

## **ANATOMY & PHYSIOLOGY ONLINE COURSE - SESSION 14 – The URINARY SYSTEM**

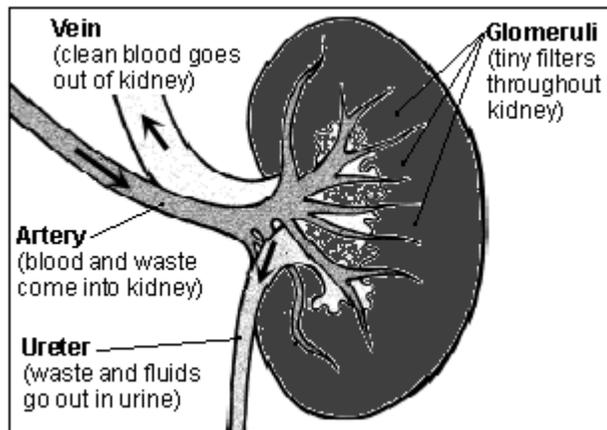
The main function of the urinary system is the production and excretion of urine as a means of ridding the body of waste products.

The organs of the urinary system include two kidneys, two ureters, one bladder, and one urethra.

### **Kidneys**

There are two kidneys located at the back of the abdominal cavity, one on each side of the spinal column. The right kidney sits slightly lower than the left kidney. Each kidney is shaped like a kidney bean with the concave border facing the midline.

The kidneys are embedded in a cushion of adipose tissue and surrounded fibrous connective tissue for protection. The kidneys consist of an outer cortex region (outer portion) and an inner medulla region (inner portion). The kidneys help regulate blood pressure adjust the amount of fluid in the body. Contribute to a proper pH balance vital to normal chemical reactions throughout the body. Reabsorb 90% of the filtered materials as a conservative measure. Remove blood toxins and un-storable excess nutrients or water. Help maintain proper sodium/potassium balance for more energy production.



More than 2 million filters in the kidneys separate toxic elements and excessive amounts of nutrients that cannot be stored or utilized from the blood. The kidneys adjust the blood's pH by maintaining the proper sodium/potassium necessary for each small cell to make energy. These organs can even secrete hormones to help regulate the body.

When they are inflamed, the kidneys ache and some people mistake this for backache. But this backache can occur during any severe battle the body is waging in which lots of toxins are being processed and overloading the kidney's ability to filter them out, actually tiring and poisoning the kidney itself. Ureters Attached to the bottom of each kidney carry urine into the bladder where urine is stored. After it builds up, nerves signal the brain that it's time to be emptied.

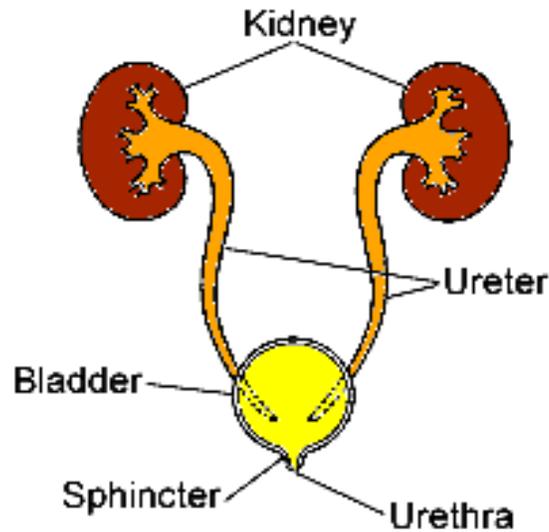
### **Ureters**

After the kidneys extract just enough water to keep the body healthy, urine flows down a ureter into the bladder for storage.

The ureters are two thin, muscular tubes leading from the center of each kidney. The ureters transport urine to the bladder with active waves of contractions.

### **Bladder**

The urine empties into the bladder, a muscular pouch that temporarily stores this liquid before excreting it from the body. Because the bladder walls are elastic, the bladder expands as it fills and contracts forcefully to empty itself of urine.



## Urethra

From the bladder, urine is carried out of the body by a thin tube called the urethra. In women, the urethra is about one inch long and situated in front of the vaginal wall, ending in the vulvar area.

The male urethra is longer and more resistant to infection. The male urethra travels through the prostate gland and then through the undersurface of the penis to the urethral meatus, an opening in the tip of the glans of the penis.

Urine is normally clear and yellow, although the intensity of the color may vary from colorless to dark amber. These variations may be entirely normal and are usually dependent on the amount of fluid consumed and on environmental factors such as extreme heat, which tends to cause dehydration. Normally, the more fluid an individual drinks, the more diluted and lighter the urine becomes, whereas less ingested fluid or more fluid lost through perspiration makes urine more concentrated.

While variations in urine color are not usually a sign of problems, extreme darkening of the urine, however, may indicate an abnormal condition.

Drinking plenty of water is the key to keeping your urinary system healthy. Water plays an important role in the healthy functioning of the urinary tract. The proper amount of water in your body helps the urinary system determine whether more electrolytes should be retained or excreted. When the concentration of electrolytes is high, the body releases a hormone that stimulates your feelings of thirst. The kidney then gets rid of the excess electrolytes and water.

Drinking enough water allows you to produce a large quantity of urine. You should drink enough water, to allow emptying the bladder every 3 to 4 hours during the day. Keep in mind that producing large amounts of urine helps wash harmful bacteria out of the urinary system.

## **ANATOMY & PHYSIOLOGY ONLINE COURSE - SESSION 14 – The URINARY SYSTEM - QUESTION & ANSWERS**

NAME: \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE: \_\_\_\_\_

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Please be sure to fill out the information above, complete the test and email or fax it back to us at [iridology@netzero.net](mailto:iridology@netzero.net) or 530-878-1119. We will grade your question and answer session and will let you know if we have any questions

- 1) Urine is stored here \_\_\_\_\_
- 2) \_\_\_\_\_ Are attached to the bottom of each kidney
- 3) Name the organs of the urinary system.
- 4) Where is urine stored? \_\_\_\_\_
- 5) Which kidney sits lower? \_\_\_\_\_
- 6) What is the name of the tube that carries urine from the bladder and out of the body? \_\_\_\_\_
- 7) What are the differences between the male and female urethra? \_\_\_\_\_
- 8) Describe the bladder \_\_\_\_\_
- 9) Each kidney is shaped like a \_\_\_\_\_
- 10) What is the main function of the urinary system? \_\_\_\_\_