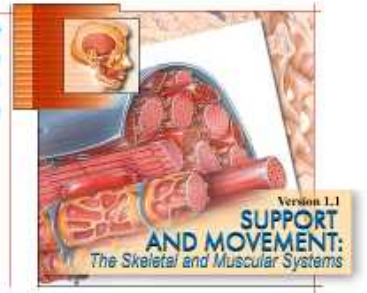


Bone Dynamics and Tissue

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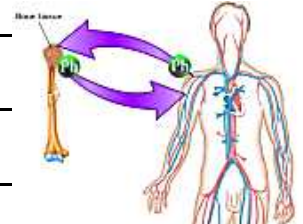
Directions:

Insert and install your *Interactions: Support & Movement CD*.

- a. Click the "Contents" button.
- b. Open the *Skeletal System* file.
- c. Click on *Animations*.
- d. Work through *Bone Dynamics and Tissue*.

Introduction

1. Why is bone tissue called dynamic? _____

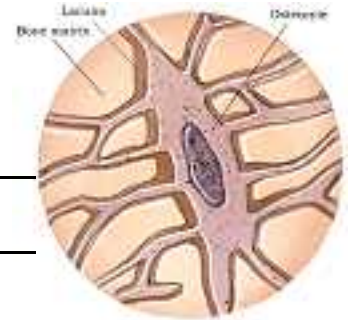


2. Describe the process and timing of bone remodeling. _____

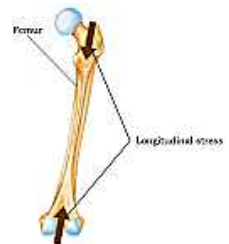


3. How does remodeling change bone structure in response to slight and heavy stress? _____

4. a. Describe the composition of bone matrix. Include the importance of collagen fibers and inorganic mineral salts such a calcium phosphate (also known as hydroxyapatite).



b. Bone composition gives it great tensile strength. What does this mean? _____



5. a. Describe the role of the following cells and structures:

Mesenchymal cells - _____

Osteogenic cells - _____

Osteoblasts - _____

Lacunae - _____

Osteocytes - _____

Osteoclasts - _____



b. Explain how bone tissue matrix serves as a storage site for calcium and phosphate ions. _____

6. What bones contain spongy and compact bone tissue? _____

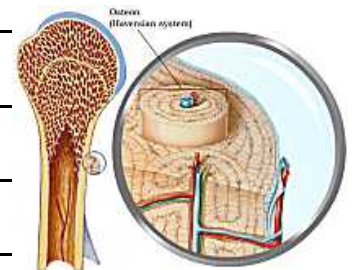


7. a. Describe the following structural features of compact bone tissue.

Osteons (Haversian systems) - _____

Lamellae - _____

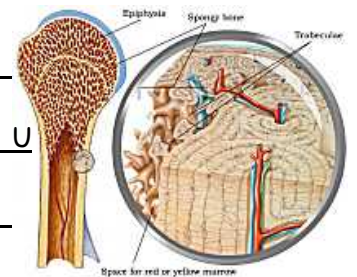
b. Where is compact bone located? _____



8. a. Describe the following structural features of spongy, or cancellous, bone tissue.

Lamellar arrangement - _____

Define trabeculae - _____



b. What fills the spaces between the trabeculae? _____

c. Where is spongy bone located and what is its function? _____