

BMD 330 and 335: Human Physiology
Chapter 19 Objectives

The Urinary System: Renal Function

1. Identify and describe the functions of the following structures in the urinary system: nephron, glomerulus, renal tubule, collecting duct, ureter, bladder, and urethra.
2. Describe the blood supply to the kidney. Differentiate between afferent and efferent arterioles.
3. Describe how the urinary excretion of solutes and water influences the volume and composition of plasma, and identify other processes that affect plasma volume and composition.
4. Explain how the basic renal exchange processes of filtration, secretion, and reabsorption affect the rate at which materials are excreted in the urine.
5. Describe glomerular filtration and explain the role of Starling forces in determining glomerular filtration rate.
 - a. Define filtered load
 - b. Describe the three intrinsic controls of glomerular filtration rate.
 - c. Describe the extrinsic control of glomerular filtration rate and how it is important in blood pressure regulation.
6. Define the movement of solutes and water across the renal tubule membranes.
7. Describe renal handling of glucose.
 - a. Define transport maximum.
 - b. Define renal threshold.
 - c. List the following information for glucose: blood levels, transport maximum, and renal threshold.
8. Define clearance.
 - a. Explain the role of clearance in defining renal handling of a substance.
 - b. Explain the use of inulin or creatinine clearance to estimate GFR.
 - c. Explain the use of PAH clearance to estimate renal blood flow rate.
9. Describe the events that occur during micturition.