

“Take Action For Bone Health”

World Osteoporosis Day 2021

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Calcium Metabolism and Osteoporosis Program

All About Osteoporosis

- What is osteoporosis?
- What are the consequences?
- What are the risk factors
- Finding out if your bones are fragile
- Healthy living for strong bones
- Drug treatments to prevent fractures/Help after fragility fractures

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ما هو مرض ترقق العظام؟

- هو مرض الشيخوخة
- هو مرض أوجاع المفاصل
- هو مرض صامت يؤدي إلى الكسور

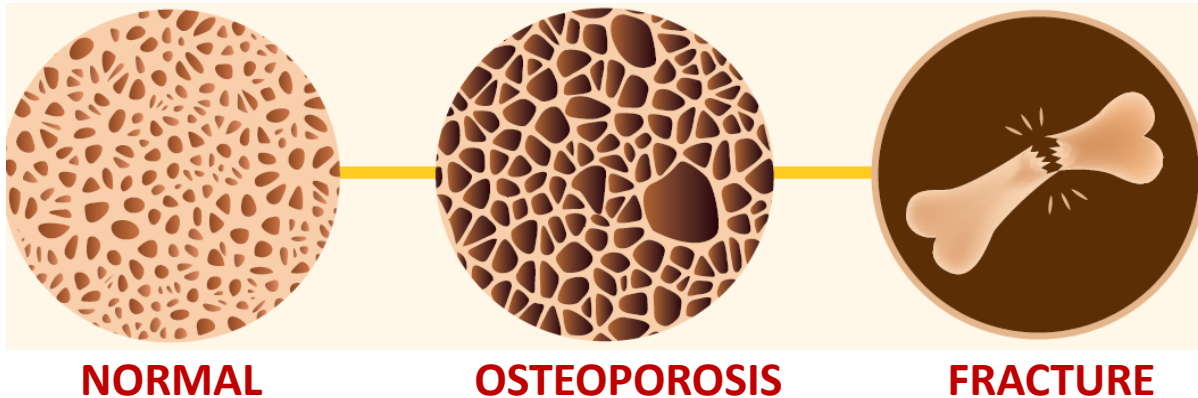
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What Is Osteoporosis?

- Osteoporosis is porous bone:
 - Low bone density
 - Reduced bone quality

Fragile bone
→ Increased fracture



What Is Osteoporosis?

- Osteoporosis is a **silent disease** until a fracture occurs.
- Osteoporotic fractures:
 - Fracture that occur with a low trauma, typically following a fall from a standing height

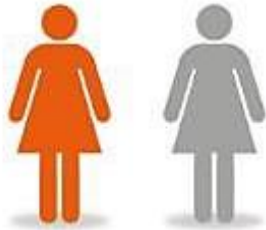


ترقق العظام يصيب

- النساء فقط
- الرجال والنساء

Osteoporosis Is Common

Who it affects



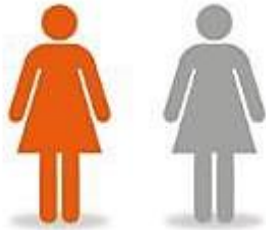
1 in 2 Women

People **over the age of 50**, who will break a bone mainly as a result of poor bone health.

SILENT DISEASE UNTIL FRACTURE OCCURS

Osteoporosis Is Common

Who it affects



1 in 2 Women



1 in 5 Men

People **over the age of 50**, who will break a bone mainly as a result of poor bone health.

