

NAME: HARDING-UDOH TITANIA B.

MATNO.:18/ENG08/007

DEPT: BIOMEDICAL ENGINEERING

COURSE: PHS212; HUMAN PHYSIOLOGY II

ASSIGNMENT

Question

Write a short note on IMPLANTATION

IMPLANTATION

Implantation is the adhesion 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 luteum in 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.

Implantation is used to describe process of attachment and invasion of the uterus endometrium by the blastocyst (conceptus (the embryo in the uterus, especially during the early stages of pregnancy

Implantation commences about day 6 to 7, Adplantation - begins with initial adhesion to the uterine epithelium, blastocyst then slows in motility, "rolls" on surface, aligns with the inner cell mass closest to the epithelium and stops

Implantation - migration of the blastocyst into the uterine epithelium, process complete by about day 9 coagulation plug - left where the blastocyst has entered the uterine wall day 12.

Uterine epithelial cilia are responsible for the initial movement of the oocyte and conceptus (zygote, morula, and blastocyst). In humans, this is during the first week of development. Uterine epithelial microvilli are involved with the implantation process. Hormones (estrogen and progesterone) regulate both cilia and microvilli number and structure. The differences in size and shape of cilia and microvilli are shown by scanning micrographs of the luminal surface of the epithelium lining the mammalian uterine tube.