

**Communication:**

- Understand the different methods that allow for cells to communicate with other cells
- Be familiar with the different classes of chemical messengers (autocrine, paracrine...)
- Understand the differences between the different types of endocrine messengers (hormones)
- Know what signal transduction is and the different methods of eliciting an intracellular effect from an extracellular signal
- Be familiar with the terms agonist, and antagonist as it relates to alternate ligands and the effects upon binding to receptors
- Understand how signals can be modulated both in the short term as well as long term (LTP and LTD)

**Nervous Tissue & Physiology**

- Know and understand the basic functions of neuroglia (astrocyte, oligodendrocyte.....)
- Know which of the following neuroglia is responsible for the formation of the blood brain barrier, myelin sheaths, support, protection...
- Know the classifications of neurons, both functional (afferent, efferent & inter) and structural (psuedounipolar, bipolar, multipolar...)
- Be able to describe the differences between white matter and gray matter and the implications this has for processing and sending information
- Understand the make up of gray matter and ganglia
- Know the types of membrane channels on neurons, their locations and how they operate
- Be able to define a "potential" as it refers to membranes
- Know and understand how the membrane maintains is potential and what that potential is
- Know which types of tissues are "excitable" and able to use the potential to do work
- Understand how the membrane can change potentials by using channels which respond to stimuli
- Be able to compare and contrast the differences between graded potentials and action potentials
- Know how graded potentials occur & what they are used for
- Know how action potentials occur and the ways they can propagate or travel & what they are used for
- Understand the graphical expression of an action potential
- Understand how the absolute and relative refractory periods are created
- Be able to explain how neurons transmit information from one to the next
- Be familiar with the term integration and what it means to neurons
- Be familiar with the term transduction and where it is used
- Understand the difference between the effects of an inhibitory and an excitatory synapse on the neurons membrane
- Know the different types of neuronal circuits

**CNS:**

- Know the general functions of the spinal cord (hint.. there are three)
- Know and be able to identify the anatomical characteristics of the spinal cord (location, make-up of...)
- Know the protective layers and components of the spinal cord as well as their functions
- Be able to identify a nerve tract in the spinal cord and give type as well as origin and destination (remember the name tells you most of the info)
- Be familiar with the major sensory and motor nerve tracts of the spinal column
- Know what a reflex is and the various types of reflexes, as well as terms associated with reflexes
- Know the general functions of the brain
- Know the protective layers and components of the brain
- Know the terms associated with the major anatomical features of the brain
- Know the names, locations and functions of the major regions of the brain (i.e. cerebrum, cerebellum, medulla, pons.....)
- Understand how sensory information is integrated to form a motor response
- Understand the difference between memory and learning, and how things are learned.
- Be familiar with the cranial nerves and their functions

**PNS & The Autonomic Nervous system**

- Understand that the PNS consists of both afferent and efferent divisions, also know the subdivisions of these
- Know the functional divisions of the PNS (somatic, autonomic, and enteric systems)
- Be able to explain the differences between the sympathetic and parasympathetic divisions you should at this point also be able to compare and contrast the somatic with the autonomic divisions of the peripheral nervous system
- Be able to describe the general pathway of the ANS
- Know the specific differences in pathways, functions and neurotransmitters of the sympathetic and parasympathetic divisions.
- Explain why the hypothalamus is considered to be the major control center of the ANS, and what an autonomic reflex is.

*Same info as the last review... this is just a guideline! Don't forget to review your notes as well as read the material in the book. Even though we didn't specifically talk about chapter 22 and 23, reading them would still be a good idea and may help with your understanding of this information.*