

- Vertebrate Physiology
  - o Cell, tissue, organ organism
  - o Vertebrate: spinal column
    - Dorsal set of nerves in back
  - o Vertebrates
    - Phylum Cordata
    - Amphibians, reptiles, birds, humans
    - Segmented spinal column
    - Differentiated head
  - o Vertebral column is best design
  
- Major Vertebrate Tissues
  - o 4 fundamental tissues of vertebrates:
    - epithelial - endoderm
    - connective - mesoderm
    - muscle - mesoderm
    - nerve - ectoderm
  - o 210 different cell types

- Origins of layers
  - o Cell layers: ectodermal cell into blastocoel
  - o Cell migrations form germ cell layers
  - o Blastocyst: hollow ball of cell with fluid cavity
  
- Ectoderm gives:
  - o Skin
  - o Eye
  - o Nervous system
  - o EPIDERMIS of skin
  
- Mesoderm gives:
  - o Muscular system
  - o Excretory
  - o Circulatory
  - o Reproductive
  - o DERMIS of skin
  
- Endoderm:
  - o Digestive tract
  - o Respiratory system

- o Liver
  - o Pancreas
  - o Thymus thyroid
- Epithelial Tissue
  - o Sheets of tightly packed cells
  - o Cavities and organ
  - o Come from ectoderm
  - o Prevent dehydration permeability layer
  - o Sensory surface
  - o Secretory layer
  - o Type by shape
- Connective Tissue
  - o Mesodermal
  - o Function: Bind and support
  - o Adipose: pad and insulate body
    - Obesity
  - o Blood
    - Hematocrit: % of blood cells in blood
    - 45% men 40% women