



Reproductive Health

High School



Adolescence & Puberty

Adolescence

Transitional period of development

- Teen Years
- Puberty takes place



Puberty

Reproductive System starts to mature

- **Secondary Sexual Characteristics develop**
- **Reproduction is possible**



Other Changes That Happen During Puberty

Intellectual

- Able to see the complexity of an issue.
- Better at problem solving.
- Imagining consequences for your actions.

Emotional

- Experiences emotions strongly (and rapidly).
- Sometimes emotions seem to change for no reason.
- Common to compare yourself to others causing you to feel self-conscious.

Social

- Social experiences expand from beyond the family and close friends.
- Need to feel accepted by others but especially peers.
- Development of your identity.

Hormones

Chemicals released from glands that control functions in the body.



Sex Hormones

Estrogen

- Secreted from the Ovaries
- Females

Testosterone

- Secreted from the Testes
- Males

It is important to note that both males and females have estrogen and testosterone.



What Causes Sex Hormones to Release?

Hypothalamus

- Gland In the brain
- Releases a hormone called: ***Gonadotropin***

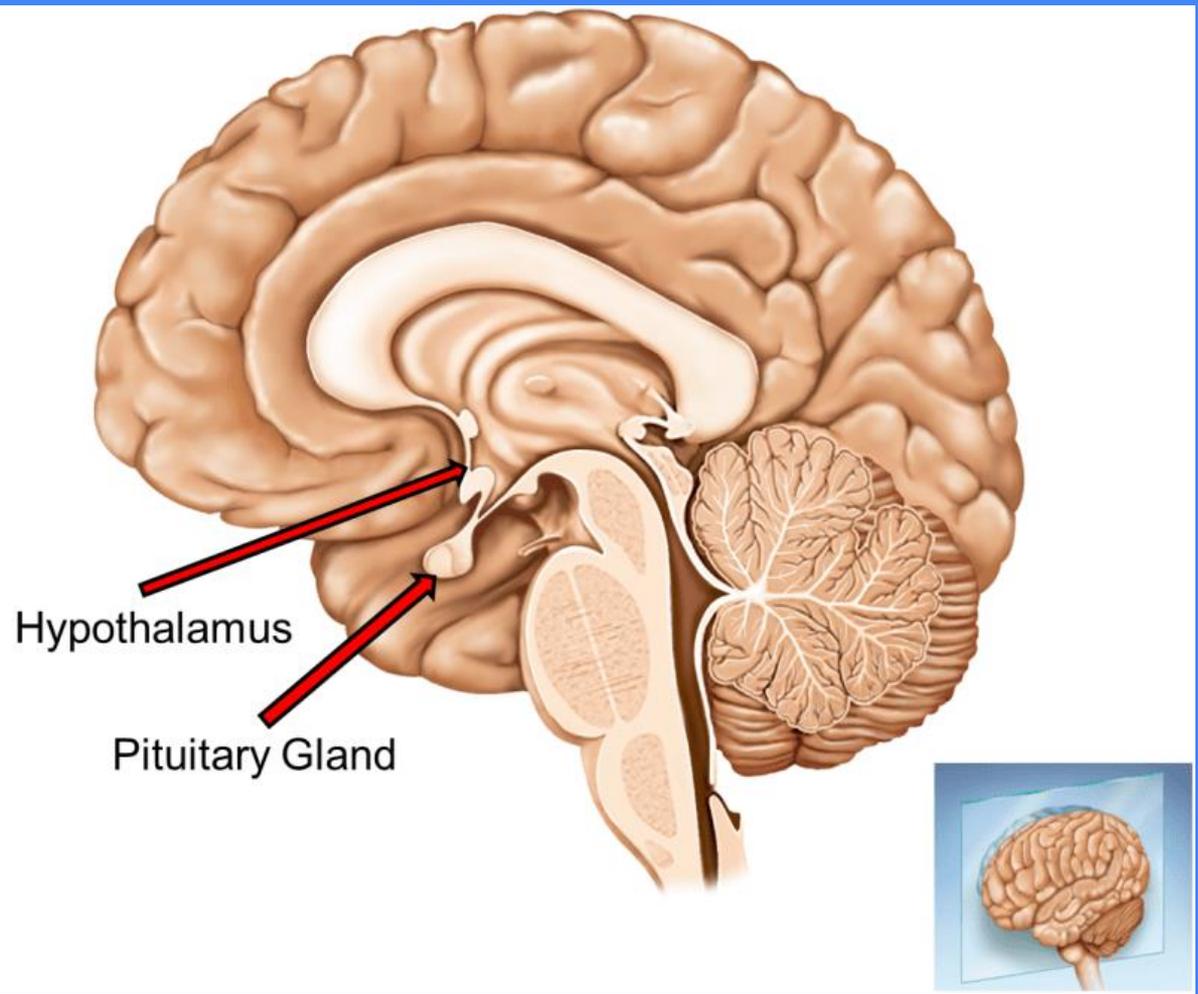
Pituitary Gland

- Also in the brain
- Affected by ***Gonadotropin***
- The hormone signals the pituitary gland to start releasing 2 other hormones.

Follicle-Stimulating Hormone
Luteinizing Hormone

Ovaries or Testes

- Those 2 hormones then tell the ovaries or testes to release estrogen/testosterone.



