

PHYT 622 Clinical Gross Anatomy

Introduction

Overview of the course

- Staff
- Lectures; Days, Times, Locations
- Labs; Types, Days, Times, Locations
- Texts
- Cadavers – Assignments to dissection groups
- Exams; Format
- Schedule

Let's Get Started



Lecture One; Connective Tissue

- Supporting Tissues of the body; e.g., fascia, areolar, ligaments, joint capsules, tendons and the modified CT such as cartilage and bone
- In general
 - Does not form an organ or organ system, although it does form a significant portion of the skeletal system
 - The most widely distributed and fundamental tissue and is found everywhere

CT General (Continued)

- CT is essential to the structure and function of other tissues and organs
- Without it, organs would collapse and be shapeless and would lack vital protection
- Without CT, the body would be a quivering mass of protoplasm

CT General (Continued)

- Specific Functions
 - Binds structures together
 - Supports structures where rigidity is called for
 - Protects organs with sheaths or capsules, or, when necessary, bones or cartilage
 - Partitions parts of the body
 - Unites dissimilar tissue such as muscle + bone
 - Fills the empty spaces of the body
 - Provides the framework throughout the body which vessels and nerves may proceed to their respective destinations

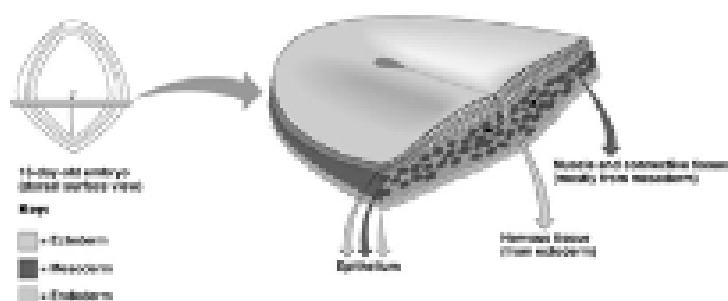
General (Continued)

- You will treat more CT injuries than any other soft tissue
- From fascia to tendons to ligaments to joint capsules
- Type, location, density etc. will dictate type of treatment

Origin of CT

- Develops in mesodermal germ layer along with muscle and bone
- Overview of three germ layers
 - Ectoderm
 - Mesoderm
 - Endoderm

Germ Layers



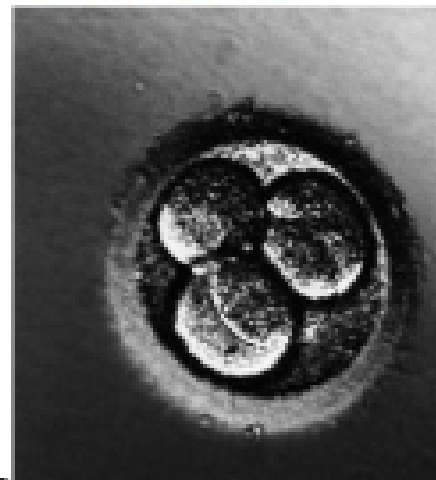
Mesoderm

- Comprised of primitive cells called mesenchyme
- In the embryo – is a mass of unspecialized cells
- Supports embryo much in the way it will support body in later life
- As embryo increases in size and shape changes, mesenchyme can not complete function – needs more support

Mesoderm (Continued)

- At this point, specialization of cells begins to occur. Cells are genetically programmed to develop into specific type of CT
- A mass of undifferentiated cells begins to develop into specific types of CT
- Some cells remain dormant, develop later when needed –remain programmed

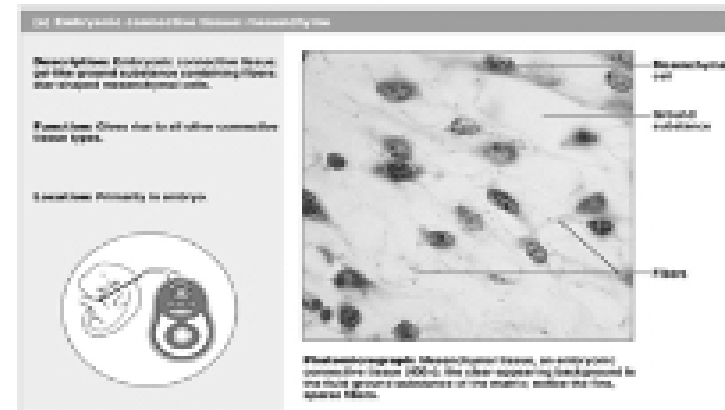
Stem Cells



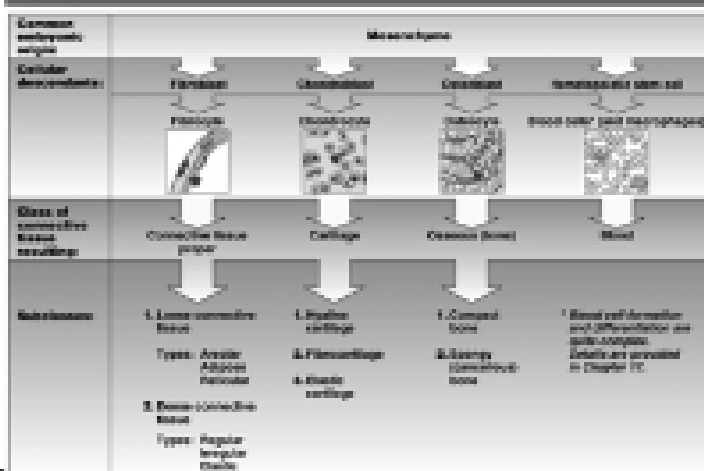
Components of CT

- All CT made up of same components, percentage or arrangement of components depends on function of CT
- Components are CT cells, fibers, and intercellular medium AKA matrix

CT Components



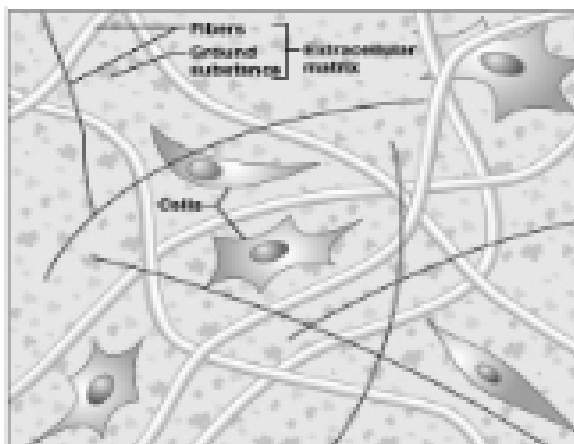
From The Mesenchyme



CT Cells

- Fibroblasts = fiber forming. Predominant cell, fibers evolve and give each type of CT its specific structure
- Other cells are typical cells found anywhere like fat cells, WBC, pigmented cells and macrophages

Cells and Fibers



CT Fibers

- The outstanding characteristic of CT and are directly concerned with function-Collagen makes up 80% of CT
- Collagenous fibers – made from several types of protein collagen, Primarily Type I.
 - Found where strength and support is needed or where a firm union is required – e.g., ligaments have lots of collagen
 - Collagenoses, familial disease, is a disease characterized by the destruction of collagen