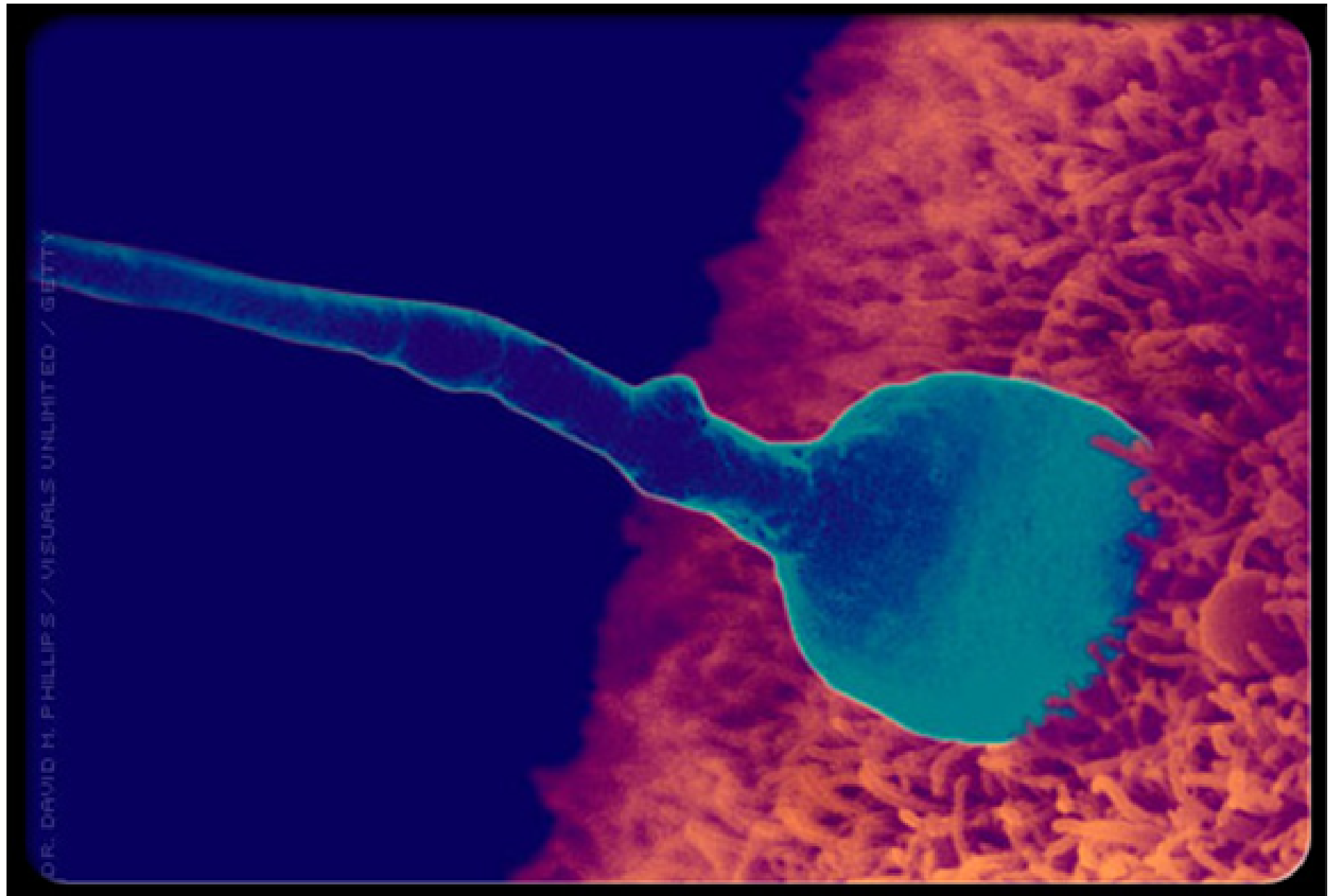


Conception



The Menstrual Cycle

- A series of changes that allows women's bodies to prepare for pregnancy
- Starts on day 1 of menstrual bleeding and continues through to next episode of bleeding
- Average cycle is 28 days but can be longer or shorter (our discussions will be based on 28 days but understand these are averages)
- Controlled by the hypothalamus and the pituitary gland