SILENT DISEASE UNTIL FRACTURE OCCURS

Common Fracture Sites

>60 years



Vertebrate fracture



Wrist fracture



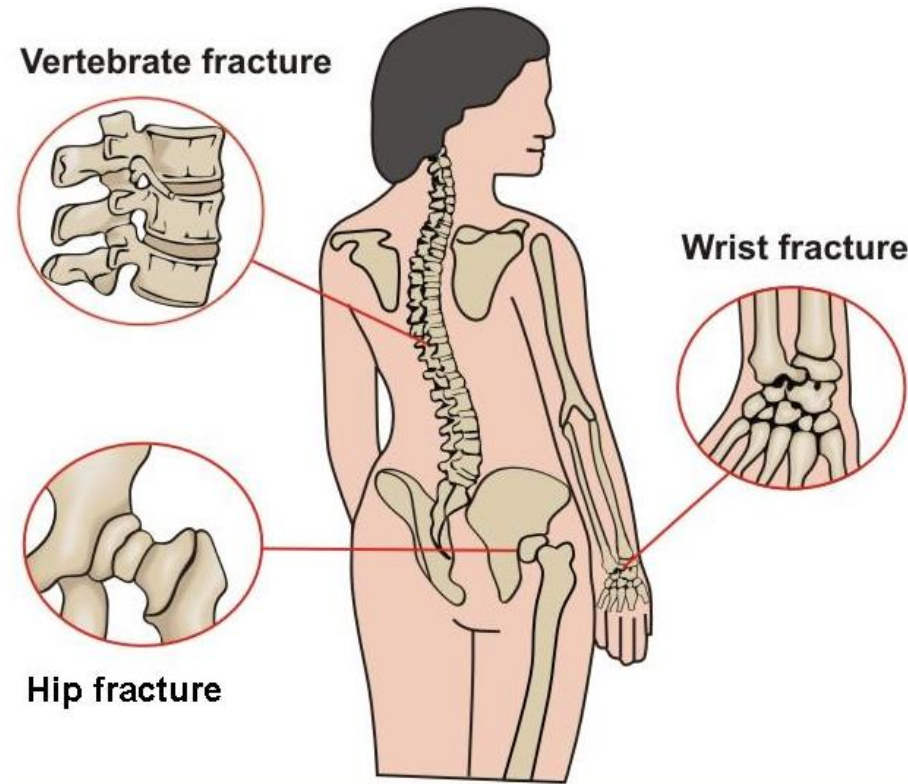
50-60 years



>70 years



Hip fracture

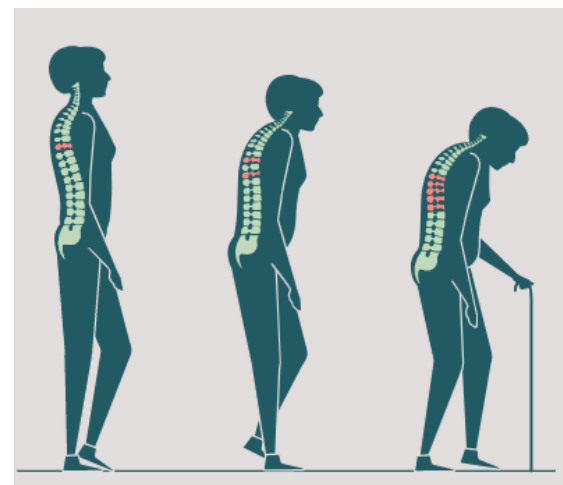


All About Osteoporosis

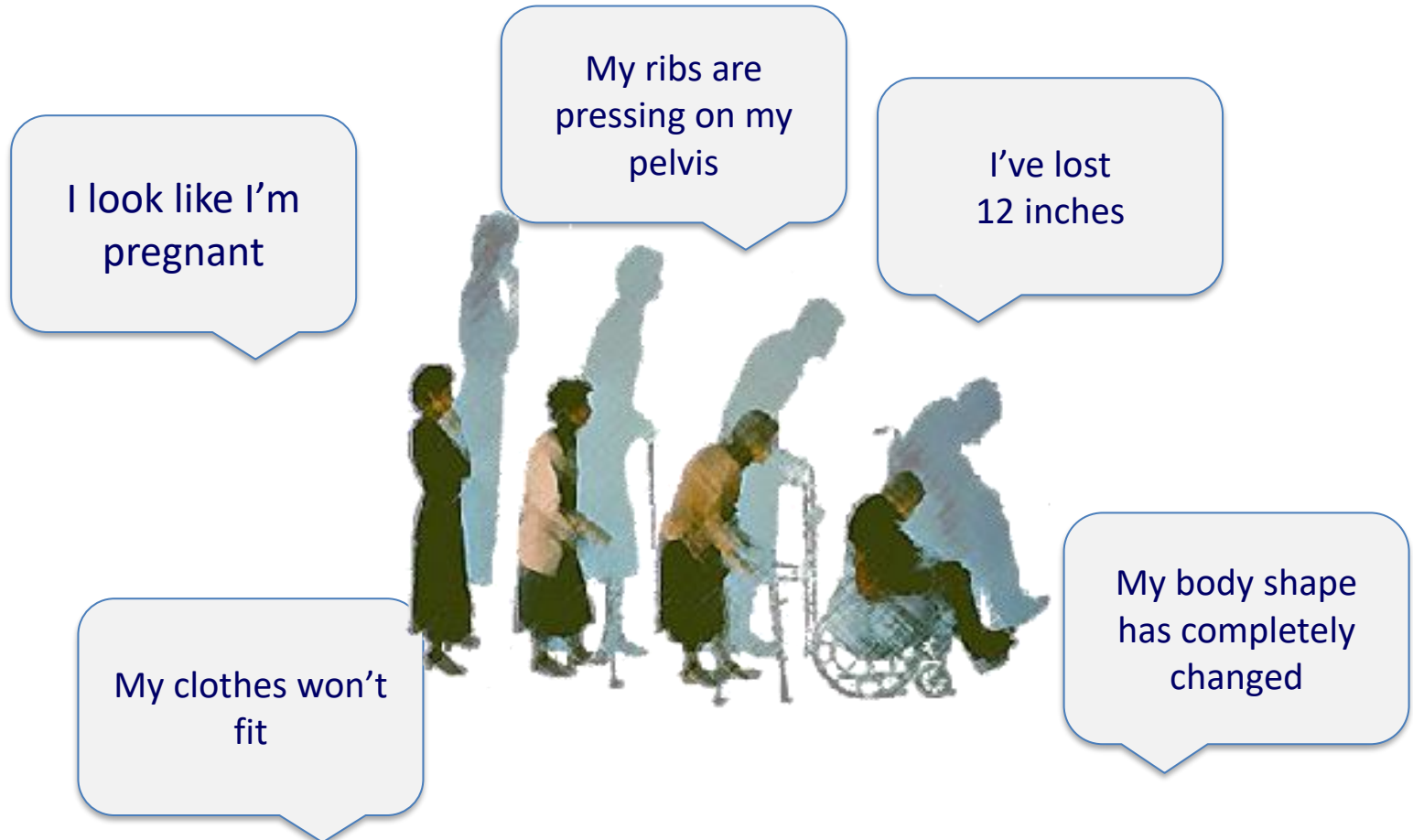
- What is osteoporosis?
- **What are the consequences?**
- What are the Risk Factors
- Finding out if your bones are fragile
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What Are The Consequences Of Osteoporosis?

- Consequences of osteoporotic fractures:
 - Pain
 - Physical limitations (disability)
 - Height loss
 - Significant height loss **> 4 cm** (historical)
 - Changes in appearance (i.e. kyphosis)



Vertebral Compression Fractures (multiple and severe)



One 'Fragility Fracture' Increases The Risk Of A Second

After a first fracture:

- 23% of all further fractures occurred within 1 year
- 54% of all further fractures occurred within 5 years*

*Clinical subsequent fractures cluster in time after first fractures; (2009) van Geel TA, van Helden S, Geusens PP, Winkens B, Dinant G

All About Osteoporosis

- What is osteoporosis?
- What are the consequences?
- **What are the Risk Factors ?**
- Finding out if your bones are fragile
- Healthy living for strong bones
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ما هي العوامل التي تزيد خطر ترقق العظام؟

- الرياضة
- تناول الحليب ومشتقاته
- إنقطاع الطمث

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Risk Factors For Osteoporosis And Fractures

- Older Age
- Race
- Gender: woman
- Some medicines -e.g. glucocorticoids ('steroids'), breast cancer and prostate cancer drugs
- Medical conditions: liver, renal, heart and lung disease

Risk Factors (cont.)

