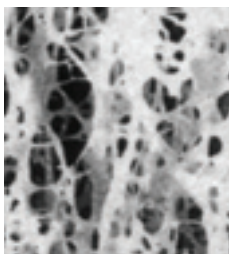


### My Bone Health Plan:

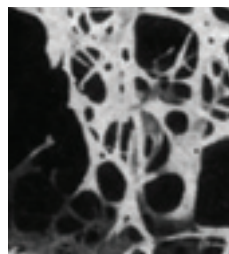
1. Calcium Intake: \_\_\_\_\_
2. Vitamin D Intake: \_\_\_\_\_
3. Bone Health Medications: \_\_\_\_\_
4. Get Testing Done: \_\_\_\_\_

A broken bone, which is the same thing as a fracture, can be very painful and traumatic. Even when fractures occur in an accident or fall that seemed like an isolated event, it may still indicate a problem with your bone health.

People can have poor bone health without any signs or symptoms. When you have osteoporosis, your bones become weak and are more likely to break. Because it is a disease that can be prevented and treated, an early diagnosis can make a difference. At any age, it is never too late to take steps to protect your bones and prevent fractures (broken bones).



Healthy Bone



Weakened Bone

bone looks like a honeycomb. When osteoporosis occurs, the holes and spaces in the honeycomb are much larger than in healthy bone. Osteoporotic bones have lost density or mass and contain abnormal tissue structure. As bones become less dense, they weaken and are more likely to break.

### The Connection of Bone Health and Fractures

Many people are unaware of the link between fractures and bone health. If you are over age 50, there is a very good chance that your fracture is related to bone health sometimes called “brittle bone”. Osteopenia — also known as porous bone, or bone that is full of holes — is a disease characterized by low bone mass, which makes bones more likely to break.

Fortunately, there is a lot you can do to prevent fractures. It’s a matter of taking advantage of proper diet, exercise, medications and other resources available to you right now.

**Osteoporosis is a silent disease — until a fracture occurs.**

Osteoporosis means “porous bone.” Viewed under a microscope, healthy

### Serious Consequences of Poor Bone Health

Breaking a bone is a serious complication of osteoporosis, especially with older patients. Osteoporotic bone breaks are most likely to occur in the hip, spine or wrist, but other bones can break too. In addition to causing permanent pain, osteoporosis causes some patients to lose height. When osteoporosis affects vertebrae, or the bones of the spine, it often leads to a stooped or hunched posture.

Osteoporosis may limit mobility, which often leads to feelings of isolation or depression. Additionally, twenty percent of seniors who break a hip die within one year from either complications related to the broken bone itself or the surgery to repair it. Many patients require long-term nursing home care.

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## 7 Smart Steps to Better Bone Health

### 1. Talk with Your Health Care Provider

Discuss your fracture. Ask your health care provider if your break may be related to osteoporosis. **Seek advice about bone mineral density (BMD) testing (often referred to as a DXA scan).** It's the best way to detect low bone density, and its most extreme form, osteoporosis.

Also discuss medications that have been proven effective at minimizing bone loss and/or reducing the risk of future fractures. A number of medications have been approved by the U.S. Food and Drug Administration (FDA) for the treatment of osteoporosis.

### 2. Get Adequate Calcium

Everyone needs calcium to maintain strong, healthy bones and muscles. **The National Institutes of Health (NIH) recommends that women over 50 and men over 70 get 1,200 milligrams of calcium per day.** If you are not getting enough calcium, you may be able to increase your calcium intake by adding some calcium-rich foods like milk, cheese, broccoli or almonds. If you do not get enough calcium through your diet and multivitamins, calcium supplements will also work.

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Vitamin D, the "sunshine vitamin," plays a critical role in helping your body absorb calcium from your digestive system into your bloodstream. **The National Osteoporosis Foundation recommends 800 - 1,000 International Units (IU) of vitamin D per day.**

Sunshine and vitamin-D fortified foods, like milk, can help you meet your daily quota. Vitamin D supplements are also available and frequently necessary. You can discuss with your healthcare provider which options are best for you.

