Muscle Tissue

- Specialized for contraction
- Produces all body movement
- Three types of muscle tissue
  - **Skeletal muscle**
    - Large body muscles responsible for movement
  - **Cardiac muscle**
    - Found only in the heart
  - **Smooth muscle**
    - Found in walls of hollow, contracting organs (blood vessels; urinary bladder; respiratory, digestive, and reproductive tracts)
Muscle Tissue

- Classification of Muscle Cells
  - **Striated** (muscle cells with a banded appearance)
  - **Nonstriated** (not banded; smooth)
  - Muscle cells can have a **single nucleus**
  - Muscle cells can be **multinucleate**
  - Muscle cells can be controlled **voluntarily** (consciously)
  - Muscle cells can be controlled **involuntarily** (automatically)
Muscle Tissue

- **Skeletal Muscle Cells**
  - Are long and thin
  - Are usually called **muscle fibers**
  - Do not divide
  - New fibers produced by **myosatellite cells**
  - voluntarily controlled
  - may be multinucleated
  - are striated
Muscle Tissue

- **Cardiac muscle cells**
  - Are called **cardiocytes**
  - connected at **intercalated discs**
  - Are regulated by **pacemaker cells**
  - **striated**
  - involuntarily controlled
Muscle Tissue

- **Smooth muscle cells**
  - Are small and tapered
  - Can divide and regenerate
  - No striations
  - Involuntarily controlled
  - Single nucleus per cell
Neural Tissue

- Also called **nervous** or **nerve tissue**
  - Specialized for conducting electrical impulses
  - Rapidly senses internal or external environment
  - Processes information and controls responses
Neural tissue is concentrated in the **central nervous system**

- **Brain**
- **Spinal cord**
Neural Tissue

- Two Kinds of Neural Cells
  - Neurons
    - Nerve cells
    - Perform electrical communication
  - Neuroglia
    - Supporting cells
    - Repair and supply nutrients to neurons
Neural Tissue

- **Cell Parts of a Neuron**
  - **Cell body**
    - Contains the nucleus and nucleolus
  - **Dendrites**
    - Short branches extending from the cell body
    - Receive incoming signals
  - **Axon (nerve fiber)**
    - Long, thin extension of the cell body
    - Carries outgoing electrical signals to their destination