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QUESTION

Discuss the factors facilitating the movement of sperm in the female reproductive tracts

The female reproductive tracts is made up of the cervix, vagina, and the uterus.

Structural factors

The ciliated epithelium of the vagina and cervix. The mucus of the vagina is receptive to sperm, contraction of the uterus also helps sperm moves up. The spermatozoa has flagella that propels it forward. Fructose in semen responsible for energy for the sperm, prostaglandin also helps the uterus contract. At coitus, human sperm are deposited into the anterior vagina, where, to avoid vaginal acid and immune responses, they quickly contact cervical mucus and enter the cervix. Cervical mucus filters out sperm with poor morphology and motility and as such only a minority of ejaculated sperm actually enter the cervix. In the uterus, muscular contraction may enhance passage of sperm through the uterine cavity. A few thousand sperm swim through the uterotubal junctions to reach the fallopian tubes (uterine tubes oviducts) where sperm are stored in a reservoir, or at least maintained in a fertile state, by interacting with endosalpingeal (oviductal) epithelium. As the time of ovulation approaches sperm become capacitated and hyperactivated, which enable them to proceed towards the tubal ampulla. Sperm may be guided to oocyte by a combination of thermotaxis and chemotaxis. Mobility hyperactivation assist sperm in penetrating mucus in the tubes and the cumulus oophorus and zona pellucid of the oocyte, so that they may finally fuse with the oocyte plasma membrane. Knowledge of the biology of sperm transport can inspire improvement in artificial insemination, IVF, the diagnosis of infertility and the development of contraceptives.