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Exercise is one of the best ways to preserve bone density and maintain muscle strength. **To build and maintain bone density, do weight-bearing and resistance exercises, which make your body move against gravity.**

Some examples of weight-bearing exercises include: dancing, walking, and using a stationary bike.

Resistance exercises to consider include: limited weight lifting, using exercise bands, or rising up and down on your toes to strengthen your bones and maintain muscle strength.

### 5. Prevent Falls

You can reduce your chances of falling and causing a fracture by playing it safe wherever you are.

**Outside your home:**

- Wear shoes that offer good traction.
- Be careful about floors that can be slippery.
- Check out curbs before stepping up or down.
- Use a walker if you feel unstable.

**Inside your home:**

- Use nightlights.
- Keep floors clear of clutter.
- Don't walk around in socks or floppy slippers.
- Keep electrical cords out of the way.
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You can also reduce falls by performing activities that boost your balance, flexibility, and strength. Balance is the ability to keep your body stable while moving or standing still. Activities like tai chi, swimming, and stretching exercises can help.

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Controlling your alcohol intake can connect you to healthier bones. Drinking heavily can increase bone loss and the risk of sustaining a fragility fracture from a fall. According to the National Osteoporosis Foundation, on average, **alcohol intake of 3 or more drinks per day is detrimental to bone health.**

# Bone Health Program

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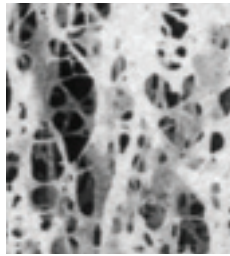
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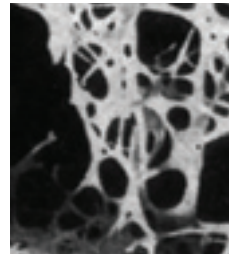
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Bone Density Test: \_\_\_\_\_ Appointment: \_\_\_\_\_

Have lab work done before appointment.

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Muskegon, MI 49444  
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## Exercise Regularly

Your muscles get bigger and stronger when you use them. Your bones are similar! They get stronger and denser when you make them work. And “work” for bones means handling impact, the weight of your body or more resistance. Currently, we know the most about two types of exercises that are important for building and maintaining bone density. These exercises are:

## Weight-Bearing Exercises

These exercises include activities that make you move against gravity while being upright. They include both high-impact and low-impact activities.



Biking and swimming are **not** weight-bearing exercises, so they don't help your bones as much. If you bike or swim, make sure to also include activities in your weekly exercise routine that work your bones.

If you haven't been exercising regularly, check with your healthcare provider before starting a new program—particularly if you have health problems such as heart disease, diabetes or high blood pressure. Once you have your healthcare provider's approval, start slowly.

## Which exercises are best?

Exercises listed in Group 1 are the best for keeping bones strong. If you have osteoporosis, fall easily or are frail, choose safer options from Groups 2 or 3.

### Group 1: High-Impact Weight-Bearing

- Aerobic Dancing
- Basketball
- Dancing
- Field Hockey
- Gymnastics
- Hiking
- Jogging or Running
- Jumping Rope
- Lacrosse
- Racquet Sports
- Soccer
- Stair Climbing
- Tennis
- Volleyball

### Group 2: Low-Impact Weight-Bearing

- **Walking Briskly**
- **Low Impact Aerobics**
- **Stair-Step Machines**
- **Elliptical Training Machines**
- Cross-Country Ski Machines\*
- Downhill & Cross-Country Skiing\*

*\*Avoid if you have balance problems or are at risk of falls.*

## What should my goals be?

**30 minutes per day, five to seven days per week:**

- 30 minutes at one time
- 3 sessions of 10 minutes
- If you can't fit 10 minutes in, spread your exercise throughout the day by taking the stairs or by parking farther from the store or work.

