

Exercise for Bone Health

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I have the following financial relationships to disclose:

1. Clinical Advisor for Bone Health Technologies.

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Definitions

Osteoporosis

“Osteoporosis is a disease characterized by low bone mass and structural deterioration of bone tissue, leading to bone fragility and an increased risk of fractures.”

Low Bone Mass/ Osteopenia

“Low bone mass is when your bone density is lower than normal, but not low enough to be considered osteoporosis. ”

from www.bones.nih.gov/health-info/bone/osteoporosis/overview

Fragility Fracture

“Fragility fractures are defined as fractures that occur following a fall from standing height or less or with no trauma.”

From www.uptodate.com/contents/screening-for-osteoporosis/print

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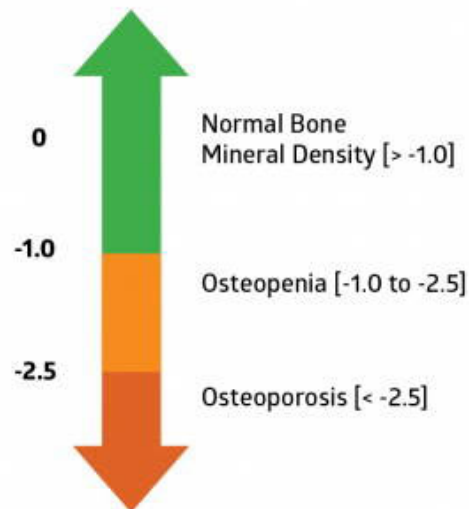
How do you assess bone health?

- Bone Mineral Density (BMD) is measured with a DXA scan.
- Bone health is evaluated by comparing your bone density to 30-year old of the same sex and race.



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T Score



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Have you had a DXA Scan?

Do you know your T score?

Do you know your risk factors for osteoporosis and fracture?

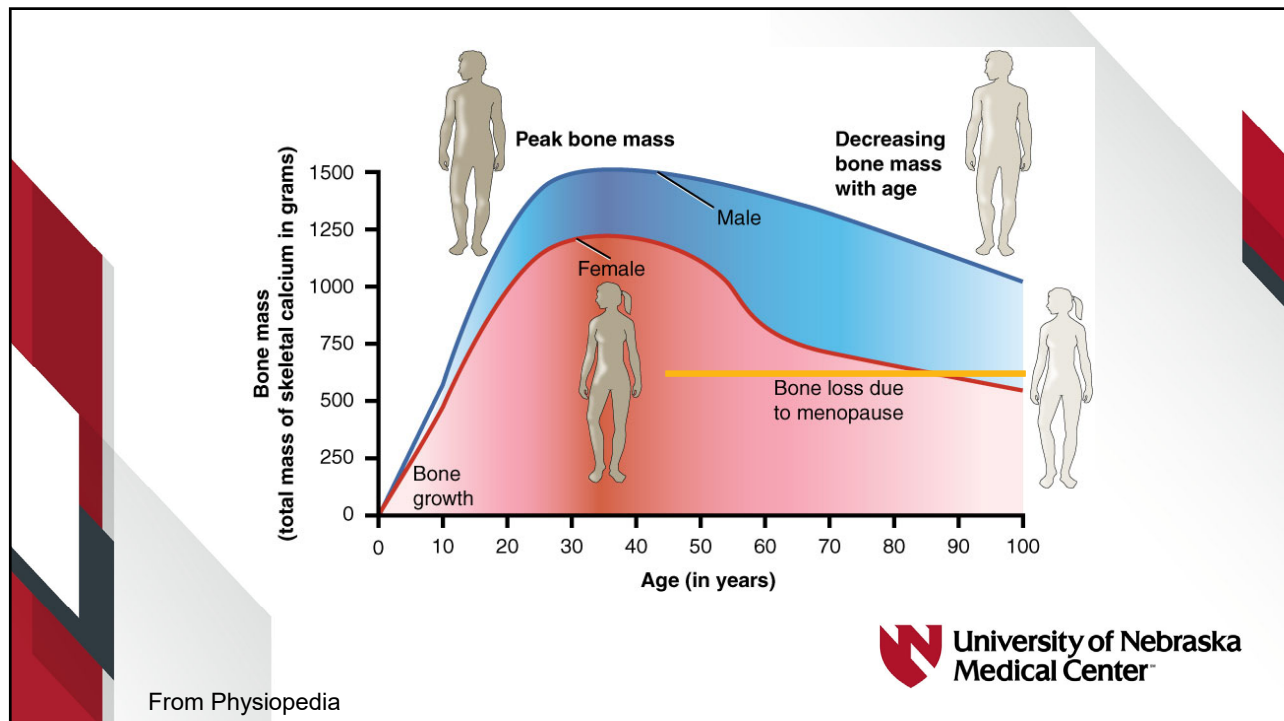
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Some Cancer Therapies Are Associated with Bone Loss

