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QUESTION: Write a short note on IMPLANTATION

IMPLANTATION

**Implantation**, in reproduction physiology, the adherence of a fertilized egg to a surface in the reproductive tract, usually to the uterine wall, so that the egg may have a suitable environment for growth and development into a new offspring. Fertilization of the egg usually occurs after the egg has left the ovary and is being transported through the fallopian tubes. Male sperm cells deposited in the female reproductive tract travel up to the fallopian tubes to unite with the egg. Once fertilized, the egg begins to undergo a series of cell divisions. The egg takes up to seven days to reach the uterus; by this time the single-celled egg has divided numerous times, so that it is a ball of approximately 200 cells.

The uterus has thick walls suitable for egg attachment and growth. A female hormone known as progesterone, secreted by the corpus luteumin the ovary, influences the readiness of the uterine wall for egg implantation. It increases the blood supply in the wall, water content, and secretion of glycogen, a nutrient for the surrounding tissue and developing egg. If the uterus is not first prepared by progesterone, the egg will not attach itself. Progesterone also inhibits muscular contractions in the uterine wall that would tend to reject the adhering egg.

When the egg reaches the uterus, it usually remains free in the uterine cavity for about a day. It then attaches to the uterine lining (the endometrium). Cells in the outer surface of the egg grow rapidly once contact is made with the uterine wall. The egg disrupts the surface of the endometrium and actively burrows into the deeper tissue. By the 11th day after fertilization, the egg has completely embedded itself into the endometrium. The product of conception—first the fertilized egg and then the developing child and the placenta—normally remains implanted in the human uterus for nine months.

In humans, implantation is the stage of pregnancy at which 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. In humans, implantation of a fertilized ovum is most likely to occur around nine days after ovulation; however, this can range between six and 12days.

The reception- ready phase of the endometrium of the uterus is usually termed the" implantation window" and lasts about 4days.The implantation window occurs around 6days after the peak in luteinizing hormone levels. With some disparity between sources, it has been stated to occur from 7 days after ovulation until 9 days after ovulation, or day 6-10 post-ovulation. On average, it occurs during the 20th to the23rd day after the last menstrual period.

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 nearer to the endometrium and immobilize it. During this stage the blastocyst can still be eliminated by being flushed out of the uterus. Scientists have hypothesized that the hormones cause a swelling that fills the flattened out uterine cavity just prior to this stage, which may also help press the blastocyst against the endometrium. The implantation window may also be initiated by other preparations in the endometrium of the uterus, both structurally and in the composition of its secretions.

Possible signs of implantation

1. Bleeding
2. Cramps
3. Discharge
4. Bloating.
5. Tender breasts
6. Nausea
7. Headaches
8. Mood swings
9. Implantation dip