

Introduction to Bone Health

Starter Activity

- Please, find the Self-Evaluation Quiz on the first page of your **Introduction to Bone Health - Workshop Guide**
- Complete the LEFT SIDE of the chart indicating how familiar you are with the topics that will be discussed today
- We will return to this quiz at the end of the workshop



Agenda

1.Our Bones

2.What is Osteoporosis?

3.Why is preventing/treating osteoporosis important?



Learning Objectives

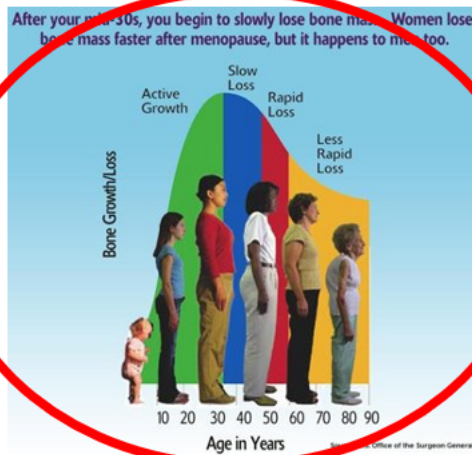
I will be able to...

- Briefly describe the bone growth cycle
- List 4 lifestyle requirements for strong bones
- List 2 nutrients needed for good bone health
- State the definition of osteoporosis
- Briefly describe the relationship between osteoporosis and broken bones or fractures
- Identify a minimum of 3 risk factors for developing osteoporosis that cannot be changed
- Identify a minimum of 3 risk factors for developing osteoporosis that can be changed



How to navigate the slides

Bone Growth Cycle



bones are living tissue and are constantly changing

- This process is called "modelling"

I will be able to briefly describe the bone growth cycle

slide title

slide image

key information

learning objective



Workshop Guide

As we progress through this workshop, please ensure to complete the appropriate sections of the Workshop Guide provided for you.

This will be your quick reference following this workshop to aid you on your bone health journey.



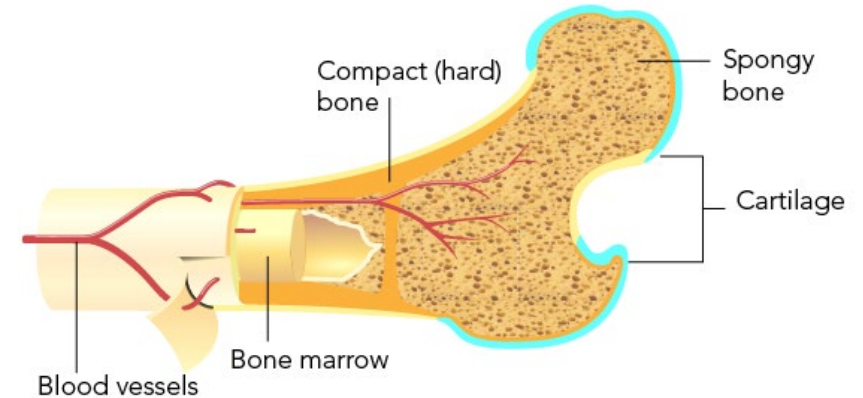


Our Bones



Our Bones

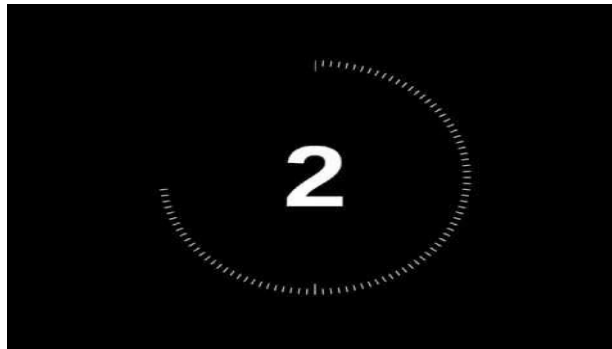
- Our bones are made up of three major components:
 - collagen
 - a protein that makes bones flexible
 - calcium
 - make bones hard and strong
 - living bone cells
 - remove and replace weakened sections of bone



How do bones grow?

