

Human Conception & Pregnancy...



S1-1-10 Outline human development from conception through birth. Include: X and Y chromosomes, zygote, embryo, fetus

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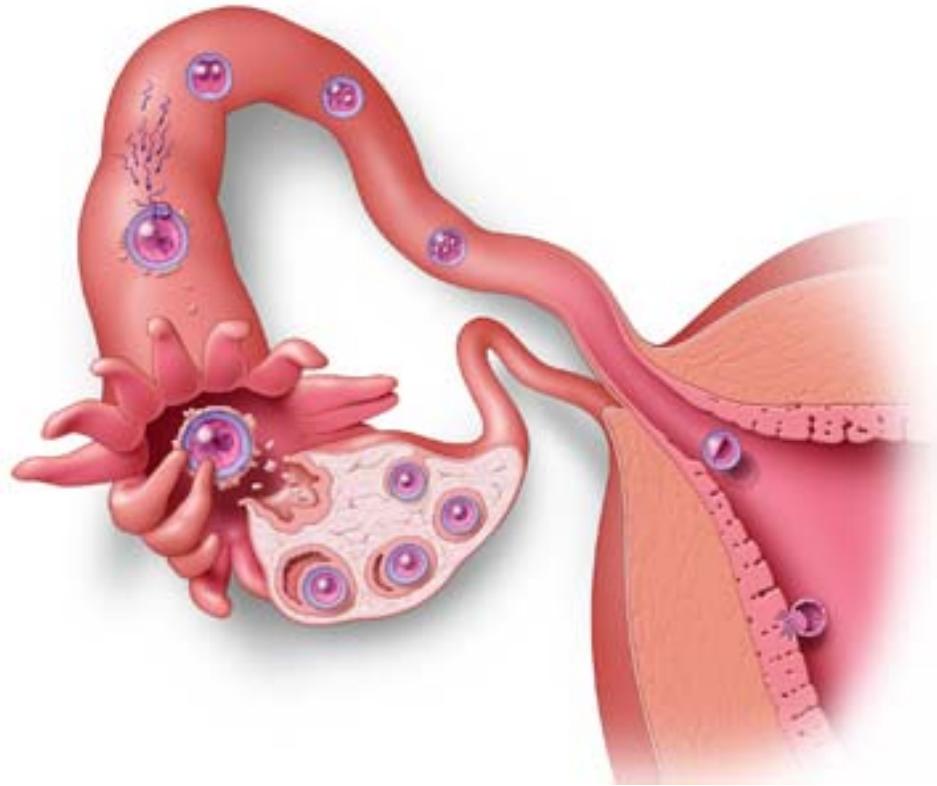
During intercourse, over **200 MILLION SPERM** are released into the **UTERUS**. However, only a **FEW HUNDRED** make it into the **FALLOPIAN TUBES** → where they can survive for up to **5 DAYS**.

During **FERTILIZATION (CONCEPTION)**, the sperm penetrate the cell membrane of the egg. Only a **SINGLE SPERM** may enter the egg.

