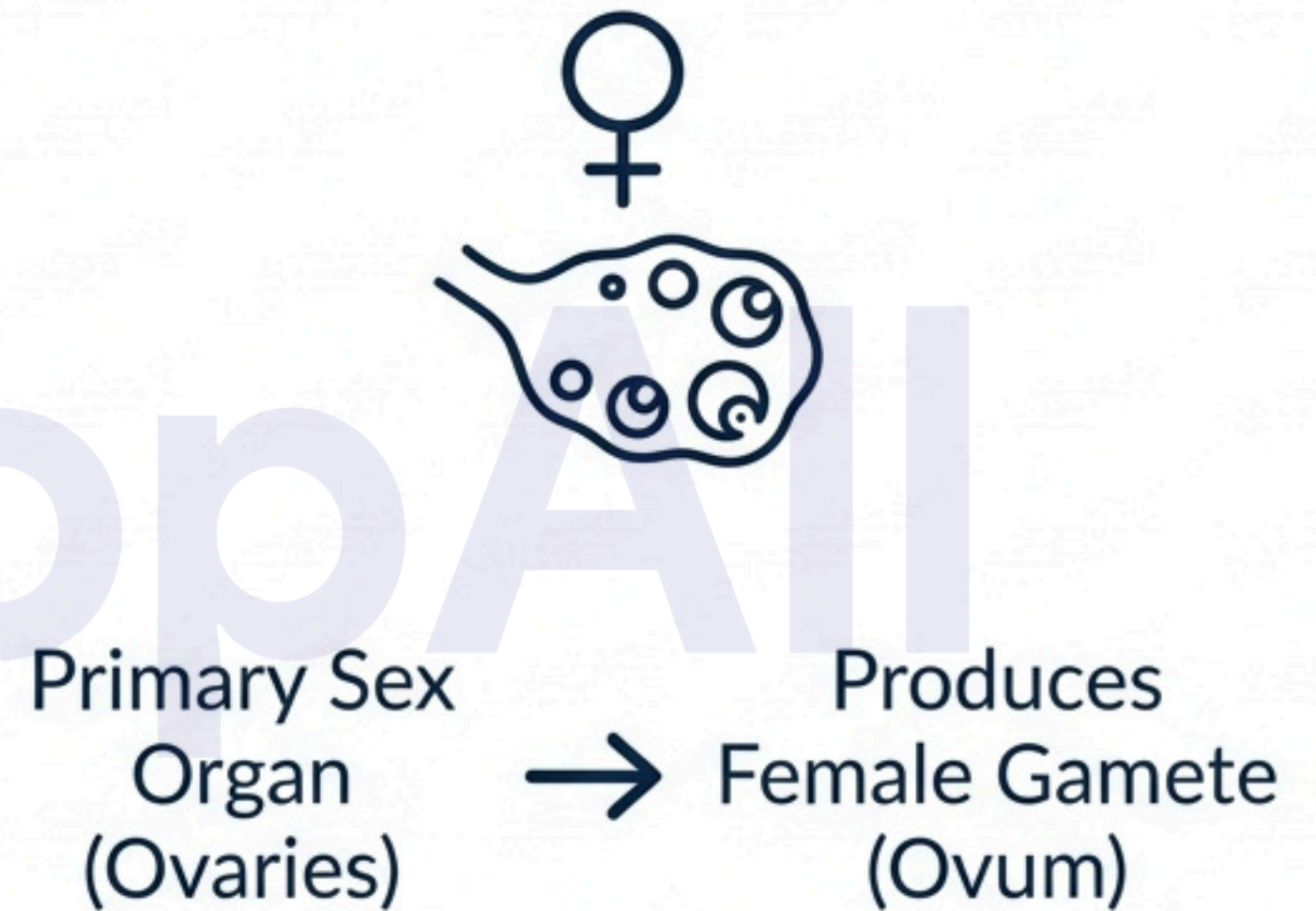
