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MAKUN

BIOMEDICAL

ENGINEERING

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PHYSIOLOGY

**IMPLANTATION:** in humans this is the stage of pregnancy when the embryo adheres to the wall of the uterus. At this stage of prenatal development, the concept is called a blastocyst. It is by this adhesion that the embryo receives oxygen and nutrients from the mother to be able to grow.

The implantation of a fertilized ovum is most likely to occur around nine days after ovulation; however, this can range between six to 12 days.

Fertilization in humans. The sperm and ovum unite through fertilization, creating a conceptus that (over the course of 8-9 days) will implant in the uterine wall, where it will reside over the course of nine months

The implantation window is characterized by changes to the endometrium cells, which aid in the absorption of the uterine fluid. These changes are collectively known as the plasma membrane transformation and bring the blastocyst closer to the endometrium and immobilize it. During this stage the blastocyst can still be eliminated by being flushed out of the uterus.

The endometrium increases thickness, becomes vascularized and its glands grow to be tortuous and boosted in their secretions. These changes reach about 7 days after ovulation.

the surface of the endometrium also produces a kind of rounded cells, which cover the whole area toward the uterine cavity. This happens about 9 to 10 days after ovulation.

Decidualization takes place after predecidualization if pregnancy occurs. This is an expansion of it, further developing the uterine glands, the zona compacta and the epithelium of decidual cells lining it.

Functions of implantation

Pinopodes endocytose uterine fluid and macromolecules in it. By doing so, the volume of the uterus decreases, taking the walls closer to the

embryoblast floating in it. Thus, the period of active pinocytes might also limit the implantation.

Pinopodes continue to absorb fluid, and removes most of it during the early stages of implantation

To be able to perform implantation, the blastocyst first needs to get rid of its zona pellucida This process can be called "hatching".

Factors

Decidualization

Prevention of menstration