



Objectives

- ✿ Explain how kidneys function to excrete liquid waste.
- ✿ Identify and differentiate the reproductive structures of the male and female reproductive system.
- ✿ Describe the process of sexual reproduction.
- ✿ Analyze the importance of the placenta, umbilical cord, and amnion to a fetus.

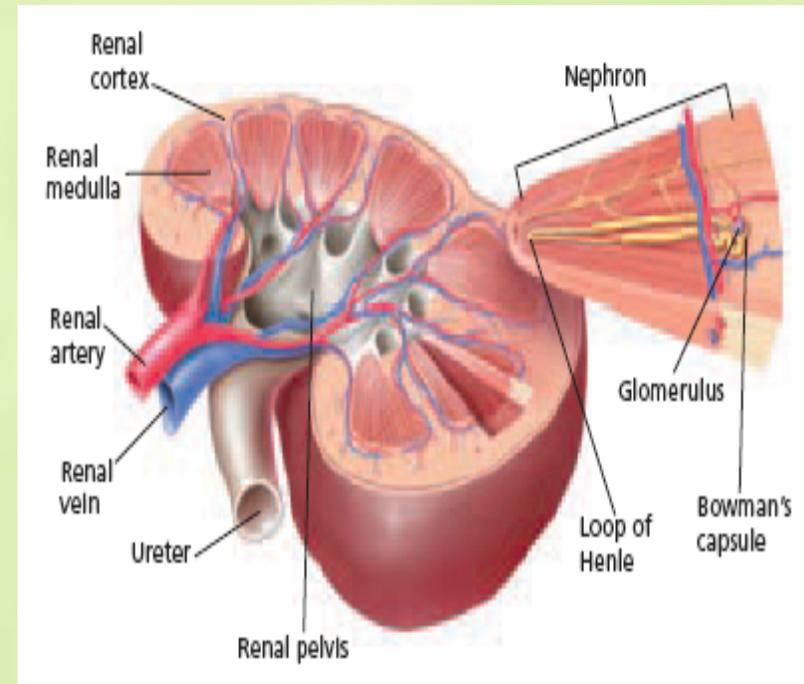


Urinary System

- ✿ When the villi in the small intestine absorb nutrients they also absorb water and liquid waste into the blood.
- ✿ The blood is then filtered by the **kidneys** where the waste is taken out.
- ✿ The process of removing the wastes from the blood is called **filtration**.

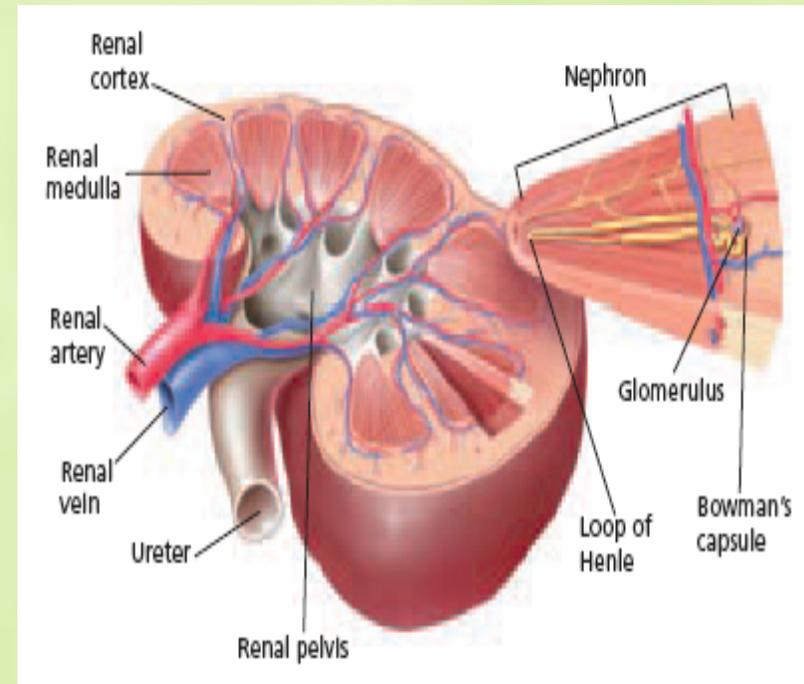
The Kidney

- ✿ The **renal artery** brings blood to the kidney.
- ✿ The blood enters the **renal pelvis**.
- ✿ It then moves through the **renal medulla** which contains many capillaries.



