

◆ Background Information for the Facilitator ◆

The Pituitary Gland and Hormones

In both boys and girls, puberty starts with the release of hormones from the **pituitary gland** — a pea-shaped gland located in the brain. **Hormones** are chemical messengers that allow different parts of the body to communicate with each other. In girls, the pituitary gland sends a message to the ovaries to start releasing another hormone called **estrogen**. In boys, the pituitary gland sends a message to the testicles to start producing the hormone called **testosterone**. These hormones are responsible for many of the changes associated with puberty.

Ovulation and Menstruation

In girls, hormones released from the pituitary send a message to the **ovaries** — two grape-sized organs located in the lower pelvic region of the woman. The ovaries in turn begin to release estrogen, which in turn leads to the release of **ova or eggs** — the female reproductive cell. This process is called **ovulation** and occurs about once a month. Baby girls are actually born with all the eggs they will need in a lifetime. However, it is not until puberty that these eggs become mature and are released from the ovary.

Once ovulation occurs, the egg is caught by the **fallopian tube** which helps to move the egg down to the uterus. The **uterus or womb** is a pear-shaped muscular organ where a fertilized egg can develop into a **fetus**. (The fetus actually grows in a mother's uterus, not her stomach!)

During the month, the **endometrium lining** inside the uterus is thickening. If an egg cell is **fertilized** by a man's sperm cell, it implants itself in this nourishing lining in the uterus. The fertilized egg would take about 40 weeks to develop into a baby. However, most of the time the egg will not be fertilized, the thick lining will not be needed, and the lining will slough off the sides of the uterus and out of the body through the **cervix** (mouth of uterus leading to the vagina) and then the **vagina**. This process is called **menstruation**.

Menstruation lasts somewhere between 3-7 days. The blood that is lost during menstruation is caught with a **tampon** or a **sanitary napkin**. (The facilitator may want to have samples of these items to show youth (or parents) and explain exactly how they work.)

Some girls and women may experience **PMS** — **pre-menstrual syndrome**. Some of the symptoms of PMS include cramping, backache, and bloating. These symptoms can be relieved by limiting salt intake, drinking plenty of water, getting light exercise (stretching, yoga, brisk walk), applying heat through a hot water bottle or heating pad, or taking a pain reliever. (Youth should be encouraged to ask their parents before taking any medicine.)

Ejaculation

In boys, the pituitary gland sends a message to the **testicles** to start releasing more **testosterone**. In turn, the testicles begin to produce **sperm** — the male reproductive cell. The testicles, two

walnut-sized glands, are protected by a sac called the **scrotum**. The scrotum helps to regulate the temperature of the testicles. Testicles need to be kept slightly cooler than the rest of the body. Sperm from the testicles move to the **epididymis** where they mature. In an **ejaculation**, sperm from the epididymis moves through the **vas deferens** to collect **semen** — a whitish-yellow fluid that nourishes the sperm. Semen is a combination of fluid produced from three glands — the **prostate**, the **seminal vesicles**, and the **Cowper's glands**. Sperm makes up about 1% of the ejaculatory fluid; the rest of the fluid is semen. In each ejaculation there are about 250 million sperm!

For ejaculation to occur, the **penis** must be **erect**. A penis can become erect in reaction to cold or urge to urinate, during sleep cycles, and from sexually arousing thoughts or images. During puberty, erections can occur for no particular reason and without warning. Inside the penis are three large vesicles that engorge with blood during sexual excitement. The penis becomes hard or erect because of the rush of blood that fills the penis. The semen is ejaculated through the **urethra** — the same tube that allows for **urination**. A male cannot ejaculate and urinate at the same time. Nature devised a special valve that shuts off the possibility of urination during ejaculation.

During puberty, it is not unusual for a boy to experience a **wet dream** — an involuntary release of semen that occurs while a boy is sleeping.

Fertilization

Fertilization occurs when the sperm meets the egg. Usually this occurs during **sexual intercourse** when the penis is inserted inside the vagina and an ejaculation occurs. This is called sexual intercourse. The consequences of sexual intercourse can be very big! An individual should not have sexual intercourse unless she/he is emotionally, physically, mentally, and financially ready.

Sperm swim through the vagina and uterus to find an egg in the fallopian tube. Sperm can live about 3-5 days inside a woman's reproductive system. So, if the egg is not present at that particular moment, the sperm may be able to fertilize an egg released in the following days.

An egg is fertilized in the fallopian tube. Within a few days, it attaches itself to the thickened lining of the uterus. It takes about 40 weeks for the fertilized egg to become a fully developed baby.

A Note on Circumcision

Circumcision is the name of the surgical procedure that removes the loose skin (**foreskin**) that covers the tip of the penis. Circumcision is usually done at birth. Circumcision is done because of custom, religious reasons, or for the ease of cleaning. Boys with uncircumcised penises should clean the tip of the penis by pulling back the loose skin and washing while in the shower or taking a bath.