In groups of 3-4, brainstorm and share what you might already know about how bones grow in your Workshop Guide

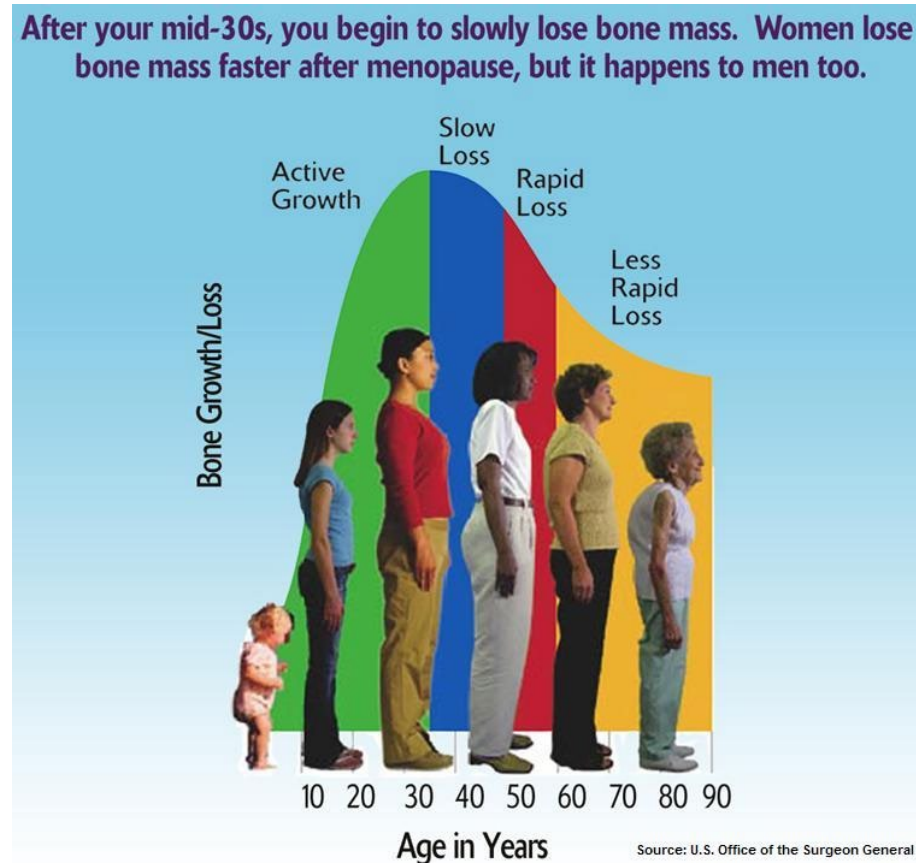
You will have TWO MINUTES to record your ideas in your Workshop Guide



I will be able to briefly describe the bone growth cycle.



Bone Growth Cycle



- bones are living tissue and are constantly changing
- This process is called "modelling"