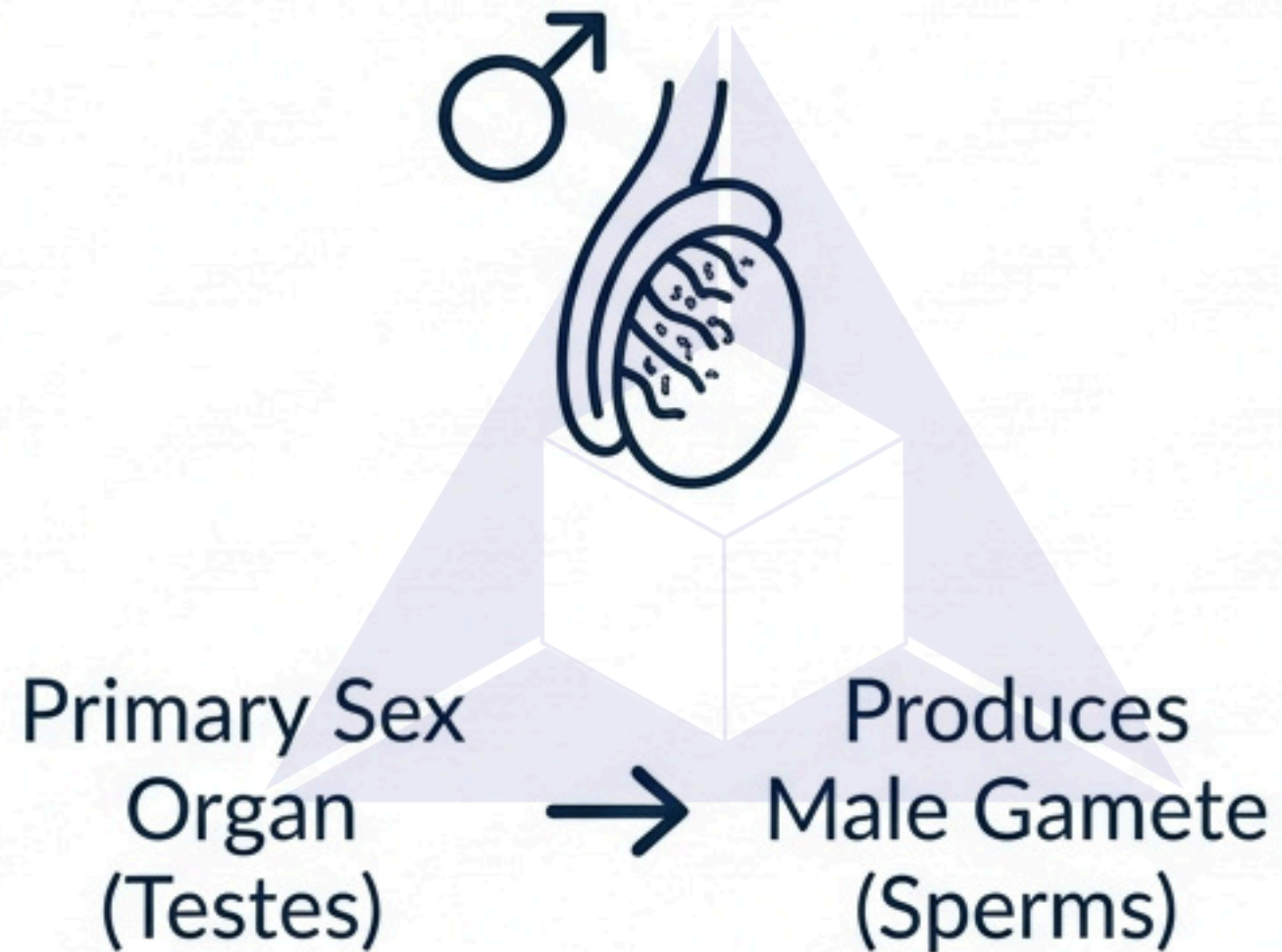


