Layers of the abdominal wall

- Skin
- Superficial fascia
- Muscles (external oblique, internal oblique, transversus abdominis, rectus abdominis
- Transversalis fascia
- Extra-peritoneal fat
- Parietal peritoneum
- Visceral peritoneum

Muscles in the ant. abdominal wall

- External oblique, lateral to medial running down
- Internal oblique, medial to lateral running down
- Transversus abdominis runs laterally
    - The three muscle layers joins into the aponeurosis (flat sheet of tendon) region at the centre
    - Inferior margin of aponeurosis roll into inguinal ligament.
- Rectus abdominis is a segmental muscle acting as a flexor of the spine.
        - Behind external oblique aponeurosis at rib level
        - Within internal oblique aponeurosis at umbilical level
        - Behind all three aponeuroses at pelvic level
    - Midline: linea alba
    - Peripheral: linea semilunaris
- Blood and nerve supply:
    - Blood supply from superior epigastric artery (Internal thoracic artery branch)
    - Blood supply from inferior epigastric artery (External iliac artery branch)
    - Nerve motor supply from ventral rami of lumbar segmental nerves

Inguinal region

Testes migration

- During development, gubernaculum guides migration of testes in to the scrotal sac through the inguinal canal.
- Entry via deep inguinal ring on transversalis fascia, exit via superficial inguinal ring on external oblique aponeurosis.
    - Behind superficial ring is the conjoined tendon of internal oblique and transversus abdominis aponeurosis
- Processus vaginalis is also drawn into the inguinal canal, move in front of the testes, become dissociated from abdominal cavity, become tunica vaginalis, failure of dissociation can lead to gut entering the scrotum (indirect hernia)
- Spermatic cord travels back up the inguinal canal into abdominal cavity, contains blood vessels, nerves and vas deferens. layers of the spermatic cord:
    - External spermatic fascia from external oblique aponeurosis
    - Dartos muscle / cremasteric fascia from internal oblique and transversus muscle
    - Internal spermatic fascia from transversalis fascia
- Contents of the spermatic cord:
    - Nerves: sympathetic and genitofemoral (cremasteric muscle)
    - Blood supply: Testicular artery, cremasteric artery, artery to vas deferens
    - Blood drainage: Pampiniform plexus of veins
    - Vas deferens & lymphatic vessels

Females have round ligament instead of spermatic cord, end in labia majora, more narrow, less likely for hernia.

Inguinal hernia

- Indirect inguinal hernia: Processus vaginalis incomplete dissociation from abdominal canal, gut enters the scrotum in fetuses
- Direct inguinal hernia, gut push through the abdominal wall into superficial ring under high pressure, or weaked muscle wall.
- Femoral Hernia: Females have a wider pelvis, wider femoral canal where femeral artery and veins enter the leg, gut push through the femoral canal into top of the leg.

Abdominal wall layers

Abdominal wall muscles, ligaments

Blood supply and innervations

Testes migration

Canal structure

Spermatic cord structure

Hernias