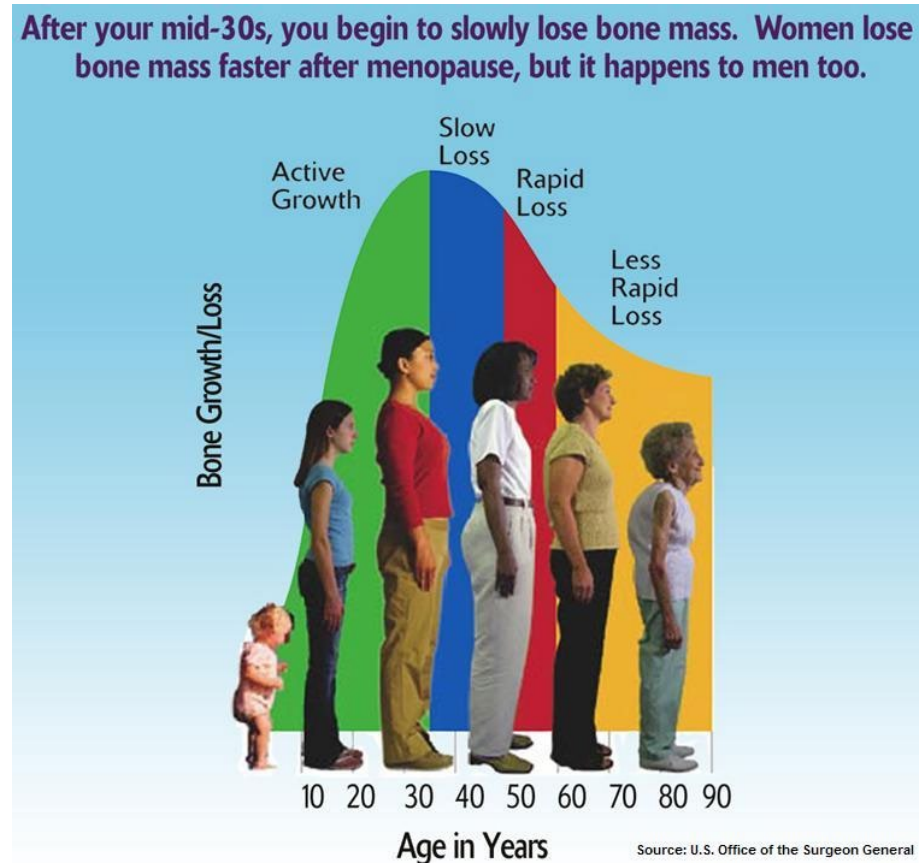


Video courtesy of the
National Osteoporosis
Foundation

I will be able to briefly describe the bone growth cycle.



Bone Growth Cycle

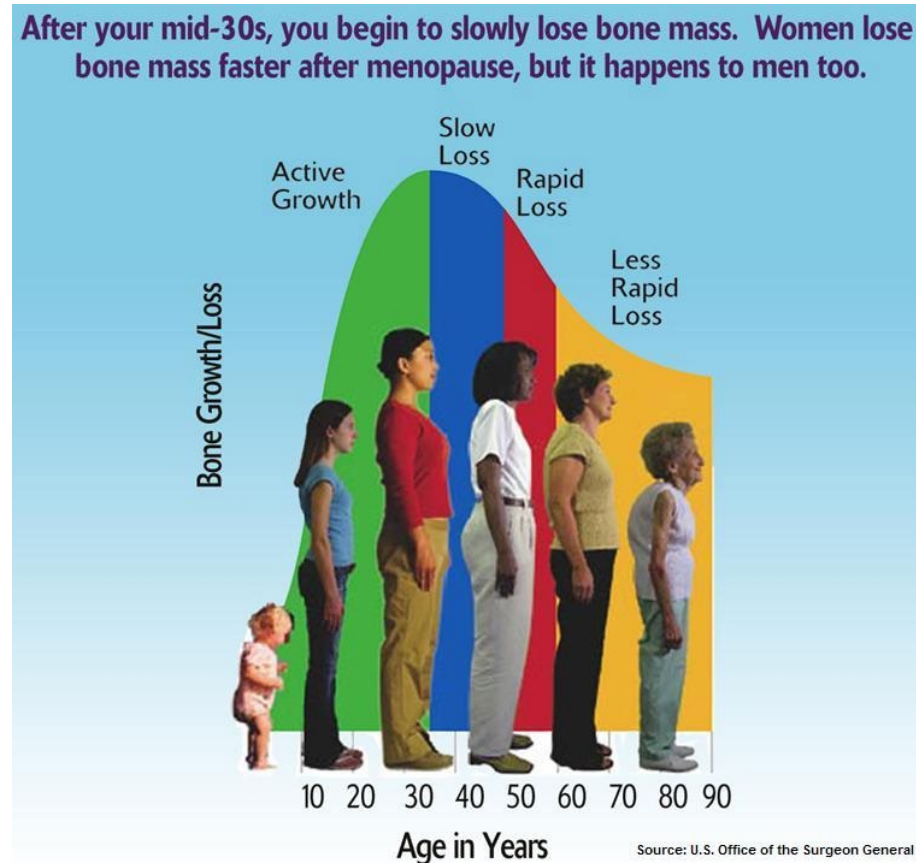


- children and teenagers form new bone faster than they lose old bone
- by mid-30s, adults begin to lose bone mass

I will be able to briefly describe the bone growth cycle.