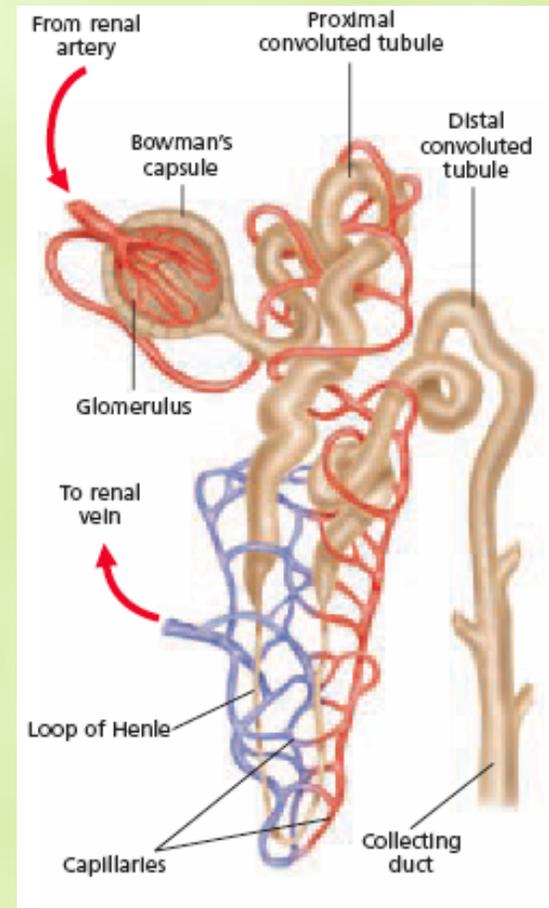
The Kidney (Cont...)

- ✿ The blood finally reaches the outer most part of the kidney, called the **renal cortex**.
- ✿ The renal cortex houses the openings to the **nephrons** which are the functional unit of the kidney.