Physical Changes During Puberty Include:

Girls and Boys	Girls	Boys
<p>Reproductive hormones become more active Hormone production from pituitary gland in the brain starts the puberty process — estrogen produced by ovaries and testosterone produced by testicles).</p>	<p>Growth of breasts Preparing for child birth. Breasts may not be symmetrical; this is normal.</p>	<p>Growth of genitals Testicles, penis</p>
<p>Reproduction becomes possible Eggs are matured and released by ovaries; sperm is produced in testicles.</p>	<p>Darkening of nipples</p>	<p>Production of sperm (See Background Information for the Facilitator.)</p>
<p>Growth spurt Height and weight</p>	<p>Rounder and broader hips Preparing for child bearing.</p>	<p>Ejaculation becomes possible (See Background Information for the Facilitator.)</p>
<p>Increased growth of hair Pubic, legs, arms, armpits</p>	<p>Ovulation and Menstruation (See Background Information for the Facilitator.)</p>	<p>Wet dreams (See Background Information for the Facilitator.)</p>
<p>Change in underarm smell Increase in perspiration allows for a good bacteria growing environment, which causes an odor.</p>		<p>More Erections (See Background Information for the Facilitator.)</p>
<p>Acne Due to changes in hormones and increase in oil production from glands in skin; rarely due to diet.</p>		<p>Broadening of shoulders</p>
		<p>Deepening of voice (Girls' voices actually deepen too, but not as dramatically as boys.)</p>

Emotional Changes During Puberty Include:

- Increased attention to physical appearance
- Interest in romantic love; possibility of feeling a “crush” for someone
- Increased need for independence
- Curiosity about bodies and how they work
- Masturbation
- Unpredictable changes in mood
- Desire to be accepted, liked by peer group

Changes That Occur During Puberty & How to Deal with Them

Change	What You Can Do
Acne	<ul style="list-style-type: none"> • Eat a balanced diet. • Get some exercise every day. • Drink plenty of water (6-8 glasses a day). • Ask your parent to help you choose an over-the-counter acne soap or medication. • See your doctor for advice.
Underarm Odor	<ul style="list-style-type: none"> • Bathe regularly. • Change your clothes regularly. • Ask your doctor or parent to help you chose an antiperspirant deodorant.
Growing Breasts	<ul style="list-style-type: none"> • Some girls find it more comfortable to wear a bra as their breasts get bigger. Ask your parent to help you choose one that is right for you.
Period	<ul style="list-style-type: none"> • Be prepared with a pad or tampon wherever you think you'll need one. Keep one in your backpack or purse if you think you may get your period while at school.
Pre-Menstrual Syndrome or PMS	<ul style="list-style-type: none"> • Do some gentle exercise like walking or stretching which helps to relieve muscle cramps. • Drink plenty of water (6-8 glasses a day). • Avoid salty foods (i.e., potato chips) and foods with caffeine (i.e., coffee, chocolate) before you get your period. • Use a hot water bottle or heating pad to help relieve muscle aches. • Take a warm bath. • Ask your parent for advice on taking a pain reliever.
Erections	<ul style="list-style-type: none"> • Sometimes erections can be unpredictable during puberty. Erections may or may not be connected to sexual thoughts. Remember, your body is getting used to all the new hormones in your body. This is all normal. • You may think everyone can notice, but it's more likely that they cannot. • Erections can go away pretty quickly on their own. • Most of your peers are experiencing the same thing. • Talking about your feelings to a friend, older brother, or parent may make you feel better.
Wet Dreams	<ul style="list-style-type: none"> • Wet dreams are normal during puberty and even during adulthood. • If it makes you feel better, you can tell your parents that you prefer to change and wash your own bed sheets. • Most of your peers are experiencing the same thing. • Talking about your feelings to a friend, older brother, or parent may make you feel better.

Puberty Changes (continued)

Change	What You Can Do
Increased Attention to Physical Appearance	<ul style="list-style-type: none"> • Part of looking good is being healthy and clean and feeling strong. Eat a balanced diet, get regular exercise and bathe (and wash your hair) regularly. • Ask your parent to help you buy some fashionable clothing that you will feel comfortable wearing.
Interest in Romantic Love	<ul style="list-style-type: none"> • Romantic interest in the opposite or same sex is normal. These feelings are new for young adults going through puberty and can sometimes feel exciting, but also confusing. This is all normal. • Most of your peers are experiencing the same thing. • Talking about your feelings to a friend, older brother, or parent may make you feel better.
Increased Need for Independence	<ul style="list-style-type: none"> • Parents or teachers may be nervous about your new independent role because they care about you and want to protect you. • You can gain their trust by taking small steps towards independence. • Demonstrating responsibility and honesty will help to establish trust, and your parents will be more likely to let you have more independence. • Having sex, using drugs and/or smoking DO NOT mean you are more independent or an adult.
Masturbation	<ul style="list-style-type: none"> • It's normal to masturbate; it's also normal not to masturbate. • Masturbation should be done in a private place.
Unpredictable Changes in Mood	<ul style="list-style-type: none"> • Unpredictable changes in mood are normal during puberty. • Talking about your feelings to a friend, older brother, or parent may make you feel better. • Find some ways that help you relax such as listening to music, spending some time alone, exercising, drawing, etc.
Desire to be Accepted and Liked by Your Peer Group	<ul style="list-style-type: none"> • Self-respect and self-esteem come from being true to your values and beliefs. • Be clear about what values are important to you. • Don't do something that feels uncomfortable just to fit in with a group. • Use assertive communication to tell your peers what you are willing and not willing to do. • Ask your parents for support.