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## Muscle-Strengthening Exercises



These exercises include activities where you move your body, a weight or some other resistance against gravity. These exercises are also known as resistance exercises. Working your muscles matters just as much as building up bone. It can slow the bone loss that happens with osteoporosis and may help prevent fall-related fractures.

Muscle-strengthening exercises include lifting weights, using elastic exercise bands, using weight machines or lifting your own body weight. Yoga and Pilates are also muscle-strengthening exercises. However, people with osteoporosis and low bone density need to avoid certain positions. For example, if you've already had broken bones in the spine due to osteoporosis, be very careful to avoid activities that require reaching far, bending forward, rapid twisting motions, heavy lifting and any movements that increase your chance of a fall.

If you don't have much time for muscle-strengthening, do small amounts at a time. You can do just one body part each day. For example work arms one day, legs the next and trunk the next. You can also spread these exercises out during your normal day. As you get started, your muscles may feel sore for a day or two after you exercise. If the soreness lasts longer, you may be working too hard and need to ease up. Exercises should be done in a pain-free range of motion. If you've broken a bone or have osteoporosis, consider working with a physical therapist (PT) to learn how to exercise safely.

## Additional Exercises

**Balance Exercises.** Exercises that strengthen your legs and challenge your balance can decrease your risk of falls.

**Posture Exercises.** Exercises that improve your posture and reduce rounded or "sloping" shoulders can help you decrease your chance of breaking bones in the spine.

**Functional Exercises.** Exercises that improve how well you move can help you in everyday activities and decrease your risk of falls and broken bones. For example, if you have trouble getting up from a chair or climbing stairs, you should do functional exercises.

A physical therapist can teach you balance, posture and functional exercises. Another good resource for these exercises is National Osteoporosis Foundation's handbook *Boning Up on Osteoporosis: A Guide to Prevention and Treatment*. To learn more, visit [www.nofstore.org](http://www.nofstore.org) or call toll free at 1 (877) 868-4520.

### Which exercises are best?

#### Muscle-Strengthening

- Exercise Bands
- Weight Machines
- Weight Lifting/Resistance Training\*
- Pilates\*\*
- Yoga\*\*
- Standing and rising on your toes
- Lifting your own body weight with exercises like push-ups or squats

\*Avoid if you have balance problems or are at risk of falls.

\*\*Avoid forward-bending exercises.

### What should my goals be?

2 to 3 days per week:

- Aim for one exercise for each major muscle group for a total of 8-12 exercises
- Do 1-2 sets with 8-10 repetitions for each exercise
- If you lift a weight 10 times in a row you should do one or two sets of 8 to 10 repetitions for each exercise. If you lift a weight 10 times in a row and stop, you have completed one set of 10 repetitions. If you can't do 8 in a row, the weight is too heavy or resistance is too much. If you can do more than 10 in a row, you should probably increase the weight or resistance. If you have osteoporosis or are frail, it may be better to do 10 to 15 repetitions with a lighter weight.

*This material was adapted from the following organizations. For additional information on osteoporosis, contact the NIH Osteoporosis and Related Bone Diseases National Resource Center at [www.bones.nih.gov](http://www.bones.nih.gov). For additional information on fall prevention, contact the National Institute on Aging Information Center at [www.nia.nih.gov](http://www.nia.nih.gov).*



### Other Vitamins and Minerals

- Vitamin D is needed for calcium regulation, but does not need to be taken at the same time as calcium.
- Vitamin K, magnesium, phosphorus, B vitamins, potassium, and other nutrients may be important for bone health. These are best obtained in a well balanced diet.

You need vitamin D to absorb calcium, it does not need to be taken at the same time as a calcium supplement. Vitamin K, magnesium, B vitamins, potassium and other nutrients may also be important for bone health. You can usually get enough of these vitamins and minerals from a well-balanced diet, rich in fruits and vegetables.