- Testes removed
- Ovaries removed
- Taking a hormone blocker (men)
- Taking an estrogen blocker (women)
- Taking Steroids
- Radiation Therapy
- Some Chemotherapies

The Oncologist 2006;11:1121-1131 www.TheOncologist.com

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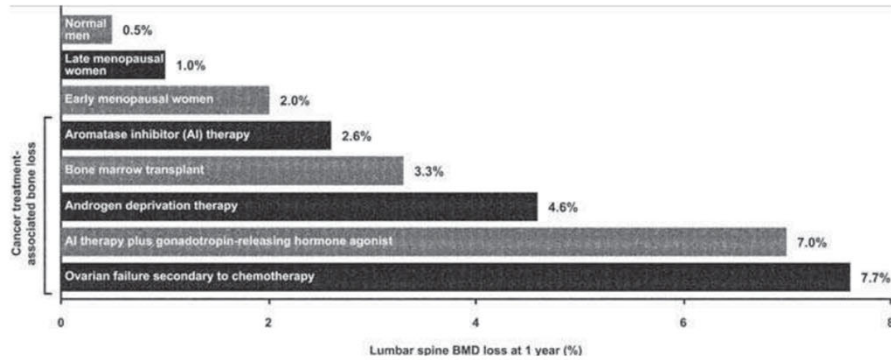
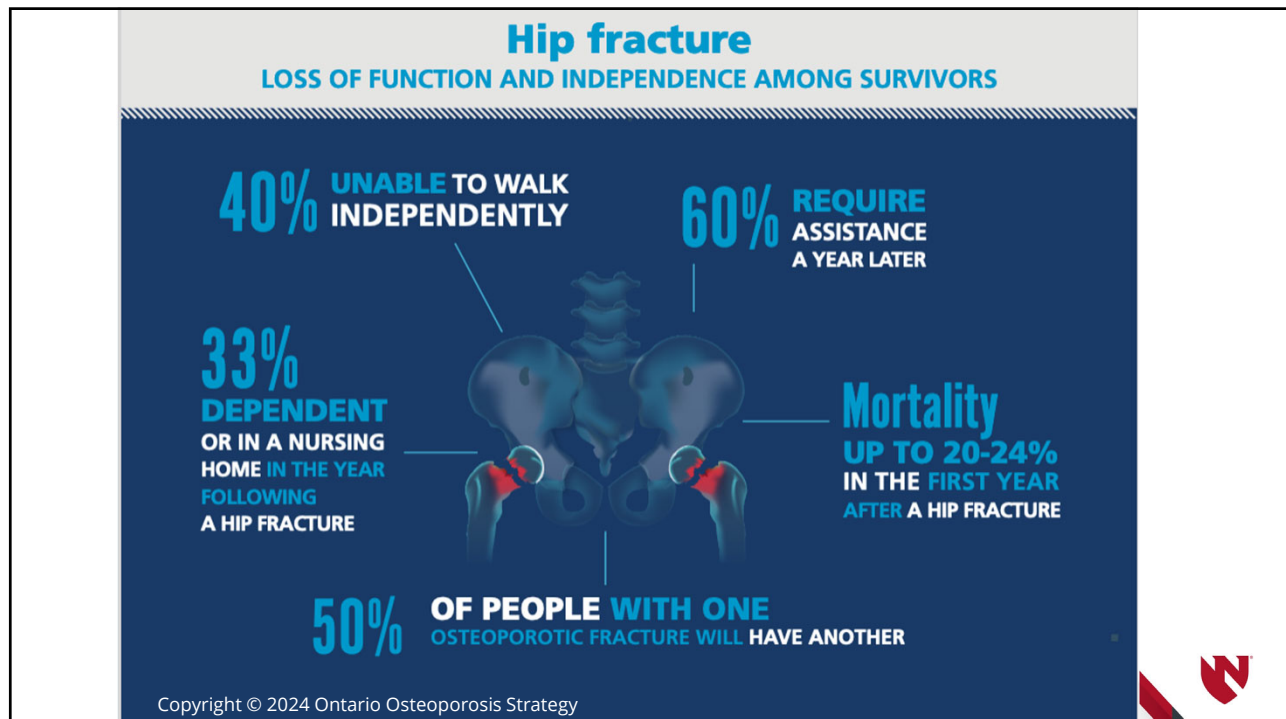



Figure 1. Bone loss associated with various cancer therapies occurs at rates that are substantially greater than those seen with normal aging in men and women [4, 9–14]. Abbreviation: BMD, bone mineral density.