→ Once the egg is fertilized it is called a **ZYGOTE**



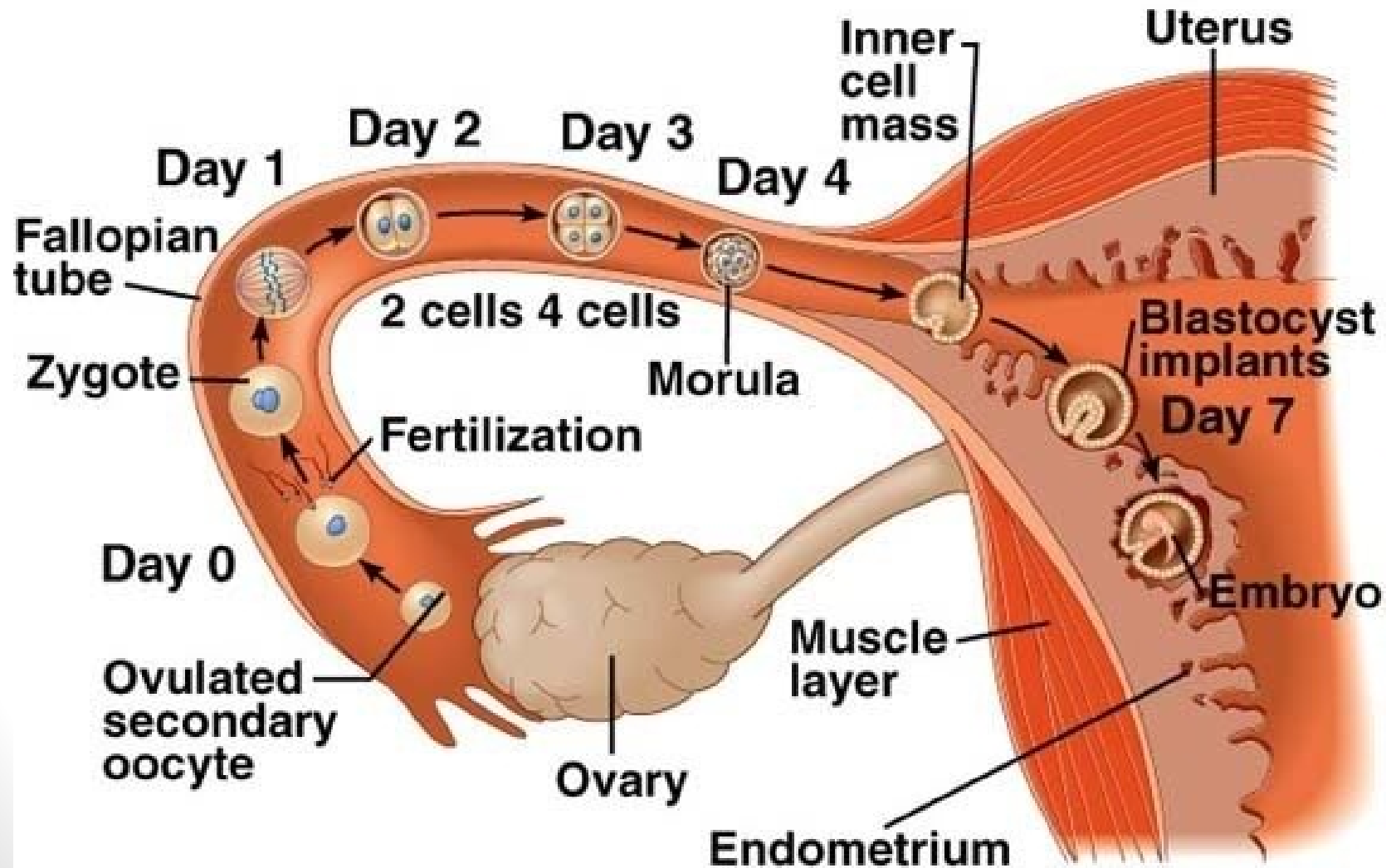
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Fertilization takes place in the FALLOPIAN TUBES but soon after tiny CILIA (HAIRS) begin to move the ZYGOTE toward the UTERUS. This takes 4 days. When the ZYGOTE IMPLANTS itself into the UTERINE WALL it is called an EMBRYO.

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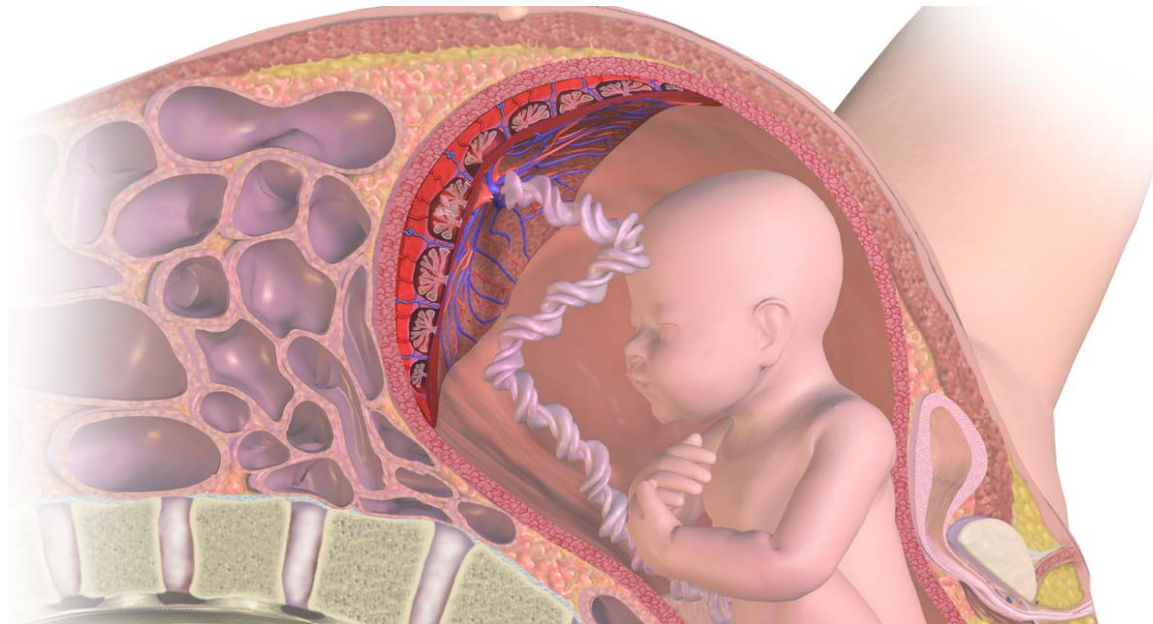
From ovulation to implantation



Human Conception & Pregnancy...

