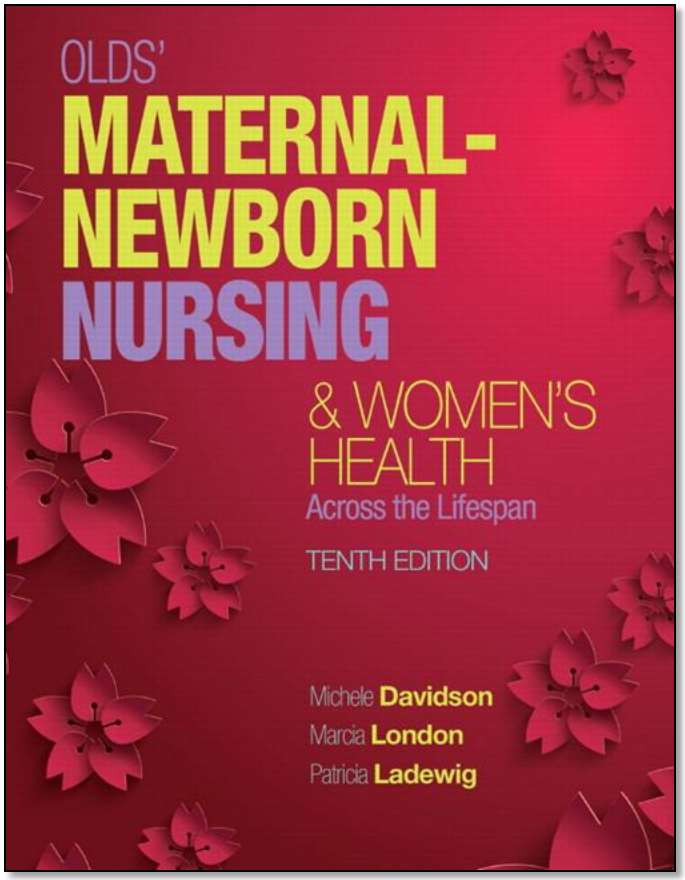
Olds' Maternal-Newborn Nursing & Women's Health Across the Lifespan

TENTH EDITION



CHAPTER 3

Reproductive Anatomy and Physiology

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Female Reproductive System

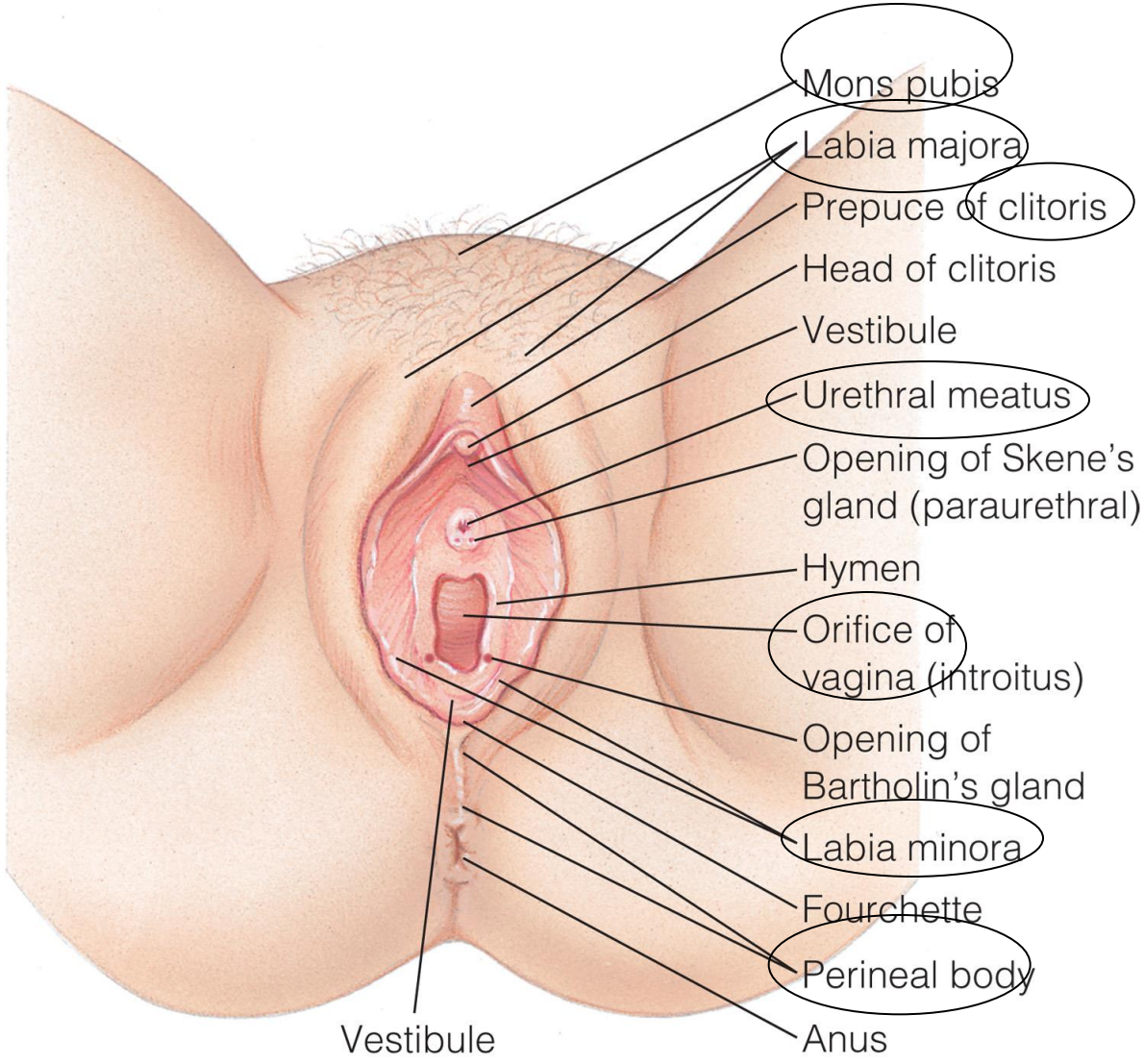
- External genitals
- Internal genitals
- Accessory organs of breasts
- Structure of bony pelvis

External Genitals

External Genitals

- Vulva includes:
  - Mons pubis
  - Labia majora and minora
  - Clitoris
  - Urethral meatus
  - Vaginal vestibule
  - Perineal body

Figure 9–2 Female external genitals, longitudinal view.



External Genitals

- Mons pubis
  - Subcutaneous fatty tissue at lowest portion of anterior abdominal wall, over the pubic bone
  - Covered with pubic hair & loaded with nerve endings
- Labia majora
  - Either side of the vulvar cleft
  - Chief function to protect structures between Stratified squamous epithelium

External Genitals

- Labia minora
  - Skin within labia majora that converge near the anus
  - Form fourchette
- Clitoris
  - Located between labia minora
  - Erectile tissue with prepuce, or clitoral hood
  - Primary erogenous organ of women

External Genitals

- Urethral meatus and paraurethral glands
  - 1–2.5 cm beneath clitoris
  - Difficult to visualize
  - Skene glands on 2 sides of the opening
- Vaginal vestibule: area bw labia minora & has 2 openings: uterthral & vagina
  - Introitus
  - Hymen
  - Vulvovaginal (Bartholin) glands

External Genitals

- Perineal body
  - Wedge-shaped mass of fibromuscular tissue between vagina and anus
  - Perineum is superficial area
  - Site of episiotomy or lacerations during childbirth