Hypothalamus

Pituitary Gland

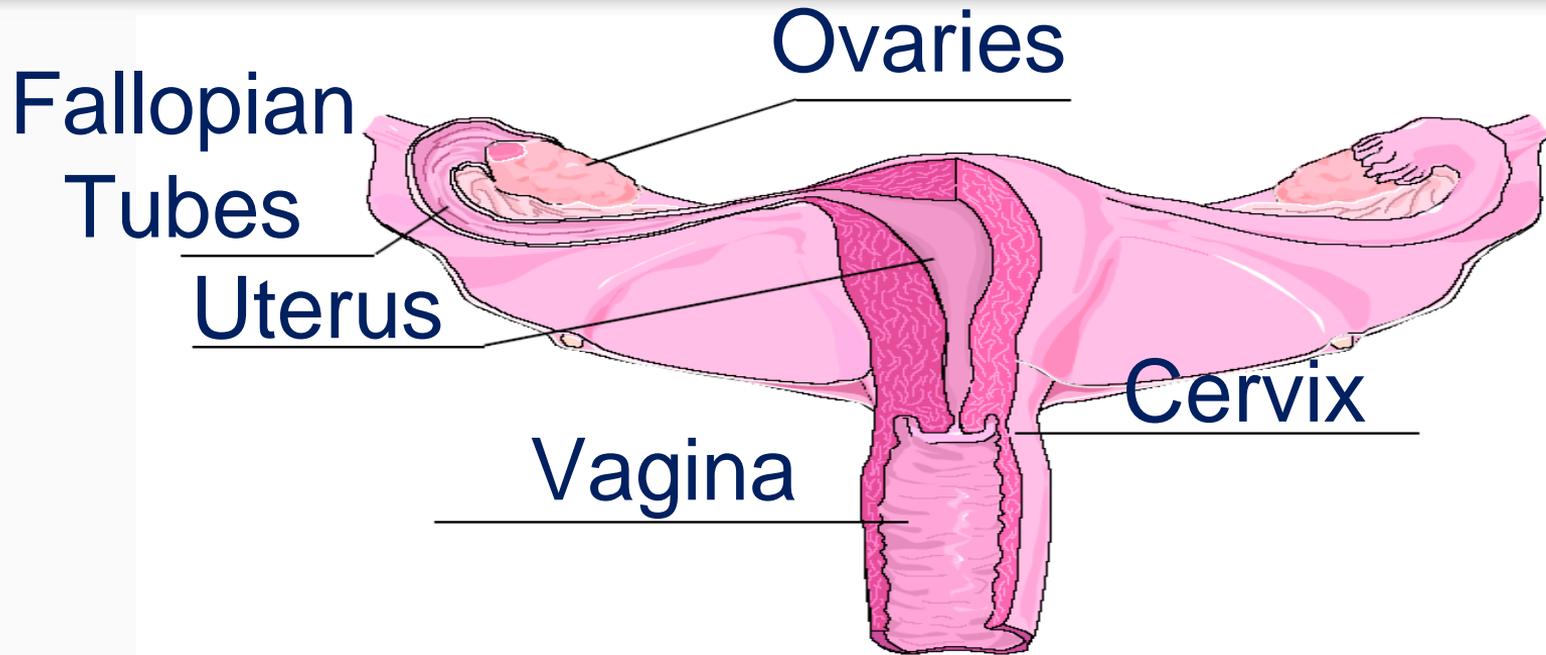
Secondary Sexual Characteristics: Female

- Wider Hips
- Increase in height
- Growth of pubic & underarm hair
- Increase in breast size
- Mature ova (eggs)
- Beginning of Menstruation

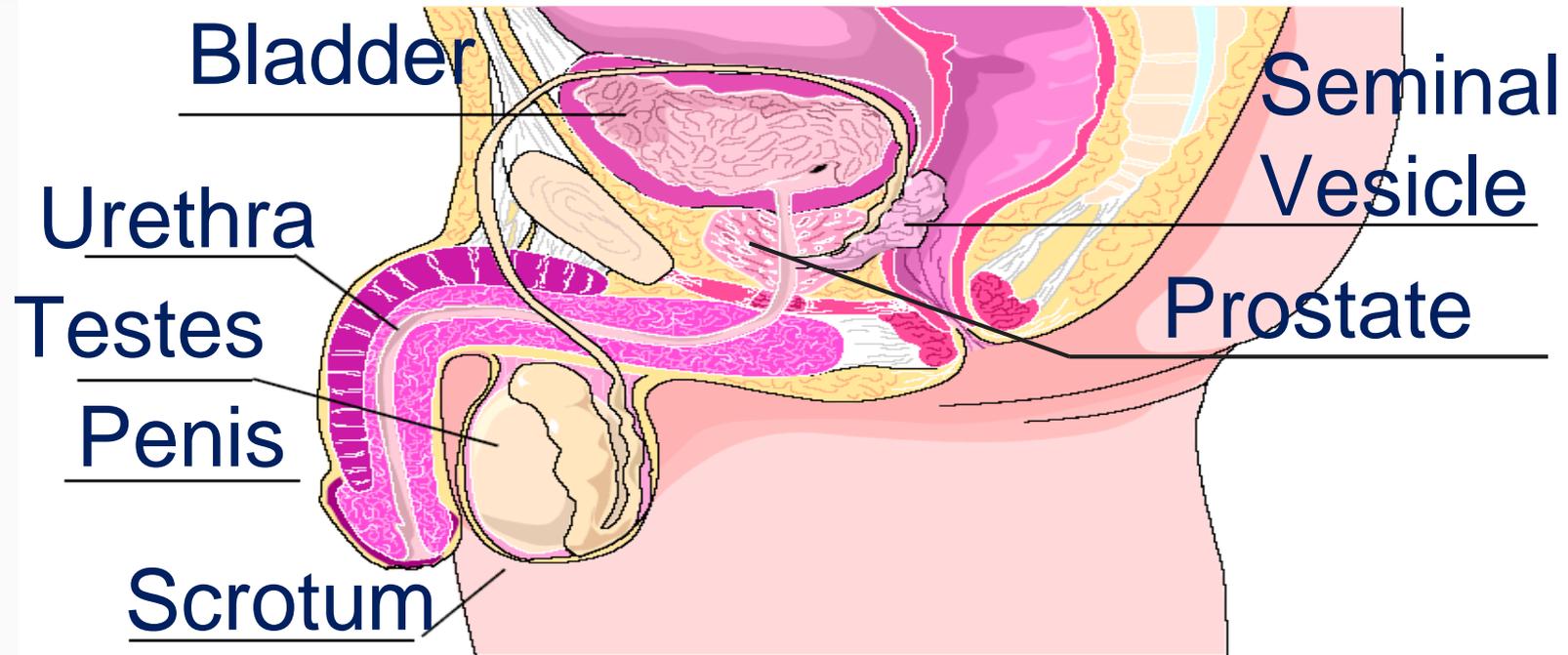
Secondary Sexual Characteristics: Male

- Increase in height
- Broader shoulders
- Deepened voice
- Growth of facial, pubic, & body hair
- Formation of sperm