The entire duration of a Menstrual cycle can be divided into four main phases:

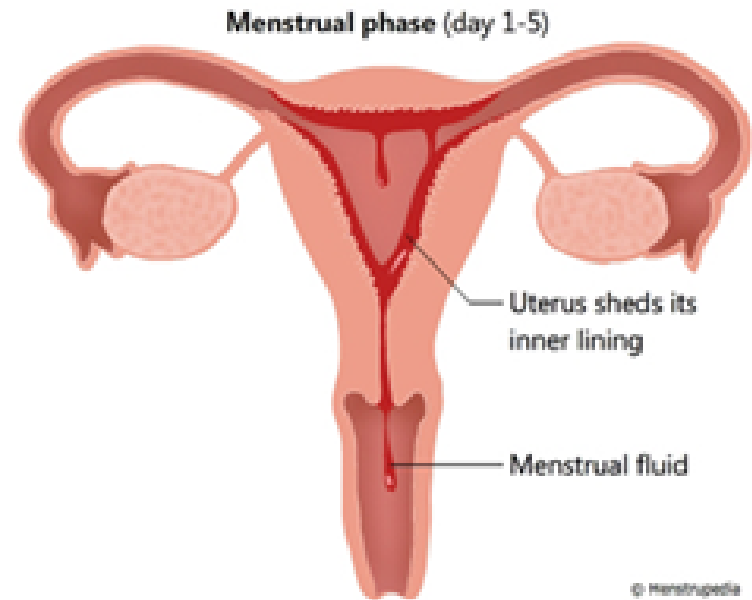
Menstrual phase (From day 1 to 5)

Follicular phase (From day 1 to 13)

Ovulation phase (Day 14)

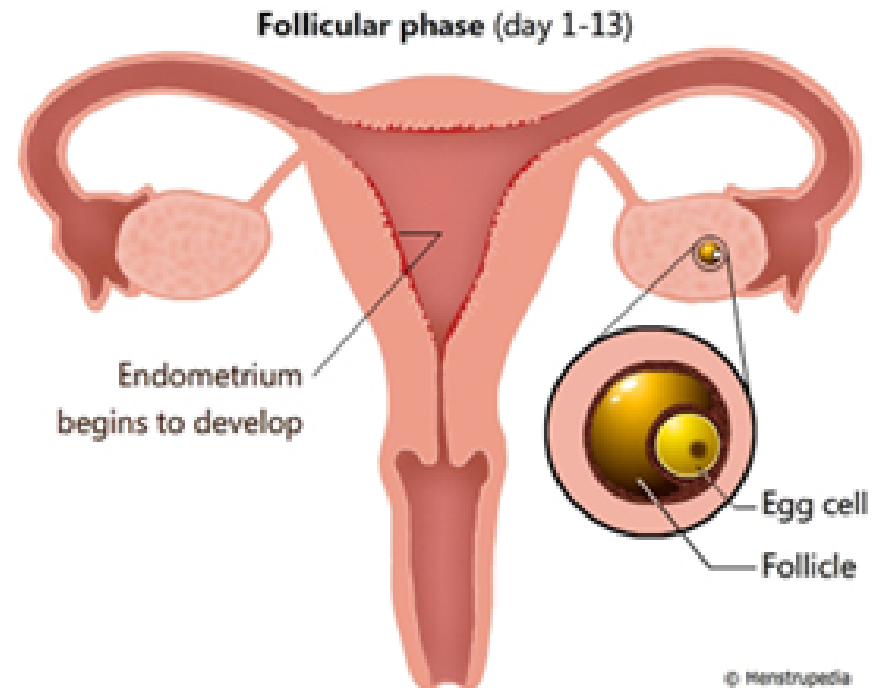
Luteal phase (From day 15 to 28)

