

# Reproduction and Embryology course

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Course on Reproduction and Embryology for medical studies.

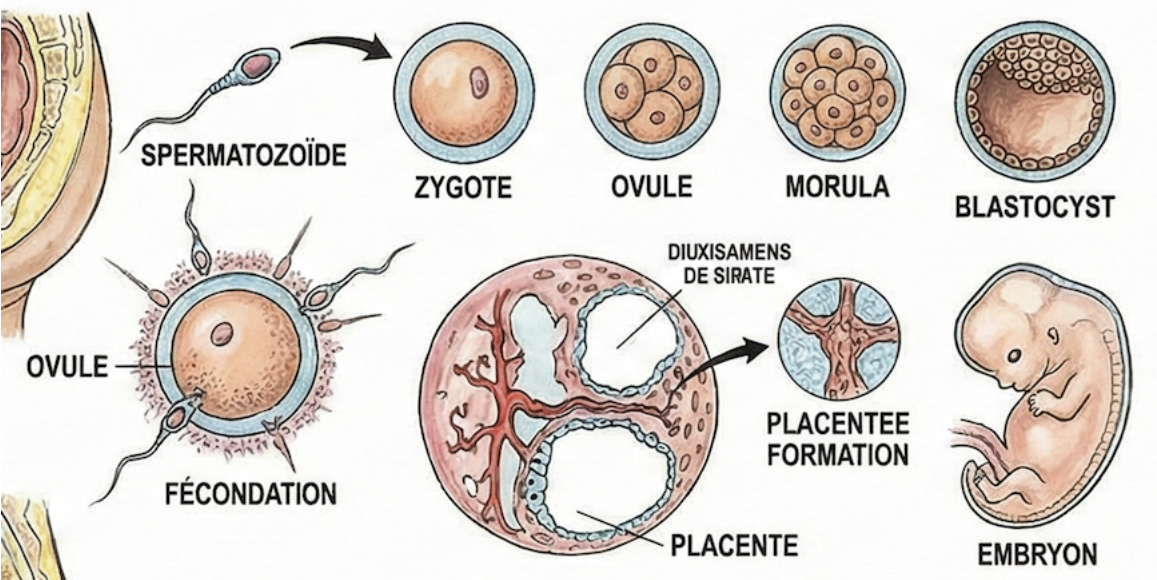


Figure 1: Generated by Google Nano Banana Pro

# 1 Gametes, gametogenesis and spermatogenesis

## ! Essential Concepts

- Gametes are **haploid** reproductive cells with **23 chromosomes**.
- **Mature gametes only form at puberty**.
- They originate from **germ cells** that appear in the **3rd week of development / 21st day**
- **Meiosis** consists of **2 successive specific cell divisions**
  - **Meiosis I:**
    - \* consists of the **segregation of homologous chromosomes** into **2 daughter cells**
  - **Meiosis II:**
    - \* consists of the **segregation of sister chromatids** in each **daughter cell**
  - **Genetic recombination (crossing-over)** occurs during the **first meiotic division**
  - **Non-disjunction anomalies** lead to **monosomies** and **trisomies**, including **sex chromosome syndromes** (that should be known).
  - Meiosis is **fixed and continuous in males**, but **discontinuous and incomplete in females**.
- **Spermatogenesis:**
  - **Spermatogenesis** can only occur correctly if the **testicles descend** into the **scrotal position** early during **fetal life** (between the **7th and 9th month**).
  - The **testicle** plays both an **endocrine** and **exocrine** role.
  - **Spermatogenesis** occurs in the **seminiferous tubules**.
  - **Sertoli cells** play a major role in spermatogenesis. Know the characteristics of **Sertoli cells** and their role.
  - The **seminiferous tubules** are divided into **two compartments** in which different **germ cells** are found.
  - Between the seminiferous tubules is located the **interstitial tissue** where **Leydig cells** are found, which produce **testosterone**.
  - The **blood-testis barrier** (barrière homéotesticulaire) (know its constitution) plays an **immune role** (know the different roles).