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**COURSE: HUMAN PHSYIOLOGY**

**COURSE CODE: PHS 212**

**QUESTION: Write a Short Note on Implantation**

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 conceptus 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 12 days.

The most common implantation symptoms of early pregnancy include:

- Implantation cramps. Some women may notice some minor cramping right around the time implantation is taking place. ...
- Implantation bleeding.
- Nausea.
- Tender breasts.
- Constipation and bloating.
- Fatigue.
- Headaches.
- Mood swings.

Implantation is often described as a window because it occurs about 8 to 9 days after fertilization, though it can happen as early as 6 days and as late as 12 days after ovulation. While many consider fertilization to be the start of pregnancy, successful implantation is the more crucial hurdle. In the uterus, the morula becomes a blastocyst and eventually burrows into the uterine lining in a process called implantation. Although some women report feeling cramping or pain during the implantation process, not everyone will experience this symptom. Where Do You Feel Implantation Cramps? Many women detect implantation cramping in their lower abdomen and lower back. Sometimes cramps only manifest on one side of the body.

Implantation is a highly organized process that involves an interaction between a receptive uterus and a competent blastocyst. In humans, natural fecundity suggests that the chance of conception per cycle is relatively low (~30%) and two-third of lost pregnancies occur because of implantation failure. Defective implantation leads to adverse pregnancy outcomes including infertility, spontaneous miscarriage, intrauterine fetal growth restriction and preeclampsia. With use of advanced scientific technologies, gene expression analysis and genetically-engineered animal models have revealed critical cellular networks and molecular pathways. But, because of ethical restrictions and the lack of a mechanistic experiment, comprehensive steps in human implantation have still not been completely understood. This review primarily focuses on the recent advances in mechanisms of implantation. Because infertility is an emerging issue these days, gaining an understanding the molecular and hormonal signaling pathway will improve the outcome of natural pregnancy and assisted reproductive technology.