The **PLACENTA** (a completely new organ) begins to form around the **EMBRYO**

- Gives the embryo **NUTRIENTS**, and **OXYGEN** from the **BLOOD** of the **MOTHER**
- Removes **WASTE**
- Produces **ESTROGEN** and **PROGESTERONE**
 - This prevents further **OVULATION**, which means that when a woman is pregnant, she cannot **CONCEIVE** again until after **BIRTH**



The Human Embryo...

You began as a fertilized egg the size of a dot on an “i”, and after 9 months, you were ½ a meter long, and weighed about 9lbs.

The Embryo develops in a series of steps:

- After the embryo implants itself into the **ENDOMETRIUM**, (uterine wall) it **GROWS** rapidly.
- A membrane called the **AMNION** (a **FLUID** filled **SAC**) develops around the embryo, protecting it.
- The **UNBILICAL CORD** connects the embryo to the **PLACENTA** (blood vessels from the **ENDOMETRIUM**).

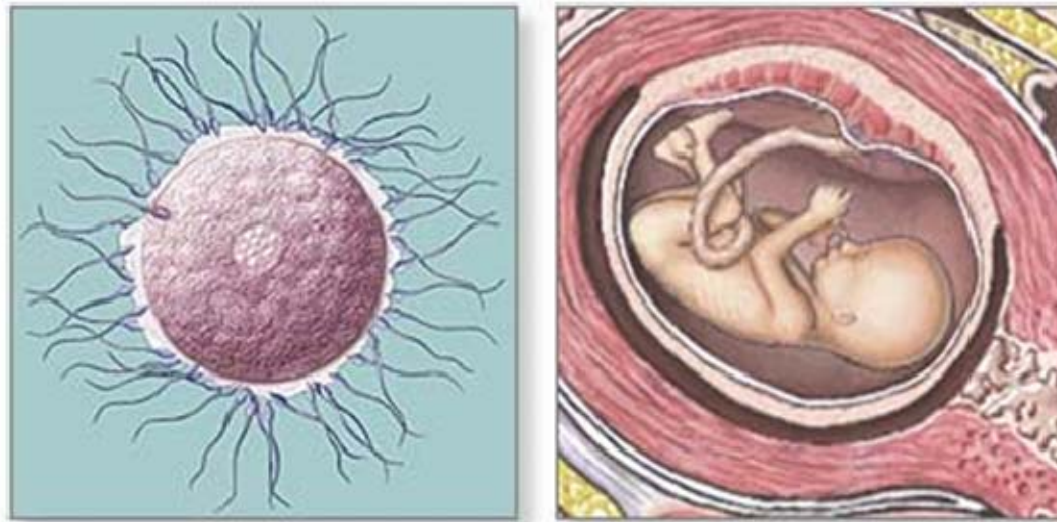
The Three Trimesters...

Pregnancy is divided into 3 trimesters (3 month periods).

1st Trimester:

- From conception to **3RD MONTH**
- All major **ORGANS** (**HEART**, **BRAIN**, **LUNGS**, etc.) are forming
- **FINGERS** and **TOES** have developed
- Once the bones are developed it is called a **FETUS**

