

## Anatomy B final exam review

### Nervous system and Brain

- What are its functions?
- Label the parts of a neuron and know their functions – which part gets messages, which part transmits them and which part sends them to the next neuron or body part?
- What are the branches of the nervous system?
- Which branch involves voluntary movements? Involuntary? What parts of the body do neurons from these branches “talk” to?
- Sympathetic vs. parasympathetic – what kinds of things do they do to the body?
- Compare a neuron at rest to one that is in action – how are they different?
- What is the resting potential of a neuron?
- What are the 3 phases of an action potential and what happens in each phase?
- How are reflex reactions different from voluntary movements?
- Be able to locate the 4 lobes of the cerebral cortex and the motor and somatosensory cortexes
- Be able to locate the medulla and pons, spinal cord, thalamus, hypothalamus, cerebellum
- What is the corpus callosum and what does it do?
- What are some functions associated with the left hemisphere? The right hemisphere?
- How do the left and right hemispheres of the brain work together to produce/use language?
- What do Broca’s and Wernicke’s areas do?
- Know the main functions of each major part of the brain and be able to identify which part may be damaged based on a patient’s symptoms
- What are Primary projection areas and in which lobes are they located?
- What are gyri and sulci?
- Which part of the brain gives you personality and makes you YOU?
- When the brain is damaged, how does it try to repair itself?
- What are the roles of macrophages and astrocytes?
- Be able to discuss the cause of, symptoms of, and treatments for all the disorders we saw in the movies we watched. You be the doctor!
- Anything else?

### Nutrition and Digestion

- List the six major types of nutrients
- Differentiate between macronutrients and micronutrients
- Recognize that proteins are made from polypeptides (chains of amino acids). Be able to count the number of amino acids, peptide bonds, molecules of water needed to break bonds etc.

- Draw the general structure of an amino acid
- Realize that the “R” group of amino acids is what makes them different from one another
- What foods are good sources of fat, protein and carbohydrates?
- Why are proteins, fats and carbohydrates needed by the body? You must have specific examples of where and how they are used.
- What is the general structure of fat?
- How are saturated and unsaturated fats different?
- Recognize some basic names of fats (see fat chart)
- Recognize the basic structure of starch (polysaccharides)
- Differentiate between simple sugars and complex sugars, glycogen, starch and cellulose.
- Describe the role of vitamins in the body and give some specific examples of vitamins.
- Describe the role of minerals in the body
- List several elements (minerals) from the Periodic Table that would be found in organic things.
- Know which food groups should make up a large part of your diet and which shouldn't.
- Recognize the role of water in the cleavage of bonds in fats, proteins and carbohydrates.
- What is the role of the digestive system?
- Identify and label the main organs involved in digestion, and trace the route of food through the system
- Know the role of each organ
- Where does most chemical digestion occur? Where does most nutrient absorption occur?
- Be able to give some examples of physical digestion of food as it moves through the system
- What are villi? Where can they be found? What do they do?
- What is the role of the large intestine?
- What are the roles of bile pigments, mucus, HCl?
- What are the names of the two sphincters of the stomach?
- What is the difference between an endo and an exopeptidase?
- Know which enzymes hydrolyze which nutrients. Know which organ makes the enzymes and in which organ they chemically digest that nutrient. (You have about 12 enzymes to memorize!)
- You be the doctor – what is up with choking, diarrhea, constipation, ulcers, vomiting, and heartburn?
- How can you eat a lot but suffer from malnutrition?
- Big essay – choose 1 macronutrient. Trace the path of this nutrient through the digestive system starting with the mouth and ending with absorption and waste removal. Describe everything (physical and chemical) that will happen to this nutrient. Learn those enzymes! The more you know, the better your score!

### Blood glucose regulation and the Excretory system

- Know the cells in the pancreas responsible for detecting the amount of glucose in the blood.
- Be able to explain the contradictory functions of Insulin and Glucagon
- When glucose needs to be stored, where and how is it stored?

- How is stored glucose released into the bloodstream again?
- Explain diabetes and its relation to pancreas/liver function.
- Describe the function and basic structure of a kidney.
- Know all the parts of a kidney and be able to trace a route through the kidney, beginning with blood entering and wastes and nutrients leaving.
- Know where filtration, reabsorption and excretion happen throughout the nephrons of the kidneys. What is reabsorbed and what is left for waste?
- Describe how the kidney and parts of the brain work together to regulate Osmotic Balance.
- What is ADH? How can alcohol affect ADH and osmotic balance? Results?
- Make sure you know: Glomerulus, Distal tubule, Proximal tubule, Renal artery and vein, arterioles and venules, Loop of Henle, Bowman's Capsule, collecting duct, urethra, ureter, urinary bladder.

## Respiratory and Circulatory systems

- Know the functions of each system
- Be able to label the following:

Heart	mouth	nasal passage
Vena cava	trachea	bronchi
Aorta	ventricles	diaphragm
Atria	bronchioles	epiglottis
Tricuspid	bicuspid	pulmonary artery
Alveoli	lung	pulmonary vein
Pharynx	larynx	blood

- What type of muscle is the heart?
- What allows the lungs to inhale and exhale
- Relate the law of diffusion to gas transfer in the lungs – What about those gases in the vessels?
- Which side of the heart has oxygenated blood? Deoxygenated?
- Be able to trace the path of blood through the heart.
- Be able to trace the path of oxygen through the respiratory system
- List diseases/conditions that can affect lung capacity – can you tell me more about them?
- Tidal vs. vital capacity?
- Why does the heart have valves in it?
- What are some types of heart disease?
- What are signs that a person is having a heart attack?
- What lifestyle choices can make a person more likely to experience heart disease?
- What is up with cholesterol? What are the 2 types? Who is bad?
- What carries oxygen throughout the body?
- How are exercise and the cardiovascular system related?