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Nervous System - Laboratory Practical Items (Dr. Pilchman's Section only)

## Slides

*Using the Compound microscope*

1. Purkinje cells (cerebellum)
2. Pyramidal cells (cerebral cortex)
3. Motor neurons (spinal cord): cyton, axon, dendrites, nucleus, Nissl bodies. These are multipolar neurons.
4. Nodes of Ranvier (teased spinal nerves)
5. Sensory neuron cytons (dorsal root ganglia of spinal cord). These are unipolar neurons.

*Using the dissecting microscope*

6. Identify the following parts of a transverse section of a spinal cord:
    a. grey matter
    b. white matter
    c. posterior white columns
    d. anterior white columns
    e. posterior white commissure
    f. anterior white commissure
    g. lateral white columns
    h. anterior grey commissure
    i. posterior grey commissure
    j. central canal
    k. posterior horns of grey matter
    l. lateral horns of grey matter
    m. anterior horns of grey matter
    n. posterior median sulcus
    o. anterior median fissure
    p. posterior (dorsal) root
    q. anterior (ventral) root
    r. posterior (dorsal) root ganglion

## Models

*Models of the Neuron*

Cyton and nucleus
Schwann cell nuclei
dendrites
Axis cylinder and mitochondria
internodes and nodes of Ranvier

neurofibrils
neurilemma
endoneurium
synaptic regions (gemmules)
Myelin sheath,
axon

*Models of Spinal Cord - transverse section*

grey matter
white matter
posterior horns of grey matter
anterior horns of grey matter
grey commissure
central canal
posterior (dorsal) root
anterior (ventral) root
posterior (dorsal) root ganglion
spinal nerve
posterior median sulcus
anterior median fissure

*Models of Spinal Cord* - whole cord with or without vertebrae

spinal cord
vertebral column., spinous processes, transverse processes, intervertebral discs, red marrow, sacrum, coccyx
grey matter
white mater
anterior and posterior horns of grey matter
posterior root ganglion
ventral roots
spinal nerves
intervertebral foramina
cervical plexus
brachial plexus
lumbar plexus
sacral plexus
sympathetic chain ganglia
meninges
region o cerebrospinal fluid

*Models of Brains with a Skull (that it fits into if possible)*

anterior cranial fossa
middle cranial fossa
posterior cranial fossa
foramina of the cribriform plate (ethmoid bone) - note position of the olfactory bulbs
olfactory bulbs

Cerebral lobes
- frontal
- parietal
- temporal
- occipital

longitudinal fissure
central sulcus
precentral gyrus
postcentral gyrus
lateral sulcus
sulci (singular is sulcus)
gyri (singular is gyrus)
grey matter
white matter
sella turcica (sphenoid bone) - note position of the hypophysis (pituitary gland)
foramen magnum - note junction of the brainstem and the spinal cord
falx cerebri (dura mater extending into longitudinal fissure)- note position with respect to the crista galli to which it attaches
cerebellum
brainstem
- medulla oblongata
- pons
- midbrain
  - corpora quadrigemina
  - pineal gland
  - cerebral peduncles
- cerebral aqueduct (aqueduct of Sylvius)
- fourth ventricle

diencephalon
- intermediate mass of the thalamus
- thalamic hemispheres (2)
- hypothalamus
- pituitary gland
- corpus callosum
- fornix
- lateral ventricles (ventricles #1 and #2)
- third ventricle

cranial nerves
- I - olfactory
- II - optic
- V - trigeminal

*Sheep Brain Dissection*

pia mater
arachnoid mater
dura mater (if possible)
optic nerve
optic chiasma
olfactory bulb
pituitary gland (if possible)

- cerebral lobes
  - frontal
  - parietal
  - temporal
  - occipital
- longitudinal fissure
- central sulcus
- convolutions
  - sulci (singular is sulcus)
  - gyri (singular is gyrus)
- cerebellum
  - grey matter
  - white matter
  - arbor vitae
- fourth ventricle and its choroid plexus
- brainstem
  - medulla oblongata
  - pons
  - midbrain
    - corpora quadrigemina
    - pineal gland
    - cerebral peduncles
- diencephalon
  - corpus callosum
  - fornix
  - intermediate mass of the thalamus
  - thalamic hemispheres
  - hypothalamus
  - pituitary gland
- lateral ventricles and their choroid plexuses
- third ventricle
- cerebral aqueduct
- cranial nerves
  - I - olfactory
  - II - optic
  - V - trigeminal