First trimester pregnancy

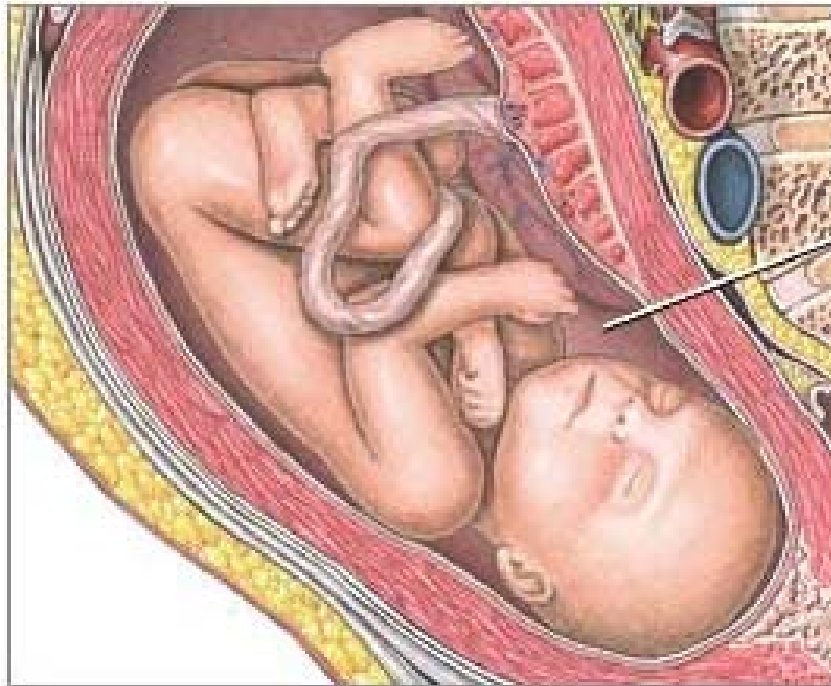


Fertilization → 12th week of pregnancy

The Three Trimesters...

2nd Trimester:

- 3RD TO 6TH MONTH
- FETUS can be FELT by mother
- All major ORGANS are fully FORMED, NOT quite DEVELOPED.
- EYELIDS and EYELASHES form
- RESPIRATORY (breathing) DEVELOPMENT
- Can survive if born at end of 2nd trimester

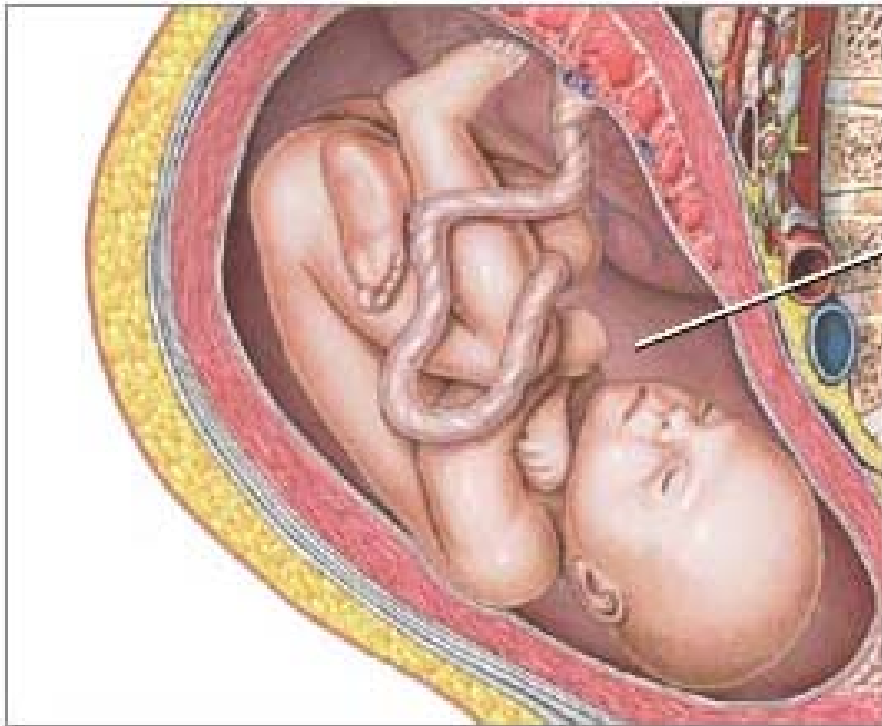


Normal fetus
at 24th week
of pregnancy

The Three Trimesters...

3rd Trimester:

- 7th month to birth
- All ORGAN SYSTEMS and NERVOUS SYSTEM begin to function
- Rapid GROWTH
- IMMUNE SYSTEM development



Normal fetus
at 31st week
of pregnancy



Birth...

CONTRACTIONS of the uterus signal LABOUR, the process of birth.

The four stages of labour:

- CERVICAL OPENING starts to ENLARGE.
- AMNIOTIC sac BREAKS and fluid flows out (WATER BREAKING).
- UTERINE muscles CONTRACT to PUSH the baby out.
- Baby emerges from the BIRTH CANAL.

Birth...

Hormones Involved in Birth:

1. RELAXIN

- Produced by PLACENTA to cause LIGAMENTS of pelvis to LOOSEN.
- Provides a more flexible PATHWAY for the baby.

2. OXYTOCIN

- Causes strong UTERINE CONTRACTIONS, pushing the baby out the birth canal.

3. ESTROGEN & PROGESTERONE

- Prepare the BREASTS for MILK production.

4. PROLACTIN

- secreted by the PITUITARY gland, stimulates production of COLOSTRUM → SUGAR and PROTEIN that helps develop the baby's IMMUNE system.
- 2 days after birth, it stimulates the PRODUCTION of MILK

Birth...

Breast Milk

The woman can produce up to 1.5 litres of milk each day.

The mother needs to maintain enough CALCIUM and PHOSPHATE in her diet, or her body will take it from her BONES. This will cause bone and TOOTH DETERIORATION.