Female Reproductive System



Male Reproductive System



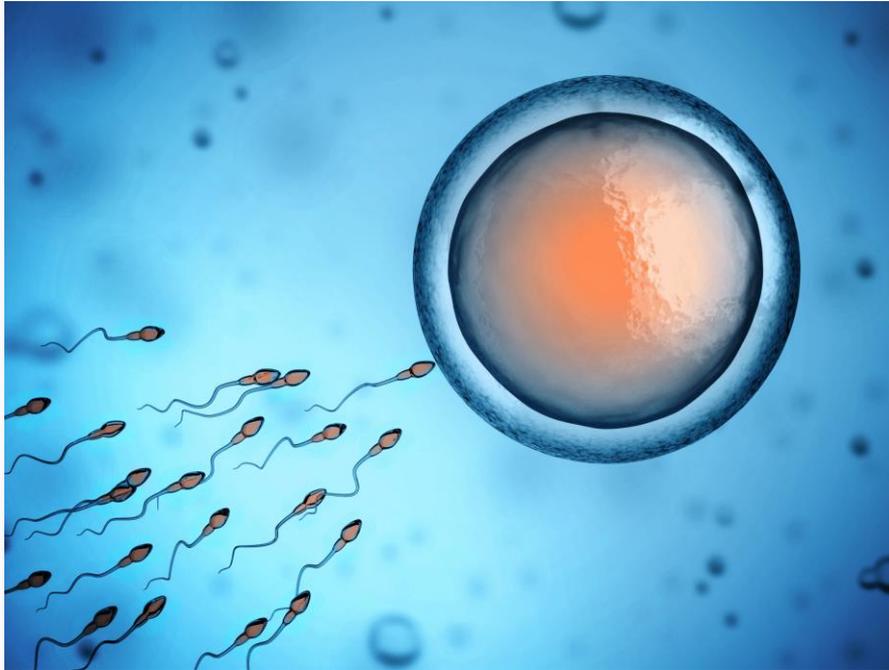
Menstrual Cycle

An important change during adolescence for a female, is the beginning of a monthly cycle to prepare the uterus to receive and nourish a possible fertilized egg. This monthly cycle is called the menstrual cycle. Approximately every **28** days, an egg is released from one of the **Ovaries** and begins to travel down the **fallopian tube**. The **Ovaries** alternate the release of eggs. One month, the left **ovary** releases an egg, and the next month, the right **ovary** takes its turn. The release of an egg from an ovary is referred to as **ovulation**. During this time, the **uterus** has been undergoing changes. The walls of the **uterus** fill with **blood** and become thicker. If the egg that travels through the **fallopian tube** becomes fertilized by a **Sperm cell**, then the egg will implant itself in the lining of the **uterus** and begin the process of development, which can lead to new life. If the egg isn't **fertilized**, it will break down and leave the body with the used **blood** and tissue that had collected in the **uterine** wall. The blood and tissue leave the body through the **vagina** over an average **5-7**-day period of time. This is called **menstruation**.

Conception, Pregnancy, & Birth



Fertilization

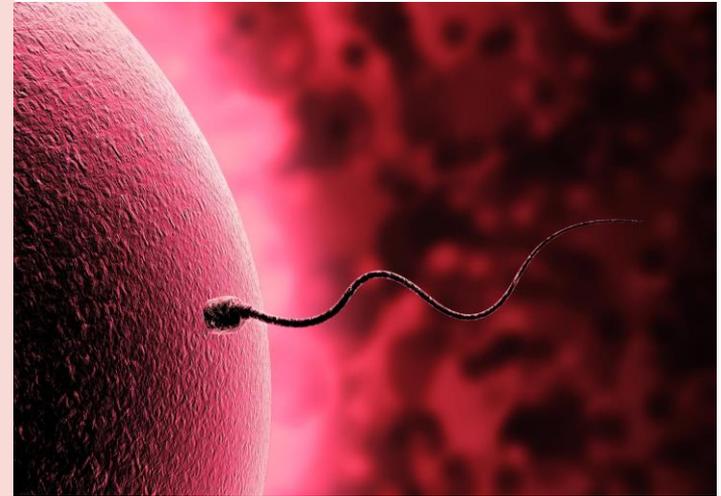


- The EGG and SPERM combine.
- Occurs in the Fallopian Tubes



How does **ONLY ONE** sperm cell enter the egg?

- The tip of the sperm cell breaks through the outer layers of the egg.
- When the **FIRST SPERM** connects with the egg's cell membrane, a chemical reaction occurs.
- This chemical reaction sweeps over the surface of the egg, forming a barrier to the other sperm cells.



TWINS

Fraternal

2 eggs are released & fertilized by different sperm cells.



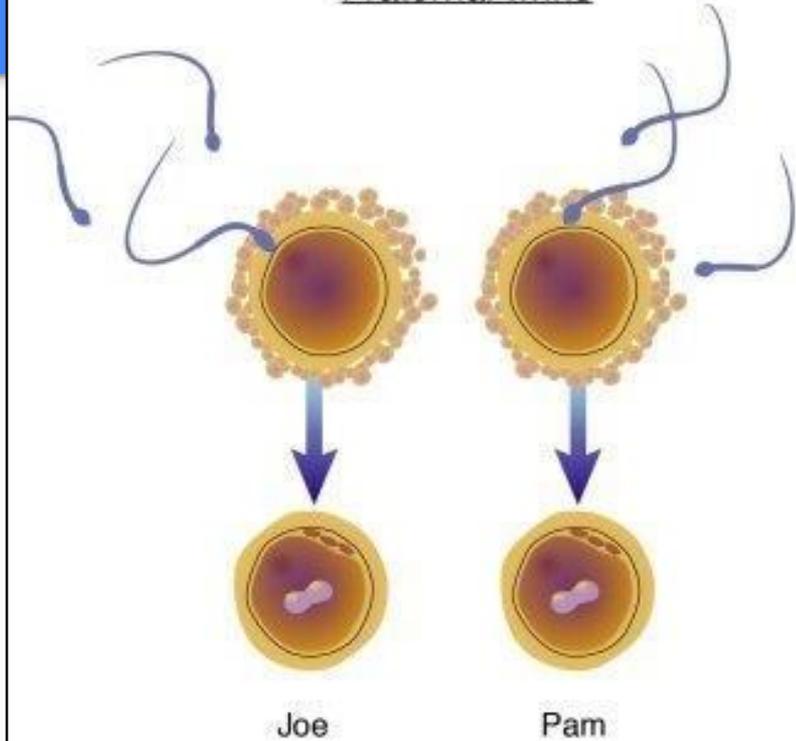
Identical

1 egg & 1 sperm that splits to develop 2 babies.

