A Time of Changes

A Booklet for Males and Females

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Booklet for 5th and 6th Grade Males and Females

Puyallup School District
302 2nd Street SE
Puyallup, WA 98371

Revised content created by 2020 Elementary Human Growth and Development Committee
Danielle Townsend, LPN and Kim Greger, BSN, RN
Teachers: Janine DeLeon, Christina Herrick, Tamera Marcoe, Kris Njos.
Administrators: Abigail Chandler, Patrick McGregor, Jim Meyerhoff

Original version created by the 1993 Growth and Development Curriculum Committee
Trish DeGroot, Mike Kane, Patti Nance, Debbie Rouse, Marge Salmon, Denise Vanaman.
Department of Health Services
Audrie Shagren, M.S., R.N., Supervisor
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Have you ever thought about how your body will grow and change into an adult?

This change is something everyone goes through, males and females alike, and is called **puberty**.

This booklet will explain puberty for males and females, explain the changes you and your classmates will face and hopefully answer a lot of questions.

Let's get started!

Changes in Males

Puberty begins when the glands in your brain (**hypothalamus** and **pituitary**) signal the **testicles** to start producing a hormone called **testosterone.** This hormone is responsible for important changes that take place in your body. Testosterone production can start as early as age 8, or as late as age 15. If you remember from previous books, there is no "right" or "wrong" time to go through puberty. EVERYONE goes through it. Even though you may be feeling as though you are the only one who's body is changing, remember that every single adult that you see has gone through this change. You will be just fine.



As testosterone levels increase in a male's body, the physical changes become much more obvious. Here are the major changes you will see:

- You will grow in height and your shoulders will broaden.
- Your penis will grow in length and width.
- Your testicles will grow and begin producing **sperm**.
- You will notice body hair growing in your pubic area, chest, legs, arms, armpits and face.
- Your voice will deepen.

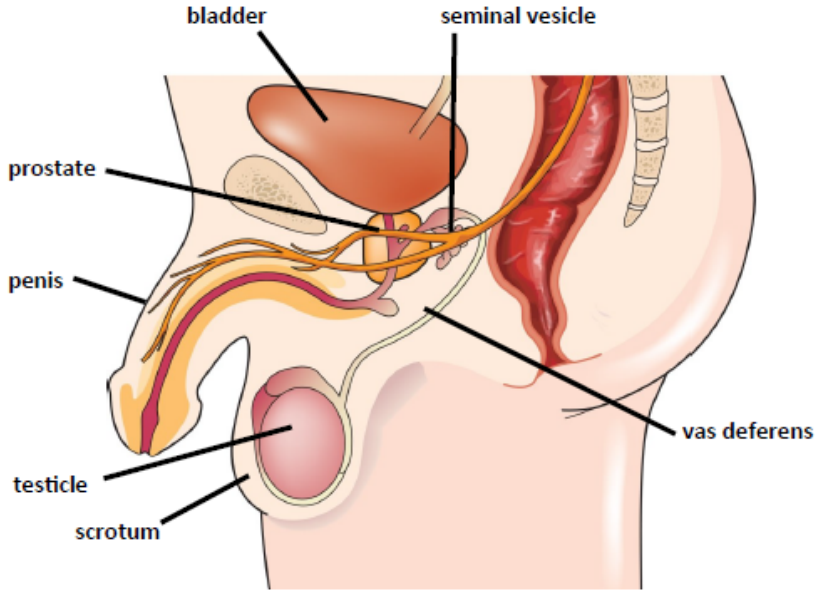
The Male Reproductive System

Males have both internal and external reproductive **organs**.

You may think the **penis** is the only reproductive organ. While this is the most visible, it doesn't have the biggest job when it comes to reproduction. More on that later.

Your penis is in the front of your body, at the base of your abdomen. Penises are either circumcised or uncircumcised. When you are born, you are uncircumcised. This means that you have **foreskin** (a soft fold of skin around the tip of the penis). **Circumcision** is a surgical procedure (generally performed on newborns) when the foreskin is removed. Circumcision is done for a variety of reasons and is a decision that is usually made by the parents around the time of birth.

Male Reproductive System



Here is the "more on that later" part mentioned earlier.

