Description: This module focuses on the concept of metabolism for second level students. It will focus on the metabolism of normal bone when it is affected by hormones, nutrition, lifestyle and hereditary factors.

Learning Outcomes:

Upon completion this module the student will be able to:

1. Describe how hormones, nutrition, personal lifestyles, heredity and other factors affect normal bone metabolism.
2. Identify contributing and coexisting medical condition that affect the body’s use and metabolism of calcium as it relates to the skeletal system.
3. Identify basic diagnostic and laboratory tests utilized to determine the alteration in bone metabolism.
4. Describe the medical management of the chronic, progressive metabolic bone disease – osteoporosis.

Learning Resources:

Text: (Example) - Brunner & Suddarth’s. Textbook of Medical-Surgical Nursing (11th ed).
   p. 2404 – 2411.

Website with informative powerpoint material on osteoporosis: [www.nof.org](http://www.nof.org)

Learning Activities:

Discuss the “Osteoporosis” case study and critical thinking questions.

Concept mapping based on “Osteoporosis Case Study”

Simulation Lab: 59 yo white female. Diagnosis – Low back pain/Possible stress fracture related to decreased bone density.

Evaluation:
Unit exam
Simulation Debriefing
Osteoporosis Case Study

Patient profile: Rose Tan is a 56-year-old Asian American librarian who had a total hysterectomy and salpingo-oophorectomy for removal of a benign ovarian cyst 4 years ago.

Subjective Data
- Experiences chronic, mild lumbar pain and tenderness that radiates to her right hip and the lateral thigh
- Regular walking offers some relief
- Had a stress fracture in wrist 6 month ago
- Reports no noticeable loss of height
- Has maternal history of osteoporosis
- Has been taking corticosteroids for past 6 years for Addison’s disease
- Drinks socially- two alcoholic beverages per day
- Dislikes dairy products

Objective Data
- 5 feet 6 inches tall, 116 lb

Diagnostic Studies
- Bone mass/density tests show decreased bone mineral density at spine and hip
- Laboratory tests reveal normal serum calcium, phosphorus, and alkaline phosphatase, and parathyroid levels

Collaborative Care
- Premarin 0.625 mg PO daily
- Alendronate (Fosamax) 70 mg once/wk
- Calcium supplements 1200 mg PO daily
- High-calcium diet
- Reduce alcohol intake
- Maintain regular exercise program including weight bearing

CRITICAL THINKING QUESTIONS
1. What risk factors made Rose prone to develop osteoporosis?
2. Why does regular exercise help Rose’s symptoms?
3. What is the purpose of prescribing estrogen replacement for Rose?
4. What teaching should the nurse provide to Rose regarding alendronate?
5. How might the nurse assist Rose in increasing her intake of calcium?
6. Based on the assessment data presented, write one or more nursing diagnoses. Are there any collaborative problems?