- Some medical conditions e.g. rheumatoid arthritis and early menopause
- Medical conditions causing immobility, affecting food absorption, or affecting hormone levels
- Low body weight
- Family history
- Current smoking
- Alcohol more than 3 units daily
- Bones have already broken easily



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Who Has Osteoporosis?

- Women with low bone density (T-score ≤ -2.5) on DXA scan

OR

- Women with a low trauma fracture (fragility fracture)



Osteoporosis Diagnosed On A Scan



Bone density scanning of hip and spine:
dual energy X-ray absorptiometry (DXA)

Fan-Beam With Rotating Gantry



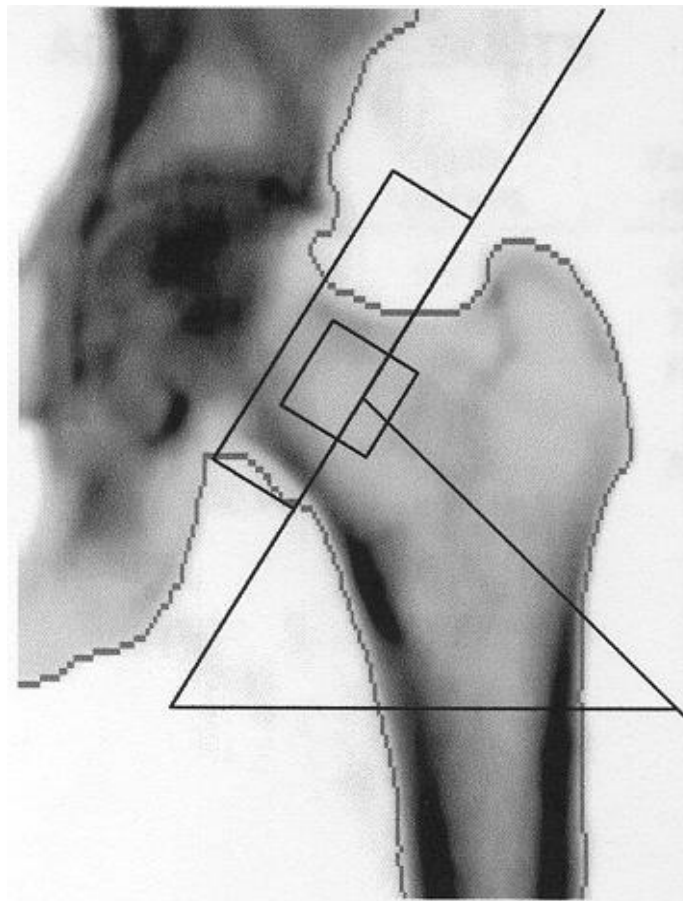
Supine lateral spine

Densitometry DXA

SPINE AP



HIP: neck/trochanter



صورة ترقق العظام إلزامية لجميع النساء عند
بلوغ عمر الخمسين سنة

- نعم
- لا

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Do All Women Need Testing For Osteoporosis?

NO!!!



Do All Women Need Testing For Osteoporosis?