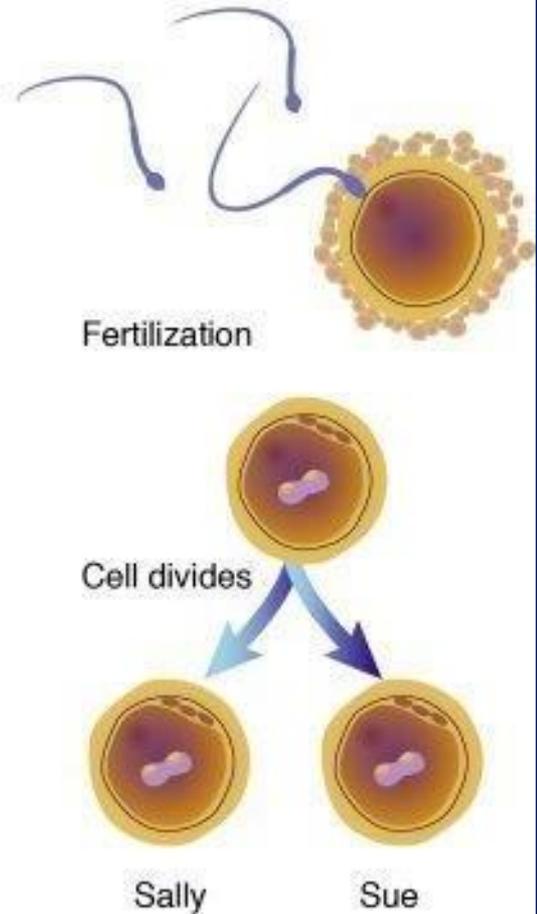


TWINS

Fraternal twins



Identical twins



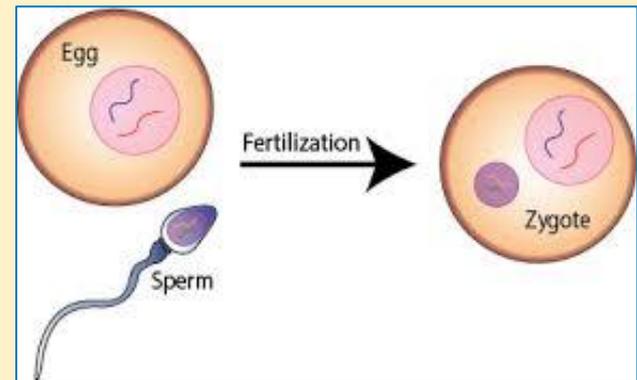
In- Vitro Fertilization (IVF)

Many couples experience *infertility*, the inability to conceive and carry a baby until birth.

- The doctor removes eggs from the female, mixes them with sperm cells, which fertilize some of them.
- Then the doctor inserts several fertilized eggs into the uterus.

Zygote

- SINGLE CELL
- The nucleus of the sperm and the nucleus of the egg fuse together on contact, which combine their chromosomes.
- The fertilized egg is a ZYGOTE.



Stages of Prenatal Development

Germinal Stage



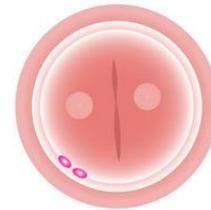
Embryonic Stage



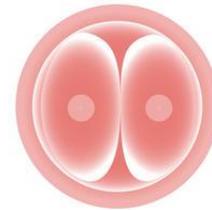
Fetal Stage

Germinal Stage

- First two weeks
- During this time, the zygote is going through a process called, **cleavage**, where it is dividing into multiple smaller cells.
- The ball of cells is called a **blastocyst**, which travels to the uterus.



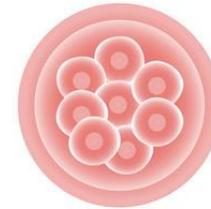
ZYGOTE



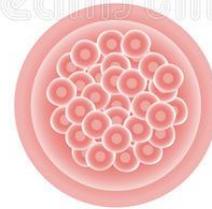
2 CELL STAGE



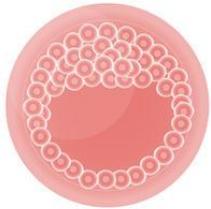
4 CELL STAGE



8 CELL STAGE



MORULA
(72 HOURS)