### Safety

If you are not familiar with the brand, look for labels that state “purified” or have the USP (United States Pharmacopeia) symbol. The “USP Verified Mark” on the supplement label means that the USP has tested and found the calcium supplement to meet certain standards for purity and quality.

### Side Effects of Calcium Supplements

Taking supplements can cause gas or constipation. When you take a new supplement, start with smaller amounts. For example, start with 200-300 mg of calcium a day for a week, and drink an extra 6-8 ounces of water with it. Then gradually add more calcium each week.

### Calcium Interactions

Talk with your healthcare provider or pharmacist about possible interactions between prescription or over-the-counter medicines and calcium supplements. Examples:

- Calcium supplements may reduce the absorption of the antibiotic tetracycline.
- Calcium supplements should not be taken at the same time as iron supplements.

### Selected Calcium-Rich Foods

Food	Calcium (mg)
Fortified oatmeal, 1 packet	350
Sardines, canned in oil, with edible bones, 3 oz.	324
Cheddar cheese, 1½ oz. shredded	306
Milk, nonfat, 1 cup	302
Milkshake, 1 cup	300
Yogurt, plain, low-fat, 1 cup	300
Soybeans, cooked, 1 cup	261
Tofu, firm, with calcium, ½ cup	204
Orange juice, fortified w/calcium, 6 oz.	200–260
Salmon, canned, with edible bones, 3 oz.	181
Pudding, instant (chocolate, banana, etc.) made with 2% milk, ½ cup	153
Baked beans, 1 cup	142
Cottage cheese, 1% milk fat, 1 cup	138
Spaghetti, lasagna, 1 cup	125
Frozen yogurt, vanilla, soft-serve, ½ cup	103
Ready-to-eat cereal, fortified with calcium, 1 cup	100–1,000
Cheese pizza, 1 slice	100
Fortified waffles, 2	100
Turnip greens, boiled, ½ cup	99
Broccoli, raw, 1 cup	90
Ice cream, vanilla, ½ cup	85
Soy or rice milk, fortified with calcium, 1 cup	80–500

*Source: The 2004 Surgeon General’s Report on Bone Health and Osteoporosis: What It Means to You. U.S. Department of Health and Human Services, Office of the Surgeon General, 2004, pages 12–13.*

- Thyroid hormones should not be taken within four hours of calcium supplements to prevent interactions (unless directed otherwise by a healthcare provider or pharmacist).
- Medicines that need to be taken on an empty stomach should not be taken at the same time as a calcium supplement.
- People who take proton pump inhibitors (PPIs) like Prevacid®, Prilosec® and Nexium® may absorb calcium citrate supplements better than other calcium supplements.



Vitamin D plays an important role in protecting your bones. It may also help prevent other conditions including certain cancers. Your body requires vitamin D to absorb calcium. Children need vitamin D to build strong bones, and adults need it to keep bones strong and healthy. When people do not get enough vitamin D, they can lose bone. Studies show that people with low levels of vitamin D have lower bone density or bone mass. They are also more likely to break bones when they are older.

### Daily Vitamin D Recommendations

Adults under age 50	400-800 International Units (IU) daily
Age 50 and older	800-1,000 International Units (IU) daily

There are two types of vitamin D supplements. They are vitamin D2 and vitamin D3. Previous research suggested that vitamin D3 was a better choice than vitamin D2. However, more recent studies show that vitamin D3 and vitamin D2 are fairly equal for bone health. Vitamin D3 is also called cholecalciferol. Vitamin D2 is also called ergocalciferol.

