Respiratory and Urinary Exam Review

Review: Respiratory System

1. Be able to identify the structures and functions associated with each area through which air passes.
   a. Nose, parts of the pharynx, larynx, trachea, bronchi and alveoli.
   b. What type of tissue is it lined with?
   c. What structures are the areas supported by?
   d. Also be able to identify special parts associated with each region, ie. Tonsils, Eustachian tube, vocal cords, sinuses, surfactant.

2. Review vocalization lab.
   a. Which areas assist in forming vowels? Consonants?

3. Know the mechanics of ventilation
   a. Which muscles contract? What nerves supply them?
   b. Does it make the thoracic cavity smaller or larger?
   c. How does the pressure change to move the air?
   d. Know any accessory muscles that contract during forced inspiration or expiration.

4. Know the respiratory volumes and how to calculate inspiratory reserve.

5. Review all of the factors that can influence the medullary rhythmicity center and whether they increase or decrease the respiratory rate.
   a. High carbon dioxide, low oxygen, exercise, high temperature, Hering Breuer reflex, breath holding and hyperventilating.

6. Know how oxygen (2 ways) and carbon dioxide (3 ways) are transported in the blood.
   a. What causes the oxygen to release from the hemoglobin at the tissues?
   b. How does the carbon dioxide get converted into bicarbonate?
   c. What do we do with the bicarbonate formed within red blood cells?

7. Understand how the respiratory system functions in maintaining pH.
   a. If you build up carbon dioxide would you become more acidic or basic? Would you increase or decrease the respiratory rate to compensate? What is the normal pCO2 in the blood?
   b. Review the factors that can cause respiratory acidosis and alkalosis.

8. Know any abnormalities of the respiratory system discussed in class.

Review: Urinary System
1. Be able to track urine formation and transport from the kidney to the urethra.
   a. What type of tissue lines each of these structures?
   b. How many layers of muscle form the walls?

2. Be able to identify the parts of the kidney, its location in the body, and the 3 layers (capsules) that protect the kidney.

3. Be able to track blood flow through the kidney.

4. Know the structure of the nephron.

5. Know the 3 phases of urine formation, what is occurring and where it occurs.
   a. Where does the initial filtering of the blood occur?
   b. Where do we have the opportunity to remove things from the filtrate that we want to return to the blood?
   c. Where do we have the opportunity to secrete more things into the filtrate?

6. Be able to determine Net Glomerular Filtration with hydrostatic and osmotic pressures.
   a. How would certain factors affect the filtration rate (high blood pressure, low blood pressure, decreasing blood osmotic pressure)?

7. Understand how myogenic autoregulation and the juxtaglomerular apparatus affect the filtration rate.

8. Know the hormones associated with the urinary system (renin, angiotensin II, aldosterone, ADH, ANF).
   a. Know where they are released, their stimulus for release, their function, and abnormalities associated with each.

9. Know any abnormalities associated with the urinary system that were discussed in class.

10. Know the distribution of water and ions throughout the body.

11. Know the abnormal constituents of urine and what disorder may be the cause.

12. Know the sources of metabolic acidosis and alkalosis.

13. Understand in general how the buffer systems, the respiratory system and the urinary system function in maintaining a normal pH.