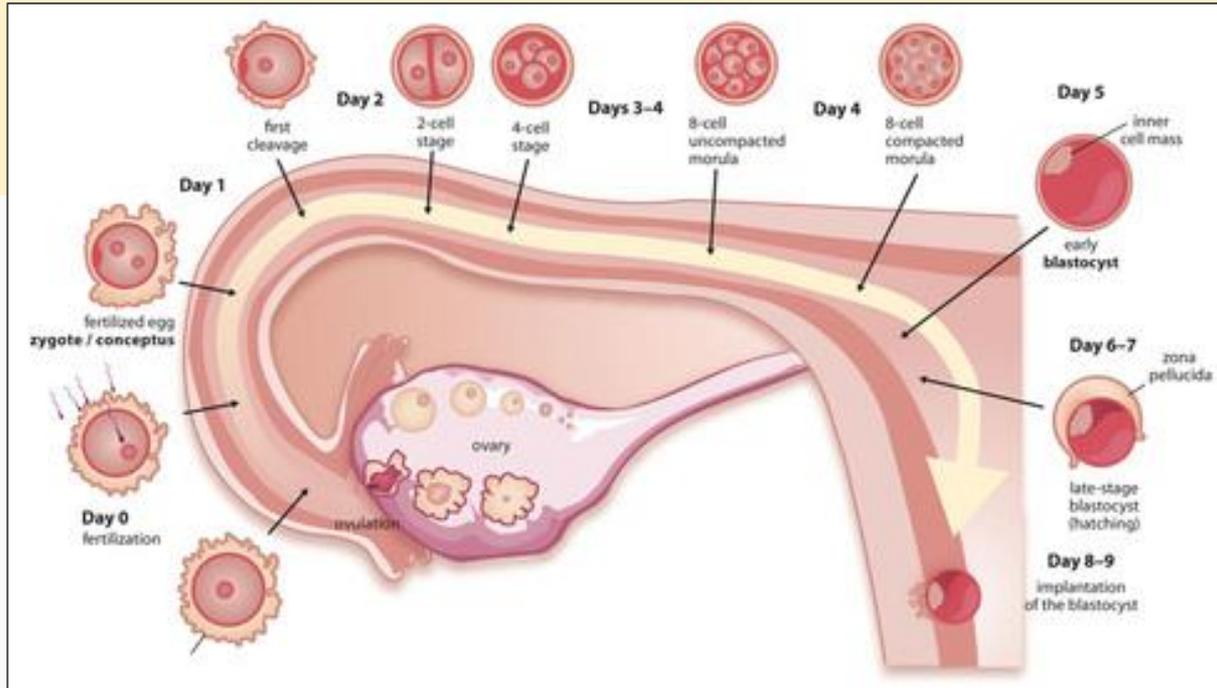


BLASTOCYST
(4 DAYS)

dreamstime.

Implantation

- The *blastocyst* implants itself into the lining of the uterus.
- The implanted mass of cells is an *embryo*.



Embryonic Stage

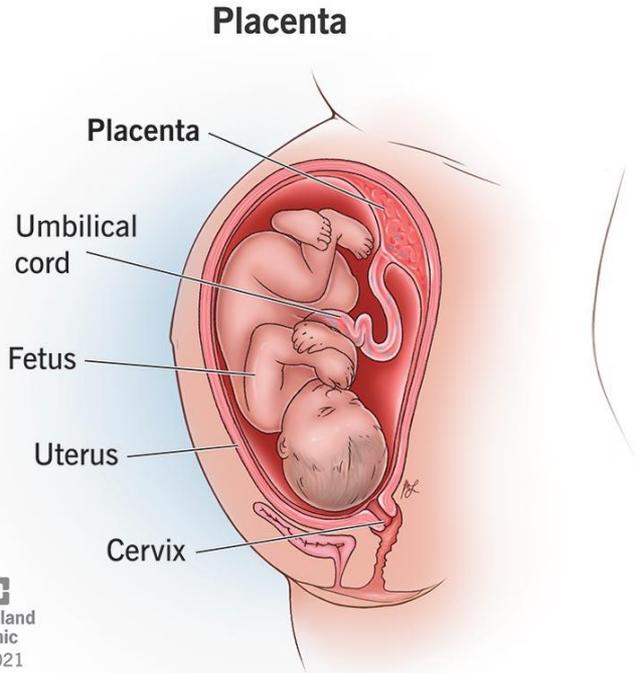
- Lasts about 6 weeks
- Critical point of development
 - **Organs & tissues**
 - **Amniotic sac-** fluid filled sac that cushions the baby in the uterus
 - **Placenta-** supports the development of the baby
 - **Umbilical Cord-** connects the placenta to the baby at the abdomen



Embryonic Stage- Amniotic Sac



Embryonic Stage- Placenta



- Removes waste
- Prevents bacteria from reaching the embryo
- Helps block harmful substances (NOT ALL!)
 - Drugs and alcohol are harmful to the development of the baby.

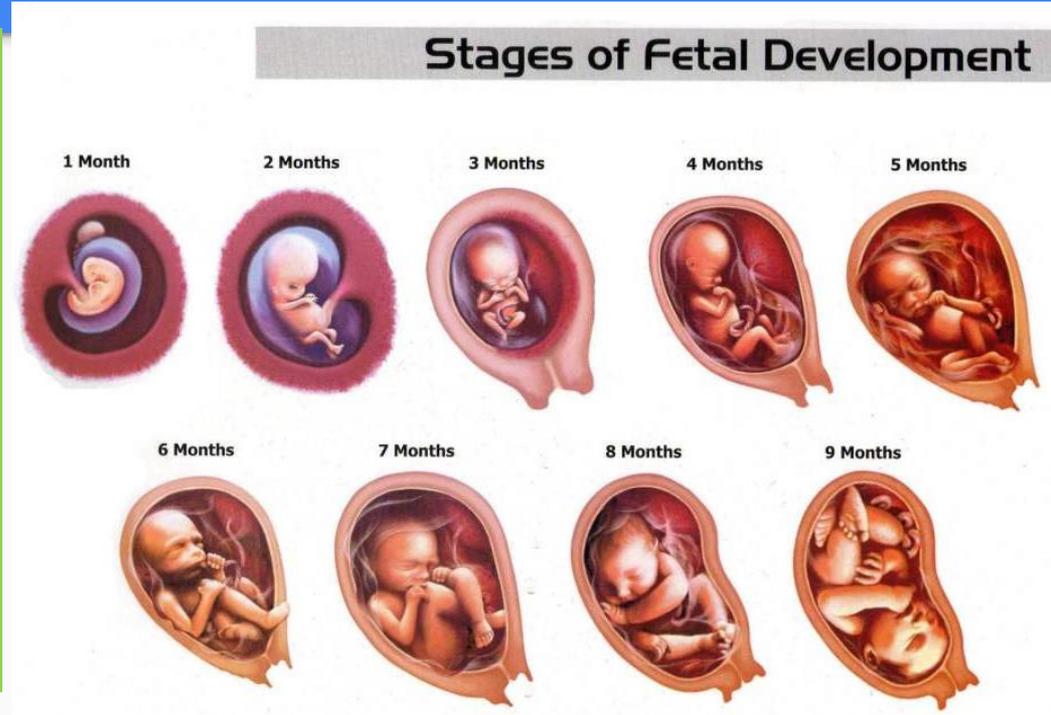
Embryonic Stage- Umbilical Cord

- The cord carries nutrients and oxygen from the mother to the embryo.