### People Who May Not Get Enough Vitamin D

In the U.S. today, many people do not get enough vitamin D. People most likely at risk for not getting enough vitamin D include:

- older adults
- people who spend little time in the sun
- people living in nursing homes or other institutions
- people with certain medical conditions such as serious diseases of the nervous or digestive systems
- people with very dark skin
- obese or very overweight people

### Lab Test to Check Your Vitamin D Level

Some people ask how they can know if they are getting enough vitamin D. The best way to find out is with a simple blood test that checks your vitamin D level. Discuss with your healthcare provider whether you should have this test done. It measures 25-hydroxyvitamin D, which is also written as 25(OH)D. This test should not be confused with a test for 1,25-dihydroxyvitamin D.

To protect your bone health, most experts agree you need 30 ng/mL or higher levels of 25(OH)D.

If you have osteoporosis and your blood test shows that you do not have enough vitamin D, your healthcare provider may prescribe a higher dose of vitamin D. In this case, most people take a weekly dose of 50,000 IUs of vitamin D2 until the blood level increases. Most healthcare providers do this for a short time to quickly boost the vitamin D level. Afterwards, you should continue on the dose of vitamin D recommended by your healthcare provider to maintain your blood levels of vitamin D.



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## Three Sources To Get Your Vitamin D

### 1. Sunlight

Your skin makes vitamin D from the ultra-violet light (UVB rays) in sunlight. People with fair skin make more vitamin D than people with darker skin. People who live in higher latitudes such as Michigan, instead of lower latitudes such as Florida, may get less vitamin D from sunlight. Window glass and air pollution also decrease the amount of vitamin D that your skin can make. People who are housebound and do not get outside in the sun are unable to make vitamin D. As adults age, the ability to make vitamin D also decreases.

### 2. Food

Vitamin D is naturally available in only a few foods. It is very difficult to get all the vitamin D you need from food. **Foods that have vitamin D include fatty fish** (examples are mackerel, salmon and tuna). Vitamin D is also added to milk and to some brands of other **dairy products, orange juice, soymilk and cereals.**

Check the food label to see if vitamin D has been added to a particular product. One eight ounce serving of milk usually has 25% of the daily value (DV) of vitamin D. The DV is based on a total daily intake of 400 IUs of vitamin D. Therefore a serving of milk with 25% of the DV of vitamin D contains 100 IUs of the vitamin.

### 3. Supplements and Medications

Many people do not get enough vitamin D. These individuals should consider taking a supplement. Before adding a vitamin D supplement, check whether any supplements, multivitamins or medications you already take contain vitamin D. You can also estimate the amount of vitamin D that you get from foods.

Vitamin D supplements can be taken with or without food. While your body needs vitamin D to absorb calcium, you do not need to take vitamin D at the same time as a calcium supplement. If you need help choosing a vitamin D supplement, ask your healthcare provider or pharmacist to recommend one.

Falls are serious at any age, but especially for older people who are more likely to break a bone when they fall.

If you have a disease called osteoporosis, you are more likely to break a bone if you fall. Osteoporosis is called the "silent disease" because bones become weak with no symptoms. You may not know that you have it until a strain, bump, or fall causes a bone to break.

Falls are especially dangerous for people with osteoporosis. If you break a bone, you might need a long time to recover. Learning how to prevent falls can help you avoid broken bones and the problems they can cause.

## Why Do People Fall?

Some of the reasons people fall are:

- Tripping or slipping due to loss of footing or traction.
- Slow reflexes, which make it hard to keep your balance or move out of the way of a hazard.
- Balance problems.
- Reduced muscle strength.
- Poor vision.
- Illness.
- Taking medicines.
- Drinking alcohol.

Illness and some medicines can make you feel dizzy, confused, or slow.

Medicines that may increase the risk of falls are:

- Blood pressure pills.
- Heart medicines.
- Diuretics (water pills).
- Muscle relaxants
- Sleeping pills.

Drinking alcohol can lead to a fall because it can:

- Slow your reflexes.
- Cause you to feel dizzy or sleepy.
- Alter your balance.
- Cause you to take risks that can lead to falls.

