

# **The module: Clinical Problem Solving (CPS)**

## **Session 4 Fall**

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# Learning outcomes (LO)

1. Identify and map in the logical way the topics relevant to understanding , diagnosis and management of falls.
2. Identify detailed information on both from concurrent modules in the semester and from previous study to populate your map.



# *Staying upright posture*

## *Sensory inputs*

- \*Inner ear*
- \*Feet&Legs*
- \*Vision*

*Central process*  
***BRAIN***

*Motor outputs*

*HEART*  
*Blood supply*



✓ ***At which age group you expect the fall is more common  
??????***

***\*More likely to fall.***

***\*Injuries from fall (especially?????) are more likely.***

**Everyone falls at some stage. Most falls in young fit people do not, however lead to serious injury.**



***Bone is made up of calcium salts (mainly calcium hydroxyapatite) in proteoglycan matrix.***

## **Types of bone:**

**1.Compact (dense bone)**

**2.Spongy (cancellous or trabecular).....bone is organized as trabeculae with spaces in between. Osteoporosis tends to weaken spongy bone more so those parts of bones with most spongy bone are the most likely to fracture.**



## Bone cells:

1.Osteoblast.....(bone forming cells)

2.Osteoclast.....(bone resorption cells)

*The dynamic between the activity of these two groups of cells determines bone mass*



## Calcium homeostasis:

The following hormones affect the calcium level:

1. Parathyroid hormone
2. Thyroid hormones
3. Vitamine D level
4. Gonadal hormones (t&o)
5. Adrenal glucocorticoids



# ***Osteoporosis***

**A reduction in the bone mass associated with characteristic changes in the micro- architecture of bone ,making it much less strong and so prone to fracture.**

**Osteoporosis is mostly manifest in older people , and is more common in women than men. Why????**





## ***Main risk factors of osteoporosis are:***

- 1. Gender**
- 2. Ethenicity**
- 3. Changes in gonadal function**
- 4. Long term steroid therapy**
- 5. Low calcium&vit.D diet**
- 6. Immobilization**



***More common fracture sites in osteoporotic patient are:***

- 1. Distal radius (Colles" fracture)**
- 2. Neck of femur (hip fracture)**
- 3. Vertebrae**