Fetal Stage

- Start of the 9th week
- Baby is referred to as a *fetus*
- Stage lasts until birth
- Rapid growth and development occurs.



Prenatal Care

- Care for the developing baby and pregnant mother.
 - Regular visits to the OB/GYN
 - Taking vitamins
 - Avoiding harmful substances such as drugs and alcohol
 - Avoiding foods and medications that are not safe for the baby.
 - Exercising



Trimesters of Pregnancy

Doctors measure pregnancy in weeks & divide the pregnancy into 3 stages called **trimesters**.

<u>First Trimester</u>	<u>Second Trimester</u>	<u>Third Trimester</u>
Fertilization- Week 13	Week 14- Week 26	Week 27- Delivery

Pregnancy Complications

Ectopic Pregnancy	<ul style="list-style-type: none">• Embryo attaches to the fallopian tubes instead of the uterus
Miscarriage	<ul style="list-style-type: none">• Pregnancy that ends before the 20th week• 10-15% of known pregnancies• Most common to occur before 12 weeks
Preeclampsia	<ul style="list-style-type: none">• High blood pressure during pregnancy• Can develop into <u>eclampsia</u>- life threatening emergency. Blood pressure rises quickly and seizures can occur.
Gestational Diabetes	<ul style="list-style-type: none">• Body isn't producing insulin during pregnancy• Usually corrects itself after delivery, but mother has an increased risk of developing type 2 diabetes in the future.
Premature Birth	<ul style="list-style-type: none">• Birth occurred more than 3 weeks before due date.• Low birthweight, underdeveloped organs, difficulty getting oxygen, etc.
Still Birth	<ul style="list-style-type: none">• Death of a baby after the 20th week, but before birth

Harmful Substances to Avoid While Pregnant:

Alcohol

- Damages brain development
- Fetal Alcohol Syndrome Disorders- physical & mental impairments

Nicotine

- Damages brain and lung development
- Linked to premature birth and stillbirth
- Increases the risks of Sudden Infant Death Syndrome (SIDS)

Drugs

- Miscarriage & premature birth
- Addiction
- Very serious medical conditions

Child Birth

Labor: process that pushes a baby out of the uterus through the birth canal.

- Hormones prepare the body for delivery
- **Contractions:** cause the cervix to thin, stretch, and open in a process called *dilation*

Delivery Options:

Vaginal Delivery

- Cervix dilates to 10cm
- Baby passes through the birth canal
- Less recovery for mother

Cesarean Section

- Surgery that cuts through the abdomen to get baby out of uterus.
- Longer recovery for mother



Abstinence

ABSTINENCE:

**The only 100% effective method
to prevent pregnancy and sexually
transmitted infections (STIs)**

Challenges of Abstinence

- **Pressure to become sexually active**
 - “Everyone is doing it”
 - This is not true. In reality, many teens are not having sex.
- **Fear of rejection from your partner**
 - Remember violating boundaries, feeling pressured, manipulation, and threats are signs of an unhealthy relationship.



Benefits of Sexual Abstinence

Benefits of Sexual Abstinence

Prevents STI transmission

- STIs can lead to infertility and life-threatening health conditions

Prevents pregnancy

- Unplanned teen pregnancy can interfere with young people's goals for the future and cause conflict and stress

Increases enjoyment of nonsexual activities

- Teens can enjoy dating relationships not complicated by sexual activity

Avoids emotional risks of sexual activity

- Teen sexual activity can lead to stress, anxiety, depression, and pain after a breakup

Leaves more time for personal development and other parts of life

- Teens can focus on personal growth and work toward future goals

Encourages emotional growth and maturity

- Teens have more time to mature and grow emotionally

Strategies for Practicing Abstinence

Discuss your Decision

Avoid Risky Situations

Practice Refusal Skills

Talk with a Trusted Adult



Sexually Transmitted Infections (STIs)



STIs

Caused by a virus, bacteria, or protozoa

- They live on the surfaces of the reproductive organs

Many STIs are ASYMPTOMATIC

- They don't show symptoms!



Harmful Effects of STIS

- Trigger inflammation in the body
 - Red, swelling, & painful
- Some can cause ***infertility***
- If left untreated, can damage the brain, heart, liver, and other organs.
- Some are ***incurable***
- Some cause cancer
- Some are fatal



When you are *not* sexually active, you are not exposed to risks for STIs.

When you engage in sexual activity, you expose yourself to the risk of STIs from your sexual partner...

any previous sexual partners of your partner...

previous sexual partners of those people...

and their previous sexual partners too.



STIs spread through sexual activity. More sexual partners mean more chances of being exposed to STIs.

Bacterial STIs

Chlamydia

Gonorrhea

Syphilis

Bacterial STIs can be cured with antibiotics....

If you know if you have it!