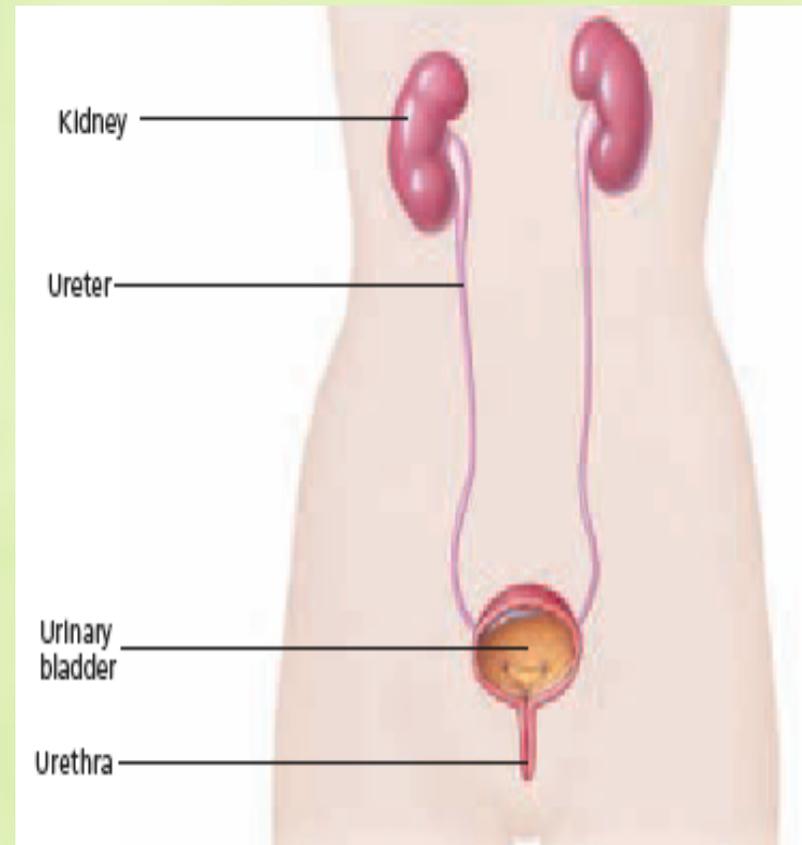
Nephrons

- ❖ Blood enters the nephron in the renal cortex in the **Bowman's capsule**.
- ❖ It then flows through a series of capillaries and collecting ducts in the **Loop of Henle** located in the renal medulla.
- ❖ Filtered blood leaves through the **renal vein** and the waste goes to the **ureter**.



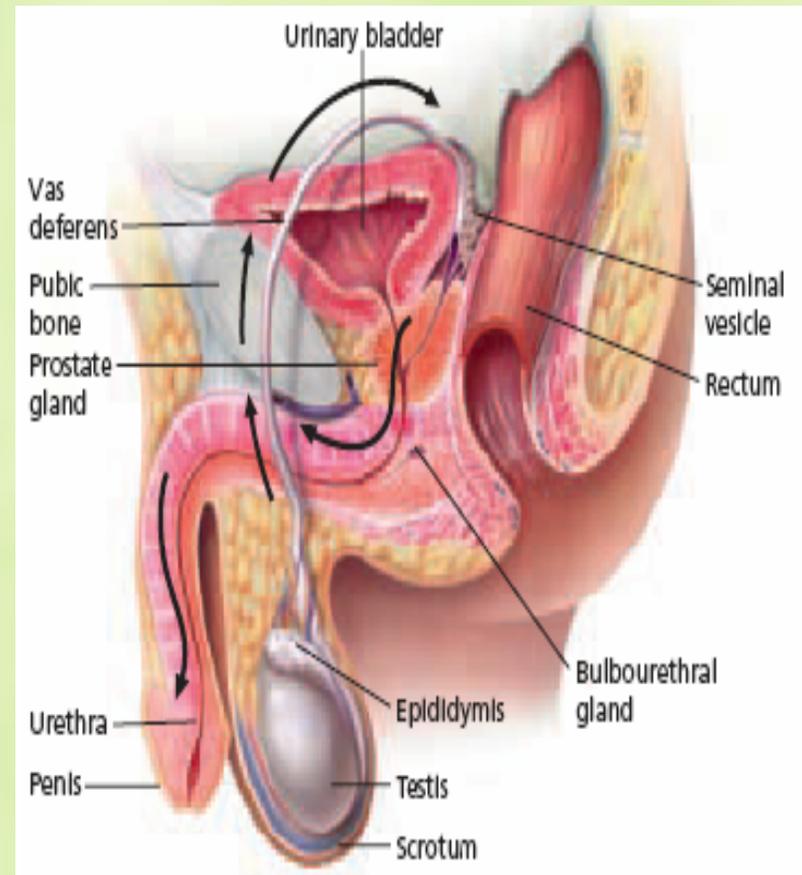
Excretion

- ✿ The ureter leads the newly formed **urine** to the **urinary bladder**.
- ✿ The urinary bladder holds the urine until it can be expelled through the **urethra** and out of the body.



