

**RAJI UMMI-SALMA ONIZE**

**18/ENG08/020**

**BIOMEDICAL ENGINEERING**

**PHYSIOLOGY**

**ASSIGNMENT**

**DISCUSS THE FACTORS FACILITATING THE MOVEMENT OF SPERM IN THE FEMALE REPRODUCTIVE TRACT**

**ANSWER**

Sperms and the ovum are the haploid gametes formed by the process of spermatogenesis and oogenesis respectively within the body of the humans. They get fertilized together by the process of karyomixis within the ampulla-isthmic junction of the fallopian tube and results in the formation of a diploid zygote which then undergoes the process of embryogenesis to form the fetus.

For this, the sperms would first need to enter the human body and this happens by the process of insemination wherein post the sexual coitus established, the sperms gets ejaculated within the lower part of the female genital tract. A single ejaculation consists of millions of spermatozoa however; most of them die off as they cannot survive the acidity of the female reproductive tract of females. And many remain engulfed by the leucocytes of the female reproductive tract by the process of endocytosis. It is for this reason that the sperms are interspersed within the semen which is an alkaline fluid and the alkalinity protects the sperms from the acidity.

The semen gets deposited within the lower part of female reproductive tract and the fertilization takes place within the ampulla-isthmic junction; henceforth they would need to move upwards within the fallopian tubes. There are a few adaptations present within the body which assists the process to happen. They are as mentioned below;

a) Fructose is the source of energy for the human sperms and they are present in the semen. They keep providing energy to the sperms utilizing which, they are able to move upwards

b) Within the female reproductive tract, the middle most layer of the uterus; called as myometrium (made of smooth muscles) starts to exhibit vigorous contractions and relaxations. These movements allow the sperms to move upwards towards the fallopian tubes for fertilizing the ovum. However, these contractions of the muscles are facilitated by the prostaglandins which are a component of the semen and they stimulate the myometrium for exhibiting vigorous movements

c) Various secretions of the female reproductive tract makes the sperms undergo a phenomenon called as capacitation in which the various coatings deposited on the surface of the sperms during coitus gets removed enabling the sperms to rapidly move upwards towards the fallopian tubes for fertilization.

The hyperacidity present within the female reproductive tract does destroy the majority of the sperms after ejaculated. Also, the sperms are known to get coagulated within the female tract after their ejaculation. However the proteins and other components present within the seminal plasma plays a very important role in protecting the remaining sperms which then moves towards the fallopian tubes for fertilization with a swim rate of 1.5-3 mm per minute, and then only one sperm succeed in fertilizing the ovum resulting in the formation of zygote.