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**QUESTION;**

Discuss the factors facilitating the movement of sperm in the female reproductive tract.

ANSWERS;

The complex process of sperm transport through the female reproductive tract begins at the time of ejaculation. During coitus, 1.5- to 5.0-ml of semen containing between 200 and 500 million sperm is deposited at the posterior vaginal fornix, leaving the external cervical is partially submerged in this pool of fluid.1 At this time, some sperm may be passively taken up by the cervix in a process described as “rapid transport;” otherwise, sperm undergo “delayed transport.” Within about 1 minute after coitus, the ejaculate undergoes coagulation. This coagulum temporarily restricts movement of sperm out of the seminal clot, thus preventing their passage into the cervical mucus and ascension up the female reproductive tract. Over the next 20 to 30 minutes, however, a seminal-fluid proteolytic enzyme produced by the prostate gland gradually liquefies the clot. At this time, motile sperm may then enter the cervical mucus, leaving behind the seminal plasma. Although there are reports of motile sperm persisting within the vagina for up to 12 hours after ejaculation,11 motility of most vaginal sperm is diminished within about 30 minutes, and after 2 hours almost all sperm motility in the vagina has been lost. Sperm may also be guided through the cervix by the microarchitecture of the cervical mucus. Mucins, the chief glycoproteins comprising cervical mucus, are long, flexible linear molecules (molecular weight of human mucins is approximately 107 Daltons). The viscosity of mucus is due to the large size of mucins, while elasticity results from the entanglement of the molecules. 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 enters the cervix. In the uterus, muscular contractions 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 enables them to proceed towards the tubal ampulla. Sperm may be guided to the oocyte by a combination of thermotaxis and chemotaxis. Motility hyperactivation assists sperm in penetrating mucus in the tubes and the cumulus oophorus and zona pellucida of the oocyte, so that they may finally fuse with the oocyte plasma membrane.