		1. Relations & boundaries		
		Anterior	Medial	Lateral
Ovaries		Broad ligament (mesovarium)	Ligament of ovary	Fimbriae of the uterine tube
		Anterior	Posterior	Lateral
Uterus	Fundus + body + **supravaginal** part	Superior surface of urinary bladder	**sigmoid colon**	uterine artery
	Vaginal part of cervix	Anterior fornix of vagina	posterior fornix of vagina	lateral fornices of vagina
vagina	In pelvis	Urinary bladder	Rectum	**Ureters**
	In perineum	Urethra	anal canal	
False pelvis		Lower part of the anterior abdominal wall.	**Lumbar** vertebrae.	Iliac fossae and the iliacus muscle.
True pelvis	Inlet	• symphysis pubis.	• Promontory of sacrum, • ala of sacrum.	Ileopectineal (arcuate) lines.
	Outlet		• Coccyx	Anterolaterally: ischiopubic ramus Posterolaterally: Sacrotuberous ligament.
Pelvic walls		Posterior surfaces of the bodies of: • the pubic bones, • the pubic rami, and • symphysis pubis.	• Sacrum & coccyx, • **piriformis muscles** and their covering of parietal pelvic fascia.	1- Part of the hip bone below the pelvic inlet 2- **Obturator internus** and its covering fascia 3- Sacrotuberous ligament. 4- Sacrospinous ligament.
Female perineum	**Urogenital triangle** anteriorly.	• Mons pubis • Symphysis pubis.	Transverse line passing through the 2 ischial tuberosities.	• Medial surfaces of the thighs • Ischiopubic rami, • ischial tuberosities
	Anal triangle posteriorly.	Transverse line passing through the 2 ischial tuberosities.	• Coccyx • Intergluteal folds	• ischial tuberosity & • sacrotuberous ligaments.
Anal canal		• Perineal body, • urogenital diaphragm, and • lower part of vagina	• Anococcygeal body.	• Ischiorectal fossae.
Prostate		• Symphysis pubis (SP).	Rectum (important for PR Examination)	Medial margins of levator ani muscles (levator prostate)
		Superior: Neck of urinary bladder.		Inferior: Urogenital diaphragm (UGD).
Breast		Base: Extends from 2nd to 6th ribs & from the sternum to the midaxillary line • 2/3 of its base lies on the pectoralis **major** muscle • its inferolateral 1/3 lies on: Serratus anterior & External oblique muscles. • Its superolateral part sends a process into the axilla "*axillary tail or process*".		Apex (Nipple & Areola) • The nipple lies opposite 4th intercostal space.

		2. Muscles:			
		Origin	Insertion	Action	Nerve supply
Piriformis		Pelvic surface of the **middle 3** sacral vertebrae.	It leaves the pelvis through the greater sciatic foramen to insert into the **greater trochanter of the femur.**	• Lateral rotators of the femur at the hip joint.	Sacral plexus directly.
Obturator Internus		Inner surface of the **obturator membrane** and the **hip bone.**	It leaves the pelvis through the lesser sciatic foramen to be inserted into the **greater trochanter of the femur.**		Nerve to obturator internus.
Levatores ani muscles	**Pubococcygeus**	1. **posterior surface of the body of the pubis** 2. Tendinous arch of the obturator fascia 3. Spine of the ischium.	• **perineal body** and coccyx.	- forms a sling around the prostate or the vagina to **support the prostate** (levator prostatae) or **constrict the vagina** (sphincter vaginae) - stabilizes the perineal body	1. **perineal** branch of the fourth sacral nerve 2. **perineal** branch of the pudendal nerve.
	Puborectalis			maintaining fecal continence as it forms a sling around the recto-anal Junction.	
	Iliococcygeus		• **anococcygeal body** and the coccyx	-	
		General functions of levator ani muscles: - Support pelvic organs - Resist the rise in intra pelvic pressure during the straining and expulsive efforts of the abdominal muscles (as in coughing). - Form the pelvic floor (pelvic diaphragm) which separate pelvis from perineum, traversed by urethra, vagina & rectum			
	Ischiococcygeus	• **ischial spine**	anococcygeal body and the coccyx		
	Coccygeus		Lower end of sacrum and coccyx	Assist the levator ani in supporting the pelvic viscera	branches of the 4th and 5th sacral nerves
The Dartos muscle		Lies within the superficial fascia & replaces Scarpa's fascia		It Regulates testicular temperature, which promotes spermatogenesis.	The **genital** branch of the GFN (L1,2)
The cremaster muscle		Found between the external and internal layers of spermatic fascia, insert into the tunica vaginalis underneath the testis.		Cresmasteric reflex is used for **evaluation of testicular pain** **If normal reflex is present:** Epididymitis **If absent (no Testicle rise):** Testicular Torsion, but also absent in 50% of boys under age 30 months.	**Sensory:** femoral branch of (GFN) & Ilioinguinal N. **Motor:** genital branch of (GFN).

