

---

# Puberty and the Reproductive System

---

## MALE REPRODUCTIVE SYSTEM

This area of the body is called the **genital area**. The **penis** is made up of two parts – the shaft which is the main part of the penis and the head of the penis also called the **glans**. All baby boys are born with a **foreskin** that covers the end of the penis. Many boys are **circumcised** the first few days of life. **Circumcision** was actually something God commanded the Jewish people to do when their baby boys were eight days old. This is part of the covenant God made with Abraham. (Genesis 17:10–14) Many biblical scholars believe that it was intended to protect them from infections and make it easier for men to clean their genital area. It is interesting that eight days of age was chosen. Medical research shows that a newborn’s blood-clotting ability continues to develop during the first week of life, making later procedures less likely to result in excessive bleeding. Some early Christians debated the issue of whether all Christians should be circumcised, but leaders in the early church decided that this was not necessary (Acts 15). Many doctors disagree about which is healthier – circumcised or uncircumcised. Today, parents who choose to have their sons circumcised do so out of concerns of cleanliness, risk of infection, or cultural and social reasons. Most baby boys in America are circumcised, while most in Europe are not. The penis works the same whether the foreskin has been removed or not.

Running through the penis is the **urethra** which connects the bladder to the outside of the body. Just underneath the penis is a sac of skin called the **scrotum**. Inside the scrotum are 2 **testes** which cannot be seen, but feel like balls. In adults, these are about 5 cm long (2 in) and 2.5 cm in diameter (1 in). The testes produce and store **sperm** and also produce the hormone **testosterone** that is responsible for the physical changes that occur during puberty. Along the side of each testicle is a structure called the **epididymis**, which is the storage area for sperm. Connected to the epididymis is a long tube called the **vas deferens**. Sperm is produced in the testes, stored in the epididymis, and transported to the urethra through the vas deferens. The internal part of the male reproductive system is made up of five glands called accessory glands. These accessory glands include two **seminal vesicles**, one **prostate gland**, and two bulbourethral glands. The glands provide fluids that help nourish and protect the sperm. They are also responsible for producing fluid that mixes with sperm to make **semen**. The semen is then released through the urethra.

## MALE ADOLESCENT CHANGES

The endocrine system works together with the reproductive system to direct the changes that occur during puberty. At some time between the ages of ten and thirteen, special messengers called hormones are released from the hypothalamus that direct the pituitary gland to release more hormones. These hormones direct the testes to release even more hormones. Testosterone is the hormone primarily responsible for the physical changes that occur in males.

The first noticeable change for boys is usually an increase in the size of their testicles (**testes**) and scrotum. The skin of the scrotum can become darker and thicker. The average age for this to occur is 11.5 years. Soon after the testes start to grow, boys will notice hair growing in their genital area, called the pubic area. That is why the hair is called “pubic hair.” At first the hair will be thin and straight, but eventually it becomes thicker, darker, and curlier. This also occurs around a time of rapid growth called a “growth spurt.” Boys usually have their growth spurt a little later than girls, which is why during early adolescence, girls tend to be taller than most boys their age. At this time boys will also notice that their penis is increasing in size and length.

It is important to understand and not be embarrassed about changes that occur during puberty. One commonly misunderstood term is **erection**. An erection occurs when the blood vessels in the penis fill with blood. This causes the penis to become hard and stand out instead of hanging down between the legs. Even young boys can experience erections. They become more common during puberty and can happen at any time. Erections can occur during urination or because of tight clothing, but the most common cause is sexual excitement. Having an erection is normal. Pressure or movement against the erect penis will eventually result in what is called **ejaculation**, which is the release of white sticky fluid called **semen**. Sometimes during the night, boys or young men have an ejaculation while they are sleeping. This is called **nocturnal emission**, or more commonly “wet dream.” This is a normal part of puberty as the body matures and begins producing sperm.

