Anatomy and Physiology I
Learning Guide: Osseous Tissue

Overview – In this module, we will explore the structure and characteristics of Osseous Tissue. Far from being a tissue of little metabolic activity, we will find that this tissue is dynamic in its function and under strict homeostatic control. The role of osseous tissue in motion, calcium storage, and growth are significant. A firm understanding of this tissue will be foundational for understanding issues for clinical application.

Learning Objectives

- Classify bones according to their morphology.
- Identify the anatomical and structural functions of long bones.
- Describe the structural and functional differences between spongy bone and compact bone.
- Distinguish between types of stress and strain on bone integrity and the types of fractures that may result.
- Illustrate the homeostatic control of calcium blood concentration.
- Describe the process of Endochondral Ossification.

Getting Started – Most topics described in this unit can be shown visually. Therefore, keep your textbook open for both visual and written support. As we explore osseous tissue, you will note a building process where subsequent topics will build upon previous discussions. Finally, these discussions will culminate in a capstone discussion of how bones grow.

The lecture outline will structure the lecture and give some interesting illustrations that underscore the discussions. In addition, there will be several **Handouts** covering a range of topics:

- Osteoclast Activity
- Calcium Regulation
- Endochondral Ossification

Exam – The exam is a typical exam that employs various question types that query your understanding of the information contained in the lecture outline and handouts. A few unique items that require special preparations are:

- **Diagram of a Long Bone** where you will be asked to identify bone parts' names and functions.

- **Calcium Regulation** - the handout on calcium regulation you will want to know very well. If your exam is taken in class, you will need to illustrate this.
- **Endochondral Ossification** - lastly, there is a major guided essay on Endochondral Ossification.

Exam Date can be found on the Course Schedule

Final Point – There are many clinical applications of the topics presented in this module. You will find that a strong understanding of osseous tissue will provide many future benefits as you continue your education in the allied health sciences.