Gametogenesis

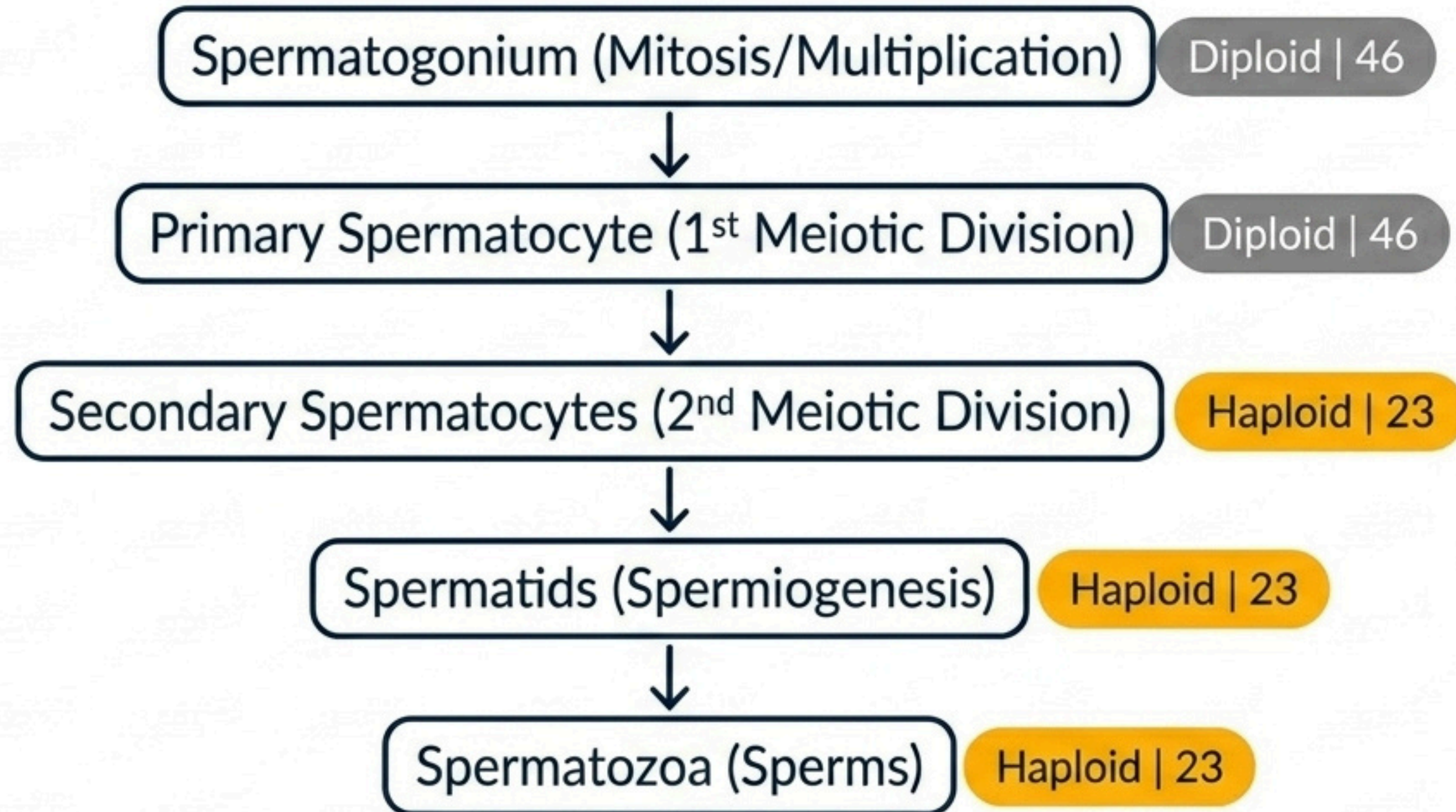
Formation of Sperms and Ovum

The Meaning of Gametogenesis



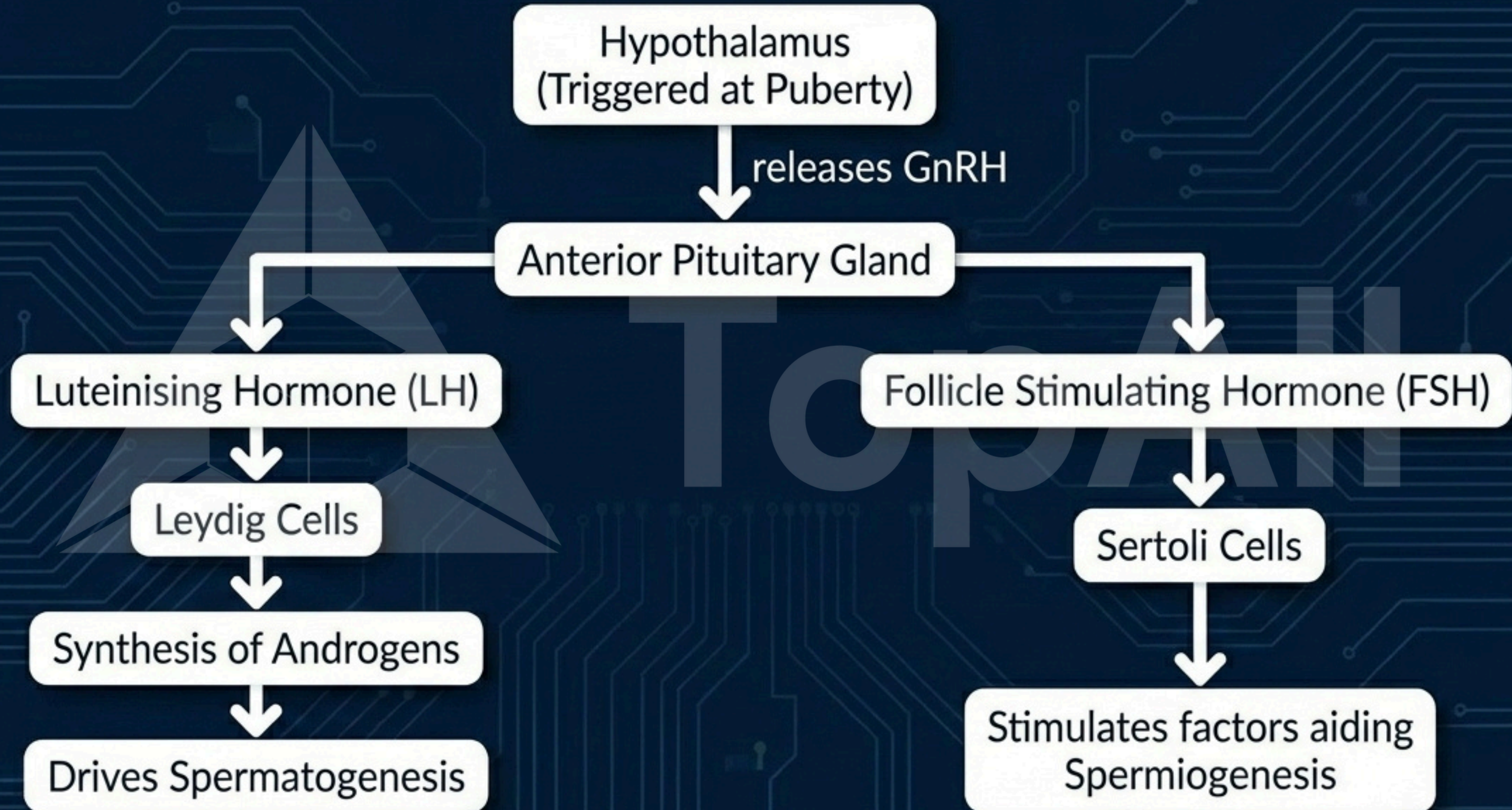
The process of producing these haploid gametes from diploid germ cells is collectively termed gametogenesis.

Spermatogenesis Overview



Spermiation: Release of sperms from the seminiferous tubules.

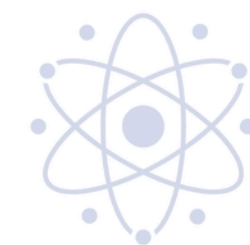
Hormonal Regulation of Spermatogenesis





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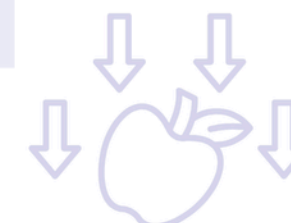
Practice Now