- Age > 65 years:
 - **YES for all**
- Age < 65 years
 - **YES if specific conditions:**
 - Vertebral deformity or fragility fracture
 - Radiologic evidence of low bone density
 - Medications that could affect bone (steroids)
 - ≥ 1 Risk factors: smoking, diabetes, premature menopause, family history, rheumatoid arthritis (high fracture risk)

All About Osteoporosis

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- Finding out if your bones are fragile
- **Healthy living for strong bones**
- Drug treatments to prevent fractures
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كيف منحافظ على صحة العضم؟

- الجلوس في الشمس بعد وضع واقي الجلد
- ممارسة الرياضة وخاصةً رياضة رفع الأوزان
- المشي على مهل لتوقي الوقعات

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How To Improve Your Bone Health?

- Adequate calcium intake
- Adequate vitamin D intake
- Adequate protein intake
- Exercise

How To Improve Your Bone Health?

Milk

CALCIUM RICH 

FOOD	SERVING SIZE	CALCIUM (MG)
Milk, semi-skimmed 	200 ml	240
Milk, skimmed 	200 ml	244
Milk, whole 	200 ml	236
Milkshake	300 ml	360
Sheep milk	200 ml	380
Coco milk	200 ml	54
Soy drink (non-enriched)	200 ml	26
Soy drink, calcium-enriched*	200 ml	240
Rice drink	200 ml	22
Oat milk	200 ml	16
Almond milk	200 ml	90

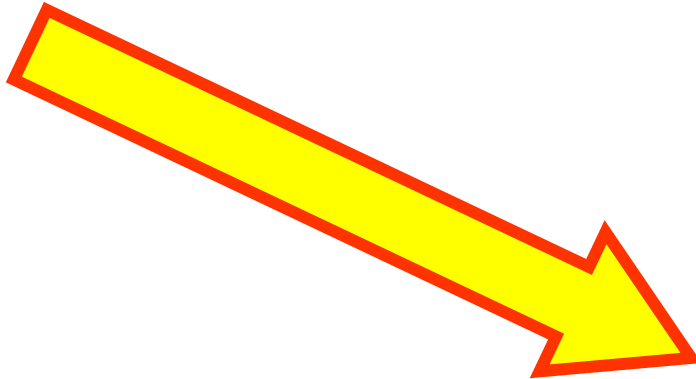


Benefits of calcium outweigh potential risk!!

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Skin needs, and makes
cholesterol
(7-dehydro-cholesterol)



Cholecalciferol
(Vitamin D3)



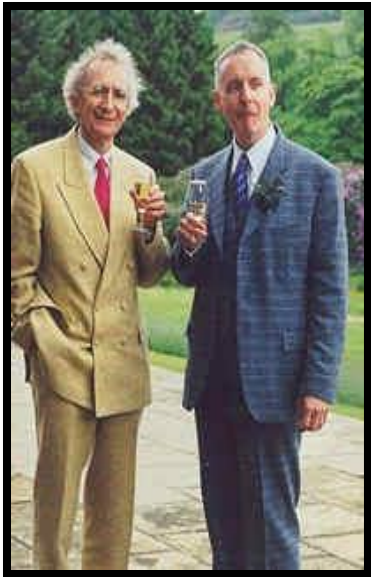
*CYP2R1 polymorphisms
and others*

25(OH)D

1,25 (OH)₂ D ← 25-hydroxyvitamin D

Vitamin D Supply

Amount of skin surface exposed
The quality of sunlight.



Vitamin D



The body itself makes vitamin D when it is exposed to the sun

Cheese, butter, margarine, fortified milk, fish and fortified cereals are food sources of vitamin D



ADAM.

Vitamin D

The body makes vitamin D when it is exposed to Ultraviolet (UV) rays from the sun.



