

Reproductive Systems and Development

I. Introduction

- A. Define reproduction vs. development
- B. Sexual vs. asexual reproduction
 - Costs and benefits
 - Sexual reproduction: internal vs. external fertilization

II. Human Male Reproductive System

A. Structures

Reproductive organs

Testes

Epididymis

Vas deferens

Ejaculatory duct

Urethra

Penis

Accessory organs

Seminal vesicles

Prostate gland

Bulbourethral glands

B. Sperm production

Meiosis in testes

Maturation in epididymides (plural of epididymis)

Mature sperm structure

Hormonal control of sperm production

C. Sperm delivery

Erection

Ejaculation

Prostate gland

III. Human Female Reproductive System

A. Structures

Ovaries

Oviducts

Uterus/Cervix

Vagina

Clitoris

Labia minora/majora

B. Cycles

Estrous vs. menstrual

Menstrual cycle

C. Egg production

Fetal development

Immature eggs develop in follicles

Arrest in meiosis

After puberty

Eggs mature in response to FH

Ovulation

Corpus luteum – progesterone

Hormonal levels during menstrual cycle

IV. Fertilization & Embryonic Development

A. Fertilization

B. Embryonic development

Developmental stages

Gamete production

Fertilization

Cleavage

Gastrulation

Organ formation

Growth, specialization

Cell differentiation

Morphogenesis

V. Pregnancy, Birth & Lactation

A. Early human pregnancy (Wks 1 & 2)

Fertilization

Cleavage

Implantation

Membrane formation

Hormone production

B. Weeks 3 & 4 of human pregnancy

Gastrulation

Vertebrate body plan

C. Midgestation

Organ growth & development

D. Placenta

Exchanges materials between mother & fetus

Umbilical cord connects fetus to placenta

E. Birth

Labor

Oxytocin positive feedback loop

F. Lactation

Prolactin

Oxytocin

Milk – nutrition, immunity

VI. Sexually-Transmitted Diseases (STDs) and Pregnancy Prevention

A. STDs

HPV

Trichomoniasis

Chlamydia

BIO 102 General Biology

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Lecture Outline

Gonorrhea

Herpes

Syphilis

HIV / AIDS

B. Contraception

Rhythm

Oral contraceptive pill / patch

Intrauterine device (IUD)

Barriers

Tubal ligation

Postcoital contraceptives