Behind the penis is a pouch of skin called the **scrotum.** Inside the scrotum are the testicles. They are located outside of the body to help regulate temperature by keeping them slightly cooler than your

internal body temperature. Sperm cells are formed in the testicles and cannot grow in a place as warm as the inside of the body. Because of this, if it is warm outside, you may find your testicles hanging a bit lower than normal. If you are cold or in cooler weather, the muscles in the scrotum draw themselves closer to the body to help keep the testicles and forming sperm warm. It is normal to have one testicle hang slightly lower than the other.

The testicles are oval-shaped. When a male reaches puberty, they begin two very special jobs. One of these jobs is to produce **hormones**, the other is to make sperm cells. After puberty begins, sperm cells are always forming in tiny tubes within the testicles.

The many tubes in each testicle come tighter to join one coiled tube. This tube connects into yet another tube called the **vas deferens.** Each vas deferens is about 24 inches long if you were you stretch it out. That's two feet! The vas deferens tube curves under the bladder and connects with a single tube, the **urethra**. The urethra extends from the bladder, down through the penis. This is where your urine comes out.

Most of the time, the penis is limp or soft. When the hormone testosterone starts increasing, you will experience erections. An **erection** is when the blood vessels in the penis get larger and more blood enters them. This causes your penis to stiffen and harden. Involuntary erections happen for no apparent reason and are completely normal. They will appear without warning and you have no control over this. You will get erections at awkward times and you can't control them. These sporadic erections won't last forever.

Before sperm cells can leave the body, they must mix with certain fluids. These fluids are made by the **seminal vesicles** and the **prostate gland**. Each vas deferens tightens and squeezes, moving sperm toward the urethra. It will then mix with the seminal vesicle and prostate fluids and become **semen**. Semen passes through the urethra and leaves the penis in a process called **ejaculation**. The penis must be erect for ejaculation to occur, however ejaculation does not occur with every erection.

You may have heard the term "wet dreams". The medical term for this is **nocturnal emissions**. This happens when you ejaculate in your sleep without knowing. Ejaculate is the sperm/semen combo that will come out of your urethra. You may find wet semen in your pajamas or sheets when you wake up. Wet dreams happen to the majority of males going through puberty. You may feel embarrassed, but they are perfectly normal.

YOU WILL NOT EJACULATE AND PEE AT THE SAME TIME. IT PHYSICALLY CANNOT HAPPEN. So don't worry yourself about having pee mixed with semen. You also will not ejaculate every time you have an erection and they aren't as noticeable as they might feel they are.

Changes in Females

Puberty begins when your body starts making hormones that cause your body to change. The main hormone for females is **Estrogen**. Estrogen is responsible for many changes that take place in your body. Females can go through puberty at different ages, generally between 9 – 14 years of age. Everyone's timeline is different. There is no "right" or "wrong" time to go through puberty. EVERYONE goes through it. Even though you may be feeling as though you are the only one whose body is changing, remember that every single adult that you see has gone through this change. You will be just fine.



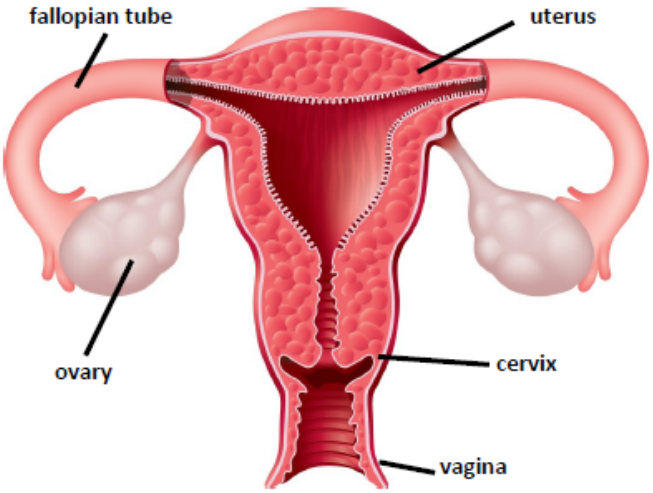
Usually the first noticeable change is a growth spurt. Generally, females grow taller and faster than males. Some females grow as much as four inches in one year!