Bone Growth Cycle

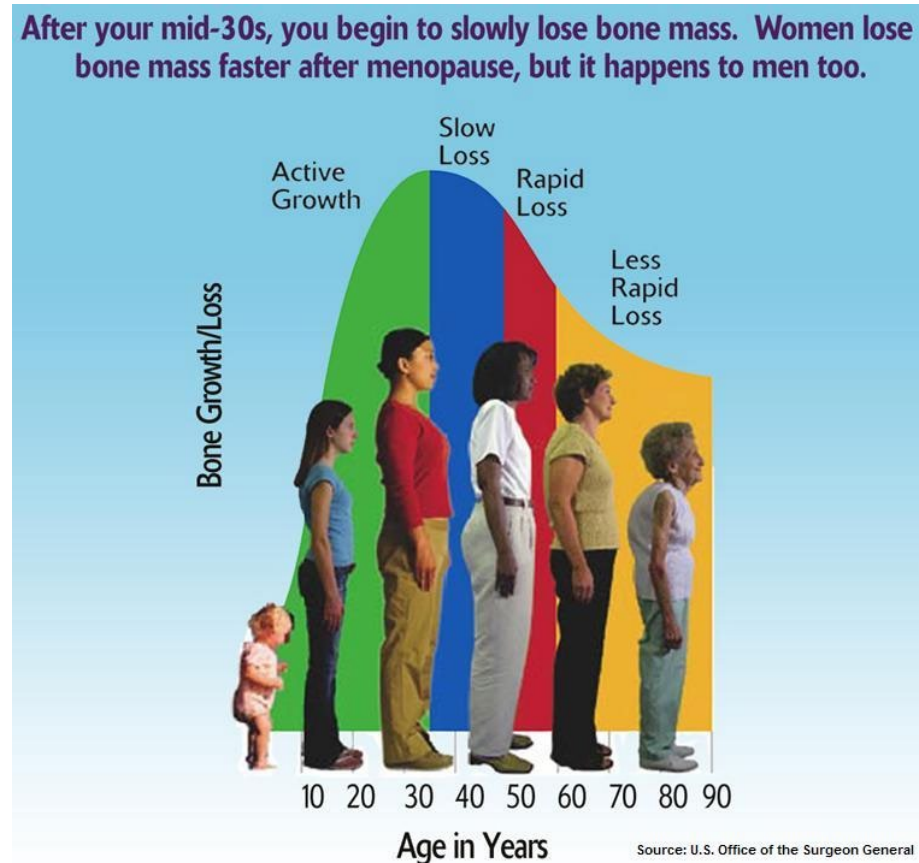


- old bone cells are replaced on an ongoing basis
- The process is called “remodelling”
- after your mid-30s the remodelling process becomes unbalanced and we lose bone mass

I will be able to briefly describe the bone growth cycle.



Bone Growth Cycle



- The result is a net decrease in the total amount of bone
- This can lead to **low bone density** or **osteoporosis**

I will be able to briefly describe the bone growth cycle.

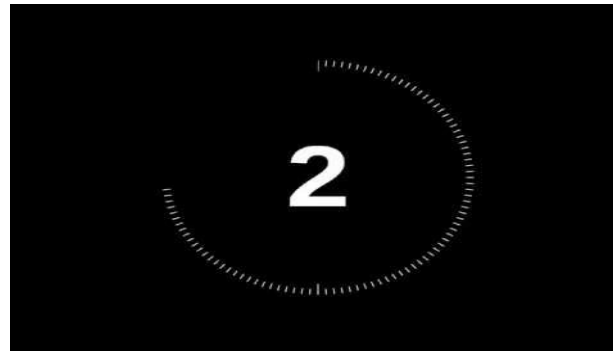


What are strong bones?

