Screening for Bone Health

- Osteoporosis Risk Assessment Instrument (ORAI)
- Fracture Risk Assessment Tool (FRAX)
- Bone Density Testing (DEXA), pictured
  - Over age 65
  - Earlier if more than one risk factor

<table>
<thead>
<tr>
<th>Normal BMD</th>
<th>T/Z scores</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0 – -1.0</td>
<td>-0.5, 0.0</td>
</tr>
</tbody>
</table>

| Osteoporosis | < -2.5     | -3.0, -4.0 |

The World Health Organization (WHO) defines osteoporosis based on results of bone mineral density (BMD) assessment, such as those gathered by a DEXA x-ray machine.

*The more negative the number, the higher the risk of bone disease and fracture.*
Healthy Bones
Promote Wellness

Provide a “structural frame”
Protect organs
Anchor muscles
House bone marrow
Store calcium

What is Osteoporosis?

Osteoporosis literally means: Bone (osteo) that is porous (porosis)

It is a disease that:
• Causes bones to become brittle/porous
• Deteriorates bone tissue
• May lead to fractures
• May result in rounded shoulders and loss of height

10 million people in U.S. are diagnosed with osteoporosis and 80% are women.
Estrogen plays an important role in the healthy development and maturation of bone tissue.

In menopause, estrogen levels drop rapidly leading to a loss of bone mass.

For women, for every decade of life beyond menopause, the risk of developing a fracture doubles due to estrogen deficiency.
**Warning Signs: PAIN**

- Neck pain
- Spine pain
- Lower back pain

*Hunchback posture is also a warning sign.*

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**Warning Signs: PERIODONTAL DISEASE**

Common risks for Periodontal Disease & Osteoporosis:
- Family history of recession
- Low body weight (body mass index)
- Late onset of menstruation
- Early menopause
- Athletic amenorrhea
- Drugs altering bone metabolism (steroids)

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**Warning Signs: OSTEOPENIA**

*Osteopenia* is abnormally low bone density that may lead to osteoporosis.

**Osteopenia and Osteoporosis: The Difference**

- **Osteopenia**: Bone density has begun to dwindle, but is not yet considered dangerous.
- **Osteoporosis**: Bone density levels become critical and frequent fractures are likely.

*Osteopenia* is defined by the World Health Organization as a bone mineral density (BMD) assessment score of between -1 and -2.5.
Prevention is the Key!

- Start early and don’t give up!
- Get screened and if necessary, tested
- Work on modifiable risk factors:
  - Get enough calcium & vitamin D
  - Stop smoking
  - Limit alcohol consumption
  - Be physically active
  - Eat fruits & vegetables

<table>
<thead>
<tr>
<th>Your body needs calcium.</th>
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<tbody>
<tr>
<td>If this is your age:</td>
</tr>
<tr>
<td></td>
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<tr>
<td>0 to 6 months</td>
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<tr>
<td>6 to 12 months</td>
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<tr>
<td>1 to 3 years</td>
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<tr>
<td>4 to 8 years</td>
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<tr>
<td>9 to 18 years</td>
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<tr>
<td>19 to 50 years (&amp; 51-70 year old males)</td>
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<tr>
<td>51- to 70-year-old females (&amp; everyone over 70)</td>
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Calcium & Vitamin D

Other Important Nutrients: Magnesium and Potassium

**Magnesium** is essential for absorption and metabolism of calcium.

**Potassium** has the ability to neutralize bone-depleting metabolic acids.

<table>
<thead>
<tr>
<th>You need more vitamin D as you get older.</th>
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<tr>
<td>If this is your age:</td>
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<tr>
<td></td>
</tr>
<tr>
<td>0 - 12 months</td>
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<tr>
<td>1 to 70 years old</td>
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<tr>
<td>Over 70 years old</td>
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Physical Activity Promotes Bone Health

Bone tissue is living tissue.

Bones become stronger and thicker with use, just like muscles do.

Bone-healthy activity causes new bone tissue to form.

Muscles supporting bones become stronger.

At least 30 minutes of physical activity everyday

*Activity enhances coordination, and decreases risk of falls.*

Strength training 2-3 times a week

Balance training once a week
Strength Training/
Weight Bearing

Low Impact/Resistance:
- Walking
- Rowing machines
- Elliptical machines
- Water aerobics

High Impact/Resistance:
- Stair climbing, hiking
- Jogging
- Downhill/cross country skiing
- Dance, Jumping rope
- Basketball/volleyball
- Weight lifting

Balance Training
- Swimming
- Indoor/outdoor cycling
- Stretching
- Flexibility exercises
- Pilates
- Yoga

RESOURCES

niams.nih.gov/Health_Info/Bone/Osteoporosis
nof.org
bestbonesforever.org/parents
americanbonehealth.org
vitamindcouncil.org
nihseniorhealth.gov/osteoporosis/whatisosteoporosis/01.html