EXCRETORY SYSTEM

Excretion is the process that gets rid of all the unwanted substances in the body system, particularly the waste products of metabolism. Many different organs, such as the skin, liver, kidney and the lungs, participate in the process of excretion. Read the chapter on excretion in your text on pages 301-315 before completing this section of your workbook.

Overview

(pp. 302)

1. Define excretion and give an example.
2. Hypothesize what might occur if we did not excrete wastes.

The Skin

1. What is the excretory role of the skin?

The Liver

1. What wastes are associated with the liver?
2. What is the liver's major role in excretion?

The Lungs

1. What wastes are associated with the lungs?
2. What is the lungs' major role in excretion?

The Intestine

1. What wastes are excreted directly into the intestine?
2. Distinguish between *defecation* and *excretion*.

The Kidney

1. What wastes are associated with the kidney?
2. What is the role of the kidney in excretion?

Water and Solute Balance

(pp. 303)

1. List the way/ways in which water:
   a. leaves the body
   b. enters the body
2. In a clear sentence, outline the function of the urinary system.

General Urinary System

Anatomy

1. Be able to identify the following structures of the urinary system from fig. 16.1 page 302 Sketch here
   a. renal vein
   b. renal artery
   c. urinary bladder
   d. ureter
   e. urethra
   f. kidney

2. Compare the composition of blood plasma and urine. (p. 309)

Blood Plasma	*Urine*

Kidney Function

1. Identify the following structures in *fig. 16.4 p. 306* and state their function.

Structure	*Function*
a. glomerulus	
b. Bowman's Capsule	
c. proximal tubule	
d. Loop of Henle	
e. distal convoluted loop	
f. collecting duct	
g. efferent arteriole	
h. afferent arteriole	
i. capillary network	

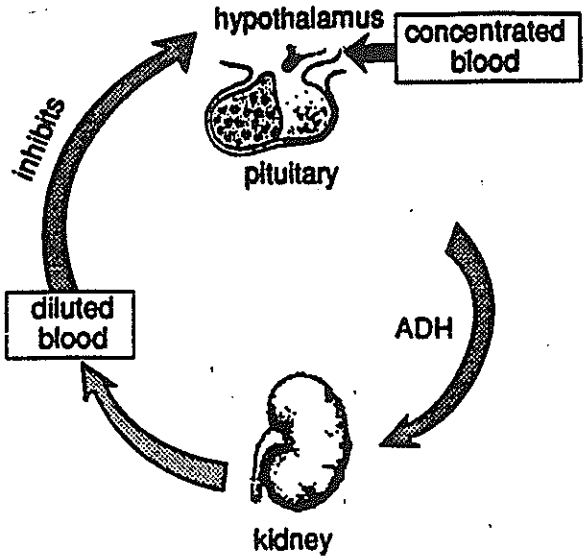
2. Explain how the following events listed below would change (a) the composition of the urine and (b) the urine volume.
   a. drinking 20 glasses of water
   b. dehydration
   c. drinking coffee (diuretic effect)
   d. excessive sweating
   e. eating salty food

Kidney - Hormones and Fluid Control

(pp. 310-11)

The Hormone ADH

1. State the function of ADH.
2. Give its source, means of transport and effect on the kidney.
3. How do the following events affect the output of ADH and blood volume?
   a. drinking excess water
   b. dehydration



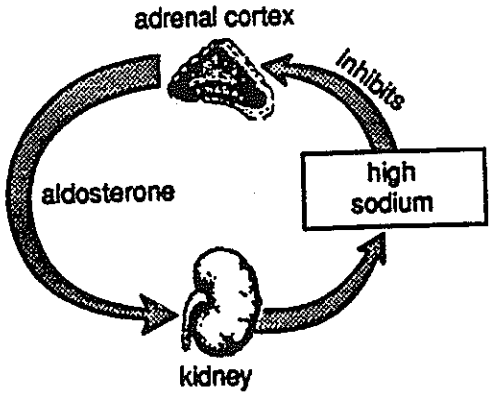
4. Using the illustration above, explain how the hormone ADH operates as a feedback loop with the kidney for homeostatic control of the concentration of blood.

The Hormone Aldosterone

(p.311)

1. What gland secretes aldosterone?

2. Specifically, how does aldosterone affect the nephron?



3. Using the illustration above, explain how aldosterone regulates urine composition.

Hypothalamus - Pituitary Control of Solute

1. Explain how the hypothalamus, posterior pituitary gland and distal tubule work together to regulate water and solute levels of the body fluids. *(pp. 310-11 i)*

Disorders of the Urinary System

(Merck Manual)

1. Identify the *causes, characteristics,* and *method of treatment* for any two of the following excretory disorders:

kidney stones	renal failure
glomulonephritis	proteinuria
cystitis	uremia
diabetes insipidus	gout

2. Compare a kidney dialysis machine to the human kidney in terms of action and efficiency.

3. Compare the advantages and disadvantages of hemodialysis and kidney transplant.

Sample Exam Questions

1. Explain how the kidney and endocrine system:

    a. control the solute level in the body fluids

    b. control blood volume

2. From your knowledge of the kidney, explain why urine can be:

    a. concentrated

    d. dilute

3. Compare the composition of urinary filtrate in the Bowman's capsule with the composition of the blood just outside the nephron.

4. Why is the urine produced first thing in the morning much darker in colour than that produced later in the day?