Menstrual phase (Day 1-5)



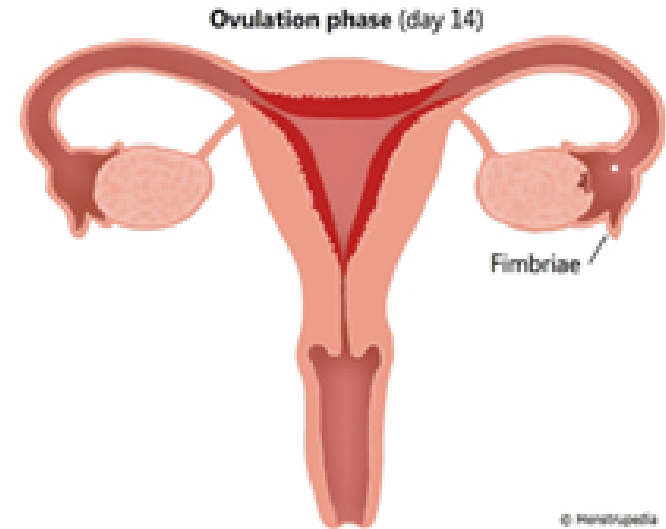
- begins on the first day of menstruation and lasts till the 5th day of the menstrual cycle
- the uterus sheds its inner lining of soft tissue and blood vessels which exits the body from the vagina in the form of menstrual fluid

Follicular Phase (Day 1-13)



- the pituitary gland secretes estrogen that stimulates the egg cells in the ovaries to grow in sac-like structures called follicles
 - while the egg cell matures, its follicle secretes a hormone that stimulates the uterus to develop a lining of blood vessels and soft tissue called endometrium
 - halfway through the phase all but one of these egg cells continues to mature and eventually bulge from the ovary
 - the bulging follicle signals the fimbriae to come closer to the ovary

Ovulation Phase (Day 14)



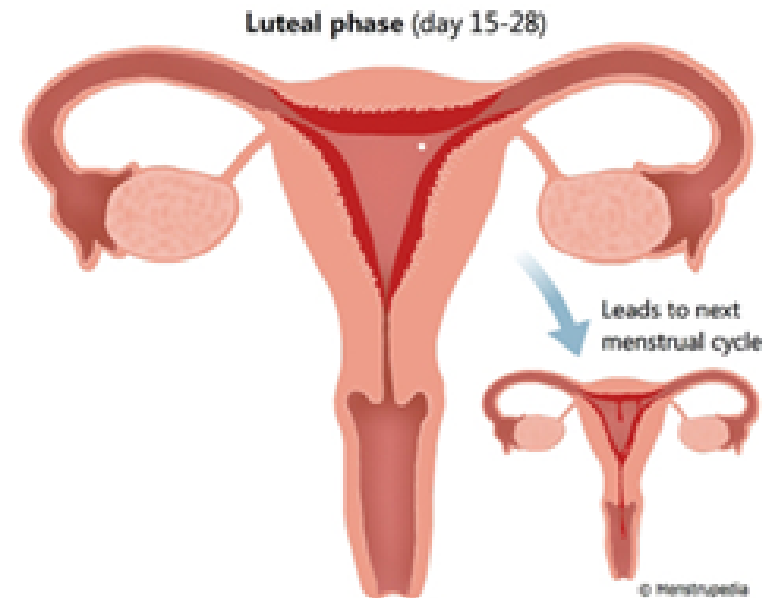
- On around the 14th day of the cycle, the pituitary gland secretes another hormone that causes the follicle to burst and to release the matured egg cell.
- The released egg cell is swept into the fallopian tube by the cilia of the fimbriae.
- Around this time the cervix that is usually tightly closed opens slightly and cervical mucus changes from opaque (creamy colored) and easy to break apart to clear and stretchy (kind of like egg whites) in order to trap sperm