Chlamydia- Bacterial

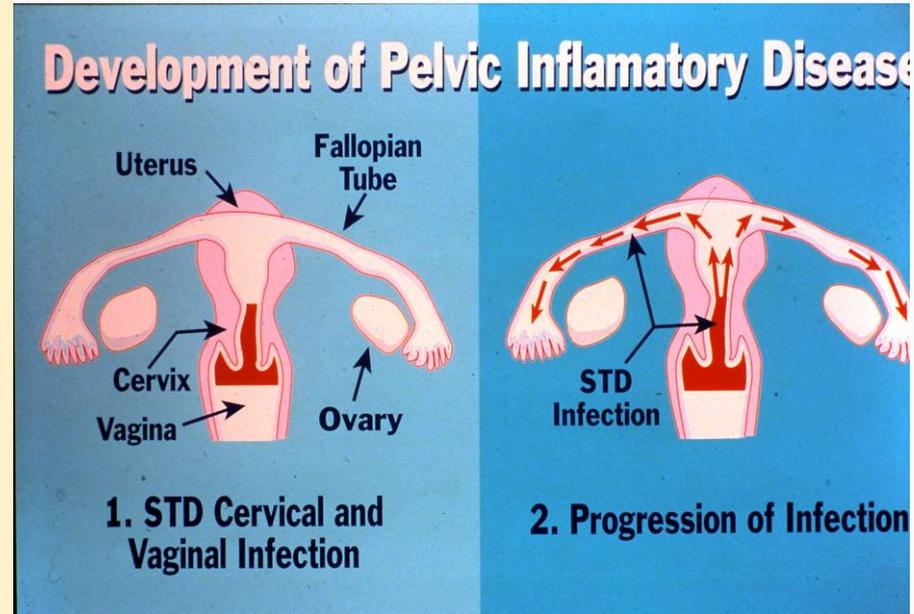
- CDC reports 3 million new cases every year
 - Mostly occurring between ages 15-24
- Referred to as the “silent disease”
 - Often asymptomatic
 - Numbers could be much higher than 3 million
- Can cause a female to become infertile
 - Pelvic Inflammatory Disease (PID)

Gonorrhoea- Bacterial

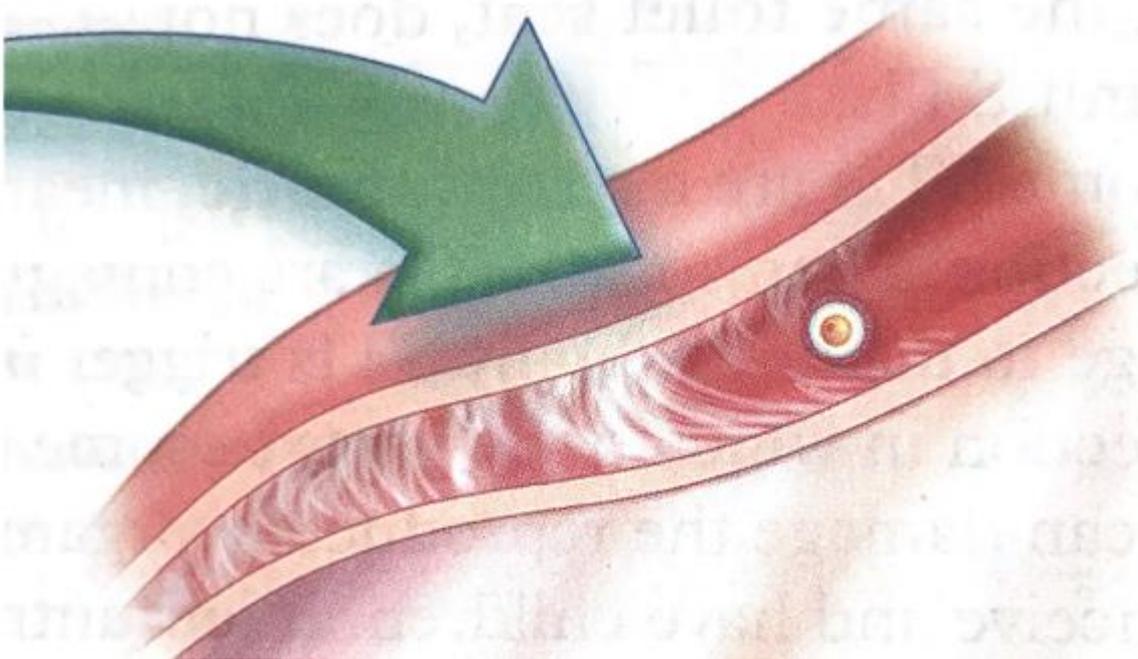
- 820,000 new cases every year
 - 70% ages 15-24
- Commonly **asymptomatic**
- Can infect the blood and spread throughout the body
 - Can be fatal
- Can cause a female to become **infertile**
 - **Pelvic Inflammatory Disease (PID)**

Pelvic Inflammatory Disease (PID)

- Chlamydia & Gonorrhea
 - 2 STIs very common to be asymptomatic
 - You don't know you have it and it is causing you to be infertile.
- Causes Infertility, if the bacteria spreads into the fallopian tubes:
 - Scarring builds in the tube (blockage)
 - Wipe out the cilia in the tube (which allows the egg to travel to the tube)

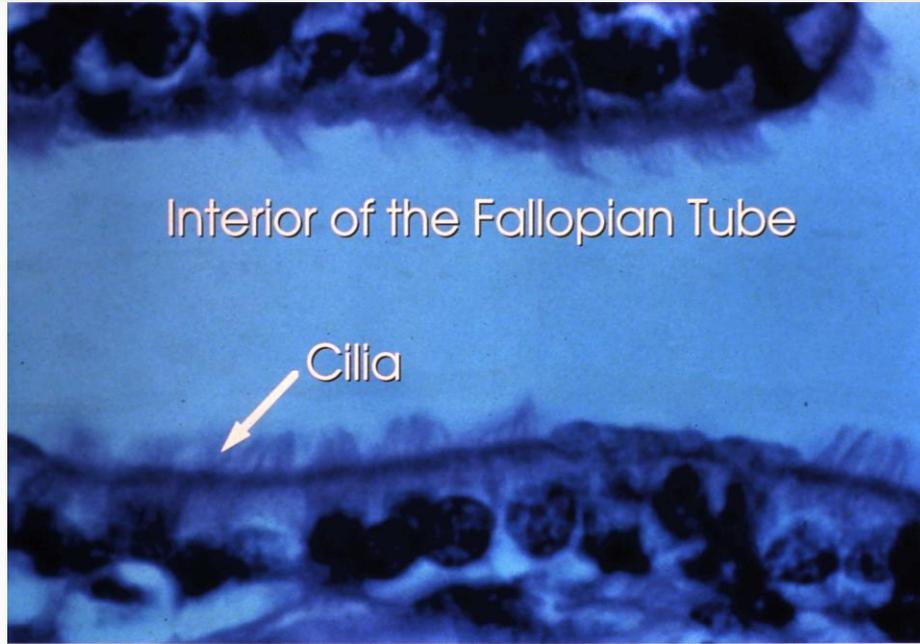


Pelvic Inflammatory Disease (PID)