From two to two and a half years after the start of testicle growth comes **spermarche**. This is comparable to menarche in girls and refers to the boy’s production of sperm and their first ejaculation. Each microscopic sperm cell is composed of a head that contains **chromosomes** and a long whip-like tail. The average adult man produces millions of sperm each day. If sperm are not ejaculated out of the body, they die and are absorbed by the body, and new sperm are produced. About this same time, boys notice that their voice changes and becomes deeper. They also notice the growth of body and facial hair. Hormones released during puberty increase the activity of sweat and oil glands in the skin. This can lead to stronger body odor and may contribute to acne.

## FEMALE REPRODUCTIVE SYSTEM

The female reproductive system is found inside the body and is protected within a bony cavity called the **pelvis**. The role of the female reproductive system is to produce eggs and protect and nourish a baby until birth. It produces hormones necessary for a girl to develop into a mature woman, and it also allows a woman to have **sexual intercourse**.

This area of the body is called the **genital area**. Specifically in females, the area between the legs is also referred to as the **vulva**. The area of skin above the vulva is called the **mons pubis**. The vulva is made up of two sets of skin folds called the **labia majora** and the **labia minora**. There is a small lump at the top of the vulva where the labia come together called the **clitoris**.

Between the labia there are two openings. One is the **urethra**, and the other is the **vagina**. The vagina is between 8-12 cm long (3-5 in) in an adult female. It is also called the birth canal because it can expand wide enough for a baby to pass through during birth. The vagina has three main functions: 1) It provides the opening for blood to leave the body during the **menstrual cycle**; 2) It is where the male's penis is inserted during sexual intercourse; and 3) It is the pathway that a baby takes during birth. There is a circle of skin that partially covers the vagina known as the **hymen**. This skin is usually torn, and there may be a small amount of bleeding the first time a woman has sexual intercourse.

Most of the female reproductive parts are inside and not easily seen. The vagina connects to the **uterus** at the **cervix**. The cervix is a muscular tunnel-like organ that has a very small opening, but it can expand wide enough for a baby to pass through. The uterus is about the size of a female's closed fist and is made up of some of the strongest muscles in the female body. These muscles are able to expand as the baby grows, and then contract to push the baby out during birth. The top of the uterus branches into two tubes called **fallopian tubes**. Each tube is the size of a pencil and about 10 cm long (4 in). The inside opening of the tube is about the size of pencil lead. The end of each tube has an opening that is wider, looks like a funnel, and has fringes on it. Near the end of the fallopian tubes are the **ovaries**. The ovaries have two functions: 1) They produce **ova** or eggs necessary for reproduction; and 2) They produce the hormone **estrogen** that is responsible for the physical changes that occur during puberty.

## FEMALE ADOLESCENT CHANGES

The endocrine system works together with the reproductive system to direct the changes that occur during **puberty**. At some time between the ages of eight and thirteen, special messengers called **hormones** are released from the **hypothalamus** that direct the **pituitary gland** to release more hormones. These hormones direct the ovaries to release even more hormones. Estrogen is the hormone primarily responsible for the physical changes that occur in females.

The first change for girls is usually breast development. At first, girls will notice a small, firm lump under the nipple. This is called a breast bud. The average age for this to occur is 10.5 years. Then the skin around the nipple darkens and increases in size, and the breasts themselves become larger. It takes 4-5 years for breasts to reach their mature size. Soon after breast development begins, girls will notice hair beginning to grow in their genital area, called the pubic area. That is why the hair is called "pubic hair". At first the hair will be thin and straight, but eventually it becomes thicker, darker, and curlier. This also occurs around the time of rapid growth called a growth spurt. Girls usually have their growth spurt a little earlier than boys. That is why during early adolescence, girls tend to be taller than most boys their age.