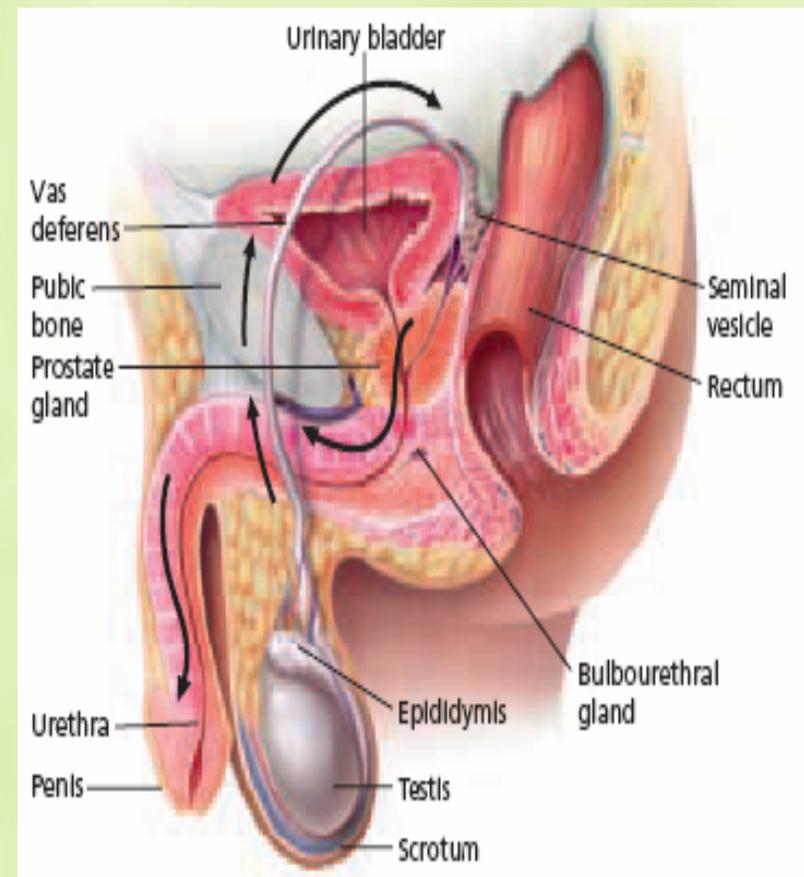
Male Reproductive System

- ✿ The male gamete, **sperm**, is produced in the **testes** which are located in the **scrotum**.
- ✿ The sperm is then moved to the **epididymis** where it matures.
- ✿ The **vas deferens** is the tube that conducts the sperm to the urethra.



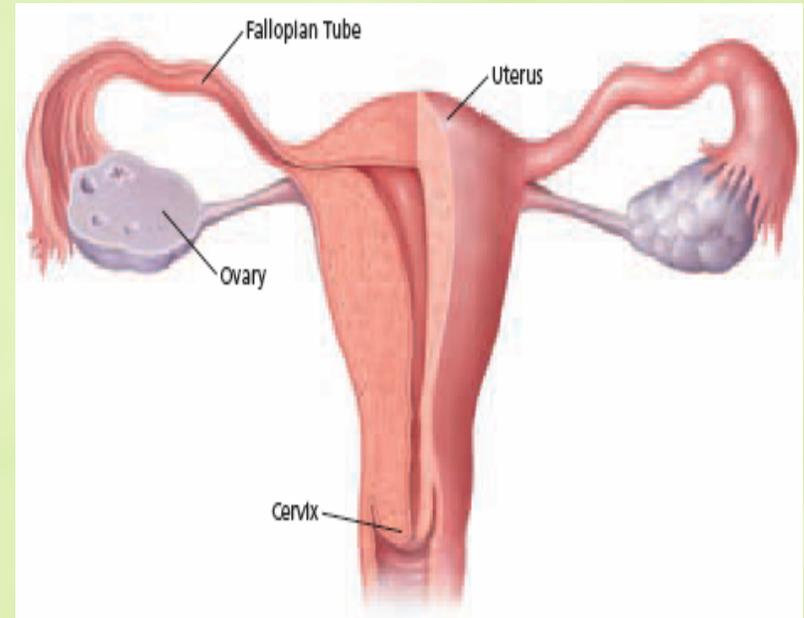
Male Reproductive System

- ✿ **Seminal vesicles** produce the liquid medium for the sperm to travel in and the **prostate gland** produces a liquid that neutralizes the acids in the female R.S.
- ✿ The **bulbourethral gland** produces a fluid that neutralizes the acidic urine in the urethra.
- ✿ The sperm and other fluids (now called **semen**) enter the urethra which travels through the **penis** where it is then released, or **ejaculated**.



