

Terminology (L1)

Basic Tissues

- Epithelial Tissue: Lines skin (surface: *epidermis*) & all major organs (visceral & solid) i.e. stomach & kidney.
- Connective Tissue: At different positions: skin, within muscles, tubular GI tract, joint, lining individual nerve fibres.
- Muscular Tissue: **Skeletal** (limbs, body walls), **smooth** (visceral organ system) & **cardiac** (heart & its chambers).
- Nervous Tissue: Neurons, glial cells, nerve fibres in CNS (brain, spinal cord & optic nerve) & PNS (*rest* & CNS input).

Systems

- Somatic systems
 - Body walls & limbs
 - Skin, skeletal muscle, bones & joints: Walls of body cavities incl. **parietal** layer of serous membrane
 - Somatic (*wall*) **nerve** supply (somatic nervous system)
 - Parietal (*wall*) **vascular** supply
 - **Skeletal, Articular** (joints), **Muscular, Integumental**.
- Visceral systems
 - Organs, glands & tubes with smooth muscle: Contents of body cavities incl. **visceral** layer of serous membrane
 - Visceral **nerve** supply (autonomic nervous system) to *visceral organs*
 - Visceral **vascular** supply
 - **Cardiovascular & Respiratory, Gastrointestinal, Urinary, Reproductive**
- Supply Systems: Somatic & visceral are supplied by **supporting** systems: **Nervous, Arterial, Venous & Lymphatic**.

Anatomical position & planes of reference

- Planes of reference:
 - Sagittal: Cut 'front to back'. Mid-sagittal plane divides the body from the midline (two symmetrical parts). Para-sagittal plane is a sagittal line cut away from the midline.
 - Coronal: Cut side to side. Half of the body will fall forward and half backwards.
 - Horizontal (Transverse): Cut top to bottom. Commonly shown in e.g. CT scans of a visceral organ system.
- Terms of Relationship:
 - Medial (closer to midline)/lateral (further from midline/to side): i.e. The shoulder is medial to the body trunk, the elbow is lateral to the shoulder.
 - Superior (above)/inferior (below) i.e. The head is superior to the thorax. The thorax is inferior to the head.
 - Anterior (front)/posterior (behind) i.e. The nose is anterior to a pony tail & pony tail is posterior to the nose.
- Terms of Comparison:
 - Superficial (closer to skin)/deep (closer to body core): i.e. Skin, muscles & body wall are superficial to internal organs. Internal organs are deep to body walls which are deep to the surface of skin.
 - Proximal (closer to origin)/distal (away from origin): Relative i.e. Upper limb (origin from body trunk): The shoulder is closer to the origin (proximal to elbow), the elbow is further away (distal to shoulder).
 - External (outer)/internal (inner)
 - Ventral/dorsal: Used for quadrupeds i.e. dog. Top of back faces forward: ventral & Top of head faces upwards: dorsal. Chin & tummy face downwards: ventral. Closer to stomach = ventral. Closer to back = dorsal.
 - Most cases: ventral is anterior & dorsal is posterior (not always correct).
- Terms of Movement:
 - Flexion ('bend')/Extension: in relation to joint angles. Describing movement of the joint in relation to the joint angle. Flexion is where you reduce the joint angle and extension is where you increase the joint angle.
 - Abduction/Adduction: in relation to midline/body trunk, movement of the body limb. Abduction is moving the limb away from the body trunk. Adduction is moving the limb back closer to the body trunk.
 - Internal (medial)/External (lateral): Rotation. Moving the limb/joint towards the body wall (internal rotation), outside the body wall towards the side (external rotation).

Sectional images of the CNS may be obtained while the subject is laying down, so care is needed in specifying the plane of section (i.e. horizontal section of the brain acquired by vertical section of patient)

Ectoderm Derived Structures (L2)

Periods of human embryology

- Egg (conceptus): Fertilisation to end of third week.
- Embryo: Beginning of fourth week to end of eighth week
- Fetus: Third month to birth

Phases of human embryology

- Gametogenesis: Formation of egg/sperm within gonads.
 - Ovulation: A secondary oocyte is released from ovary & swept into oviduct.
- Fertilisation: Formation of zygote (single sperm penetrates secondary oocyte & sperm & egg nuclei fuse).
- Cleavage: Formation of morula & blastocyst via cleavage of cells.
 - Zygote undergoes rapid & successive mitotic cell divisions as it moves along oviduct toward uterus.
 - **Morula** (day 4): a solid ball of cells that enters the uterus. One cell type.