Between two and two and a half years after the start of breast development comes **menarche**, which is the first menstrual period. Around the same time, girls usually notice hair growing under their arms and an increase in the activity of sweat and oil glands. This can lead to stronger body odor and may contribute to acne. Girls usually continue to grow taller for two years after their first period. The menstrual cycle is counted from the first day of bleeding in one month until the first day of bleeding in the next month. While a 28-day cycle is often described as typical, cycles can vary widely, especially during the first few years after menarche. Eventually, menstrual periods usually continue on a regular cycle. Bleeding occurs for 3-7 days. This is called **menstruation**, or “period.” The amount of blood that a woman loses during an entire period is generally between 3-5 tablespoons. About halfway through the cycle, hormones trigger the release of an egg from one of the ovaries. This is called **ovulation**. These hormones also cause the lining of the uterus to begin to thicken. After ovulation, the egg is caught by the finger-like ends of the fallopian tube and begins its journey toward the uterus. It takes from three to five days for the egg to pass through the fallopian tube to the uterus. The lining of the uterus continues to thicken until around day twenty-eight, when the lining is shed and the menstrual cycle begins again with day one.

## GLOSSARY

**Anus** – The external opening of the lower intestinal system.

**Cervix** – The lower part of the uterus that connects to the vagina.

**Circumcised / Circumcision** – A procedure to remove the foreskin from the penis, usually done soon after birth.

**Clitoris** – A small sensory organ found where the labia meet just above the urethra, made up of many nerves that give a feeling of pleasure when stimulated.

**Ejaculation** – Release of semen from the penis.

**Epididymis** – A mass of coiled tubes alongside the testes where sperm are stored.

**Erection** – The enlargement and hardening of the penis that occurs as hollow sacs in the penis fill with blood.

**Estrogen** – A hormone produced by the ovaries that helps cause the physical changes of puberty and regulates the menstrual cycle.

**Fallopian Tubes** – Two tubes, about four inches in length, attached to the upper part of the uterus.

**Foreskin** – Loose skin covering the glans of the penis at birth; removed during circumcision.

**Genital Area** – The area between the legs.

**Glans** – The head of the penis.

**Hymen** – A thin piece of tissue at the opening of the vagina.

**Labia Majora** – Two large folds of soft tissue that are covered with hair.

**Labia Minora** – Two smaller, hairless folds of tissue located within the labia majora.

**Menarche** – A medical word for someone’s first period.

**Menstrual Cycle** – The monthly flow of blood from the uterus, also called a period.

**Mons Pubis** – A soft mound of tissue that makes up the top of the genital area.

**Nocturnal Emission** –involuntary ejaculation during sleep and is sometimes called a “wet dream.

**Ova** – a mature female reproductive cell.

**Ovary** – A female gonad, or sex organ.

**Pelvis** – Part of the skeletal system made up of many bones fused together; includes the hip bones and protects body organs found below the waist and above the upper legs.

**Penis** – The male sex organ used to pass urine and for sexual intercourse.

**Prostate Gland** – A doughnut-shaped gland that surrounds the urethra and is located just below the urinary bladder.

**Scrotum** – A sac suspended between the thighs that protects the testes.

**Semen** – A mixture of sperm and fluid.

**Seminal Vesicles** – Two small glands that make the fluid part of semen.

**Sexual Intercourse** – The sexual union of a male and a female; also called “having sex” or “making love.”

**Sperm** – Cells produced by the testes that are necessary for reproduction.

**Testes** – Male gonads, or sex organs.

**Testosterone** – A hormone produced by the testes that causes changes in the body during puberty and helps stimulate male sexual function.

**Urethra** – A tube that extends from the urinary bladder, through the penis, and to the outside of the body.

**Uterus** – A muscular organ located behind the urinary bladder that supports a developing baby.

**Vagina** – A muscular tube that connects the uterus to the outside of the body.

**Vas Deferens** – Two long tubes that carry sperm from the testes to the urethra.

**Vulva** – The collective name for the structures that form the external female genital area.