Physical changes you may notice are:

- Hips and other parts of the body may develop a rounder shape as body fat increases.
- Breast changes that include:
    - The tissue under the nipple rises. This is called a "breast bud". Not a "bud" like a friend, but a "bud" like a flower.
    - The breast and areola (the ring of darker skin around the nipple) starts to grow.
    - Breasts will enlarge and take a rounded shape.
    - It usually takes about 4 years to have total breast development.
    - All girls will have different sizes and shapes of breasts, nipples and areolas. They are as unique as the hair on your head. Sometimes you may have one breast slightly larger than the other. This is completely normal.
- Hair will begin to grow in armpits, legs and in the pubic area.
- Vulva (the outside part of a female's genitalia) will begin to enlarge.
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The Female Reproductive System

Female Reproductive System



Like males, females have external and internal reproductive organs. While the female's external reproductive organs are harder to see than the male's, they are still there and it is important that you become familiar with your body.

Females are born with a urethra, **vagina** and **anus** that can all be seen externally. That's right, you have 3 holes "down there". The urethra is where your urine (pee) comes out. The **vagina** is a "tunnel" that leads to the internal organs - the **uterus, ovaries and** fallopian tubes. Next, we will explain the responsibility of each organ.

Ovaries

Generally, you have two ovaries, each the size of a walnut. When you are born, your ovaries are filled with **ova** or **egg** cells. Each ovary has a couple hundred thousand egg cells in it, but each egg is only the size of the point of a needle. About once a month, hormones cause one ovary to release an egg cell. This is called **ovulation**.

Fallopian Tubes

After the egg cell is released from the ovary, it travels to the fallopian tube. The fallopian tube has what looks like little "fingers" that sweep the egg cell into the tube. The egg can be fertilized by a sperm cell from a male while in the tube on its way to the uterus.

Uterus

The uterus is about the size and shape of an upside-down pear. It is an organ which holds the egg cell if it has been **fertilized**. When ovulation occurs, the internal lining of the uterus starts to thicken. If the egg is fertilized, it will implant itself into this thickened lining (**endometrium**) and this is where a baby will grow.

If the egg is unfertilized, the lining is not needed. This uterine lining then breaks down and becomes a reddish fluid that flows out of the body through the **vagina**. It takes about 3-7 days for this lining to completely shed. This process is called "**menstruating**" or "having your **period**". After your period has

ended, the process begins all over again. **Menstrual** blood can be bright red, dark red and sometimes even brown. If you have questions regarding the color of your period, talk with a trusted adult or your health care provider.

Vagina

The **vagina** is a muscular tunnel about 4-5 inches long. The entrance to the vagina is between the urethra (where your urine comes out) and the anus (where your poop comes out). The vagina connects the outside of the body with the uterus. The area where the uterus and vagina meet is called the cervix.

This is where your period blood will come from and when a baby is born, it is (usually) delivered through the vagina. Sometimes, you will have clear or whitish fluid coming from your vagina. This is called vaginal discharge and is completely normal. You may even notice that it happens right before your period. Let me say this again - vaginal discharge is completely normal. However, if you have a burning or itching sensation in your **genital** area OR if your discharge is a color other than white/clear OR if there is an odor associated with your discharge, you need to make sure to talk to a trusted adult and/or your health care provider.

What's it like having a period and when will I get mine?

Just as all females are growing and developing at different rates, they will get their first period at different times as well. Some females will start menstruating at age 9. Some won't start until they are in their teens. Every female has her own internal clock. Generally, your first period will come about 2 years after the first signs of breast development. Vaginal discharge can be a good indicator that your period is coming soon.

Most females have their periods about every 28 days. Some are as early as 22 days apart and some as late as 43 days. Don't be surprised if your periods don't come on a regular schedule for a while. It takes about two years for your body to get on a regular schedule.

Your period will last from 3-7 days. Again, this can vary from person to person. The flow is typically heavier at the beginning of your period than at the end. Some days it may seem like a lot of blood is coming from your vagina. Don't fret. The human body contains A LOT of blood and will replace the amount you lost. However, if you are completely soaking through a pad every two hours, this something that needs to be addressed with your health care provider.