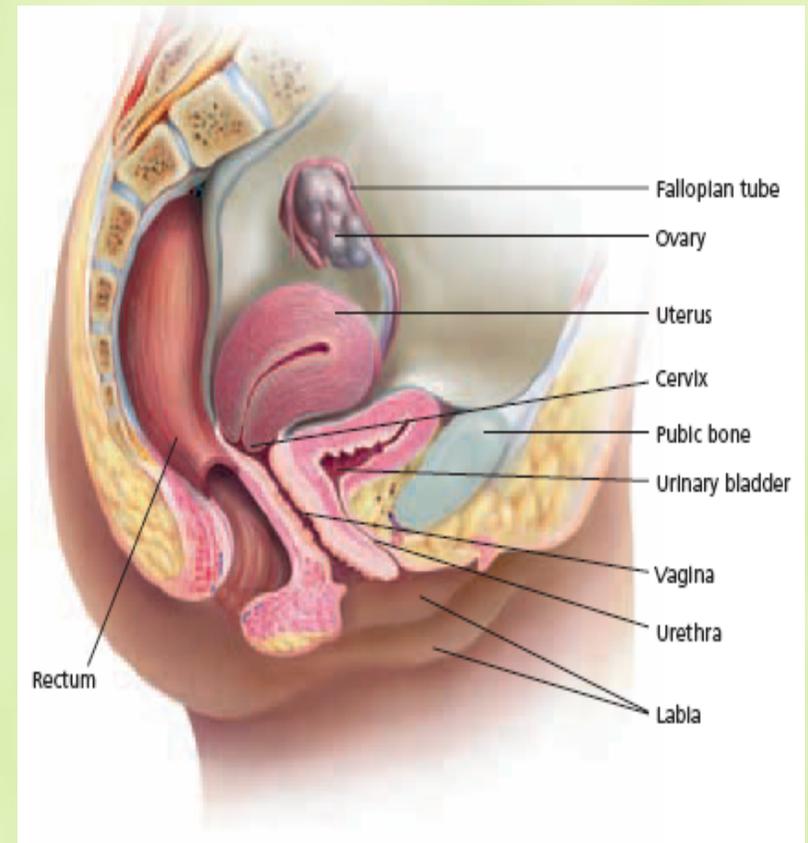
Female Reproductive System

- ✿ The female gametes, or **eggs**, are produced in the **ovaries**.
- ✿ Mature eggs are released into the abdominal cavity through **fallopian tubes** which lead to the **uterus**.
- ✿ The inferior opening to the uterus is called the **cervix**.



Female Reproductive System

- ✿ The cervix opens into the **vagina**.
- ✿ The urethra runs ventral to the vagina.
- ✿ The exterior opening of the vagina is protected by two bi-lateral **labia**.
- ✿ All of the external structures of the female R.S. are referred to as the **vulva**.





Sexual Reproduction

- ✿ When a male ejaculates he releases hundreds of millions of sperm.
- ✿ The sperm travel through the female reproductive tract in hopes of finding an egg to fertilize in the fallopian tubes.
- ✿ When sperm fuses with an egg it creates a **zygote**.
- ✿ Both the sperm and the egg are **haploid** cells which mean that have half of the chromosomes as regular cells.
- ✿ When combined they form a **diploid** zygote that has the correct number of chromosomes.



Development/Pregnancy

- ✿ The zygote forms into a **blastocyst** which implants to the wall of the uterus.
- ✿ There it forms a protective barrier called the **amnion**.
- ✿ At the point of fusion, the mother produces a **placenta**.
- ✿ The placenta absorbs nutrients and passes them to the offspring through the **umbilical cord**.



Objectives

- ✿ Explain how kidneys function to excrete liquid waste.
- ✿ Identify and differentiate the reproductive structures of the male and female reproductive system.
- ✿ Describe the process of sexual reproduction.
- ✿ Analyze the importance of the placenta, umbilical cord, and amnion to a fetus.