



human reproductive cells (gametes)

Humans reproduce sexually, with both parents contributing half of the genetic makeup of their offspring via sex cells or gametes. Gametes produced by the male parent are called spermatozoa (commonly called sperm cells), and female gametes are oocytes (commonly referred to as ova or eggs). As gametes are formed, the 46 chromosomes from each parent cell (23 pairs of chromosomes) are divided through meiosis so that each gamete is haploid - having only 23 unpaired chromosomes.

Spermatozoa, produced by males, contain a 23rd chromosome that is either an X chromosome (female) or the analogous Y chromosome (male), making each sperm cell either female or male. Spermatozoa have a head that contains a nucleus, a mid piece that contains mitochondria, and a tail with its end piece. Female spermatozoa have larger heads than their male complements, and as a result, are slower swimmers. Spermatozoa "swim" via the rotational movement or flagellating of a tail, and move through chemotaxis into contact with the oocyte where one spermatozoan fertilizes the egg, thereby creating a zygote.

Oocytes are also haploid, and since they are formed only by females, the 23rd chromosome can only be an X chromosome. Each oocyte is protected by several layers of granulosa cells called the corona radiata. Beneath the corona radiata lays the zona pellucida which is involved in binding the sperm cell, and through which the sperm cell must also penetrate prior to fertilization. The nucleus in an oocyte is called the germinal vesicle, and the nucleolus is referred to as the germinal spot.

Spermatozoa are about 55 μm long
- 5 μm head + 50 μm tail

Spermatozoa can live up to roughly
72 hours within the female reproductive
system

Spermatozoa can move at a rate of about
2 mm/minute unassisted, with motility being
greatly aided by contractions of the female
uterus and fallopian tubes

Oocytes are much larger than spermatozoa
and are barely visible with the naked eye with
a diameter of roughly 145 μm

Oocytes are moved from the site of ovulation
toward the uterus via movement of cilia
which cause fluid current flow

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