Internal Genital Organs

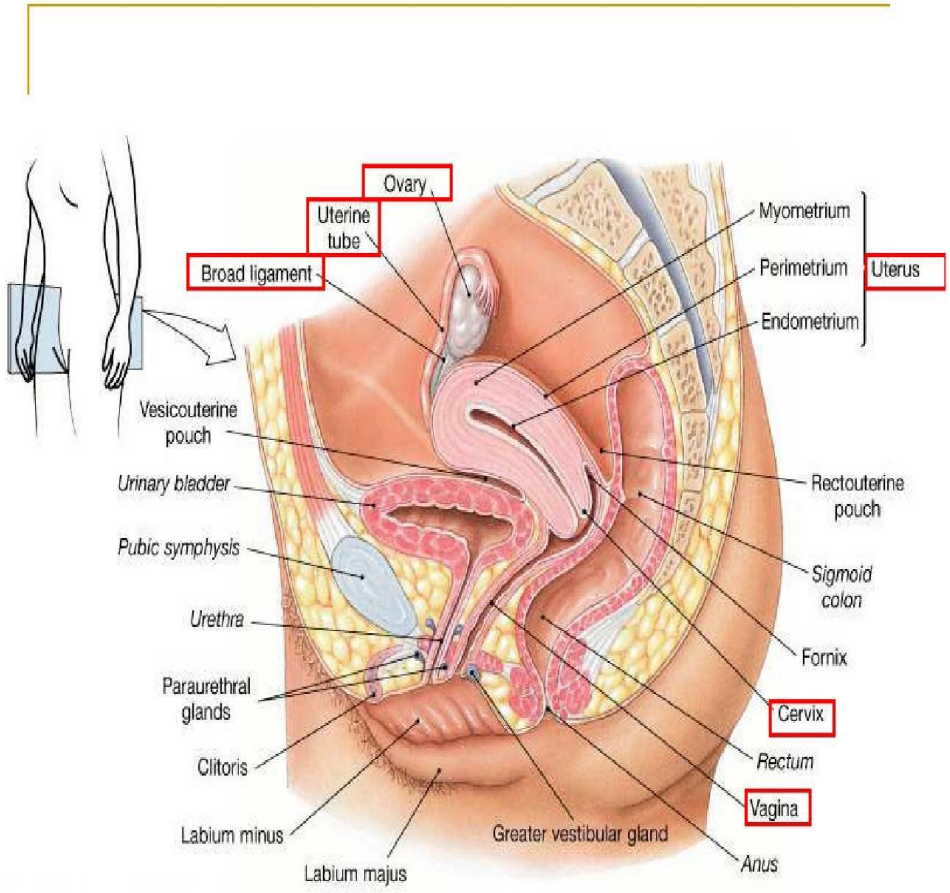
Internal Genital Organs

Vagina

Uterus

Fallopian tubes

Ovaries



Female Internal Reproductive Organs

- Vagina
  - A glove-like space, *stretchable* canal, 10 cm long, run from the vestibule to cervix
  - Muscular, membranous tube
  - Walls covered with rugae → allows enlargement of vagina during delivery
  - Normally acidic during reproductive life

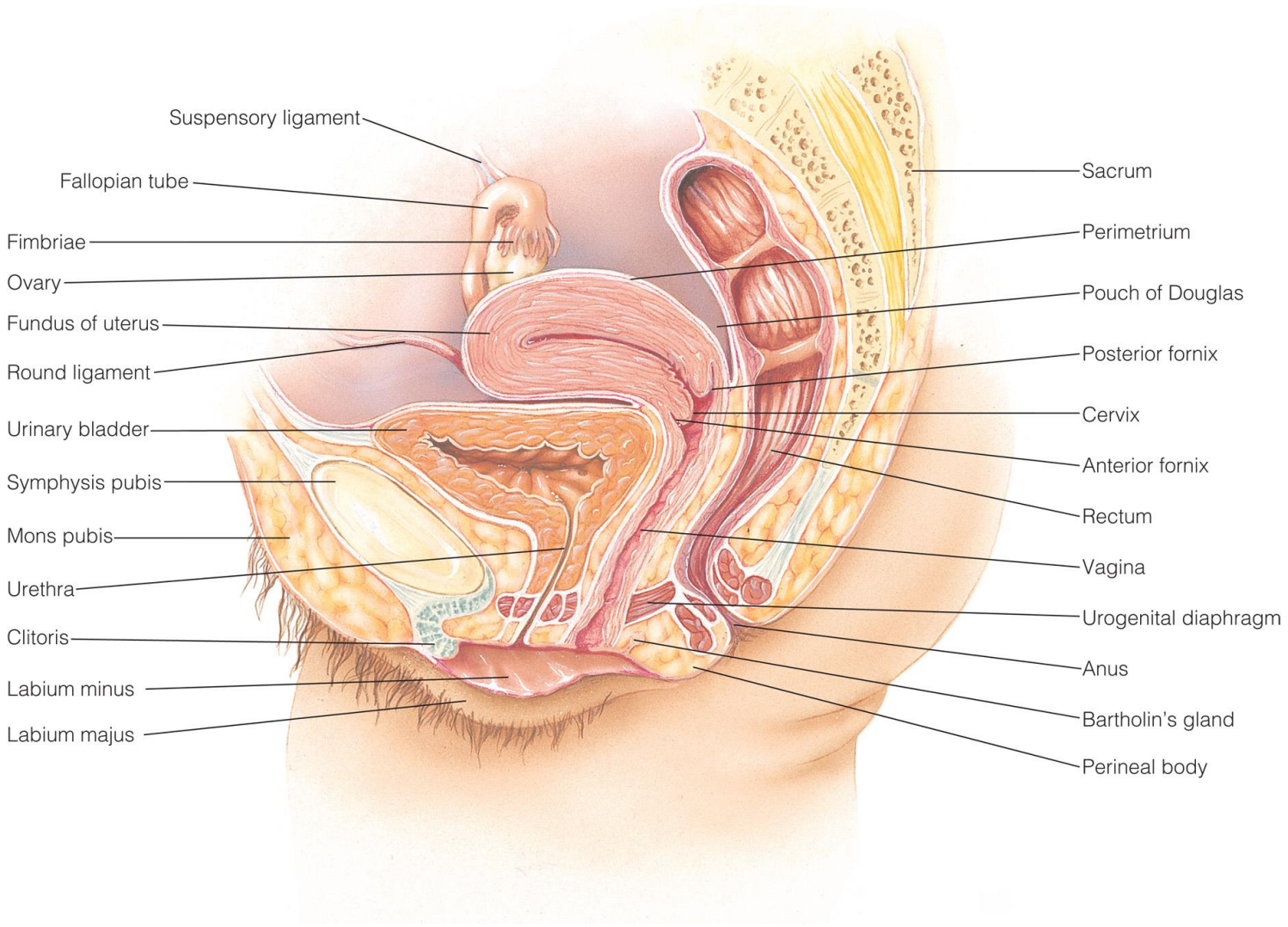
Female Internal Reproductive Organs

- Vagina
  - Functions
    - Passageway for sperm during coitus, fetus during birth
    - Passage for menstrual blood flow
    - Protect against trauma from sexual intercourse and infection from pathogenic organisms

Female Internal Reproductive Organs

- Uterus
  - Hollow, thick-walled muscular pear-shaped
  - Centered in pelvic cavity, behind bladder & in front of rectum
  - Leans forward: called anteversion
  - Two major parts – corpus and cervix
  - Mature size 6–8 cm long

Figure 9–3 Female internal reproductive organs.