Ovulation



<https://www.youtube.com/watch?v=nLmg4wSHdxQ>

Luteal Phase (Day 15-28)



- the egg cell released during the ovulation phase stays in the fallopian tube for up to 24 hours
- If a sperm cell does not fertilize the egg cell the egg cell disintegrates and the hormone that causes the uterus to retain its endometrium is used up which causes the menstrual phase of the next cycle to begin



The Path of Sperm

(What you ALREADY know)



1. Sperm are manufactured through spermatogenesis in the testicles
2. Sperm travel to the epididymis to mature
3. Sperm travel through the vas deferens past the seminal vesicle, prostate and Cowper's gland to create semen (emission phase)
4. Sperm is released from the body from the urethra using rhythmic contractions

The Path of Sperm

(What you may not have known)

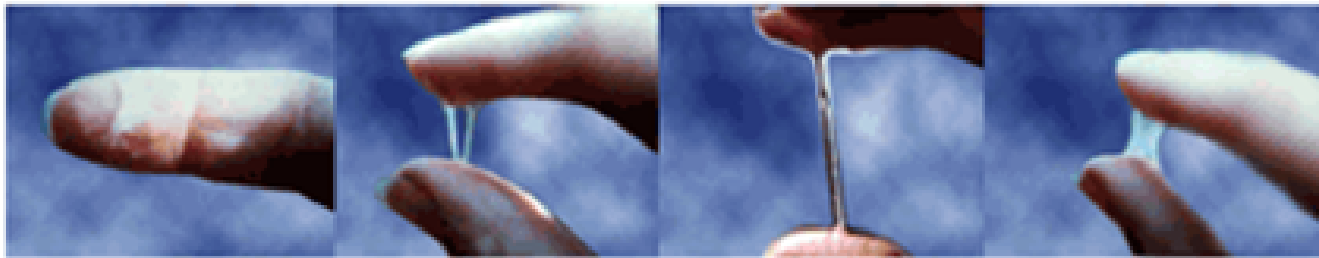


Once sperm is deposited in the female reproductive system, it travels up the vaginal canal. Remember, this is one of the reasons why semen is so important - alkaline (to counteract acidity), suspension fluid (to allow sperm to swim) and fructose (to nourish sperm).

The Path of Sperm

(What you may not have known)

Fertility Level:



Low

High

Peak

High

Sperm then will make its way through the cervical mucus. During ovulation and a couple days before the cervical mucus becomes stretchy and clear helping sperm make its way through into the uterus. (Other times of the cycle the cervical mucus makes it extremely difficult for sperm to enter the uterus.)

The Path of Sperm

(What you may not have known)



The sperm that have survived so far will make their way up through the uterus as it slightly contracts directing sperm upward to find the Fallopian tubes.

The Path of Sperm

(What you may not have known)

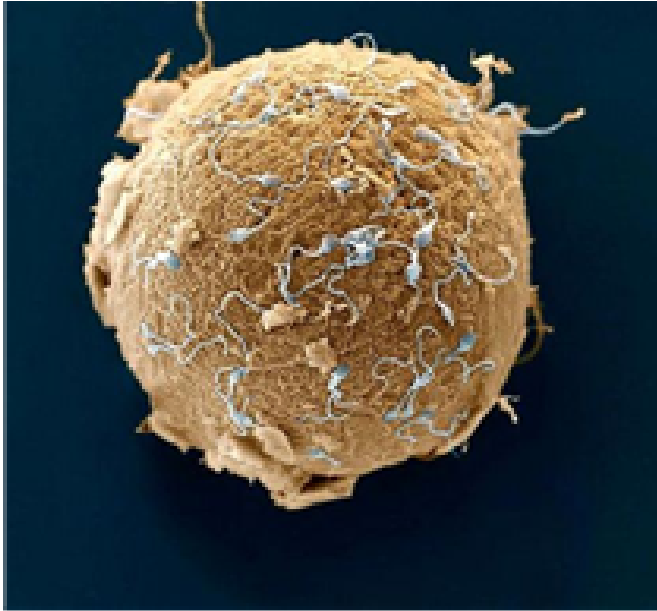
If sperm can find their way into the Fallopian tubes they will do one of two things:

If there is an egg waiting in the Fallopian tube, sperm will remain mobile and get excited creating a change in their heads preparing them to enter the egg and navigate towards the location of the egg.

