**CARTILAGE**

Is a tough, flexible form of connective tissue, characterized by an extracellular matrix (ECM).

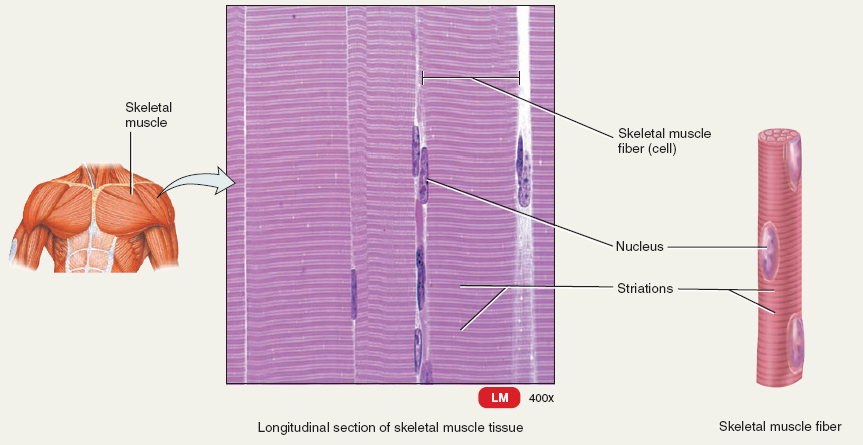
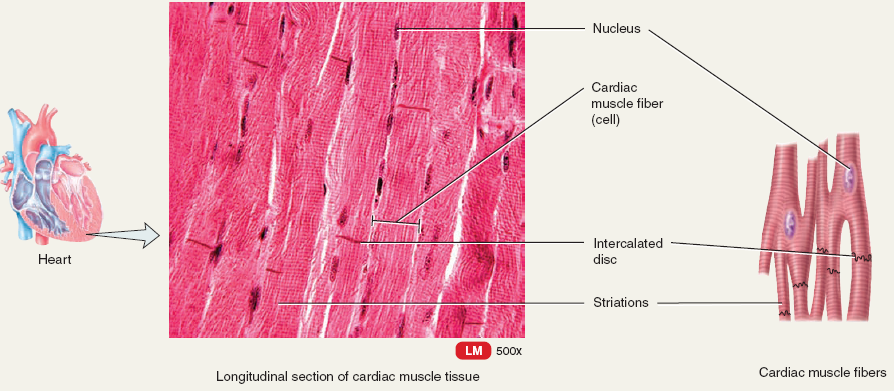
Function:

* Shock absorbing
* Sliding regions within joints
* Facilitates bone movement

Parts:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Hyaline Cartilage | Elastic Cartilage | Fibro Cartilage |
| Main features of the extracelullar matrix | Homogenous with type II collagen & aggrecan | Type II collagen, aggrecan & darker elastic fibers | Type II collagen and large ares of dense connective tissue with type I collagen |
| Major cells | Chondrocytes, chondroblasts | Chondrocytes, chondroblasts | Chondrocytes, fibroblasts |
| Presence of perichondrium | Yes (except at epiphyses and articular cartilage) | Yes | Yes |
| Main functions | -Provides smooth, low friction surfaces in joints  -Structural support for respiratory tract | -Provides flexible shape  -Support of soft tissues | -Provides cushioning  -Resistance to tearing and compression |

**MUSCLE**

1. Skeletal muscle tissue
   1. Description
      1. Voluntary
      2. Long, cylindrical, striated fibers
      3. Multinucleated with nucleiin periphery
   2. Location: Usually attached to bones by tendons
   3. Function:
      1. Motion
      2. Posture
      3. Heat production
      4. Protection
2. Cardiac muscle tissue
   1. Description
      1. Branched, striated fibers
      2. One-centrally located nucleus (occasionally 2)
      3. Involuntary
      4. Attach end to end by transverse thickenings of plasma membrane called interscalated discs which contains:
         1. Desmosomes: strengthen tissue and hold fibers together during contractions
         2. Gap junctions: Provide route for quick conduction of electrical signals
   2. Location: Heart wall
   3. Function: to pump blood to all parts of body
3. Smooth muscle tissue
   1. Description
      1. Involuntary
      2. Non-striated
      3. Single, centrally located nucleus
      4. Gap junctions connect many individual cells in some smooth muscle tissues
      5. Can produce powerful contractions as muscle fibers contract in unison
      6. Where there are no gap junctions -> smooth muscle fibers contract individually
   2. Location
      1. Iris of eyes
      2. Walls of hollow internal structures (blood vessels, airways to lungs, stomach, intestines, gallbladder, urinary bladder, uterus)
   3. Function:
      1. Constriction of blood vessels and airways
      2. Propulsion of foods through gastrointestinal tract
      3. Contraction of urinary bladder and gallbladder