Menstrual cramps can feel like a dull/heavy pain or a squeezing. "Cramps" are the uterus contracting (squeezing) to get the lining out of the body. You can have menstrual pain in your lower abdomen and back as well.

Fertilization

There are millions of sperm cells present, but only one is needed to fertilize the egg cell. Many of the sperm cells die on their way through the vagina and into the uterus. Sperm that don't die and reach the fallopian tube will surround an egg cell. If a sperm cell joins with the egg cell, then the egg cell becomes "fertilized". Sperm cells that fail to enter an egg cell will die.

The fertilized egg then travels toward the uterus. This trip takes about 3 days. While on the journey to the uterus, it divides over and over to make a tiny ball of cells.

Once in the uterus, the tiny ball of cells attaches to the lining of the uterus. The lining of the uterus provides a nice comfy spot of the egg cell to attach and get the nutrients it needs to become an embryo, then a fetus.

Sexual Intercourse

Sexual **intercourse** (for fertilization purposes listed in this pamphlet) is when an erect penis enters the vagina. Often times, ejaculation will occur into the vagina. This is how semen gets into the vagina and starts the journey to the egg cell. The sperm cells move through the cervix, into the uterus and up to the fallopian tube(s) where fertilization may occur.

Sexual intercourse should never be taken lightly. It is extremely intimate and a huge responsibility and should only occur between two consenting individuals. While your bodies are changing and maturing, that is not the only changes that are occurring. Over the next several years, you will mature and grow emotionally and mentally. It is extremely important that you are ready to take on the responsibility of intercourse in all three categories: physically, emotionally and mentally. If you have questions related to sex, please speak with a trusted adult and/or your health care provider. At this point in your life, **abstinence** (not having it) is the most responsible and healthy choice.

Keeping Clean

Once you start going through puberty, you will have to start taking care of your body differently. The glands in your body are becoming more active. You will learn you have **sweat glands** in places you never even knew you could sweat. Your armpit, genital area, feet and even between your butt cheeks. Sweat can cause a very unpleasant odor. In order to keep your body smelling good, you need to take a shower or bath every day. After you're fresh and clean, it's a good idea to use a deodorant or anti-perspirant (that's a fancy name for sweat) – Oh! And clean clothes – especially underwear and socks (remember all the places you sweat?)

Did you know that the health of your mouth can affect the rest of your body? Everything is connected. It is important to make sure you are brushing your teeth, gums and tongue twice a day. Don't forget to floss, too. This will help keep your breath fresh and your body healthy.

Skin Changes

Another fun part of puberty? The **acne**! (Just kidding – it's not fun at all) Your changing body and hormones will cause you to get acne (also known as zits or **pimples**). There is no way to avoid getting acne, but washing your face twice a day with a mild cleanser will help to keep the acne from getting out of control. If this isn't working, talk with a trusted adult about other options and possibly

see your health care provider. Acne can also occur on your back and chest.

You have glands in your scalp as well. These glands also work hard during puberty. This can give your hair a greasy, dull look. You may also develop dandruff (dry scalp). There are shampoos that can help with this. Talk to a trusted adult or your health care provider you notice excessive dandruff.

Did you know that the health of your mouth can affect the rest of your body? Everything is connected. It is important to make sure you are brushing your teeth, gums and tongue twice a day. Don't forget to floss, too. This will help keep your breath fresh and your body healthy.

Nutrition

Eating a well-balanced diet is important no matter your age. During puberty it is especially important to make healthy choices.

Some weight gain during puberty is totally normal. Not only are you growing taller, but the shape of your body is changing, too. Your weight is a non-issue unless you are substantially overweight. Then, you should talk to your health care provider.



A reminder about the concept of 5-2-1-0, which stands for:

- **5** servings of fruits/vegetables a day.
- Limit our screen time to **2** hours a day.
- Get **1** hour of physical activity a day.
- Aim for **0** sugary beverages a day. If you need something besides water, try adding fruit to your water.

Exercise

Keep moving! Always keep moving! Exercise gives you more stamina and flexibility and strengthens your heart, lungs and bones! Triple whammy!

There are LOTS of options for exercise, not just team sports.

