anyone can develop osteoporosis; however, it is most common in women, especially those who are post-menopause and over age 50. According to the 2010 Census, approximately 10 million Americans have osteoporosis and 44 million have low bone density, also known as osteopenia.

## Symptoms

Osteoporosis is commonly known as a “silent disease”. Many people are unaware of the disease until they break a bone. Bone breaks can occur even upon mild impact. Most bone breaks occur in the hip, spine, or wrist, often resulting in severe impairment in daily activities. Osteoporosis can be prevented with lifestyle changes and medication. Screening is key to being proactive and preventing bone breaks.

## What does Osteoporosis look like?



Stop by the  
State Wellness  
Center for your  
**FREE**  
osteoporosis  
heel screening  
until July 13<sup>th</sup>



## Ways to reduce your risk:

- Quit smoking
- Be active at least 30 minutes most days of the week
- Incorporate weight-bearing exercises such as walking, jogging, tennis, or weight training
- Limit alcohol
- Limit caffeine intake
- Eat foods high in calcium, such as low-fat dairy products
- Eat foods high in vitamin D, such as salmon and fortified orange juice
- Limit soft drinks
- Limit salt intake

## Screening for Osteoporosis:

- There are several tests that can be performed to evaluate your risk of developing osteoporosis. These tests are often performed on your wrist, arm, heel, or finger. These easily accessible devices are helpful in determining which patients would benefit from further testing.

## FRAX Tool:

- The FRAX tool is an online risk assessment that uses information about your bone density and other risk factors to determine your absolute risk of fracture over the next 10 years.
- Online tool link: <http://www.shef.ac.uk/FRAX/tool.aspx?country=9>

## Risk Factors of Osteoporosis:

- Female gender
- Age 50+
- White/Caucasian or Asian
- Hypogonadism in men
- Previous fracture(s)
- Parental history of hip fracture
- Post-Menopause/Hysterectomy
- Certain medications (corticosteroids, proton pump inhibitors, anti-epileptics, thyroid hormone, lithium, methotrexate)

## Diagnosis

A bone density test, particularly the central DXA (dual energy x-ray absorptiometry), is the primary test to diagnose osteoporosis. It is a painless, non-invasive procedure. The DXA machine scans the hip and spine to measure how many grams of calcium and other bone minerals are packed into a segment of bone. Higher bone mineral content is correlated with stronger bones.

Diagnosis is based on a test result known as a **T-score**. A T-score compares your bone density to that of a healthy 30-year old adult. The T-score is expressed in terms of how far away you are from the average.

## Central DXA exam:



## T-score:



## Osteoporosis Medications:

Class	Brand/Generic Name	How it works	How to take it	Additional info
<b>Oral Bisphosphonates</b>	Fosamax (alendronate) Actonel (risedronate) Boniva (ibandronate)	Prevents breakdown of bone	By mouth, one tablet weekly or monthly	-Most effective -Take 30 minutes before first food or drink of day -Do not lie down for 30 minutes after taking medication
<b>Infused Bisphosphonates</b>	Reclast (zoledronic acid)	Prevents breakdown of bone	IV injection once every year or every 2 years	
<b>Parathyroid hormone analog</b>	Forteo (teriparatide)	Increases bone mineral density	Subcutaneous injection once daily	Should not be used for more than 2 years
<b>Monoclonal antibody</b>	Prolia (denosumab)	Prevents breakdown of bone	Injection every 6 months by a health care provider	Make sure calcium levels are corrected prior to starting medication
<b>Selective Estrogen Receptor Modulator</b>	Evista (raloxifene)	Increases bone mineral density	By mouth, one tablet daily	Useful for women with breast cancer
<b>Hormone</b>	Fortical (calcitonin)	Maintains calcium levels	Nasal spray, one spray in one nostril daily	Only recommended when alternatives are not available or ineffective; caution if allergic to salmon

### Tablets



### Nasal Spray



### Injectables



## Calcium and Vitamin D for Bone Health

Calcium is necessary for building bones and cannot be produced by the body; therefore, it is essential to eat an adequate amount of calcium daily for bone health. Vitamin D helps your body absorb calcium and also supports your muscles.

### Reading Nutrition Labels

Nutrition labels often list calcium based on a percentage of daily intake of 1,000 mg. For example: If you see 15% DV on the label, this is equivalent to 150 mg of calcium per serving.