In your groups, collaborate and share what you know from your experience with regard to the following questions:

- What is Bone Strength?
- Why are strong bones important?
- Why should strong bones be a priority from an early age?

You will have **TWO MINUTES** to record your ideas in your Workshop Guide



I will be able to briefly describe the bone growth cycle.



Bone Strength

- Bone strength is your bone's resistance to breaking (fracture)
 - a combination of your bone density and your bone quality
- Difficult to measure the strength of bones
 - it is related to your Bone Mineral Density
 - which measures the density of minerals, like calcium, in your bones

I will be able to state the definition of bone strength.



Strong Bones at an Early Age

- At an early age keeping bones strong and healthy should be a priority
 - the density you build-up in youth is what you have to draw from when you are older - it is like your savings account!
 - The more bone you have "in the bank", the less likely you are to develop osteoporosis as you age.
- Healthy habits as a child/teenager can pay off years later
- Eat calcium-rich foods, get enough vitamin D, and exercise regularly

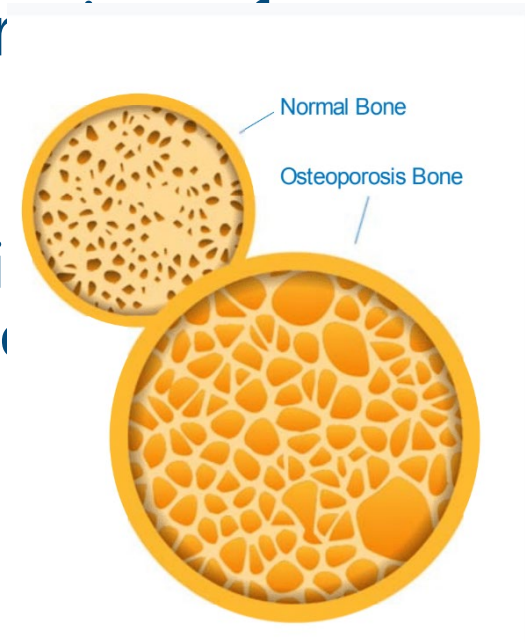
I will be able to list 3 lifestyle requirements for strong bones.



What is Osteoporosis?

Osteoporosis

- Osteoporosis Canada defines osteoporosis as a disease characterized by low bone mass and deteriorated bone tissue, which can lead to increased risk even with a minor event
 - such as lifting, twisting, tripping, slipping, stumbling
 - most osteoporotic fractures occur in the hip, spine, wrist
- Osteoporosis literally means “porous bone”



I will be able to state the definition of osteoporosis.



Osteoporosis

- Bone loss is a natural part of ageing, but not everyone will lose enough bone density to develop osteoporosis
- The older you are, however, the greater your chance of developing osteoporosis

I will be able to state the definition of osteoporosis.



Fragility Fracture

- A fracture caused by an injury that would be not enough to fracture normal bone
 - a fracture with minimal to no physical damage, such as a fall from a standing height or less

I will be able to briefly describe the relationship between osteoporosis and broken bones or fractures.

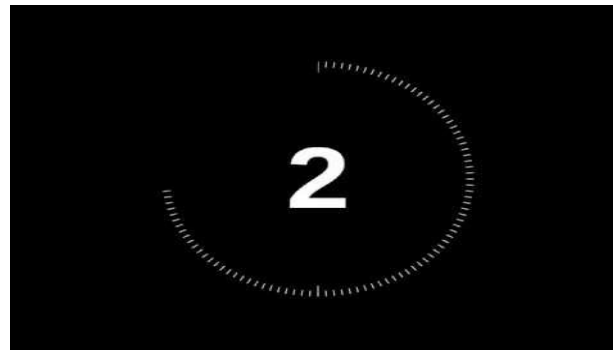


What are Osteoporosis Risk Factors?