FOOD SOURCES:

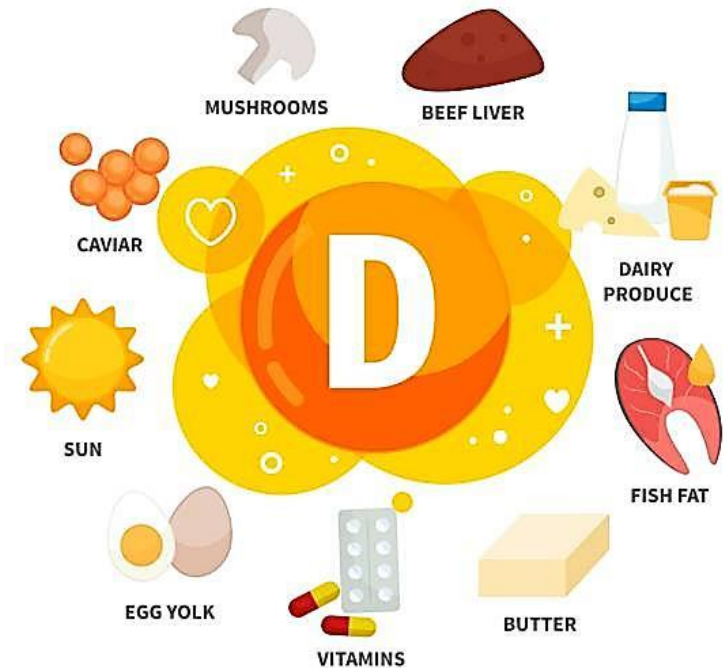
- Cheese
- Margarine
- Butter
- Fortified Milk
- Healthy Cereals
- Fatty Fish



Vitamin D

- 10 minutes of sun exposure to bare skin once or twice/day
- Important not to burn
- Make sure that you are *actually* outside
- Some people need supplements:
600-1,000 IU (15-25µg) daily –

e.g. pregnant women; those who don't get sunlight exposure; older frailer people



How To Improve Your Bone Health?

- Adequate calcium intake
- Adequate vitamin D intake
- Adequate protein intake
- Exercise

The eatwell plate



Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



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Department of Health in association with the Welsh Assembly Government, the Scottish Government and the Food Standards Agency in Northern Ireland.

How To Improve Your Bone Health?

- Adequate protein intake
 - 0.8 g of protein per kilogram (kg)
 - To maintain a body weight of 20-25 kg/m²
 - Where to get them?
 - dairy products
 - eggs
 - meats and fish
 - lentils, beans and nuts

How To Improve Your Bone Health?

- Adequate calcium intake
- Adequate vitamin D intake
- Adequate protein intake
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How To Improve Your Bone Health?

- **Exercise:**

- Weight-bearing
- Muscle-strengthening
- Balance-training exercises
- 30-40 min 3-4 times per



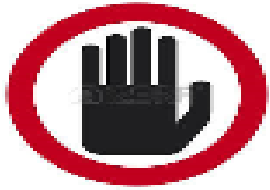
Avoid twisting, high-impact loading, bending and compression of the spine

Fall Prevention

Falls prevention strategies
and assistive devices help reduce fracture risk



How to improve your bone health?



Stop!