- Scarring forms in the tube preventing fertilization.
- If the egg is fertilized, there is a huge risk for **ectopic pregnancy**

Pelvic Inflammatory Disease (PID)



Syphilis- Bacterial

- Fatal if untreated
- Threaten the life of a developing fetus
- Painful sores will form on the genitals, rectum , and mouth called **chancres**
- Late stage syphilis can cause dementia and paralysis

Trichomoniasis- Protozoan



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- CDC estimates 4 million have it in the US
- Most curable STI, but often *asymptomatic*, so people do not seek treatment
- If symptoms show: Itching, burning, discharge, and pain

Viral STIs

Herpes

HPV

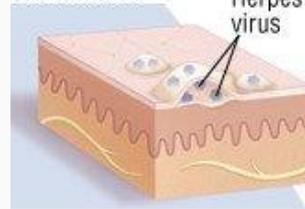
HIV

VIRAL STIs cannot be cured!

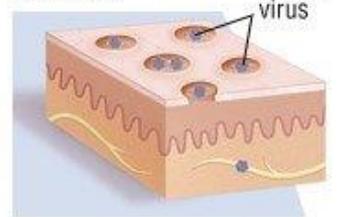
Herpes- Viral

- Caused by the herpes simplex virus (HSV)
 - HSV 1: cold sores on the mouth and lips
 - Can also cause genital infections if saliva has been in contact with reproductive organs.
 - HSV 2: genital infections
 - Genitals, mouth, or rectum

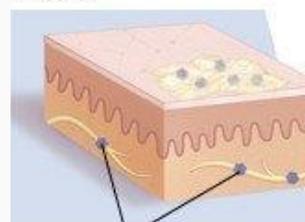
First appears as small white blister



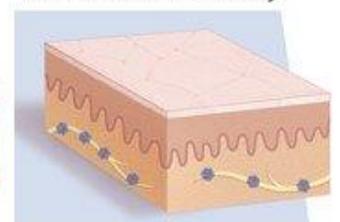
Blisters turn into soft wet ulcers



New layer of skin begins to form, fewer virus copies in sore



Skin surface again normal, but virus remains in body



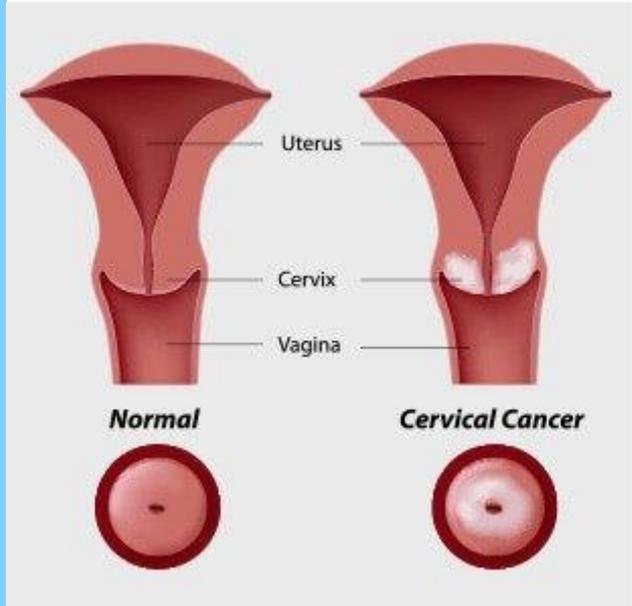
Herpes appearance

Herpes- Viral

- Herpes causes an outbreak of blisters periodically throughout life.
- Studies suggest that at least 87% of people with genital herpes do not know they have it.
 - Often asymptomatic (for awhile at least) or mild symptoms
- Can lead to **infertility**
- Pregnant person can pass it to the unborn baby- life threatening!
- **NO CURE**
 - there are medications to help lessen the frequency of outbreaks.

HPV- Viral

- **Most common STI in the Us- 14 million cases every year**
- Causes genital warts
 - Often asymptomatic (for awhile at least) or mild symptoms
- Can lead to infertility
- Can cause cancer (12,000 males and 19,000 females every year are diagnosed with HPV-related cancer)
 - Cervical cancer
 - Oropharyngeal cancer (back of the throat, tongue, and tonsils)



HIV- Viral

- Virus that weakens the immune system
- Can progress into **AIDS**
 - Serious health condition in which the body can no longer fight infections or diseases.
 - Life threatening
- Can spread from unsterilized needles, sexual activity, parent to baby during breast feeding, exposure to open sore
- **NO CURE** but treatment is available to improve the life of someone with HIV

	Bacterial CURABLE	Protozoan CURABLE	Viral NO CURE!
Body Fluid Contact	<ul style="list-style-type: none"> • <i>Chlamydia</i>* → PID • <i>Gonorrhea</i>* → PID 	<ul style="list-style-type: none"> • Trichomoniasis* 	<ul style="list-style-type: none"> • HIV → AIDS
Direct Contact	<ul style="list-style-type: none"> • Syphilis 		<ul style="list-style-type: none"> • <i>Herpes</i>* • <i>HPV</i> → Cancer (Cervical & Oropharyngeal)

→ : leads to a disease

* : often asymptomatic

Italics: can cause infertility

ABSTINENCE:

**The only 100% effective method
to prevent pregnancy and sexually
transmitted infections (STIs)**

Pregnancy Prevention Method:	Number of Pregnancies Expected: (per 100 females)	STI Protection:
Abstinence	0	100% effective
Condom	13	Can reduce risk of SOME STIs
Birth Control Pill	7	NONE
Spermicide	21	NONE
Withdrawal	22	NONE

Info can be found on Figure 20.20 in the companion text of the health textbook

References

Chapter 115. *Texas Essential Knowledge and Skills for Health Education*,
Subchapter B. High School 115.26. Grades 9-12., 19(D), 19(E), 20, 21(A-J)
Austin, TX. Texas Education Agency, August 2022.

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