If there is not an waiting in the Fallopian tube, sperm will rest until an egg is released. Sperm can live for up to 5 days in the Fallopian tubes.

The Path of Sperm

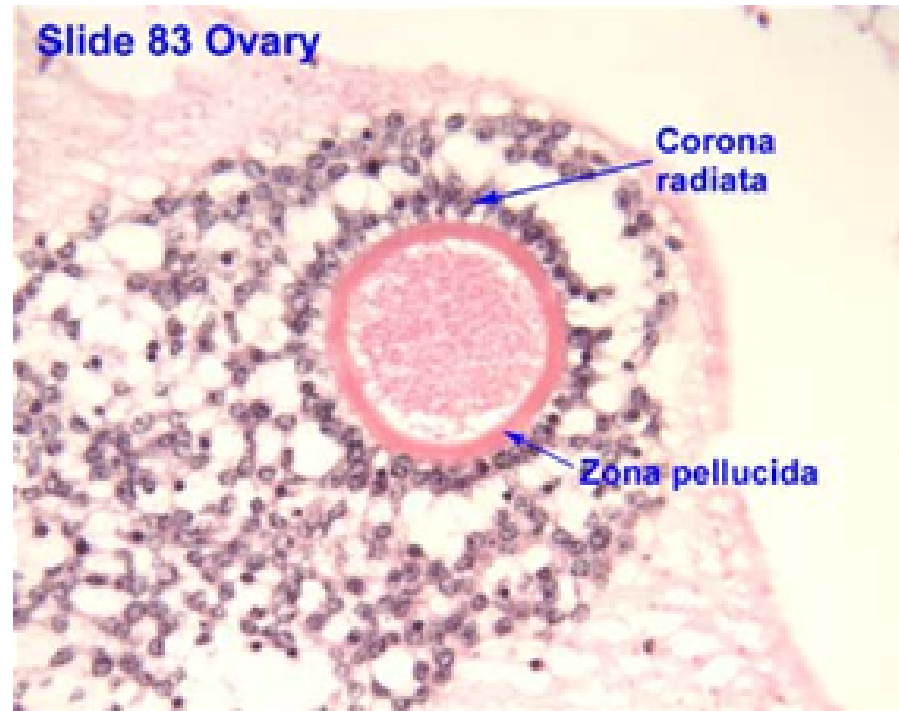
(What you may not have known)



Only a couple dozen sperm will actually reach the ovum. The sperm must burrow through the outerlayer of the egg, a collection of cells called the corona radiata.

The Path of Sperm

(What you may not have known)



When sperm get through the corona radiata, the sperm will reach the zona pellucida, the next layer of the egg.

This triggers the head (that has previously been changed) to release digestive enzymes to dissolve the surface of the egg allowing the sperm in.

The Path of Sperm

(What you may not have known)



After the zona pellucida, there is a fluid filled space. The first sperm to reach this space will be the sperm to fertilize the egg. Immediately, the outer membranes of the sperm and egg fuse and the egg pulls the sperm inside. When this happens, the egg's surface changes preventing any other sperm from entering the egg.

The Path of Sperm

(What you may not have known)



Sperm will now release its genetic material and join with the ovum's genetic material (23 chromosomes + 23 chromosomes = 46 chromosomes). This new cell, is called a zygote.

Fertilization



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MEDICAL MEDIA

https://www.youtube.com/watch?v=_5OvgQW6FG4