

Laboratory Exercise 5: The Central Nervous System (CNS)

Introduction

The goals for this laboratory are to become familiar with the structural organization of the brain and spinal cord. You will be able to identify key features and areas of the CNS and be able to outline functions for the major areas.

Preparation

Required

1. Read and study Exercise 19 in your lab manual and pages 214 – 217 of Exercise 21. Make sure to carefully look through the sheep brain dissection procedure, otherwise your lab dissection will be disastrous.
2. Complete the assigned pre-lab exercise and turn it in at the beginning of lab.
3. List of CNS area, features, structures: print from web page and bring to lab.

Optional

1. CNS lab notes on the web page – I have tried to outline the major areas/features of the CNS and their functions.
2. Chapter 12 in your textbook provides good reference material to clarify any questions.

Outline – specific objectives

1. You'll be able to identify all structures, features and CNS areas in your CNS structure list. Most of the identification will be using models, identification of sheep brain structures is limited to those that are easily dissected and visible.
2. You should be able to outline the following by using information from your lab notes and/or lab exercise:
 - major parts of brain
 - appearance of cross section of brain at level of cerebral hemispheres, cerebellum, brainstem; what is present in gray matter? In white matter?
 - Identify ventricles of brain
 - Cerebral hemispheres
 - Cortex – major function
 - Three types of cortical areas, just know major function of each
 - Don't worry about types of motor areas, sensory areas, etc., we'll do this in lecture
 - Cerebral white matter – what is it?

- Types of fibers
 - Basal nuclei – very general function
- Diencephalon: location and major parts
 - Thalamus – general function
 - Hypothalamus – general function
 - Epithalamus – general function
- Brainstem: simply identify major areas, and recognize general function; we'll elaborate on role of individual portions of brainstem in lecture; you should be able to name the cranial nerves and the general role of each.
 - Midbrain
 - Pons
 - Medulla oblongata
- Cerebellum: location and major role
- Meninges: name the three membranes and major roles of each
- Spinal cord – be familiar with cross sectional anatomy
 - Gray matter: what's found in different gray matter areas/relationship to PNS/spinal nerves
 - Anterior horns
 - Lateral horns
 - Posterior horns
 - White matter: what comprises it?