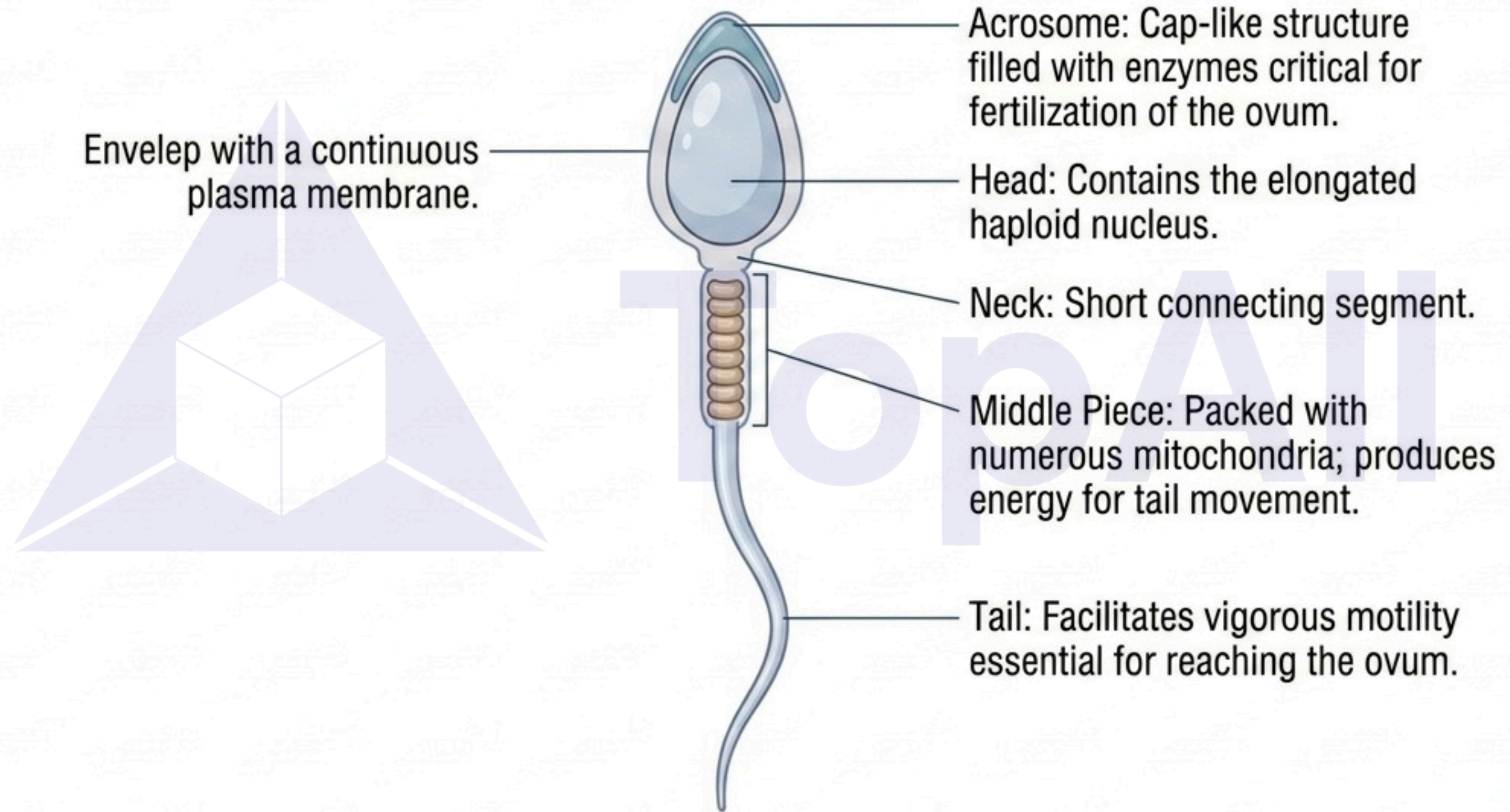
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Structure of a Human Sperm



Fertility Viability Metrics



**200–300
Million**

Sperms ejaculated
during a single coitus.

**At least
60%**

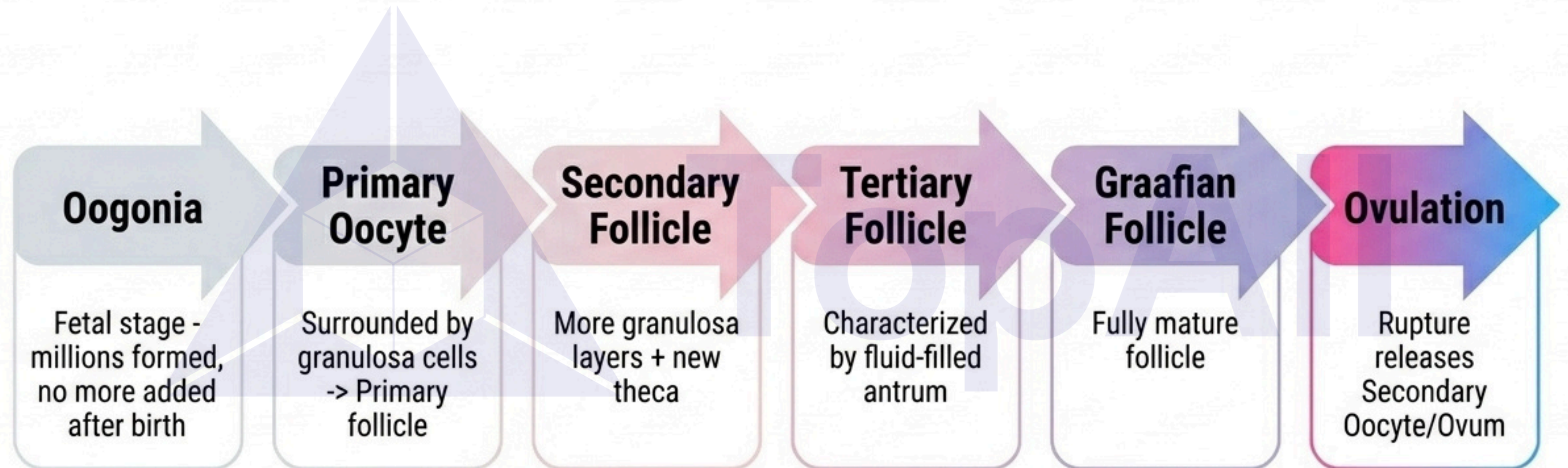
Must possess normal
shape and size for
normal fertility.