- Running
- Swimming
- Jumping Rope
- Dancing
- Roller-skating
- Speed Walking
- Bicycling
- Skiing
- Ice Skating
- Climbing (stairs, rock walls, you get the idea)
- Many more activities will keep you moving.



GLOSSARY

Abstinence (AB-sti-nens) – Choosing not to take part in a behavior or activity.

Acne (Ak-nee) – A condition in which there are pimples on the skin.

Anus (Ay-nus) – The opening of the rectum through which solid waste (poop) is passed out of the body.

Cervix (SER-vix) – The lower section of the uterus that protrudes into the vagina.

Circumcision (SIR-come-si-zhun) – An operation to remove the foreskin (a soft fold of skin around the tip of the penis)

Egg – Also called an ovum, it's the female reproductive cell.

Ejaculation (ee-JACK-you-lay-shun) – The release of sperm containing semen from the penis.

Endometrium (en-doh-MEE-tree-um) – The soft, spongy lining of the uterus.

Erection (ee-RECK-shun) – The stiffening of the penis when blood fills the tissue inside.

Estrogen (Es-troh-jen) – Female hormone produced in the ovaries that is responsible for many changes that take place during puberty.

Fallopian tubes (fal-LOH-pee-un) – Two tubes connecting the ovaries to the uterus through which the egg travels.

Fertilization (fur-till-ih-ZAY-shun) – The joining of a female egg and a male sperm to form an embryo.

Genitals (JEN-ih-talz) – The external reproductive organs.

Hormones (HOR-moans) – Chemical substances (produced by organs called glands) that regulate the growth and activity of body tissues and organs.

Menstrual cycle (MEN-stroo-al SIGH-cul) – The process of ovulation and menstruation that occurs approximately once a month beginning at puberty.

Menstruation (men0stroo-A-shun) – The period during which the uterine lining (the endometrium) passes out of the body through the vagina.

Nocturnal emission (nok-TUR-nal ee-MISH-un) – Also called a wet dream. Ejaculation that occurs while you are asleep.

Oil Glands – The glands in the skin that produce oil; if clogged, pimples can result.

Organ – A part of your body assigned to perform a certain function.

Ovaries (OH-var-reez) – Two glands, one on either side of the uterus, that contain a female's egg cells and produce the hormones estrogen and progesterone.

Ovulation (ah-view-LAY-shun) – The moment at which an egg is released from an ovary.

Penis (PEE-niss) – External male reproductive organ.

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Period – The time when a female is menstruating.

Perspiration – Water secreted by the sweat glands because of hot weather, exercise or excitement. Also known as sweat.

Pimples - Oil gland ducts that have become clogged with dirt, bacteria and oil.

Pituitary gland (phi-Too-ih-terry) – The gland at the base of the brain which is responsible for producing hormones that regulate growth and development at puberty.

Prostate gland (PRAH-state) – Gland next to the bottom of the bladder; it forms a fluid that combines with sperm and seminal vesicle fluid to make semen.

Puberty (PEW-ber-tee) – The states of life during which human males and females become capable of reproduction.

Pubic area (PEW-bik) – The area where the legs join the body and pubic hair appears.

Scrotum (SKROH-tum) – The sack of skin under the penis that holds the testicles.

Semen (SEA-men) – Also called seminal fluid, it's a white, milky liquid that carries sperm out of the penis during ejaculation.

Seminal Vesicles (SEM-in-nal VEH-si-cahls) – Area that creates a fluid that combines with sperm and prostate fluid to make sperm.

Sperm – The male reproductive cells.

Sweat Glands – Glands that secrete water that contains body wastes.

Testicles (TES-tih-culs) – Also called Testes. Two oval shaped organs contained in the scrotum.

Testosterone (tes-TAH-stuh-rone) – The male hormone produced in the testicles, that causes many of the changes that take place during puberty.

Urethra (you-REE-thrah) – The tube that carries urine from the bladder out of the body. Semen also exits the body through the urethra.

Uterus (YOU-ter-us) – Muscular organ lined with endometrium.

Vagina (va-JEYE-na) – The flexible passageway leading the cervix to the outside of the body, through which menstrual fluid flows.

Vas Deferens (vas DEF-a-renz) – Tubes in which sperm is combined with other fluids to make semen.

Vulva (VUL-va) – Female external genital area.