Female Internal Reproductive Organs

- Uterus

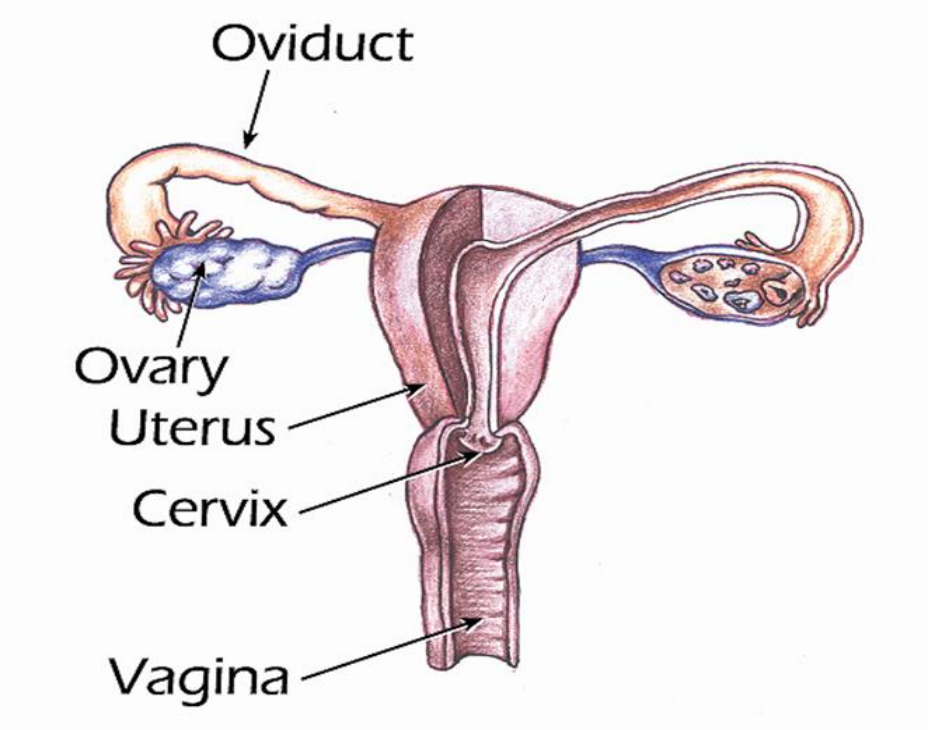
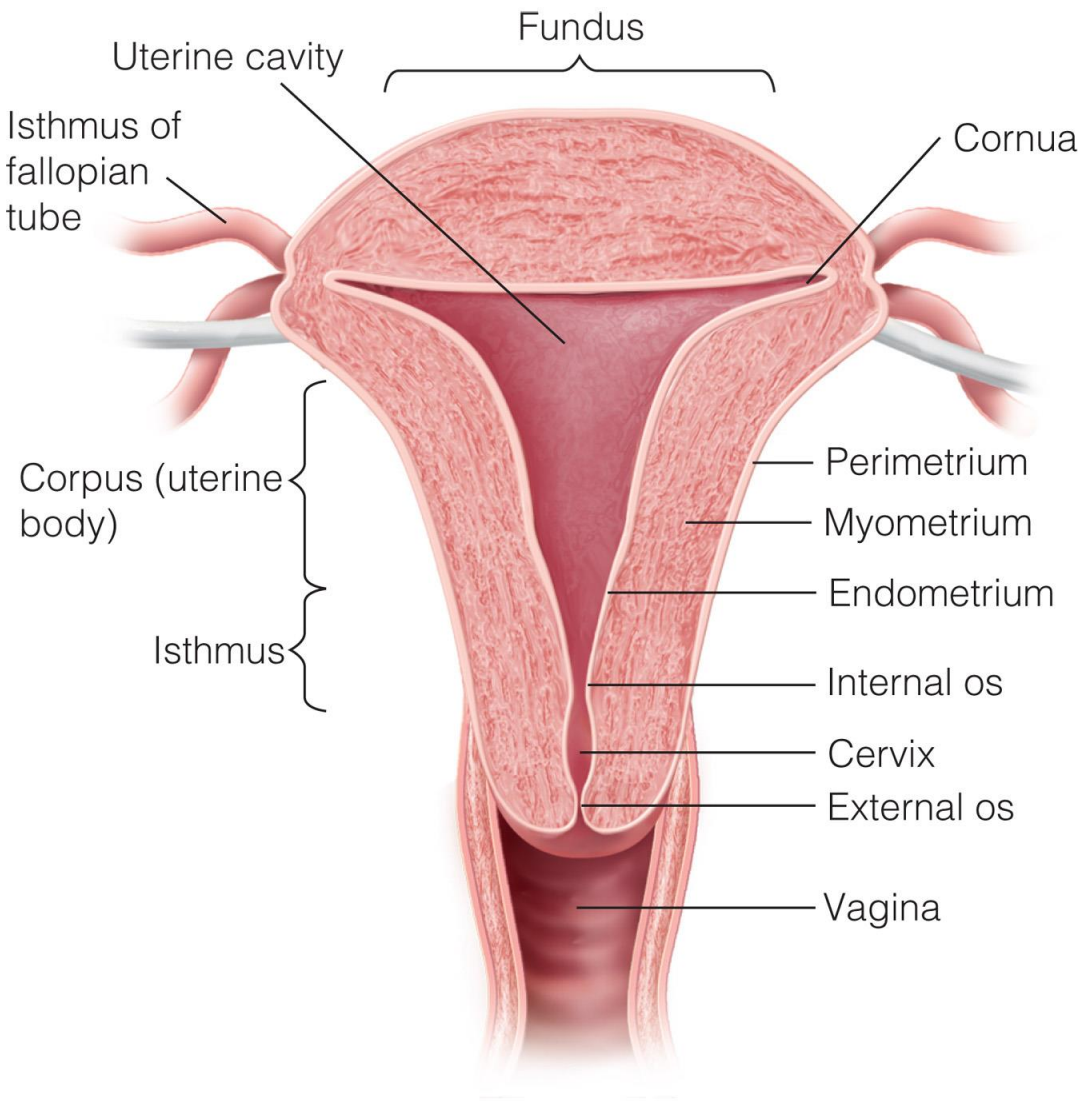


Figure 9–4 Structures of the uterus.



Female Internal Reproductive Organs

- Uterus
  - Isthmus
    - Lower uterine segment
    - Portion of uterus between internal cervical os, endometrial cavity
  - Nidation
    - Preparation of uterine lining by steroid hormones for implantation of embryo

Female Internal Reproductive Organs

- Uterus
  - Uterine corpus
    - upper triangular portion
      - Serosal layer (perimetrium)
      - Muscular layer (myometrium)
      - Mucosal layer (endometrium): ciliated epithelium, change thickness during cycle
        - Monthly renewal from menarche to menopause in absence of pregnancy

Female Internal Reproductive Organs

- Uterus
  - Cervix
    - Internal os
      - Opens to uterus
    - External os
      - Opens to vagina

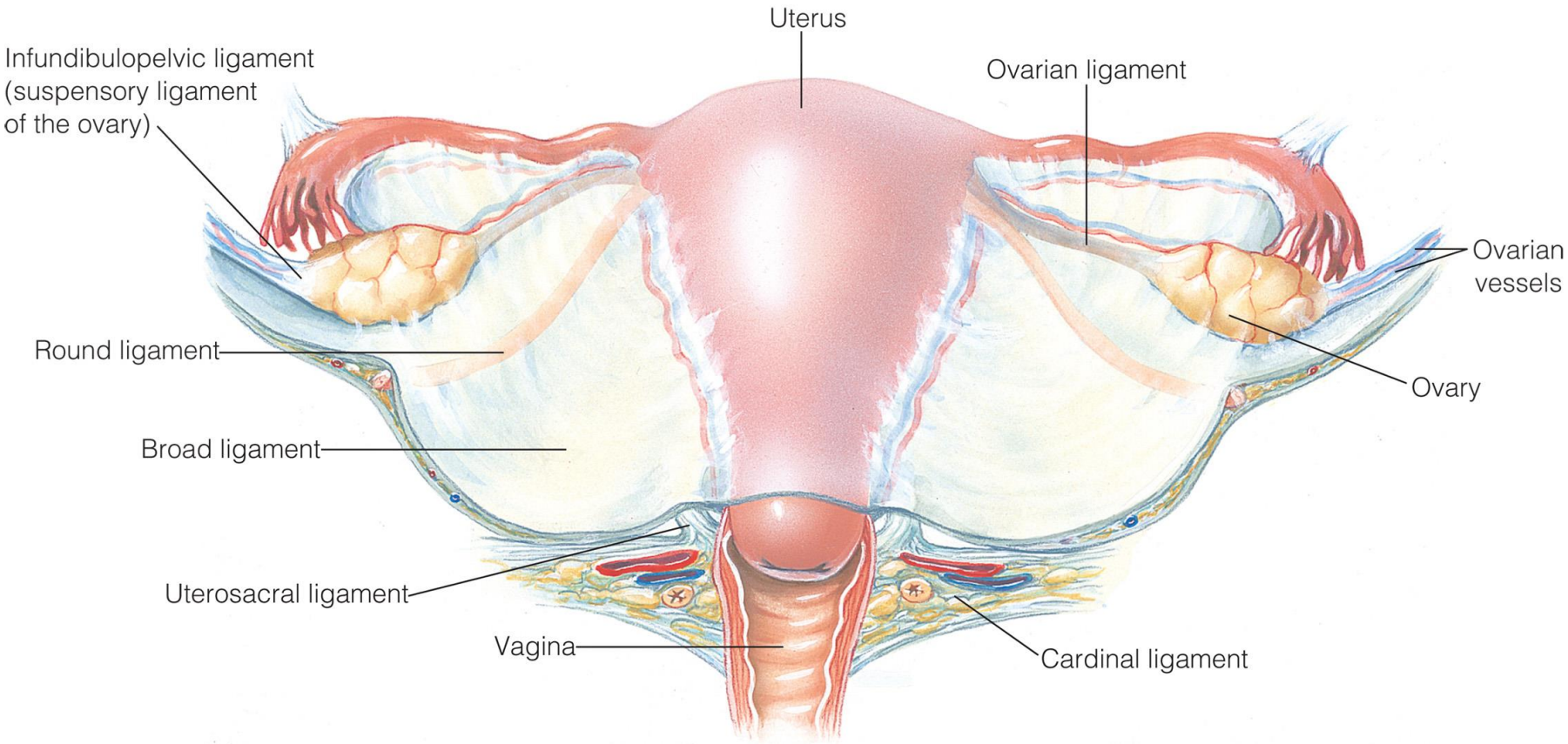
Female Internal Reproductive Organs

- Uterus
  - Cervix
    - Function
      - Lubrication of vagina
      - Acts as bacteriostatic agent
      - Provides alkaline environment

Female Internal Reproductive Organs

- Uterine ligaments
  - Broad: folds of peritoneum, draped over fallopian tubes like a curtain
  - Round: maintain anteverted position of uterus
  - Ovarian: support ovaries
  - Cardinal: supports cx to lateral wall
  - Infundibulopelvic: supports ovaries
  - Uterosacral: supports cx to sacrum