Partner with someone in your group and share your knowledge of the risk factors for osteoporosis and complete the following sections of your Workshop Guide:

- Risk factors you cannot change
- Risk factors you may be able to change

You will have **TWO MINUTES** to record your ideas in your Workshop Guide



I will be able to identify a minimum of three risk factors for developing osteoporosis that cannot be changed.
I will be able to identify a minimum of three risk factors for developing osteoporosis that can be changed.

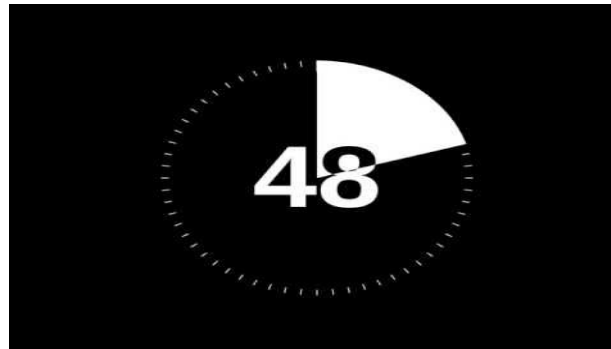


What are Osteoporosis Risk Factors?

Change partners within your group and review the lists you have come up with.

Make adjustments to your list as necessary.

You will have ONE MINUTE to review your lists in your Workshop Guide



I will be able to identify a minimum of three risk factors for developing osteoporosis that cannot be changed.

I will be able to identify a minimum of three risk factors for developing osteoporosis that can be changed.



Risk Factors You CANNOT Change

- female gender/past menopause
- family member with osteoporosis and/or fractures
- thin, small or petite body frame
- aging for both genders

I will be able to identify a minimum of three risk factors for developing osteoporosis that cannot be changed.



Risk Factors You CANNOT Change

- history of a broken bone (fracture)
- long term use of certain medicines
 - e.g. corticosteroids, anticonvulsants
- history of falls over the past year
- other health conditions
 - e.g. rheumatoid arthritis, celiac disease, overactive thyroid gland

I will be able to identify a minimum of three risk factors for developing osteoporosis that cannot be changed.



Risk Factors You May Be Able To Change

- women with estrogen deficiency
- too little intake of calcium, vitamin D and other nutrients
- too little exercise
- smoking or a past history of smoking
- three or more alcoholic drinks per day
- excessive intake of coffee, cola or other caffeinated beverages

I will be able to identify a minimum of three risk factors for developing osteoporosis that can be changed.



Why is preventing/treating osteoporosis important?



At least **1 IN 3 WOMEN** and **1 IN 5 MEN** will suffer from an osteoporotic fracture during their lifetime



Osteoporosis: "a pediatric disease with geriatric consequences". Peak bone mass is achieved at an early age (16-20 in young women and 20-25 in young men), so **building strong bones during childhood and adolescence can be the best defense against developing osteoporosis later in life.**



2 MILLION CANADIANS are affected by osteoporosis



OVER 80% OF ALL FRACTURES in people 50+ are caused by osteoporosis



ONE IN THREE HIP FRACTURE PATIENTS will re-fracture within one year



Women and men alike **BEGIN TO LOSE BONE IN THEIR MID-30S**



28% OF WOMEN and **37% OF MEN** who suffer a hip fracture will die within one year



Cool-down Activity

- Review your Self-Evaluation Quiz from the starter activity in your **Introduction to Bone Health - Workshop Guide**
- Complete the RIGHT SIDE of the chart to identify what you have learned during the workshop
- With the person next to you, discuss:
 - what you learned in the workshop
 - what you found surprising in the workshop
 - what do you want to learn more about
 - what you will do next with this new knowledge



Additional Resources

Osteoporosis Canada

- osteoporosis.ca

Dr. David Hanley Osteoporosis Centre

- osteoporosiscalgary.com

National Osteoporosis Foundation

- nof.org



Bibliography

(2016). Osteoporosis FAQs. Retrieved from <https://https://www.osteoporosiscalgary.com/for-patients/osteoporosis-faqs.html>.

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Alberta Health Services. (2012). *Better Bones 4 Life: Learning to Exercise and Move with Osteopenia or Osteoporosis*. (pp. 1)

