Chapter 28: Pregnancy and Development

Gestation 266 days, +/- two weeks. 280 days from last menses. First eight weeks embryonic, then fetal.

I. Fertilization

Oocyte viable 12 – 24 hours.
Sperm viable 24 – 48 hours.
Fertilization in distal third of oviduct.


Meiosis II completes ovum after sperm cytoplasm is within oocyte. Female and male pronuclei fuse, creates diploid zygote.

II. Embryonic Development

Cleavage produces morula, hollow blastocyst implants. Blastocyst contains trophoblast and inner mass.

Implantation occurs days 7 – 12. Human chorionic gonadotropin, hCG, from trophoblast maintains corpus luteum.

Chorion contributes to the placenta. Its cells can be sampled = CVS. Other extra-embryonic membranes include amnion; yolk sac; allantois (produces umbilical cord).

After gastrula stage, three embryonic germ layers form. Endoderm – internal organs, e.g. GIT; Mesoderm – connective tissues, e.g. bone, blood & muscle; Ectoderm – skin, sense organs, nervous system.

Differentiation leads to organogenesis. Fetal circulation designed to bypass pulmonary circuit, liver.

Teratogens cause birth defects, e.g. thalidomide, Rubella virus.

III. Fetal Development – mostly growth
IV. Maternal Changes

Increasing estrogens and progesterone.

Enhanced pigmentation.

Relaxin increases pubic angle. Changes gait.

Nausea, constipation, increased urination,

increased blood volume, elevated BP, 
may lead to Eclampsia (toxemia).

V. Parturition

Prostaglandins, oxytocin (+ feedback) involved in labor.

Preceded by Braxton Hicks contractions.

1\textsuperscript{st} Stage = effacement and dilation of cervix, to 10cm.

2\textsuperscript{nd} Stage = expulsion. Episiotomy to prevent tearing.

3\textsuperscript{rd} Stage placental, the “afterbirth”.

VI. Infant Adjustments

First four weeks the neonatal period.

Apgar score at one and five minutes.

First breath results in vascular changes. Blood $\rightarrow$ pulmonary circuit, liver.

Meconium in the first bowel movements.
VII. Lactation

**Colostrum**, not milk, for ~48 hours postpartum. Less lactose and fat, higher proportion antibodies, laxative effect.

Then prolactin becomes effective.

Oxytocin for milk let down. Also produces uterine contractions.

VIII. Fertility Treatments

ART = assisted reproductive technology.

Best when addresses the exact cause.

Treatments hormonal, surgical (laproscope), mechanical (artificial insemination).

Most are modifications of **IVF**: in vitro fertilization.

Use of donors, surrogates.

IX. Contraception

**Fertility Awareness**: includes cervical mucous changes and basal TB variations.

**Barrier Forms**: condoms, diaphragms, cervical caps. With or w/o spermacides.

**Hormonal**: various pills, patches, vaginal rings, injections, implants.

**Sterilization**: Tubal ligation, vasectomy.

**Abortion**: RU 486 effective for first seven weeks.