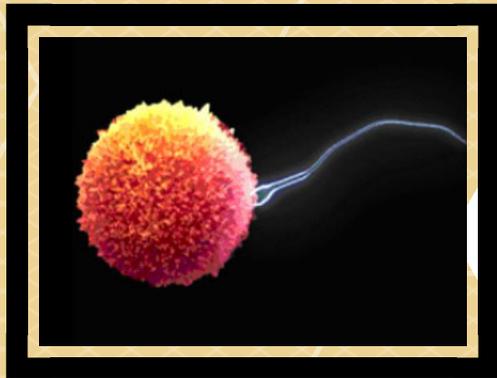


# Fertilization, Implantation + Placentation



## FERTILIZATION: WHERE LIFE BEGINS

When a man and a woman have intercourse and it coincides with a woman's fertile time of the month, approximately 14 days after the first day of her last cycle (but not always), the sperm cells begin their journey driven forth by the irresistible scent of the egg cell.

The sperm, travel through the cervix, up into the uterus and will often meet the egg within the fallopian tube shortly after it has been released by the ovary. Upon meeting, the chosen sperm and egg bind together and each release enzymes that allow the protective outer coating to break down and the sperm to then join the father's genetic material to the mother's genetic material within the egg. This also prevents other sperm from penetrating the egg.

The fertilized egg actually begins dividing and growing while still in the fallopian tube. By three days after fertilization, it has become a sixteen cell ball that resembles a mulberry. Next it becomes a hollow, fluid filled ball dividing into what will become the placenta (90%) and the baby (10%)

Changes within the uterus prepare for implantation and glands secrete a milky substance that will nourish the ball of cells as it continues to grow since it has no access to circulation at this time.

## IMPLANTATION

After about a week after fertilization, the egg has reached the uterus and is ready to implant. The protein coating of the egg is disintegrating and the lining of the uterus is preparing itself by developing crevices where the egg will come to rest. Once the egg makes contact with the uterine lining, its cells begin burrowing into the lining to help anchor it. The uterine cells are also aiding this anchoring process by proliferating to rise up over the egg and now it is embedded.

Blood vessels in the uterine lining begin to form pools of blood and special cells within the egg begin to form finger-like projections that reach out to them. By proximity, the nutrients from the uterine blood diffuse into the fetal blood and waste products from the fetal blood can be removed by the uterine blood. This miraculous structure that enables these exchanges to occur is the beginning of the amazing placenta!



## THE PLACENTA: LIFE'S VITAL LINK

While growing in the uterus, an organ also often commonly referred to as the womb, the baby needs oxygen and nutrients. A network of uterine arteries freely open into the placenta gently releasing blood.

Fetal cells infiltrate the placenta, forming little branch-like projections that take oxygen and nutrients from the slow-moving pool of blood in the placenta through a process of diffusion. In the same way, the fetal metabolic waste products are also removed. The amazing thing is that mom and baby's blood never mix in this process as that would harm the baby. The part of the placenta that makes contact with mom's uterus contains her cellular matter. The layer closer to the umbilical cord is baby's cellular matter. The space between is shared.

The placenta and uterus will grow in size to accommodate baby's growth. The placenta produces several hormones that support and enable the pregnancy to continue and acts as baby's kidneys, lungs and digestive system.



**Sources:** Holistic Midwifery, Volume I by Anne Frye  
Khan Academy

Life's Vital Link: The Astonishing Role of the Placenta by Y.W. Loke