## Lifestyle Behaviors

Certain lifestyle behaviors can make a person more susceptible to a fall, for example:

- Alcohol slows reflexes and may cause confusion, dizziness or disorientation.
- People in a hurry need to slow down. Accidents are more likely to happen when you do things in haste.
- It's important to stay alert and focused when in public places.
- Exercising regularly helps maintain bone density. A physical therapist can help you develop a safe and appropriate exercise program.
- Physical training can increase muscle strength and size which helps to support the bones and prevent injury.
- If you need glasses, wear them.
- If you need a hearing aid, use it.
- Remember to wear appropriate shoes both indoors and out.
- Good nutrition with an adequate daily intake of calcium and vitamin D are important for bone health at all ages.

## How Can I Prevent Broken Bones if I Fall?

Sometimes you cannot prevent a fall.

If you do fall, you can try to prevent breaking a bone. Try to fall forwards or backwards (on your buttocks), because if you fall to the side you may break your hip. You can also use your hands or grab things around you to break a fall. Some people wear extra clothes to pad their hips or use special hip pads.

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## Exercises to Improve Balance

While holding the back of a chair, sink, or counter:

- Stand on one leg at a time for a minute and then slowly increase the time. Try to balance with your eyes closed or without holding on.
- Stand on your toes for a count of 10, and then rock back on your heels for a count of 10.
- Make a big circle to the left with your hips, and then to the right. Do not move your shoulders or feet. Repeat five times.

## Outdoor Safety Tips

- Use a cane or walker.
- Wear rubber-soled shoes so you don't slip.
- Walk on grass when sidewalks are slick.
- Put salt or kitty litter on icy sidewalks.
- Use hand rails as you go up and down steps and on escalators.
- Look carefully at floor surfaces in public buildings. Many floors are made of highly polished marble or tile that can be very slippery. When these surfaces are wet, they may become dangerous. When floors have plastic or carpet runners in place, stay on them whenever possible.
- Keep your porch, deck, walkways and driveway free of leaves, snow and debris and keep them in good repair.
- Cover porch steps with a gritty, weather-proof paint.
- Turn on the porch light before leaving your home in the early evening so that you have outdoor light when you return after dark.
- Use a shoulder bag, fanny pack or back purse to leave your hands free.
- Identify community services that can provide assistance, such as 24-hour pharmacies and grocery stores that take orders over the phone and deliver, especially in poor weather.
- Stop at curbs and check the height before stepping up or down. Be cautious at curbs that have been cut away to allow access for bikes or wheelchairs. The incline may lead to a fall.

## Indoor Safety Tips

- Keep rooms free of clutter, especially on floors.
- Use plastic or carpet runners.
- Wear low-heeled shoes.
- Do not walk in socks, stockings, or slippers.
- Be sure rugs have skid-proof backs or are tacked to the floor.
- Be sure stairs are well lit and have rails on both sides.
- Put grab bars on bathroom walls near tub, shower, and toilet.
- Use a nonskid bath mat in the shower or tub.
- Keep a flashlight next to your bed.
- Use a sturdy stepstool with a handrail and wide steps.
- Add more lights in rooms.
- Buy a cordless phone so that you don't have to rush to the phone when it rings and so that you can call for help if you fall.

## More Information

For additional information about osteoporosis and other related conditions contact:

### NIH Osteoporosis and Related Bone Diseases ~ National Resource Center

2 AMS Circle  
Bethesda, MD 20892-3676

Phone: 202-223-0344  
Toll free: 800-624-BONE (624-2663)  
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### What is a Bone Density or DXA test?

The Bone Density test uses a machine to measure your bone density. It estimates the amount of bone in your hip, spine and sometimes other bones. Your test result will help your healthcare provider make recommendations to help you protect your bones.

