

- Retroperitoneal structures:
  - Kidney: derived from intermediate mesoderm. Retroperitoneal structure
  - Vena Cava and Aorta, divide into external and internal iliac arteries, external supply the legs via femoral artery, internal iliac supply the pelvic cavity.
  - Internal and external iliac veins drain into the inferior vena cava
- Three lumbar posterior wall muscles:
  - Psoas : Connect lumbar spine to the trochanter of the femur (lateral flexor of the spine)
  - Quadratus lumborum: connect the iliac crest with lumbar vertebrae (Flexor of the spine)
  - Iliacus: Connect iliac crest to the trochanter of the femur, act as iliopsoas, flexor of the hip
- Lumbar skeletal structure:
  - Lumbar vertebrae
  - Sacrum: merged sacral vertebrae structure
  - Pelvis
- Lumbar segmental nerves: 5
  - Lumbar spinal nerves form the lumbar plexus, embedded within the psoas muscle
  - Lumbar plexus consist of 7 nerves
    - 4 emerge lateral to the psoas:
      - Iliohypogastric (L1, sensory and motor to anterior abdominal wall)
      - ilioinguinal (L1, sensory and motor to the lower anterior abdominal wall)
      - lateral cutaneous (L2-3, sensory to the knee extensors)
      - femoral (L2-4, sensory, motor to knee extensor)
    - 1 emerge from within the psoas:
      - genitofemoral (L1-2, sensory and motor, cremasteric reflex)
    - 2 emerge medial to the psoas:
      - obturator (L2-4 sensory and motor to the medial thigh, adductor)
      - lumbosacral trunk, joins sacral nerve to form sciatic nerve(L4-5, sensory and motor to the posterior thigh and lower leg)
- Kidneys
  - Lies front of the quadratus lumborum, left high right low due to liver
  - Suprarenal gland above the kidneys.
  - Surrounded by a layer of perinephric fat
  - Structure:
    - Renal artery (oxygenated), Renal vein (Deoxygenated) (\*Left gonadal vein drain into renal vein)
    - Renal nerves control vessel smooth muscles
    - Outer cortex + inner medulla
    - Medulla pyramid minor calyx —> major calyx —> Renal pelvis —> ureter
    - Ureter have thick smooth muscle wall + transitional epithelium - Peristalsis
- Three constrictions from ureter into the bladder: Entry into the ureter, passage over pelvic brim, entry point into the bladder

- Bladder: pyramidal muscular sac
  - Lined with transitional epithelium
  - Smooth muscle called detrusor
  - Supplied by the internal iliac artery, drained by internal iliac vein
  - Nervous supply by vesicular branches
  - Trigone area is where ureter joins the bladder, and exit via the urethra, inflexible
  - Two sphincter muscles: internal detrusor (autonomic) and external urethra sphincter, innervated by pudendal nerve
- Urination:
  - Reflex contraction of the bladder: Bladder filling sensed by parasympathetic nerves (pelvic splanchnic nerve), trigger a response to contract detrusor muscle and relax internal sphincter muscle
  - Somatic pudendal nerve signal can stimulate external sphincter to contract to hold urination
  - Sympathetic nerve inhibit detrusor contraction, decrease sensitivity, allow bladder filling, induce internal sphincter contraction.
  - During ejaculation, sympathetic response triggered, trigger contraction of the internal sphincter,