

➤ **GAMETOGENESIS = formation of spermatozoa or egg (ovum)**

Diploid = 46 chromosomes in humans = 2 copies of each gene = 2N (abbreviation)

Haploid = 23 chromosomes in humans = 1 copy of each gene = N (abbreviation)

➤ **SPERMATOGENESIS (making sperm)**

FETUS

PUBERTY to time of death

GONOCYTES----→ **SPERMATOGONIA**---→ **PRIMARY SPERMATOCYTES**---→ **SECONDARY SPERMATOCYTES**----→ **SPERMATIDS**
 (2N) (2N) (2N) (N)
 (millions)

**YOUNG
IMMATURE**

gonocytes
in sex cords
in developing
testes

all gonocytes mature into spermatogonia in seminiferous tubules in mature testes at puberty
spermatogonia are found near the tubule boundary while the spermatids are found near the tubule lumen

YOUNG, ROUND IMMATURE SPERMATIDS BECOME OLDER, ELONGATED, MATURE SPERMATIDS BY SPERMIOGENESIS
SPERMIOGENESIS = morphological change of a round spermatid into a spermatozoon with a flagellum.

➤ **OOGENESIS (making eggs)**

FETUS

FETUS

FETUS

PUBERTY (1st ovulation)

PRIMORDIAL GERM CELLS----→ **OOGONIA**---→ **PRIMARY OOCYTES**---→ **SECONDARY OOCYTES**----→ **“OOTID” (transient)**
 (2N) (2N) (2N) (N)
 (millions) (6-7 million) (1 million at birth) (only 1 to 2 eggs ovulated each cycle)

primordial germ cells
in primary follicles
in developing ovary

- **PRIMARY OOCYTE ONLY BECOMES A SECONDARY OOCYTE IF IT IS OVULATED**
- **SECONDARY OOCYTE ONLY BECOMES AN “OOTID” IF IT IS FERTILIZED BY A SPERM**
- **THE OOTID IS TRANSIENT BECAUSE IT IS RAPIDLY FERTILIZED TO BECOME A ZYGOTE**