The Oncologist 2006;11:1121–1131 www.TheOncologist.com

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A vertebral compression fracture causes the vertebra to “collapse” and become wedge shaped.

Vertebral compression fractures are very painful and limit activities and the ability to care for oneself.

From Johnson & Johnson

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HOW DO WE PREVENT FRACTURES?



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How to maintain bone health with exercise?

- ✓ Weight lifting
- ✓ Impact exercises through the legs



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General Weight Lifting Guidelines

- Exercise large muscles
- Dose/Intensity
 - Lift a weight you can only lift 8-12 times
 - For women with osteoporosis, use a weight you can lift about 12-15 times
- Frequency
 - Goal is 3 days/week

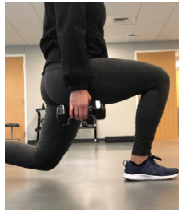
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Leg Exercises

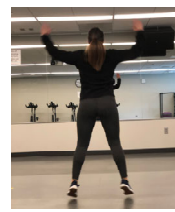
Jumping Rope



Lunges



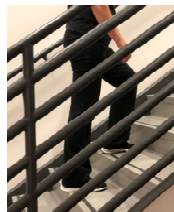
Calisthenics



Hiking



Stair Climbing



Step Exercise Class



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Weight Lifting Exercises

Free Weights



Machines



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Squats

[How to do squats video - Google Search](#)

[Squat-CDC strength training for older adults - PICRYL - Public Domain Media Search Engine Public Domain Image](#)



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Exercise Precautions

DOs

Stand straight!

Stand tall - Keep your head above your shoulders
Keep your shoulders pulled back - like a military posture



DON'Ts

Don't slump!

Never bend at your spine to lean over to pick up objects
Even worse: never bend at your spine while twisting
Abdominal crunches



IRB #378-14-FB



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Will exercise improve my bone density score?

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Physical Activity Decreases Probability of Any Hip Fracture

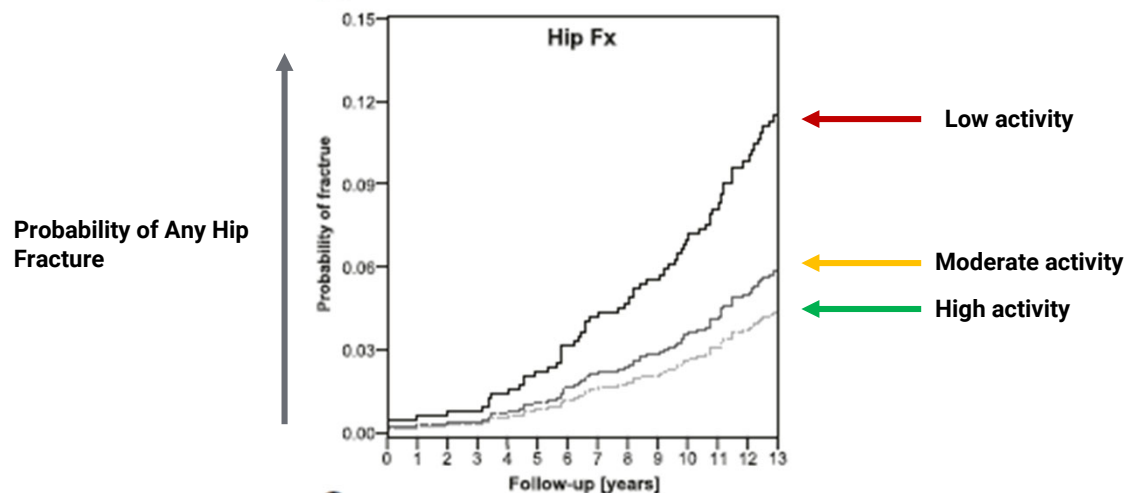


Figure 2 Probability of (A) any hip fracture and (B) cervical fracture with different baseline physical activity indices (very low or low, moderate, and high) adjusted by age and body mass index at baseline, and of (C) cervical fracture after adjustment for age and change in body weight between baseline and 2004 (NF n=488, Neck Fx n=17).

Physical Activity and Hip Fracture Risk. Määtä et al. BMC Musculoskeletal Disorders 2012, 13:173

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Take Home Messages

Exercise can help prevent fractures.

Ideal exercise includes both weight lifting and leg "impact" exercises.

Know your bone density T score and use precaution when exercising with osteoporosis.

Give bones the best chance by having adequate calcium in your diet and maintaining normal vitamin D levels.



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Thoughts? Questions?



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