

BONE HISTOLOGY LAB

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http://Biology.clc.uc.edu/Fankhauser/Labs/Anatomy_&Physiology/A&P201/Bone_Histology/Bone_Histology.htm

See Eroschenko's 9th, pp 47-61

Bone is a remarkable connective tissue derived from hyaline cartilage whose matrix, under the influence of calciferol, has been hardened by the deposition calcium and phosphate to form hydroxyapatite ($[\text{Ca}_3(\text{PO}_4)_2] \cdot \text{Ca}(\text{OH})_2$) in the ground substance. Collagen remains the primary fiber in the matrix as it is in hyaline cartilage. Special arrangements are made for supplying blood to this living tissue. The matrix is maintained by osteocytes, the characteristic cells of bone. Histologically, bone is composed of units termed Haversian systems or osteons in which concentric rings of osteocytes are arranged around a central blood vessel.

Make two illustrations, one an overview of a Haversian system (100x), the second a detailed view of an osteocyte (400x).

Use slide 14: **bone, ground** human, c.s. compact H 780

A. Overview of a Haversian system: (100x) VE:fig 3-17 & 3-19, p 60-61

Haversian system (osteon)	entire complex, functional unit of bone
Haversian canal	carries blood vessel through center of osteon
lamellae	"little layer" of matrix between concentric rings of osteocytes
lacunae	"pools" which house osteocytes
osteocytes	"bone cells" which maintain bone
Volkman's canal	feeder cross connecting vessel for blood supply
canaliculi	protoplasmic extensions from osteocytes by which maintenance of bone is performed
interstitial lamellae	layers between adjacent Haversian systems

B. An Osteocyte: (400x) VE:fig 3-19, p 61

a smaller illustration showing:

a single enlarged osteocyte	
lacuna	chamber in which the osteocyte is held
canaliculi	"little channels" containing protoplasmic extensions from osteocytes.