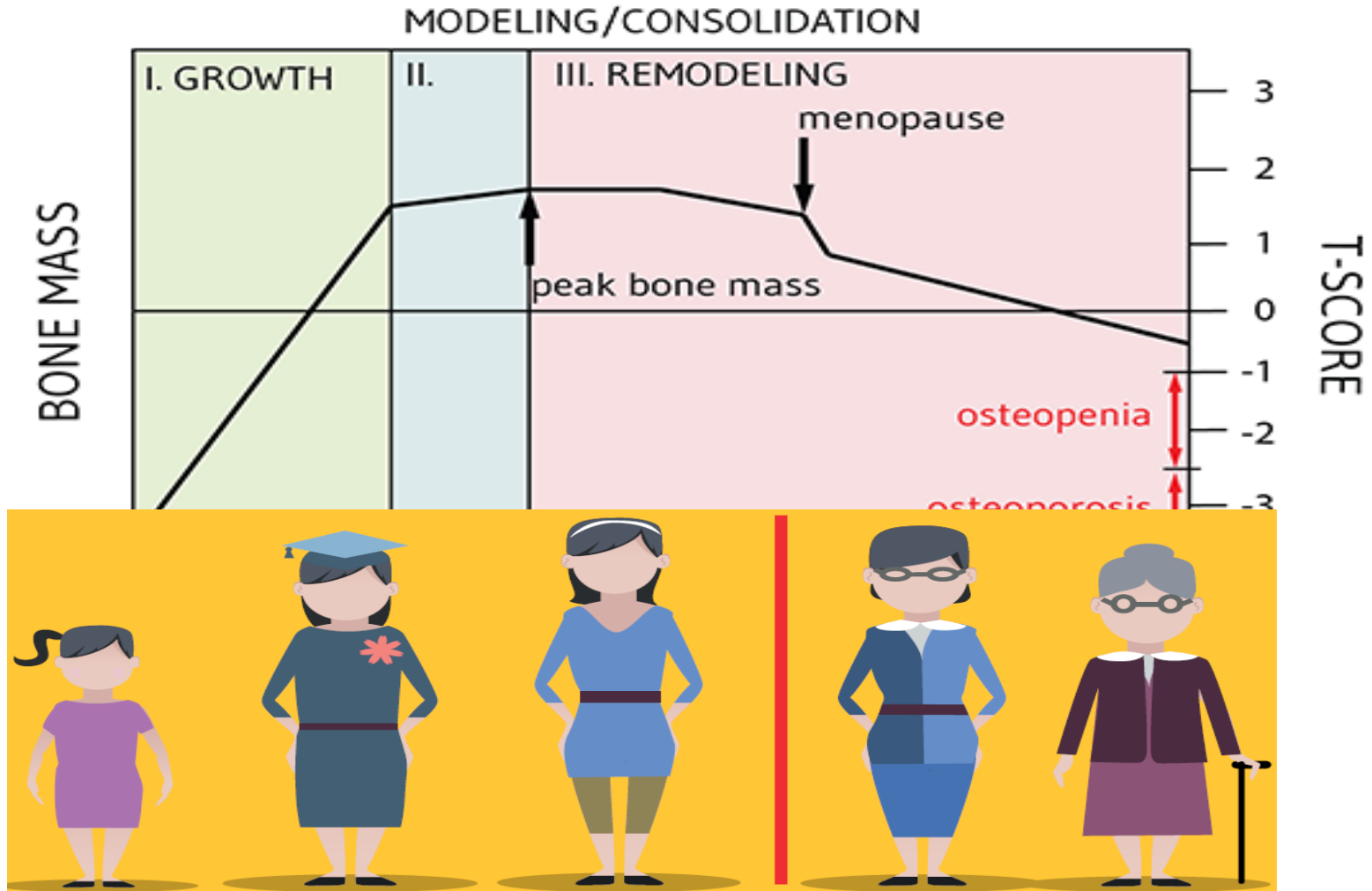
- Smoking
- Excessive alcohol (>1 drink per day)
- Excessive caffeine (>4 cups per day)

Smoking



Alcohol

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Do All Women With Low Bone Density Need Treatment?

- Decision to treat is based not only on BMD, but also on:
 - History of fracture(s) at hip or spine
 - Risk factors → high fracture risk (age, family history, smoking, alcohol, previous fracture, chronic diseases...)

