No pregnancy

- In absence of pregnancy, cells stop synthesising steroids and apoptose
- Reduced progesterone synthesis results in menstruation •
- After degeneration of the corpus luteum, oestrogen levels drop, releasing FSH from inhibition
- More follicles stimulated to grow in another cycle
- Remnants of the corpus luteum phagocytosed by macrophages; fibroblasts then invade and produce a scar of connective tissue (corpus albicans)

Pregnancy

- Trophoblast cells of the implanting embryo secrete human chorionic gonadotrophin (hCG), which acts similarly to LH
- HCG targets the corpus luteum; maintains it to maintain progesterone synthesis and thus the uterine mucosa
- Progesterone also stimulates the uterine mucosal glands, for nutrition of the embryo before placenta is in place
- Corpus luteum of pregnancy hypertrophies and is maintained by HCG for 4-5 months
 - Placenta then produces progesterone and oestrogens at sufficient levels
- Corpus luteum degenerates and replaced by a co Note

Uterine tubes

- Muscular tubes with ble mebility
- Regions
- o Junnel shaped P um with fimbriae
 - Ampulla, long expanded area where fertilisation occurs
 - Isthmus, narrow region near uterus 0
 - Uterine/intramural part, passes through wall of the uterus
- Wall of oviduct is folded mucosa, thick muscularis (with interwoven longitudinal and circular muscle) and peritoneum with mesothelium

Clinical note

- Salpingitis is inflammation of the uterine tubes
- Salpingectomy is surgical removal of the uterine tubes
- Mucosa has branching, longitudinal folds, particularly in the ampulla, not present in the intramural segment
- Mucosa is simple columnar epithelium on a lamina propria of loose connective tissue
- Two cell types, ciliated cells and secretory peg cells (apical side bulges into lumen)

- Cilia beat toward the uterus, moving along a viscous fluid film produced by peg cells, which contains glycoproteins and nutrients
- Both cell types hypertrophy and cilia elongate in response to oestrogen during the follicular phase, and atrophy in the luteal phase
- At the time of ovulation, the uterine tubule shows active movement
 - o Infundibulum moves closer to ovary and partially covers its surface
 - Muscle contractions of the fimbriae and ciliary activity move the oocyte along the uterine tubes to the ampulla
- The secretions from peg cells has nutrient and protective functions for the oocyte and sperm, including factors promoting capacitation
- Oocyte viable for 24 hours
- Following fertilisation, the oocyte finishes its second meiotic division to form the ovum
- Diploid cell from fertilisation is the zygote
- Contraction of the oviduct and ciliary movement transport the zygote to the uterus; ciliary activity not essential

Clinical note

- Proinflammatory scar tissue can block uterine tubes, preventing the embryo from reaching the uterus
- May implant in the uterine tube wall ectopic proves
- The lamina propria may react like the use the anometrium and form
 decidual cells
- Due to small diameter (robinability to expand, tubes cannot contain the growing errors and will rupture haen orrhage, which can be fatal

Uterus

- Pear shaped, thick muscular walls
- Uterine tubes enter into the body; curved, superior area is the fundus
- Uterus narrows in the isthmus to become the cervix; lumen is the internal os, entering into the cervical canal
- Three major layers
 - Perimetrium: outer connective tissue layer, continuous with ligaments
 - Myometrium: thick smooth muscle, highly vascularised
 - Endometrium: mucosa of simple columnar epithelium
- Thickness and structure of the endometrium influenced by ovarian hormones

Myometrium

- Bundles of smooth muscle plus connective tissue with blood vessels
- Mixture of longitudinal and circular muscle

• Connective tissue of the nipple is rich in smooth muscle fibres running parallel to the lactiferous sinuses, responsible for nipple erection



- Several hormones contribute to growth of the mammary glands during pregnancy (oestrogen, progesterone, prolactin, human placental lactogen)
- Alveoli proliferate (composed of cuboidal epithelium, with myoepithelial cells) and ducts proliferate
- Stroma becomes less prominent; intra-lobular loose connective tissue is infiltrated by lymphocytes and plasma cells (become more numerous toward end of pregnancy for IgA secretion)
- Late in pregnancy the alveoli and ducts dilate due to an accumulation of colostrum (rich in proteins, vit A, and electrolytes) which is produced under influence of prolactin; antibodies added
- Following parturition, levels of oestrogen and progesterone declines, and glandular alveoli become active in milk production
- Merocrine secretion of protein, apocrine secretion of lipids, plus other components (sugar, lactose etc.)