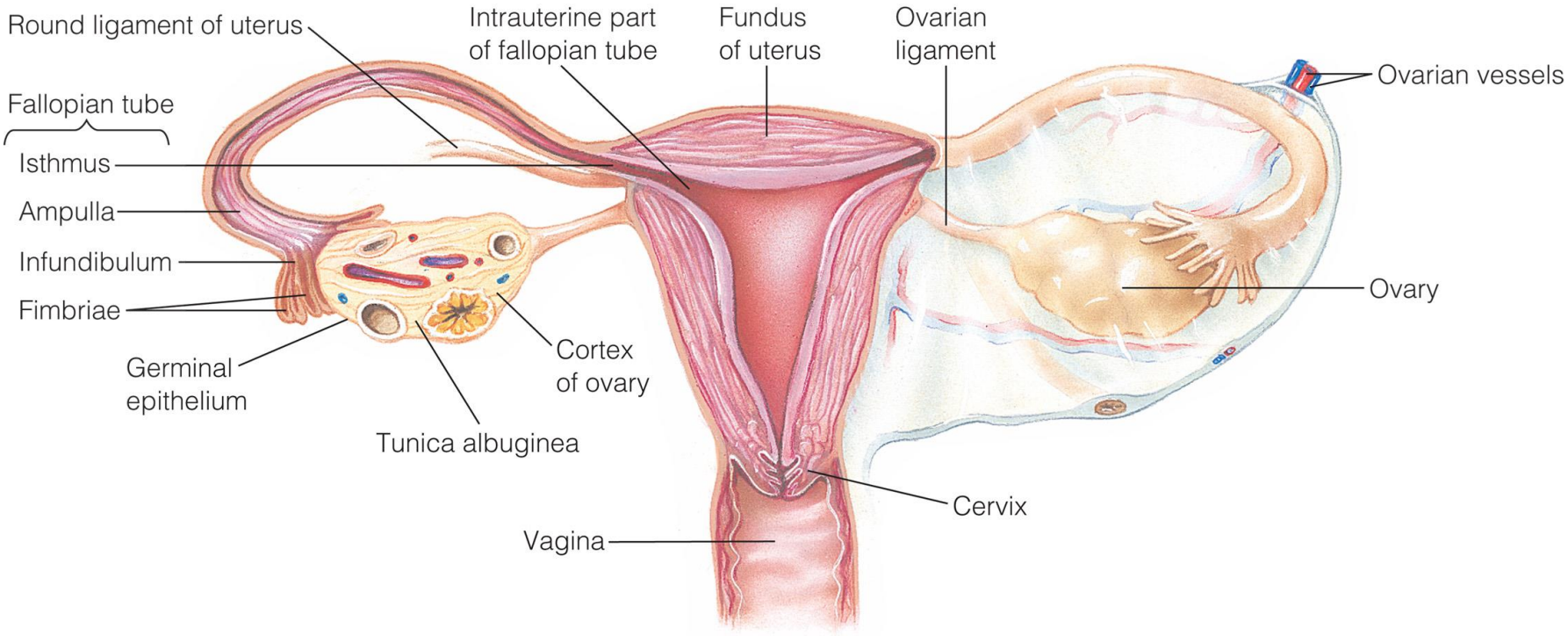
Figure 9–7 Uterine ligaments.



Female Internal Reproductive Organs

- Fallopian tubes: 2 tubes, each has 3 parts:
  - Isthmus: narrow part, 2.5 cm from uterus
  - Ampulla: dilated portion, 5 cm.
  - Fimbria: funnel-shaped end, has fimbriae (finger-like) at the end
  - Functions
    - Transport ovum to uterus
    - Site for fertilization
    - Nourishing environment for ovum/zygote

Figure 9–8 Fallopian tube and ovaries.

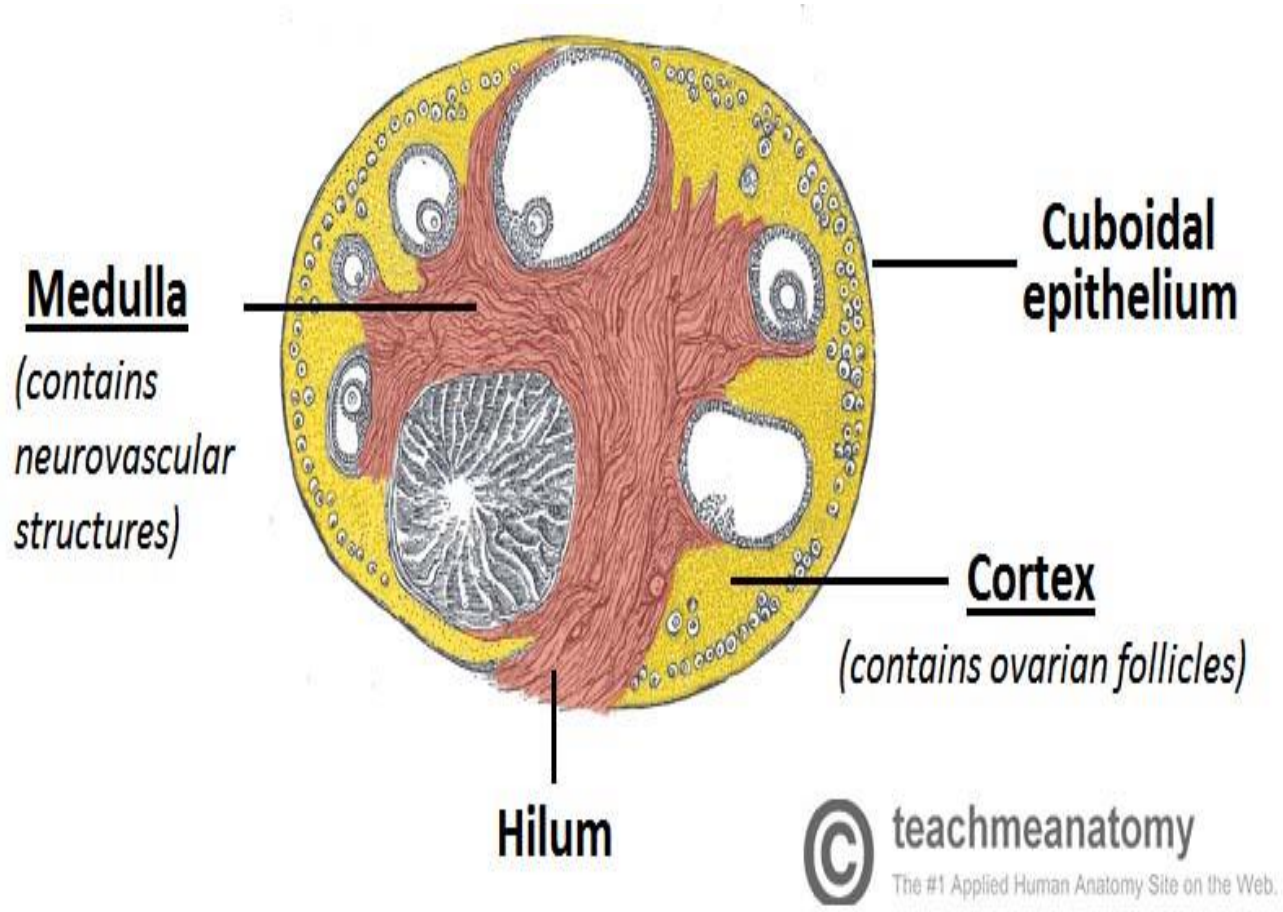


Female Internal Reproductive Organs

- Ovaries: Female sex glands, oval, almond-shaped, 3 cm long, 1.5 cm wide, 1 cm thick
- Attached to the back of broad ligaments
- Three layers
  - Tunica albuginea: surface of ovary
  - Cortex: functioning part of the ovary, contains ovarian follicles
  - Medulla: supporting part