Osteoporosis Therapies

Anti-resorptive

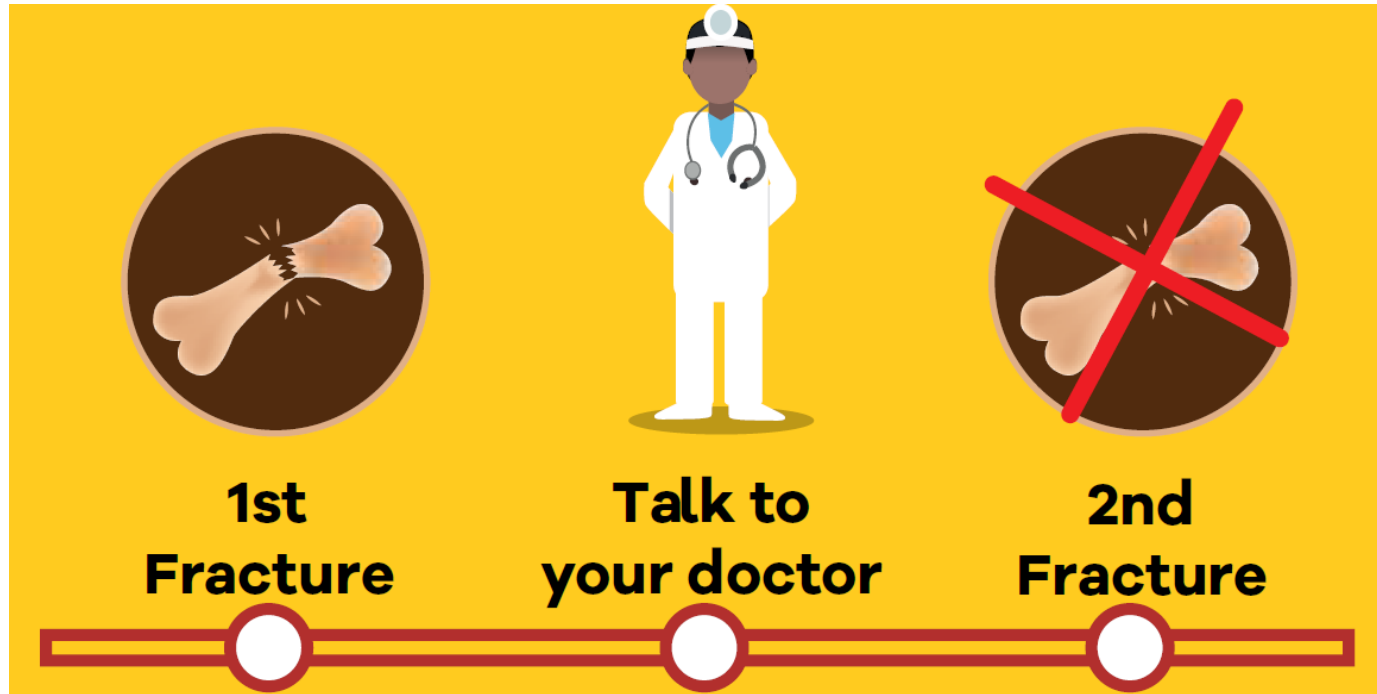
- HRT and SERMS
- Bisphosphonates:
 - Alendronate (*Fosamax*)
 - Risedronate (*Actonel*)
 - Ibandronate (*Bonviva*)
 - Zoledronate (*Zometa, Xgeva*)
- RANK-L Inhibitors:
 - Denosumab (*Prolia*)

Anabolic

- Teriparatide
(*Forteo*)
- Abaloparatide
(*Tymlos*)

Dual Action: Romosozumab Evenity

Secondary Prevention



Stop the ‘cascade effect’!!

That's Osteoporosis: A Family Affair



When help is needed for daily chores

THAT'S OSTEOPOROSIS

Broken bones due to osteoporosis have restricted Mary's mobility. She relies on her daughter to help with everyday activities such as shopping and bathing.

 **IOF**
International
Osteoporosis
Foundation

*Our vision is a world without fragility
fracture in which healthy mobility is a
reality for all*

WorldOsteoporosisDay
October 20th
www.worldosteoporosisday.org

On the occasion of World Osteoporosis Day, the **Calcium Metabolism and Osteoporosis Program at AUBMC** invites you to participate in the Osteoporosis Day activities.

TAKE ACTION

FOR BONE HEALTH

اتخذ التدبير

من أجل صحة العظام



Assessment of Your Risk Fracture

Assessment of Your Knowledge in Bone Health



THANK YOU