

Chapter 6

Osteoporosis



Osteoporosis

- **osteoporosis** – the most common bone disease // severe loss of bone density
- bones lose mass
- postmenopausal white women at greatest risk
 - begin to lose bone mass as early as 35 years // by age 70, average loss is 30% of bone mass
 - risk factors - race, age, gender, smoking, diabetes mellitus, diets poor in calcium, protein, vitamins C and D, loss of estrogen

Osteoporosis

- become brittle due to loss of organic matrix and minerals
 - affects spongy bone the most since it is the most metabolically active
 - subject to pathological fractures of hip, wrist and vertebral column
 - **kyphosis** (widow's hump) – deformity of spine due to vertebral bone loss
 - complications of loss of mobility are pneumonia and thrombosis

Osteoporosis

- estrogen maintains density in both sexes
 - inhibits re-absorption by osteoclasts
 - testes and adrenals produce estrogen in men
 - in women, rapid bone loss after menopause since estrogen blood level drops below 30 ng/mL
- osteoporosis is common in young female athletes with low body fat causing them to stop ovulating and ovarian estrogen secretion is low

Osteoporosis

- Treatments
 - **estrogen replacement therapy** (ERT) slows bone re-absorption, but increases risk of breast cancer, stroke and heart disease
 - drugs **Fosamax/Actonel** destroys osteoclasts
 - **PTH** slows bone loss if given as daily injection // **Forteo** (PTH derivative) increases density by 10% in 1 year // may promote bone cancer so use is limited to 2 years
 - **best treatment is prevention** - exercise and calcium intake (1000 mg/day) between ages 25 and 40

Spinal Osteoporosis

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