Female Internal Reproductive Organs

- Ovaries



Female Internal Reproductive Organs

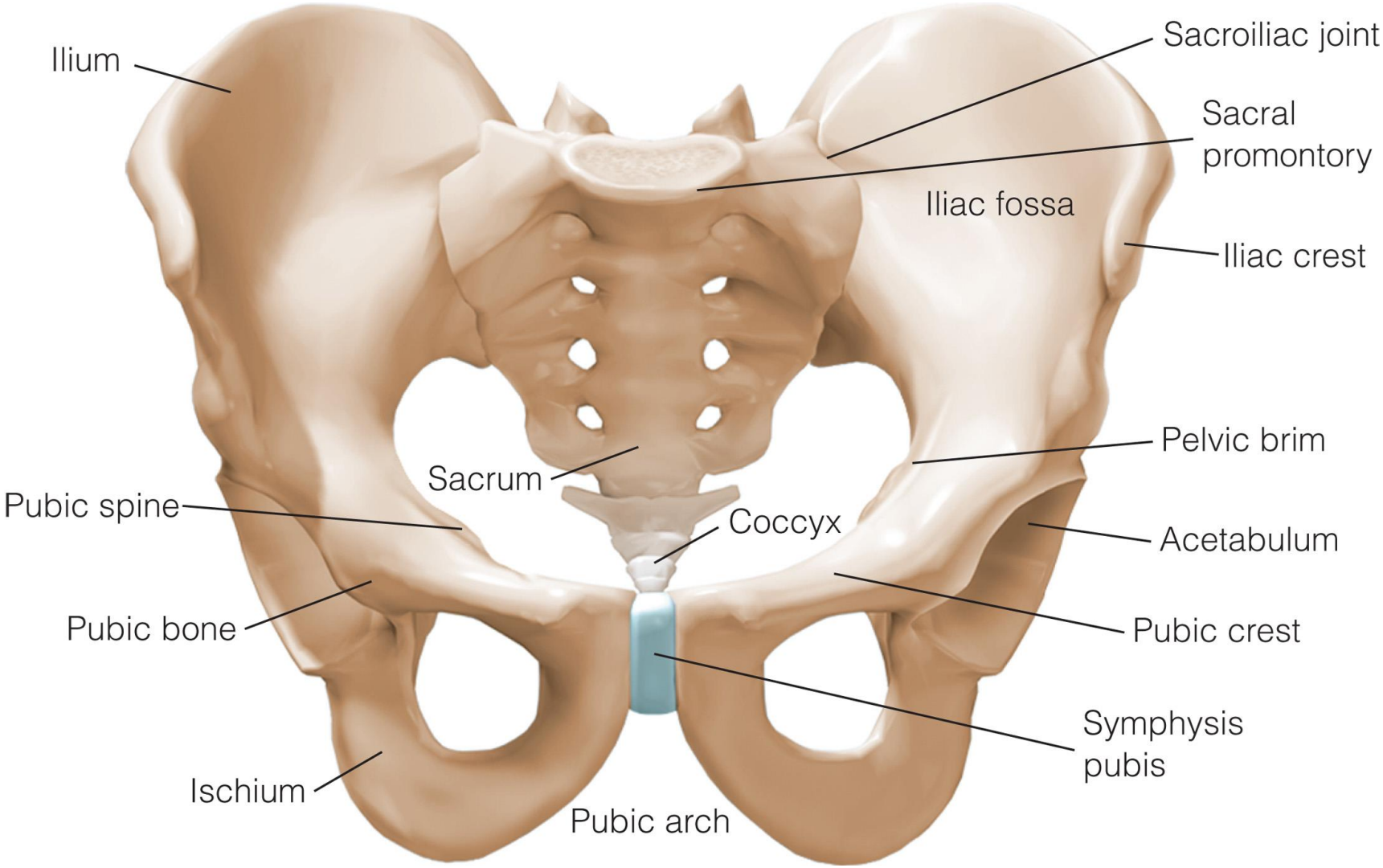
- Function of ovaries:
  - Store and develop follicles
  - Secrete hormones
    - Estrogen
    - Progesterone

Bony Pelvis

Bony Pelvis

- Function
  - Support and protect the pelvic contents
  - Form the relatively fixed axis of the birth passage
- Bony structure – four bones
  - Innominate (two side bones)
  - Sacrum
  - Coccyx

Figure 9–12 Pelvic planes: coronal section and diameters of the bony pelvis.



Bony Pelvis

- Bony structure: Resembles bowl
  - Four bones
    - Innominate (two side bones): hip bones

      1) Ilium

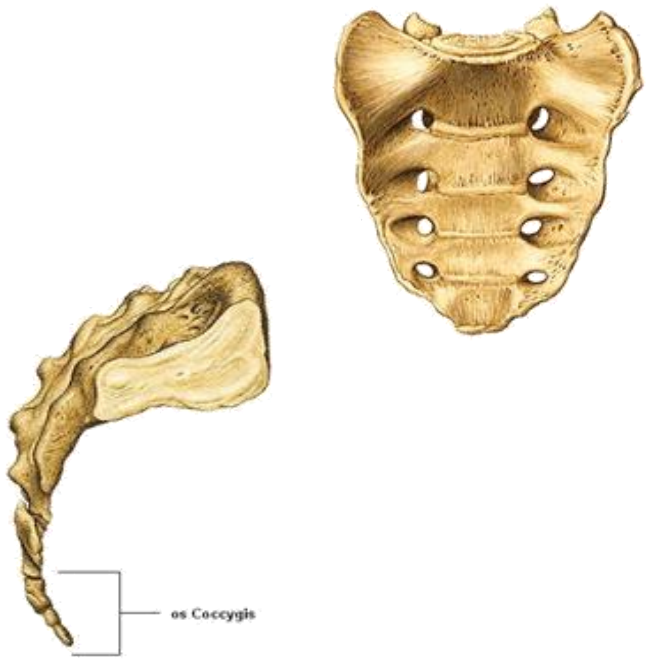
      2) Ischium
         - Ischial spines
         - Strongest bone

      3) Pubis
         - Symphysis pubis

      The 3 bones joined into a depression called **acetabulum**

Bony Pelvis

- Bony structure
  - Four bones
    - 4) Sacrum
      - Sacral promontory
    - Coccyx



Bony Pelvis

- Pelvic floor: The soft tissue that fill the pelvic outlet
  - Musculature to overcome force of gravity
  - Pelvic diaphragm
    - Dilatation during birth
    - For return to pre-pregnancy condition after birth
    - Deep fascia, levator ani, coccygeal muscles

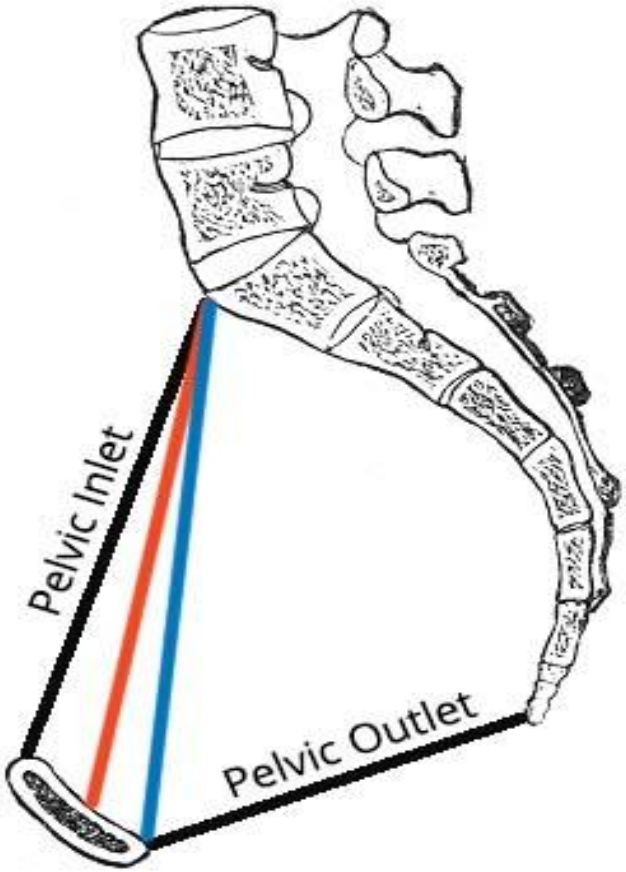
Bony Pelvis

- Pelvic division
  - False pelvis:
  - All of the bony pelvis ABOVE pelvic brim
  - It supports enlarged uterus & directs fetal part into true pelvis
  - This is not important in obstetric

Bony Pelvis

- Pelvic division
  - True pelvis: all of pelvis BELOW pelvic brim. Very important!
    - Pelvic inlet
      - Diagonal conjugate: extends from the subpubic angle to the middle of sacral promontory & typically = 12.5 cm. Can be measured manually
      - Obstetric conjugate: The shortest APD between sacral promontory & symphysis pubis through which the head should pass. V. important & cannot be measured. (widest is 11 cm)

