Urinary system

Health & Medicine

URINARY AND RESPIRATORY SYSTEM URINARY SYSTEM The urinary system is a part of the excretory system in the body that removes toxic materials in the form of urine. This system is composed of two kidneys, two ureters, bladder, two sphincter muscles, nerves in the bladder and urethra. The Nephrons are basic units of kidney and the most important sites of blood filtration. Kidneys and the associated organs are responsible for the control of the amount of water, blood volume and salts in the body. Kidney removes urea from the blood through small filtering components called nephrons. Urea, along with water and other waste substances are the main ingredients of urine. The narrow tubes called the ureters carry urine into the triangle shaped bag called the bladder. The muscles in the ureter walls repeatedly constrict and relaxes that forces the urine to move down to the bladder. The bladder is the store house for urine and when it is full, there is an erg to pass urine. The urethra takes the urine from the bladder for excretion. The nerves in the bladder are responsible for alerting the person the time to urinate and empty the bladder. Additionally, the kidneys are also involved in blood pressure regulation and the making of erythropoietin that stimulates Red Blood Cell (RBC) production.

RESPIRATORY SYSTEM

Respiratory system is responsible for the transport of oxygen and carbon dioxide to and from the lungs. In the lungs the oxygen is diffused into the blood and carbon dioxide is removed from it and is exhaled out. The main organs in the respiratory system are divided into two parts – the upper part consisting of mouth, nose and nasal cavity, pharynx and the larynx. The lower respiratory part consists of trachea, bronchi, bronchioles, alveoli and the diaphragm. The mouth, nose and the nasal cavity are responsible for the

moistening the incoming air which is then taken up by the pharynx and passes the air into the larynx. The air then enters the lower respiratory tract through the trachea which is also known as the wind pipe. The walls of the wind pipe have tiny hairs called the cilia that trap the dust particles and remove it by coughing. The trachea divides into two tubes called the bronchi that enter the left and the right lungs. The bronchi again divide into tertiary bronchi and narrows down into several smaller units called the bronchioles which lead to the alveolar sacs. The walls of the alveoli have small capillaries that facilitate the exchange of gases from the lungs into the blood.

URINARY Vs RESPIRATORY SYSTEMS

Both these systems are a completely different systems functioning individually. However, there are some similarities as both are involved in excretion process. The urinary system excretes unwanted toxic wastes in the urine and the respiratory system is involved in the removal of carbon dioxide and other dust particles from the body. The purification of blood from toxic wastes takes place in both these systems. The smallest units of respiratory system are the alveoli and that of the urinary system is the nephrons that has tubular structures meant for the exchange of gases and salts respectively. Oxygen and water are among the most essential elements necessary for the survival and if the respiratory system in involved in the distribution of oxygen in the blood, the urinary system controls the balance of water and other bodily fluids. Both the systems are involved in maintaining a homeostasis in the body. The kidney excretes and re-absorbs electrolytes such as sodium, potassium and calcium with the help of specific hormones. Additionally, a pH balance is also maintained by the excretion of bound acids and ammonium ions in urine. In the respiratory system, the

carbon dioxide which is mainly transported in the plasma as bicarbonate ions that acts as a chemical buffer. By the removal of carbon dioxide, the respiratory system also helps in establishing proper blood pH levels, a fact that is very important for homeostasis. Therefore, both the respiratory and the urinary system works independently towards maintaining a homeostasis essential for sustaining life.