		3. Others	
		Overview	Function
Perineal Body		• Perineal body is an **irregular fibromuscular mass** of variable size and consistency, **located at** midpoint of the line **between the ischial tuberosities** • **Lies in** the subcutaneous tissue, posterior to vaginal vestibule and anterior to the anal canal & anus	• Gives **attachment to perineal muscles** • Plays an important role in **visceral support** especially in female • Forms the central point of the perineum & blends anteriorly with the **perineal membrane**
Anococcygeal body		• The anococcygeal body **is a complex musculotendinous structure** • **Situated** between the **anterior aspect of the coccyx** and the **posterior wall of the anorectal canal**	• **Receives** insertion of fibers of **levator ani** muscle
		Boundaries	Contents

Perineal Pouches/ spaces	**Superficial**	• ***Inferiorly:*** deep membranous layer of superficial fascia (colle's fascia).
		• ***Superiorly:*** Inferior fascia of the urogenital diaphragm (Perineal membrane)
		• ***Laterally:*** ischiopubic rami
			• Bulbs of vestibule: on each side of vaginal orifice.
			• Crura of clitoris.
			• Superficial perineal **muscles**:
			  • Bulbospongiosus muscle, surrounds orifice of vagina and covers vestibular bulb.
			  • Ischiocavernosus muscle, covers crus of clitoris on each side.
			  • **Superficial** transverse perineal muscles.
			• **Greater vestibular** (Bartholin) glands: on each side of vaginal orifice.
			• Perineal branch of pudendal nerve supplying muscles & skin.

	Deep	• ***Inferiorly:*** Inferior fascia of the urogenital diaphragm (Perineal membrane) • ***Superiorly:*** Superior fascia of the urogenital diaphragm • ***Laterally:*** Inferior portion of obturator internus fascia.	• Part of urethra & Part of vagina • Sphincter urethrae muscle, which is pierced by urethra & vagina. • **Deep** transverse perineal muscles • Internal pudendal **vessels** • Dorsal nerve of clitoris
Ischiorectal Fossa		• ***Base:*** *Skin of the perineum.* • ***Medial wall:*** *Levator ani & anal canal.* • ***Lateral wall:*** *Obturator internus, covered with fascia.*	• Dense fat. • **Pudendal nerve** & **internal pudendal vessels** within the pudendal canal (A fascial canal formed by obturator fascia) • **Inferior rectal nerve** & **vessels** crossing the fossa to reach anal canal.
ligaments of cooper		• fibrous strands which **connect the skin with deep fascia of pectoralis major.** • **Separates lobes and lobules of mammary gland** *(mammary gland is separated from the deep fascia covering the underlying muscle by a layer of loose areolar tissue which forms the retromammary space)*	