Bony Pelvis



Obstetric Conjugate

Diagonal Conjugate

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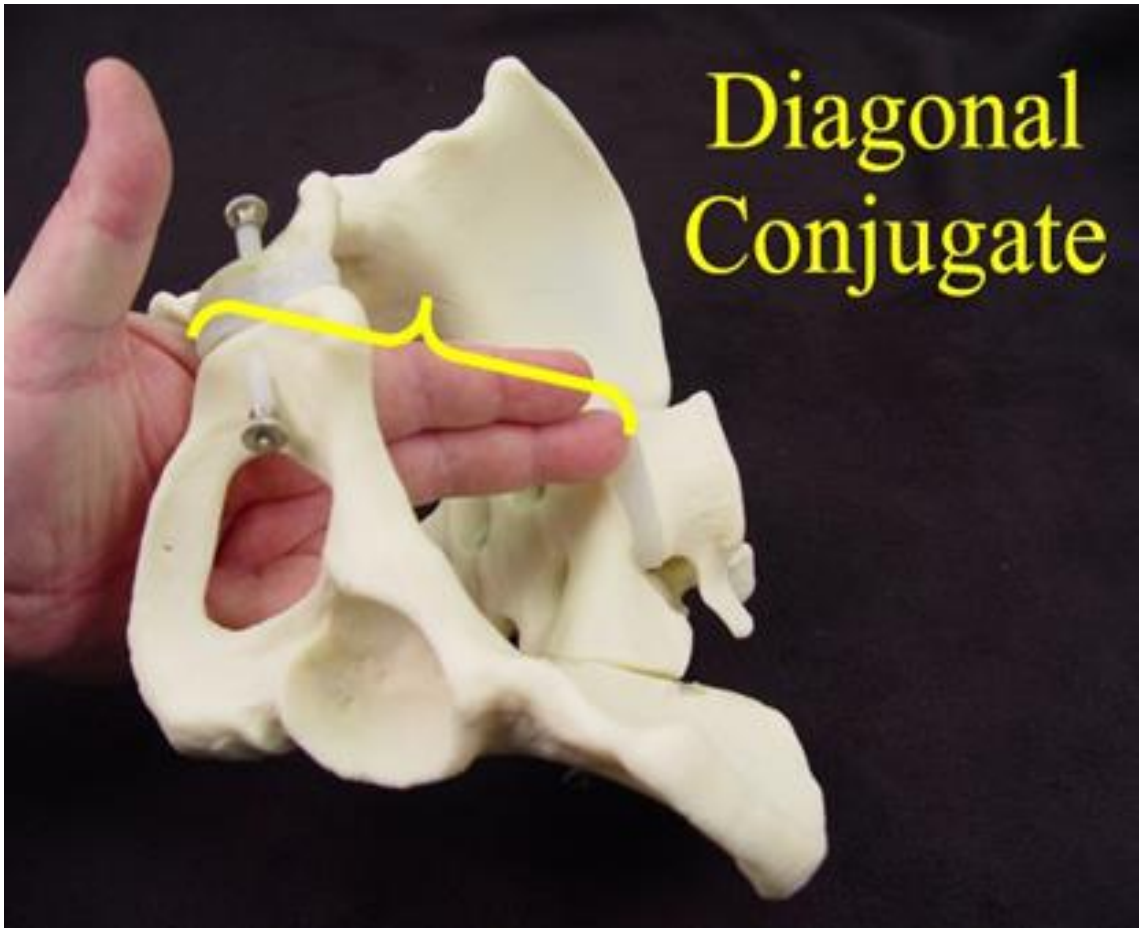
Bony Pelvis

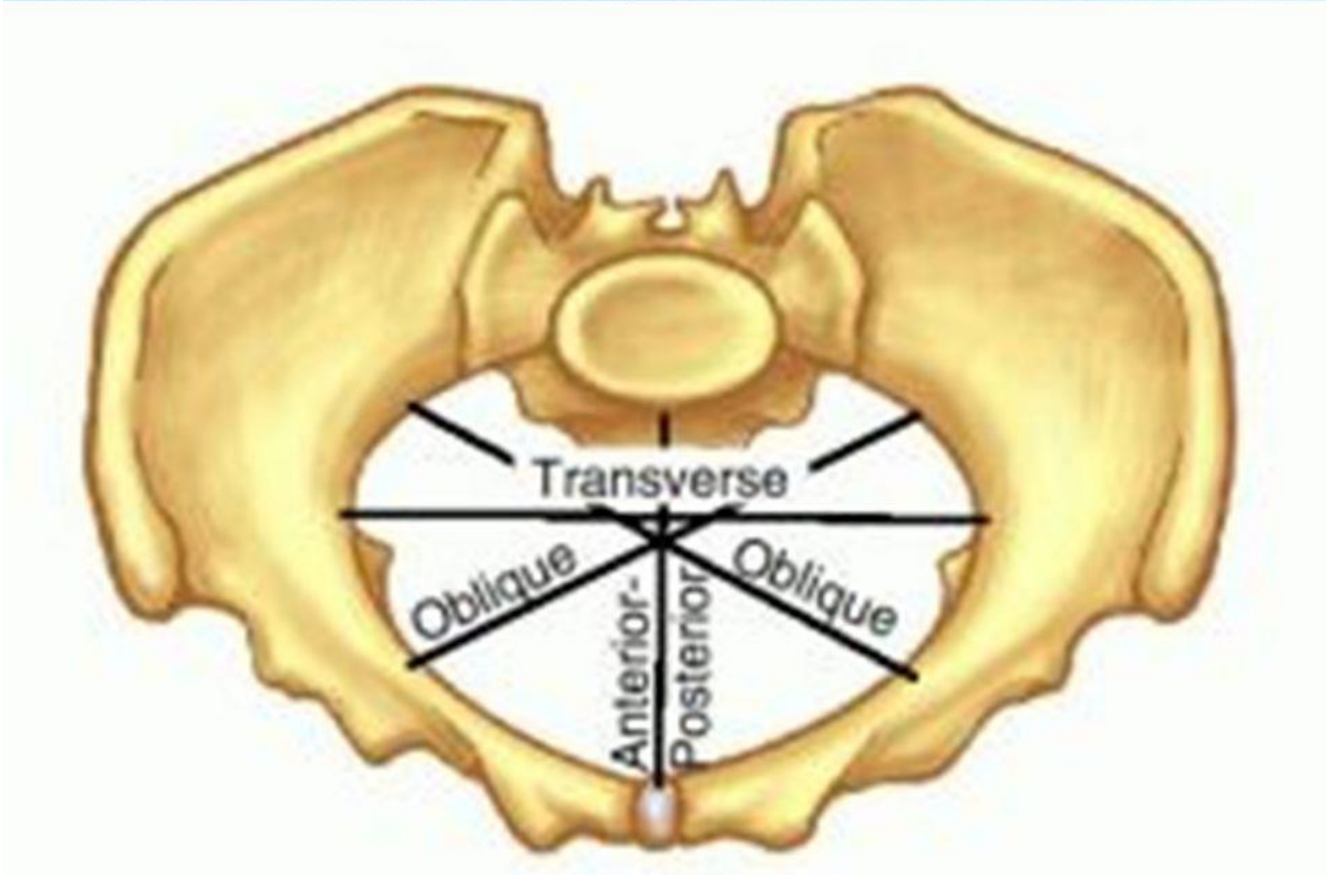
Adequacy of the pelvis to achieve vaginal delivery

Adequacy means N > 10 cm



Bony Pelvis

Transverse diameter is the greatest distance between the linea terminalis on either side of the pelvis.



Bony Pelvis

- Pelvic division
  - True pelvis
    - Pelvic cavity
    - Pelvic outlet
      - Determined by assessing pelvic diameter
        - Bi-ischial or intertuberous
      - Outlet dystocia may require use of forceps, cesarean birth

Bony Pelvis

Pelvic types

- Caldwell-Moloy classification
  - Gynecoid
  - Android
  - Anthropoid
  - Platypelloid