### Calcium goals:

Women	
Age 50 and younger	1,000 mg daily
Over 50	1,200 mg daily
Men	
Age 70 and younger	1,000 mg daily
Over 70	1,200 mg daily
<b>Max tolerated: Age &lt; 50</b>	<b>2,500 mg daily</b>
<b>Age 50+</b>	<b>2,000 mg daily</b>

### Vitamin D goals:

Women and Men	
Age 50 and	400-600 IU daily
Over 50	800-1,000 IU daily
<b>Max tolerated: 4000 IU daily (100mcg)</b>	

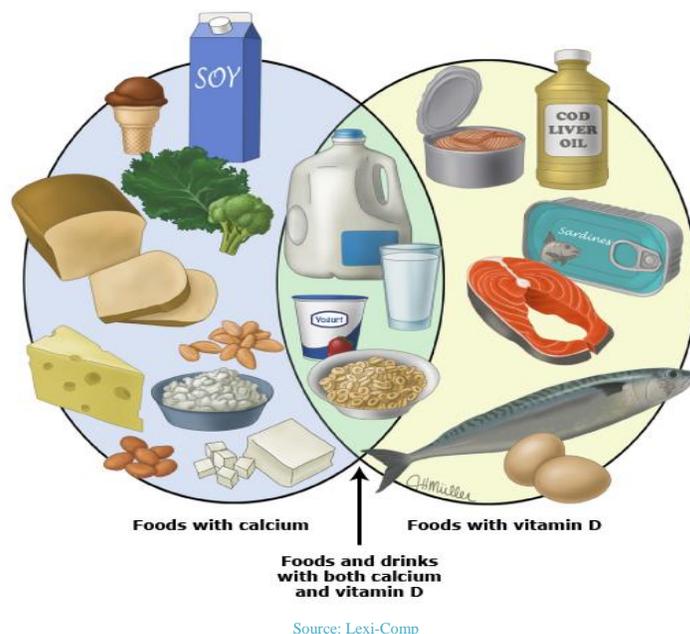
### Which calcium supplement is best for me?

Those who do not get enough calcium from their diet will benefit from a calcium supplement. There are many calcium products available. Most people should take **calcium carbonate**. Calcium carbonate provides the most elemental calcium per tablet and should be taken with food. Adults 70 years or older, those taking proton pump inhibitors, or those with kidney stones should take **calcium citrate**. Calcium citrate can be taken with or without food.

### Why do I need a vitamin D supplement?

Sources of vitamin D include sunlight and certain foods. However, few foods contain vitamin D and some people may not get adequate sun exposure. Therefore, many people need a vitamin D supplement to meet daily goals. Consult with your doctor to determine how much vitamin D you may need.

### Dietary Sources of Calcium and Vitamin D



Please let us know how we are doing by completing a survey at the following link:

[https://auburn.qualtrics.com/S/E/?SID=SV\\_3DXRXyUp8KC7Lzn](https://auburn.qualtrics.com/S/E/?SID=SV_3DXRXyUp8KC7Lzn)

**CALL FOR AN  
APPOINTMENT  
TODAY!**

**(334) 263-8470**

## State Wellness Center

101 S. Union Street  
Montgomery, AL 36104

All active employees, covered spouses of active employees, non-Medicare retirees and covered non-Medicare spouses of retirees that use the State Employees' Health Insurance Plan (Group 13000) as their primary insurance plan are eligible for a wellness premium discount. Each wellness plan year is November 1 through October 31.

State and Local Government employees in SEIB/LGHIB approved health plans, along with State retirees are able to use the State Wellness Center Pharmacy. The pharmacy offers various over the counter products at discounted prices and a **free medication delivery service**. Delivery can be provided to patients located in Montgomery. Please designate the site where you would like your medication delivered. If it is to your residence, someone must be available at the home to receive the delivery.

## References

1. Thompson et al. What is Osteoporosis and What Causes It. National Osteoporosis Foundation. [updated 2018, cited 2018 Jun 4] Available from: <https://www.nof.org/patients/wh-at-is-osteoporosis/>
2. Bisphosphonates.In. Lexi-Drugs, LexiComp Online [AU VPN]. Hudson, OH: Lexi-Comp/Wolters Kluwer Health. [updated, 2018 June 1, cited 2018 June 4] Available from: <http://online.lexi.com/lco/action/home>
3. Calcium and Vitamin D: Important at Every Age. (2015). [Cited 2018 June 4] Available from: <https://www.bones.nih.gov/health-info/bone/bone-health/nutrition/calcium-and-vitamin-d-important-every-age#e>
4. National Osteoporosis Foundation. *Clinician's Guide to Prevention and Treatment of Osteoporosis*. Washington, DC: National Osteoporosis Foundation; 2014. [Cited 2018 June 4] Available from: <https://www.aafp.org/afp/2015/0815/p261.html>
5. World Health Organization. Prevention and management of osteoporosis: report of a WHO Scientific Group. Geneva, Switzerland; 2003. Accessed June 5, 2018. [http://whqlibdoc.who.int/trs/WHO\\_TRS](http://whqlibdoc.who.int/trs/WHO_TRS)

## State Wellness Center

The SWC has a quality healthcare **TEAM** that includes nurse practitioners, an ambulatory care pharmacist, physicians, and nurses who work closely together to take care of your health and wellness needs.

### **Services Include:**

- Treat minor illnesses
- Provide health education & monitoring
- Check health progress between appointments
- Share information with your physician
- Monitor efficacy & safety of every medication
- Evaluate out-of-pocket medication expense
- Smoking cessation & weight loss services
- Diabetes education program
- Anticoagulation monitoring services
- Immunizations & injectable medications administration
- Develop a personalized medication plan
- Monitor control of chronic illnesses
- Medication check-ups
- Medication therapy management