Excretory system

Science, Anatomy

Excretory system Excretion is the removal of waste products of metabolism from our body system. Contents •1 Excretory functions •2 Component organs o2. 1 Lungs o2. 2 Kidneys o2. 3 Ureter o2. 4 Urinary bladder o2. 5 Urethra o3 Urine formation4 Reasons For Excretion The excretory system removes metabolic and liquid toxic wastes as well as excess water from the organism, in the form of urine, sweat, urea or bile. This is important so as to help maintain balance within the organism and prevent damage to m the body.

As your body performs the many functions that it needs in order to keep itself alive, it produces wastes. These wastes are chemicals that are toxic and that if left alone would seriously hurt or even kill you. For example, as your cells break down amino acids, they produce a dangerous toxin known as urea. The cells of your body excrete this urea into your blood Excretory organs Skin Skin is an excretory organ. The regulation of body temperature causes it to produce sweat which contain urea surplus water, salts and other waste .

Lungs One of the main functions of the lungs is to diffuse gaseous wastes, such as carbon dioxide, from the bloodstream as a normal part of respiration Kidneys The kidney's primary function is the elimination of waste from the bloodstream by production of urine. They perform several homeostatic (metabolic balance) functions such as:- 1. Maintain volume of extracellular fluid 2. Maintain ionic balance in the blood 3. Maintain pH concentration of the blood. 4. Excrete toxic metabolic by-products such as urea, ammonia, and uric acid.

The way the kidneys do this is with nephrons inside the glomeruli. There are over 1 million nephrons in each kidney, these nephrons act as filters inside the kidneys. The kidneys filter needed materials and waste, the needed materials go back into the bloodstream, and unneeded materials becomes urine and is gotten rid of. In some cases, excess wastes crystallize as kidney stones. They grow and can become a painful irritant that may require surgery or ultrasound treatments. Some stones are small enough to be forced into the urethra Urine formation

Within the kidney, blood first passes through the renal artery to the capillary formations called a glomerulus and is collected in the Bowman's capsule which filters the blood from its contents—primarilyfoodand wastes. After the filtration process, the blood then returns to collect the food nutrients it needs, while the wastes pass into the collecting duct, to the renal pelvis, and to the ureter, and are then secreted out of the body via the urinary bladder. What is a kidney stone? A kidney stone is a hard, crystalline mineral material formed within the kidney or urinary tract.

Kidney stones are a common cause of blood in the urine (hematuria) and often severe pain in the abdomen, flank, or groin. Kidney stones are sometimes called renal calculi. The condition of having kidney stones is termed nephrolithiasis. Having stones at any location in the urinary tract is referred to as urolithiasis, and the term ureterolithiasis is used to refer to stones located in the ureters. The Human Skin 19. 3 Skin and Lungs as Accessory Excretory Organs In addition to the urinary system, the skin, lungs and liver of vertebrates are accessory excretory organs. 1) Skin: Human skin possesses glands for secreting two fluids on its surface, namely sweat from

the sweat glands and sebum from sebaceous glands. (Fig. 19. 7). Sweat is a watery fluid containing in solution primarily contains sodium-chloride, urea, and excess water . Figure 19. 7 Vertical Section of the Skin Sebum is a wax-like secretion which helps to excrete some lipids such as waxes, sterols, other hydrocarbons and fatty acids on the skin. (B) Lungs: Lungs which are the main respiratory organs of vertebrates, help to eliminate the entire volume of carbon dioxide produced in the body, as well as some moisture, during expiration.

The lungs maintain the blood-gas homeostasis through elimination of carbon dioxide. When lungs fail to eliminate enough carbon dioxide, the kidneys attempt to compensate. They change some of the carbon dioxide into sodium bicarbonate, which becomes part of the blood buffer system. SUMMARY (1) Excretion is the removal of nitrogenous waste products from the body. (2) Kidneys are the most important excretory organs of mammals. Through filtration, reabsorption and active transport, waste is remove, but kidneys conserve substances useful to the organisms. 4) In general, kidneys regulate the intake and the outflow of water and salts in the blood and help to maintain homeostasis. (5) Regulation of kidney function is achieved by certain hormones such as antidiuretic hormone, aldosterone and angiotensin. (6) Skin and lungs also act as accessory excretory organs. Nitrogenous Waste •The liver also works by breaking down nitrogenous waste. Your different metabolic processes in your body are important to keep you alive, but they also create waste in the form of nitrogen.

The body must then transport the nitrogen waste out of your body. Your liver converts the nitrogenous waste into urea, which is then transported out of

the body when you urinate. Bile •Once toxins have been converted, the liver deposits the deactivated toxins into the bile. The liver excretes bile as a digestive aid for harder to digest fats, as well as a way to transport toxins out of the body. The bile is then stored in the gallbladder till needed. Once it is needed, it moves the duodenum and helps with the digestion and excretory process.