Bony Pelvis

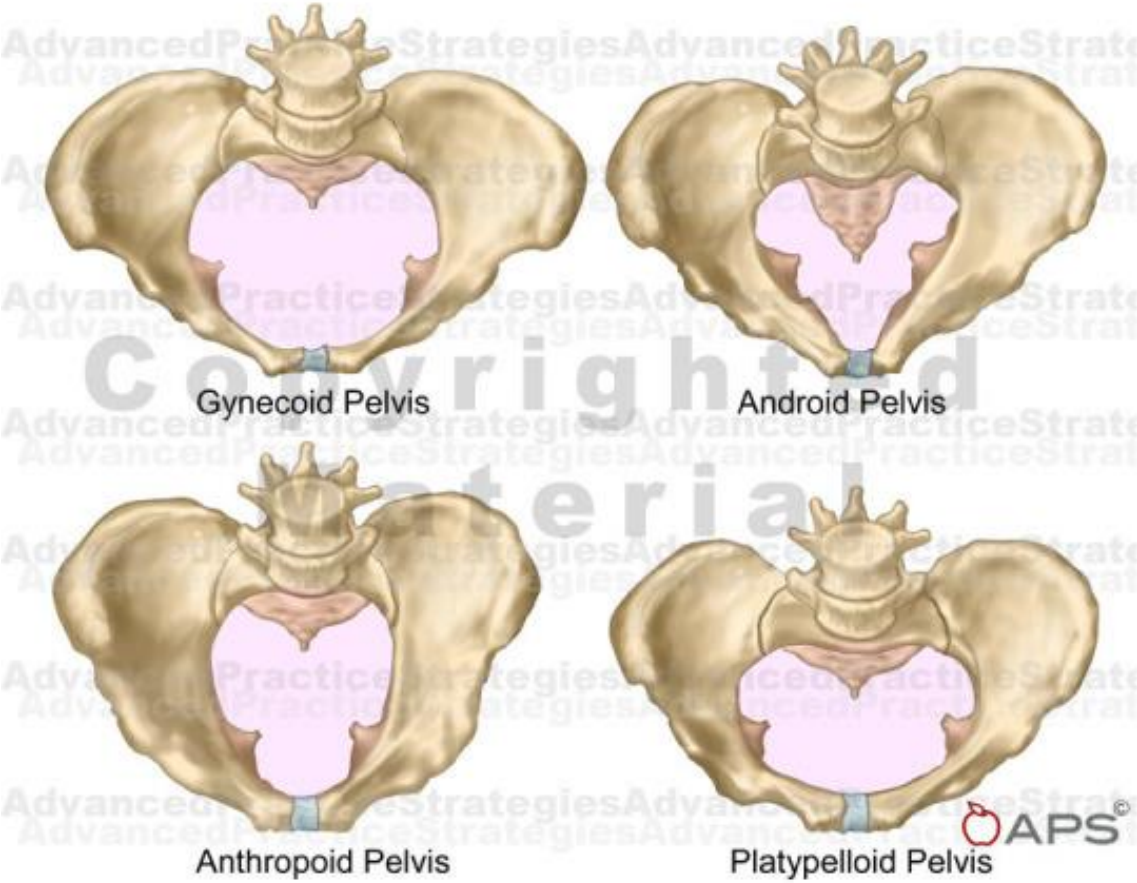


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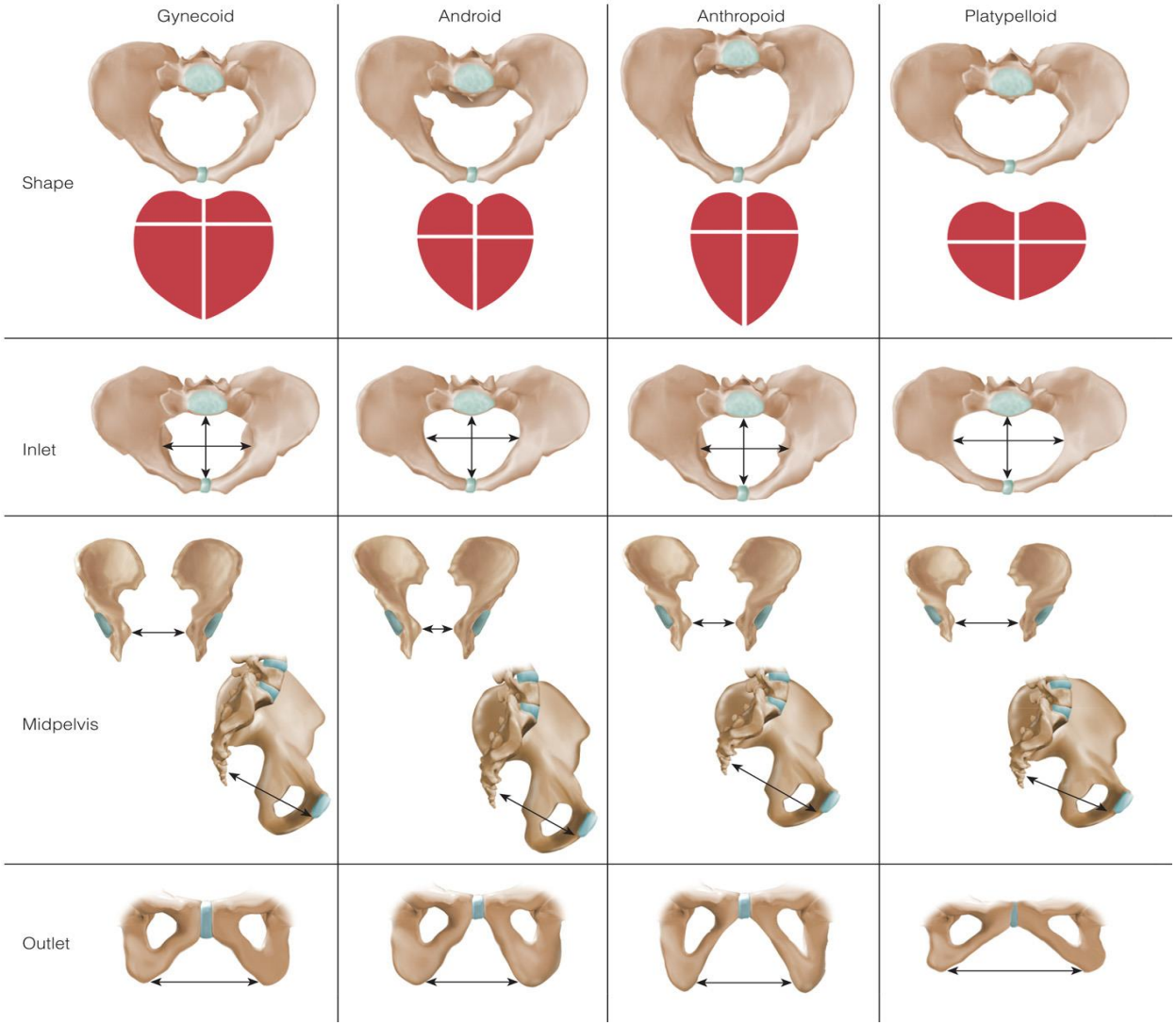
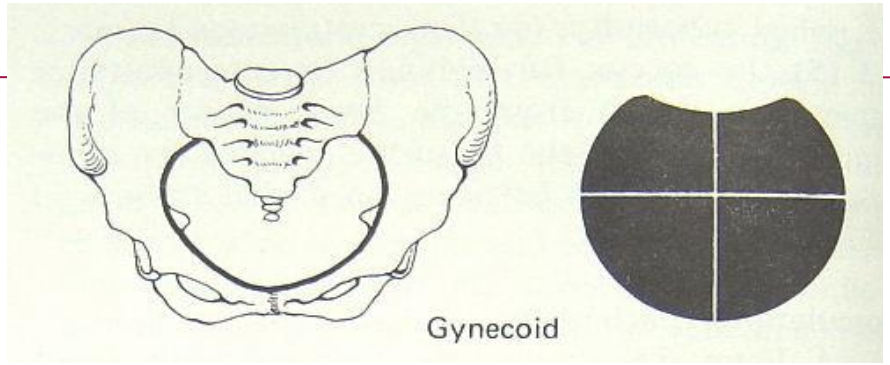
Figure 9–13 Comparison of Caldwell-Moloy pelvic types.



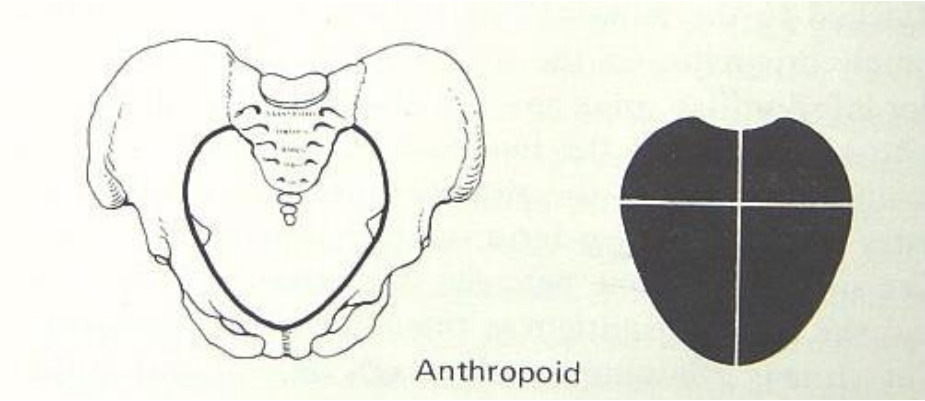
Gynaecoid pelvis



1. It is the normal female type.
2. Inlet is slightly **rounded** to transverse oval.
3. Sacrum is wide with **average concavity and inclination.**
4. Side walls are straight with **blunt** ischial spines.
5. Sacro-sciatic notch is **wide**.
6. Subpubic angle is **90-100^{o}**.