### What a Bone Density Test Can Do

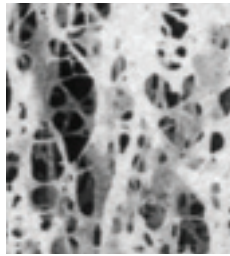
A bone density test tells you if you have normal bone density, low bone density (osteopenia) or osteoporosis. It is the only test that can diagnose osteoporosis. The lower your bone density, the greater your risk of breaking a bone. A bone density test can help you and your healthcare provider:

- learn if you have weak bones or osteoporosis before you break a bone
- predict your chance of breaking a bone in the future
- see if your bone density is improving, getting worse or staying the same
- find out how well an osteoporosis medicine is working
- let you know if you have osteoporosis after you break a bone

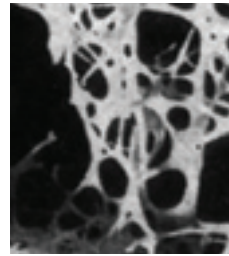
### Who Should Have a Bone Density Test?

The National Osteoporosis Foundation (NOF) recommends that you have a bone density test if:

- you are a woman age 65 or older
- you are a man age 70 or older
- you break a bone after age 50
- you are a woman of menopausal age with risk factors
- you are a postmenopausal woman under age 65 with risk factors
- you are a man age 50-69 with risk factors



Healthy Bone



Weakened Bone

### A bone density test may also be necessary if you have any of the following:

- an X-ray of your spine showing a break or bone loss in your spine
- back pain with a possible break in your spine
- height loss of 1/2 inch or more within one year
- total height loss of 1-1/2 inches from your original height

### Where to Have a Bone Density Test

Most people receive a an order from their healthcare provider to have a bone density test. Also, most hospital radiology departments, private radiology groups and some medical practices offer bone density testing.

You may get a call from the hospital to schedule your bone density. After the Bone Density, make an appointment to discuss your results with your healthcare provider.

### How Often to Repeat a Bone Density Test

People taking an osteoporosis medicine should repeat their bone density test by central DXA every one to two years.

After starting a new osteoporosis medicine, many healthcare providers will repeat a bone density test after one year.

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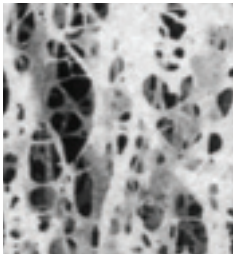
[www.oamkg.com](http://www.oamkg.com)  
[www.wmspinecenter.com](http://www.wmspinecenter.com)

# Bone Health Program

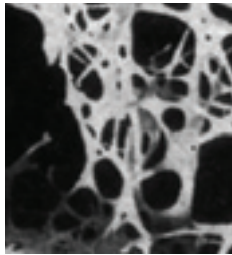
A broken bone, which is the same thing as a fracture, can be very painful and traumatic. Even when fractures occur in an accident or fall that seemed like an isolated event, it may still indicate a problem with your bone health.

Fortunately, there is a lot you can do to prevent fractures. It's a matter of taking advantage of proper diet, exercise, medications, and other resources available to you right now.

The **Bone Health Program** is designed to help you maximize your bone strength and prevent future fractures.



Healthy Bone



Weakened Bone

## Bone Health Evaluation

During your Bone Health Evaluation the following will be reviewed: past and family medical history, the history of your recent fracture, laboratory testing and bone density (DEXA), evaluation of your risk for another broken bone, and discussion of treatment options.

You will be educated on the steps that you can take to optimize your bone health:

1. Know your specific risk of fracture
2. Get adequate calcium
3. Optimize Vitamin D
4. Maintain physical activity and strength
5. Prevent falls
6. Do not smoke
7. Limit alcohol intake

## Laboratory Tests & X-Rays

In order to fully evaluate your bone health you will be given orders for:

- Laboratory testing (blood work)
- Bone density (DXA or Dexa test)

## Bone Health Plan:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

## Bone Health Team



Lisa Potts, Pharm.D.



Lindsay Rudert, DO



Tyler Voss, DO

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