



PHARMACOLEARN

It's Important to Know!

BP201T — Human Anatomy and Physiology II

B.Pharm Semester 2 · Unit 5 — Reproductive System and Introduction to Genetics

Unit V: Reproductive System and Introduction to Genetics

This unit covers reproductive anatomy and physiology, sex hormones, gamete formation, pregnancy, parturition and basic genetic information.

Male reproductive system

The male reproductive system includes testes, epididymides, ductus deferens, accessory glands and the penis. Testes produce sperm and testosterone. Spermatogenesis occurs in seminiferous tubules and is supported by Sertoli cells. Leydig cells produce testosterone in response to luteinising hormone.

Female reproductive system

The female reproductive system includes ovaries, uterine tubes, uterus, cervix and vagina. Ovaries produce oocytes and hormones. The ovarian cycle includes follicular, ovulatory and luteal phases. The uterine cycle includes menstrual, proliferative and secretory phases.

Fertilisation, pregnancy and parturition

Fertilisation usually involves fusion of sperm and oocyte genetic material. The early embryo undergoes cleavage and implantation. The placenta supports exchange between maternal and fetal circulations and produces hormones. Parturition involves coordinated uterine contractions and cervical changes.

Genetics

DNA stores hereditary information. A gene is a functional region of genetic material, and chromosomes organise DNA with proteins. Protein synthesis involves transcription of DNA into RNA and translation of messenger RNA into a polypeptide. Mendelian inheritance describes segregation of alleles and independent assortment under stated assumptions. Human inheritance patterns can be more complex than simple Mendelian patterns.

Unit V: Frequently asked questions

Q: Where does spermatogenesis occur?

A: Spermatogenesis occurs in the seminiferous tubules of the testes.

Q: What is the role of the placenta?

A: The placenta supports maternal-fetal exchange and produces hormones that help maintain pregnancy.

Q: What is the difference between a gene and a chromosome?

A: A gene is a functional region of genetic material. A chromosome is a larger organised structure containing DNA and many genes.

Unit V: Key takeaways

- Testes produce sperm and testosterone.
- Ovaries produce oocytes and reproductive hormones.
- Fertilisation begins a developmental sequence supported by the placenta.
- DNA, genes and chromosomes organise hereditary information.
- Protein synthesis uses transcription and translation.

Unit V: Clinical correlation

Clinical correlation: infertility. Infertility can result from factors affecting gamete production, reproductive tract anatomy, endocrine regulation or fertilisation.