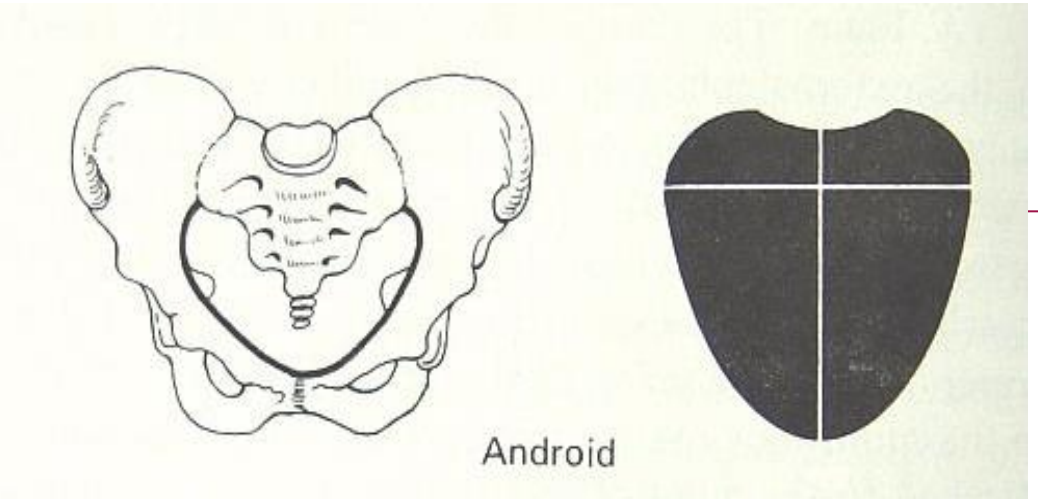
shape, best chances for normal vaginal delivery

Anthropoid pelvis



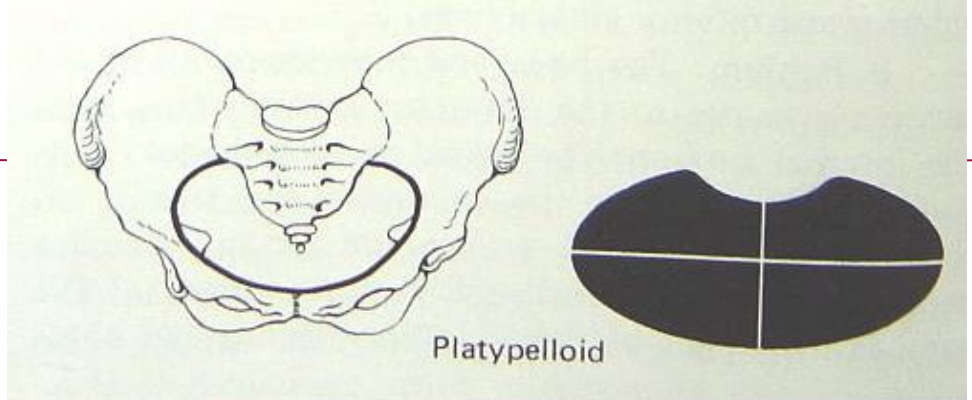
1. Long oval shape.
2. All anteroposterior diameters are long.
3. All transverse diameters are short.
4. Sacrum is **long and narrow**.
5. Sacro-sciatic notch is **wide**.
6. Subpubic angle is **narrow (<90^0)**
7. **prominent** ischial spines
8. Women of this type tend to be tall & may have a **direct occipito-anterior or occipito-post fetus**

Android pelvis



1. It is a **male** type.
2. Inlet is **triangular or heart-shaped** with anterior narrow apex.
3. Side walls are **converging (funnel pelvis**)
4. **Projecting** ischial spines.
5. Sacro-sciatic notch is **narrow.**
6. Subpubic angle is **narrow <90**

Platypelloid pelvis



1. It is a flat female type, **kidney-shaped**
2. All anteroposterior diameters are short.
3. All transverse diameters are long.
4. Sacro-sciatic notch is **narrow**.
5. Subpubic angle is **wide**

Breasts

- Mammary glands
- Cooper ligaments: supports structures & ducts of mammary glands

- Nipple: has 15-20 openings from lactiferous ducts, surrounded by fibromuscular tissue, covered by wrinkled skin

Breasts

- Areola: area surrounding nipples, darker color
- Tubercles of Montgomery: sebaceous glands under the areola skin, gives rough appearance &secrete fat to lubricate nipple
- Alveoli: parts of the lobules, has acini cells that produce milk

Breasts

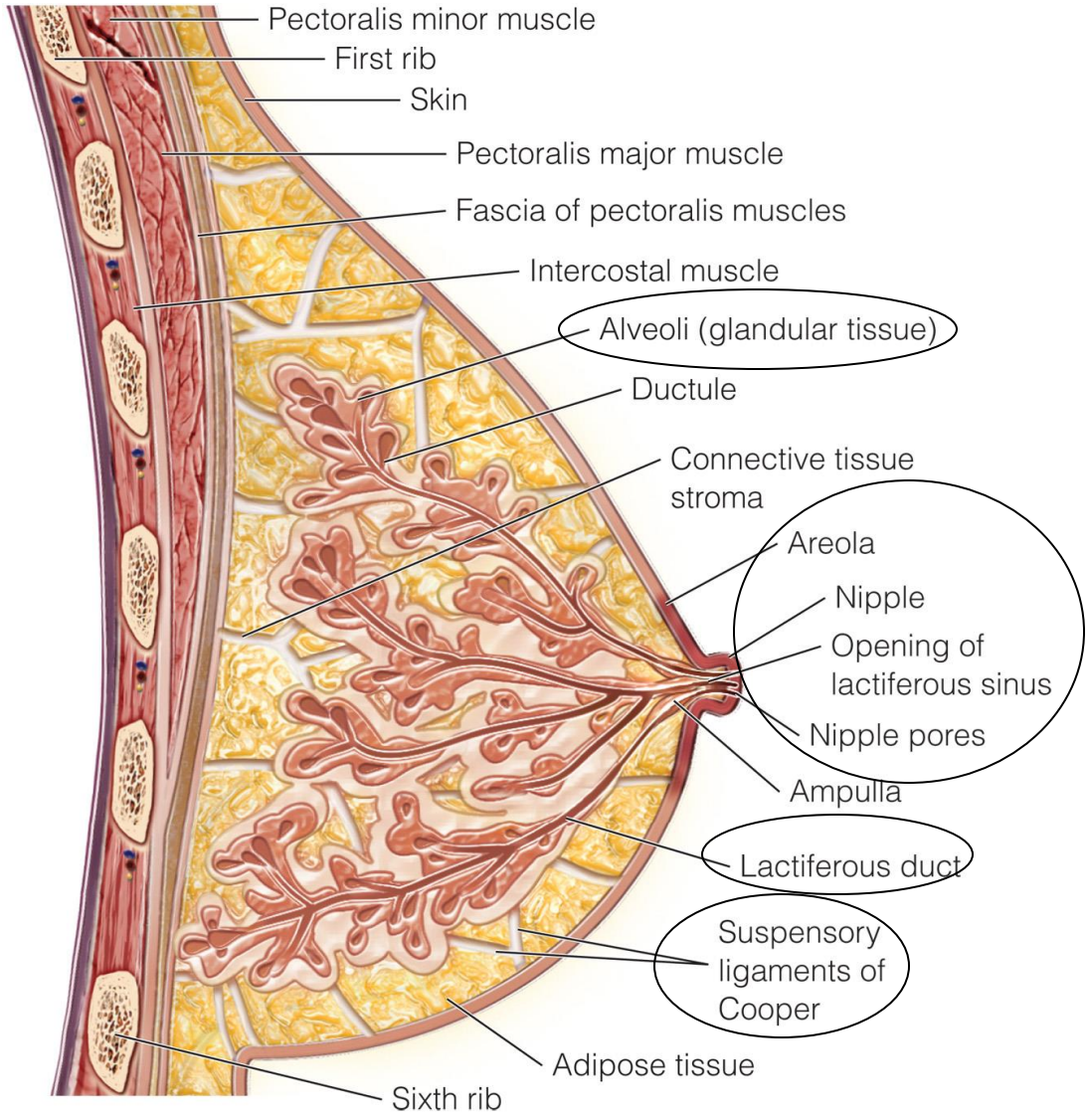
- Lactiferous ducts: carry milk from alveoli, unite to form larger ducts. One larger duct leaves each lobe to form

lactiferous sinuses/ampulla; temporary reservoir for milk

Breasts

- Biologic function
  - Provide nourishment and protective maternal antibodies to infants through the lactation process
  - Be a source of pleasurable sexual sensation

Figure 9–14 Anatomy of the breast.



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