**Human Anatomy & Physiology II**

**Exam #3 Study Guide**

**Nutrition, Metabolism, and Body Temperature Regulation**

1. Know the definitions of nutrients and essential nutrients.

2. Know the main sources (as given in lecture) of carbs, proteins, and lipids.

3. Know the functions of carbs, proteins, and lipids.

4. Know the problems associated with excesses and deficiencies of carbs, proteins, and lipids.

5. Be able to classify vitamins as fat-soluble or water-soluble.

6. Know the functions of the vitamins (as given in lecture).

7. Know the major and trace minerals needed by the body and be able to give the functions of those

discussed in lecture.

- calcium, phosphorous, potassium, sulfur, sodium, chlorine, magnesium, iron, manganese,

copper, iodine, zinc

8. Know the structures and chemicals involved with food intake regulation.

9. Be able to define metabolism, catabolism, anabolism, oxidation, reduction,

gluconeogenesis, glycogenolysis, ketones, deamination, & tranamination.

10. Know the steps associated with carbohydrate metabolism and how many ATP each

produces.

11. Explain the function of NAD & FAD and how many ATP each can result in.

12. Know the functions of the liver.

13. Know what structure serves as the body’s thermostat and the definitions of radiation,

convection, conduction, and evaporation.

**Urinary System**

1. Be able to identify the main structures of the system and their functions/descriptions.

2. Be able to define filtration, reabsorption, and secretion.

3. Be able to identify in which portion of the tubule system each of the functions in #2 occurs

and what substances (Na, water, penicillin, etc.) move by these mechanisms.

4. Understand the control mechanisms exhibited by the kidneys; autoregulation, hormonal

control, and neural control.

5. Know the pathways of blood and urine through the kidney.

6. Know the characteristics of urine.

7. Be able to recognize the disorders that affect the system.

**Water, Electrolyte, and Acid-Base Balance**

1. Know the percentages of water found in embryo thru elderly adults.

2. Know the total volume of the fluid compartments and the breakdown in the ICF, ECF, plasma, and

interstitial fluid.

3. Know the composition of body fluids including the major cations and anions. Know the

percentages of water, carbs, proteins, and lipids.

4. Refer to the table and be able to recognize of a substance is more common in ECF or ICF.

5. Know the major sources of water intake and water loss. Be able to determine if the losses are

sensible or insensible.

6. Know how the hypothalamus regulates thirst.

7. Be able to recognize the descriptions of dehydration, hypotonic hydration, and edema.

8. Know the descriptions of respiratory acidosis & alkalosis and metabolic acidosis & alkalosis.

9. Be able to recognize which chemical buffering systems regulate which fluid compartments and

how each works.

10. Know the basics of how the lungs and kidneys can control blood pH.

***This study guide covers the majority of information on the exam but not all of it. You are still responsible for any information that was covered in the notes but not put on this guide (intentionally or unintentionally). Good Luck and Study Hard!!***