**N.B....*Osteoporosis is often undetected until a fracture occurs***



## ***Management of osteoporosis***

**\*Bone density scan: should be done for any individual who might be at risk.**

**\*Reduction of decreased bone density by drugs:**

**1. Bisphosphonates (normal bone pyrophosphate analogues which inhibit osteoclast action)**

**2. Oestrogen replacement therapy: after menopause.**

**3. Dietary calcium & vit.D supplements**



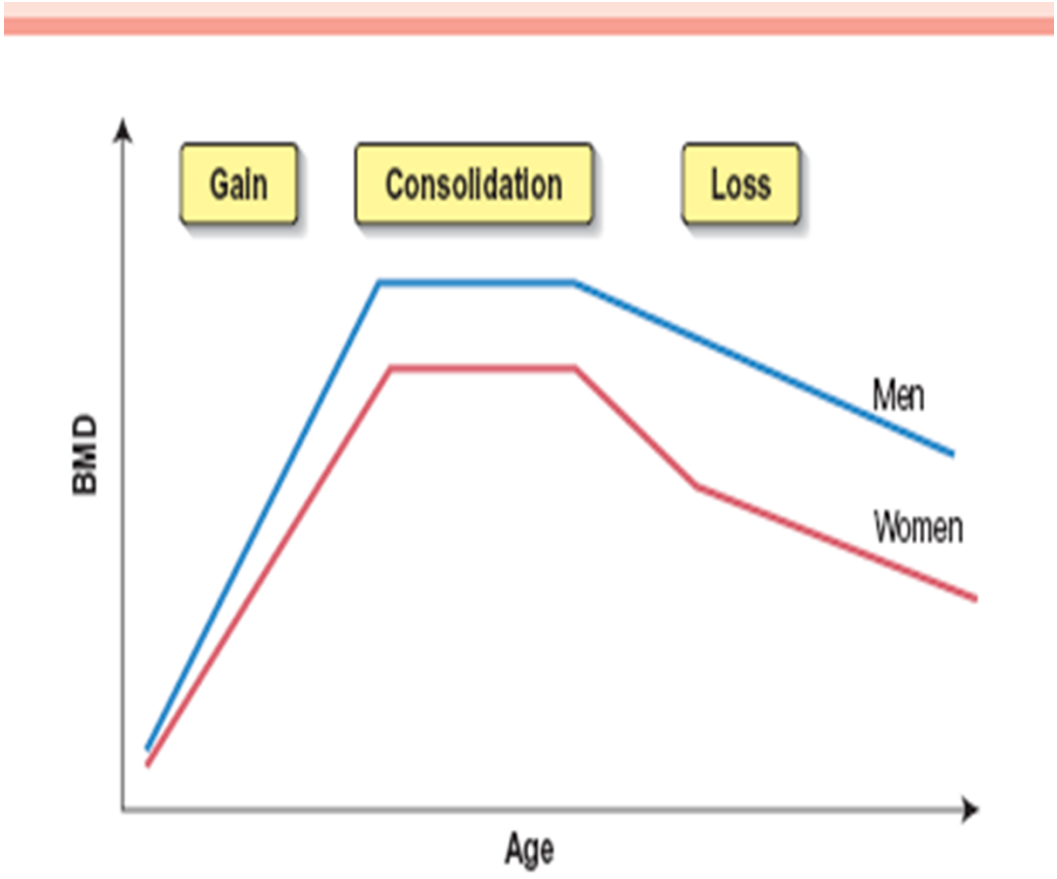
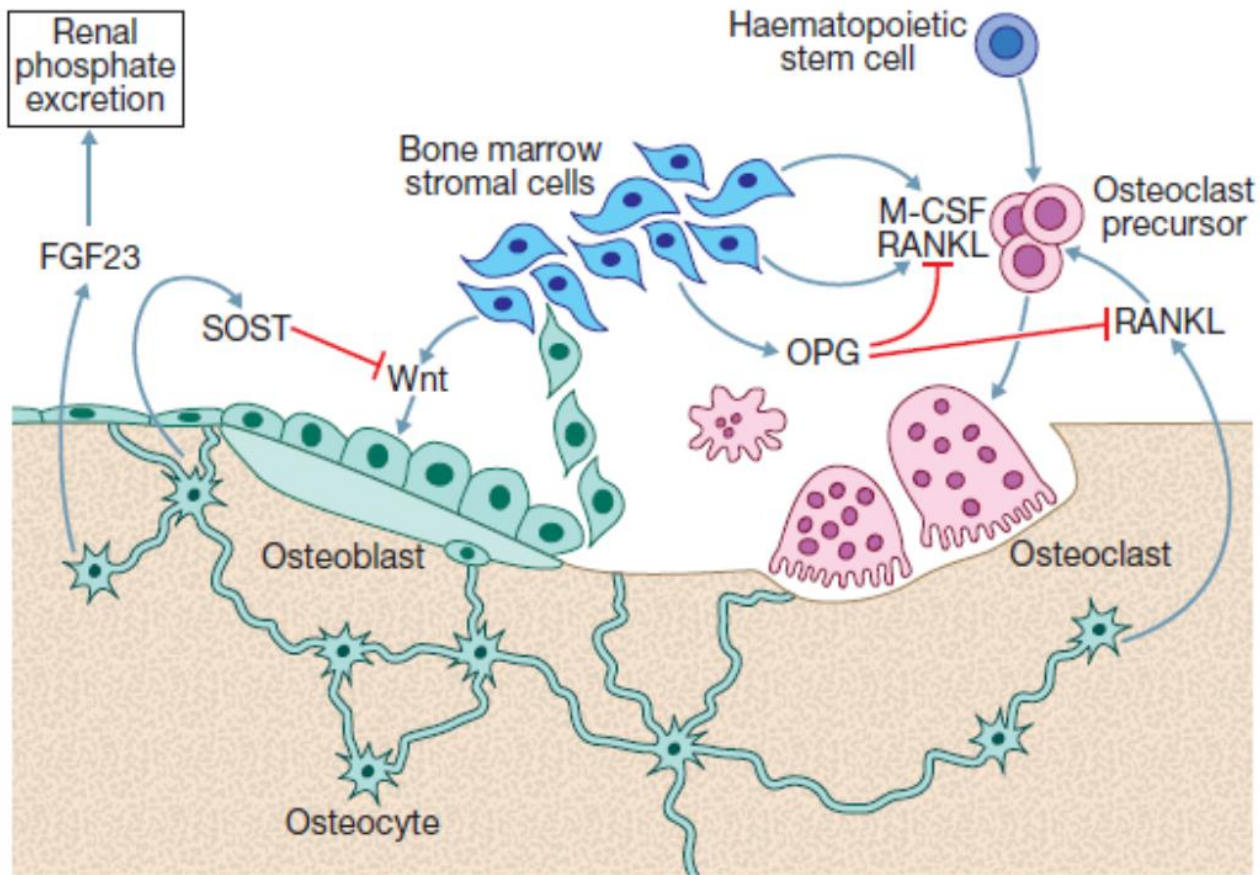
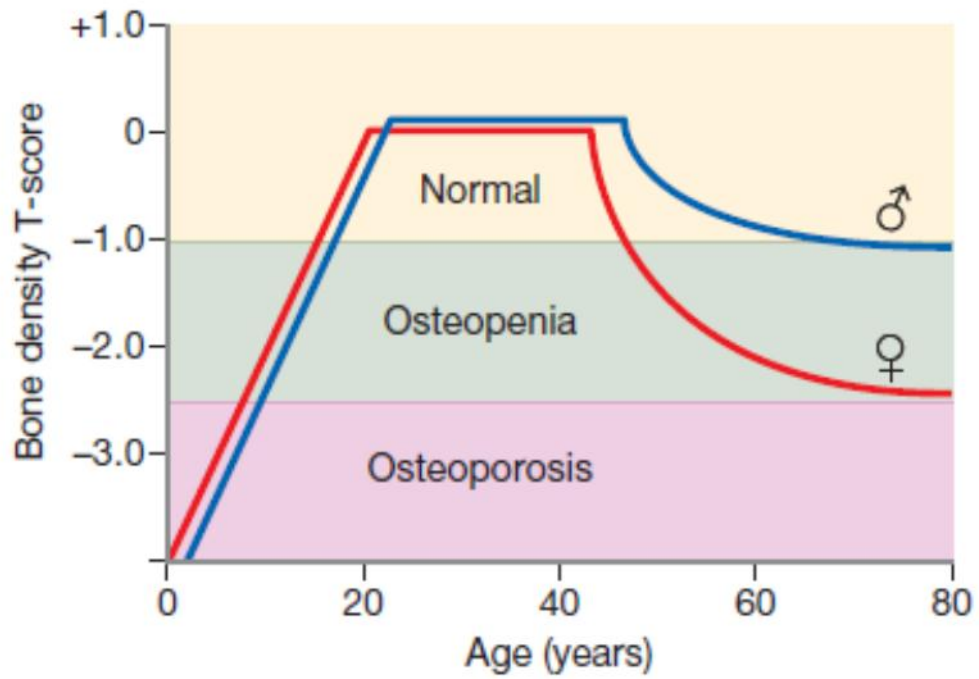


Fig 10.27 Lifetime changes in bone mineral density.







*THANK YOU*