Definition: urinary system from The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide

System of organs that removes nitrogenous waste products and excess water from the bodies of animals. In vertebrates, it consists of a pair of kidneys, which produce urine; ureters, which drain the kidneys; and (in bony fishes, amphibians, some reptiles, and mammals) a bladder that stores the urine before its discharge. In mammals, the urine is expelled through the urethra; in other vertebrates, the urine drains into a common excretory chamber called a cloaca, and the urine is not discharged separately.

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Water Regulation by the Kidneys

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urinary system

Summary Article: urinary system
From The Columbia Encyclopedia

group of organs of the body concerned with excretion of urine, that is, water and the waste products of metabolism. In humans, the kidneys are two small organs situated near the vertebral column at the small of the back, the left lying somewhat higher than the right. They are bean-shaped, about 4 in. (10 cm) long and about 2 1/2 in. (6.4 cm) wide. Their purpose is to separate urea, mineral salts, toxins, and other waste products from the blood, and to conserve water, salts, and electrolytes. At least one kidney must function properly for life to be maintained. Each kidney contains 1.2 million filtering units called nephrons. One end of the nephron is expanded into a structure called the renal corpuscle, or glomerulus, which surrounds a cluster of blood capillaries. The remainder of the nephron consists of a very long narrow tubule, in alternately convoluted and looping sections. Blood containing waste products enters the glomerulus through an afferent arteriole from the renal artery. The cells of the glomerulus extract the water and waste products as the blood leaves through the outgoing blood vessel (the efferent arteriole) of the glomerulus, in a process called filtration. Blood leaving the glomerulus flows through the network of capillaries that surrounds each tubule; there the substances that the body still needs, such as water and certain salts, are restored to the blood. The purified blood returns to the general circulation through blood vessels leading to the renal vein. The ends of the tubules unite to form collecting tubules, which empty the urine into the kidney pelvis, a collecting chamber in the middle of the kidney. Urine from the kidney pelvis then passes into the ureters, a pair of tubes 16 to 18 in. (40–45 cm) long. Muscles in the walls of the ureters send the urine in small spurts into the bladder, a collapsible sac found on the forward part of the cavity of the bony pelvis that allows temporary storage of urine. The outlet of the bladder is controlled by a sphincter muscle. A full bladder stimulates sensory nerves in the bladder wall that relax the sphincter and allow release of the urine. However, relaxation of the sphincter is also in part a learned response under voluntary control. The released urine enters the urethra, a tube lined with mucus membrane that conveys the urine to the outside. The male urethra, about 8 in. (20 cm) long, terminates at the tip of the penis, and serves as the passage through which semen is released (see reproductive system). The female urethra is less than 2 in. (5 cm) long and
opens just in front of the entrance to the vagina; it has no function other than excretion of urine. There are many types of urinary system disorders, including congenital malformation, injury, infection, presence of kidney stones, or calculi, other types of obstruction, and tumors. See cystitis; nephritis; nephrosis. Abnormal urine output may indicate other diseases, such as diabetes.