**At least
40%**

Must show vigorous
motility.

Secretions from the epididymis, vas deferens, seminal vesicle, and prostate constitute seminal plasma, essential for maturation and motility.

Oogenesis Overview



Oogenesis Key Details

⚠ NEET Alert

The Arrest

Primary oocytes begin meiosis during embryonic development but get temporarily arrested in **Prophase-I**.

⚠ NEET Alert

The Math Trap

A large number of follicles degenerate from birth to puberty. At exactly **60,000–80,000** primary follicles remain in each ovary.

⚠ NEET Alert

The Membrane

The secondary oocyte forms a new, protective membrane called the **zona pellucida** around itself just before the Graafian follicle ruptures.

Spermatogenesis vs. Oogenesis



Comparison Vector	Spermatogenesis (Male)	Oogenesis (Female)
Initiation Timing	Begins at puberty.	Initiated during embryonic development.
Division Type	Equal meiotic divisions.	Unequal divisions (forms large oocyte and tiny polar bodies).
Cellular Output	1 Primary Spermatocyte -> 4 haploid sperms.	1 Primary Oocyte -> 1 haploid ovum (and polar bodies).
Cessation	Continues even in old men.	Ceases around 50 years of age (menopause).

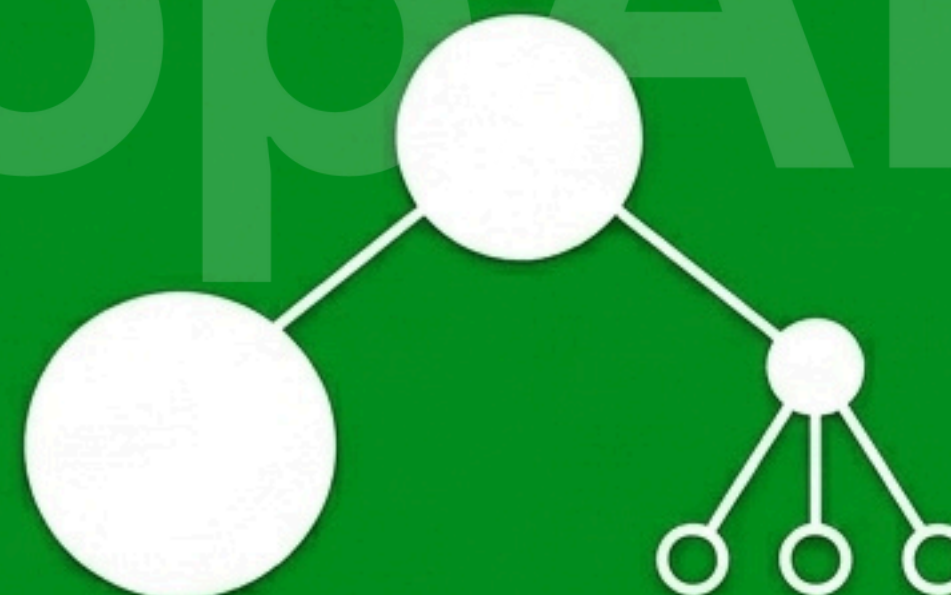
NEET Takeaway

Spermatogenesis forms four equal haploid sperms per primary cell.

Oogenesis results in one large haploid secondary oocyte (retaining nutrient-rich cytoplasm) and tiny, non-functional polar bodies.



4 Equal Haploid Sperms



1 Large Secondary Oocyte

3 Tiny Polar Bodies



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