	4. Supply			
	Arteries	Veins	Lymph	Nerves Innervation
Ovaries	Ovarian (abdominal aorta)	Ovarian (to inferior vena cava & left renal vein)	To para-aortic lymph nodes (in abdomen)	Ovarian plexus (in abdomen)
Uterine tube	• Ovarian • Uterine	• Ovarian • Uterine	• Para-aortic • Internal iliac	• Ovarian plexus • Inferior hypogastric plexus
Uterus	Uterine (internal iliac artery in pelvis)	Uterine plexus (to internal iliac vein)	To internal iliac lymph nodes (in pelvis)	**Inferior hypogastric** plexus (in pelvis)
Vagina	Vaginal (internal iliac artery in pelvis) & Vaginal branch of the **uterine artery**	Vaginal plexus (to internal iliac vein)		
Pelvis	(I) Internal iliac artery (IIA): • Arises in front of the **sacroiliac joint**. It descends downward & backwards over the pelvic inlet. • It divides at the upper border of the greater sciatic foramen into Anterior & Posterior divisions.[1] (II) Ovarian artery: Arises from the abdominal aorta.	(I) Internal iliac veins: collect tributaries corresponding to the branches of the internal iliac artery. (II) Ovarian vein: - Right vein drains into IVC - Left vein drains into left renal Vein.	LNs and vessels are arranged in a chain along the main blood vessels. Thus, there are **external** iliac, **internal** iliac, and common iliac nodes. Lymph from Common iliac nodes, ovaries, uterine tubes & fundus of uterus passes to **Lateral aortic** (para-aortic) nodes.	• Somatic: Sacral plexus • Autonomic: 1. Sympathetic: (I) Pelvic part of sympathetic trunk: The 2 sympathetic trunks unite inferiorly in front of the coccyx and form a single ganglion **(Ganglion Impar).** II- Superior & Inferior Hypogastric plexuses 2. Parasympathetic: Pelvic **splanchnic** nerves (From S 2, 3 & 4). MNM: Sacral two, three, four. Keep shut of the floor.

[1] Branches of internal iliac artery:

Posterior division Supplies:

1. Posterior abdominal wall.
2. Posterior pelvic wall.
3. Gluteal region.

Branches from posterior division:

1. Iliolumbar artery.
2. Lateral sacral arteries (2 branches.)
3. **Superior** gluteal artery.

Blue = parietal branches

Orange = visceral branches

Anterior division supplies:

1. Gluteal region. 2. Perineum. 3. Pelvic viscera. 4. Medial (adductor) region of thigh 5. The fetus (through the umbilical arteries).

Branches from anterior division:

1. Obturator artery.
2. **Inferior** Gluteal artery.
3. Umbilical artery: Gives the superior vesical artery: The distal part of this artery fibroses and forms the Medial Umbilical Ligament.
4. Inferior Vesical artery in male **or** vaginal in female: In the male it supplies the Prostate and the Seminal Vesicles.
   - The artery of the Vas Deferens (in male) arises from the superior or the inferior vesical artery.
5. Middle rectal artery
6. Internal pudendal artery: It is the **main** arterial supply to the **perineum**.
7. Uterine artery: Crosses the Ureter superiorly and supplies the uterus & uterine tubes.

Anal canal	Arteries	Veins	Lymph	Nerves Innervation
Upper half (sensitive to stretch)	**Superior** rectal artery (continuation of the inferior *mesenteric* artery)	Superior rectal vein drained into the inferior *mesenteric* vein (**portal** circulation).	Para-**rectal** nodes drained into inferior *mesenteric* lymph nodes	**Visceral** motor (sympathetic & parasympathetic).
Lower half (sensitive to pain)	**Inferior** rectal a. (branch of internal *pudendal* artery)	Inferior rectal vein drained into the internal *pudendal* vein (**Systemic** circulation).	Superficial inguinal lymph nodes	**Somatic** motor & sensory nerves (**Inferior** rectal N. branch of *pudendal* N.): supplies external sphincter muscle of the anus and skin of the anal region.
Testis	**Testicular artery:** It is a direct branch from the abdominal aorta.	**Pampiniform plexus** converge as it approaches the inguinal canal and form the **Testicular vein**. -Right Vein drains into **IVC**. -Left Vein drains into **Left Renal Vein**.	**Testicular Lymphatics:** Follow arteries and veins End in Lumbar (para-aortic) nodes **Lymph from scrotum, penis, prepuce:** Terminate in Superficial Inguinal nodes	
Prostate	**Inferior vesical artery**	**Prostatic venous plexus:** Drains into **internal iliac veins.** Continuous superiorly with the *vesical* venous plexus and posteriorly to the *internal vertebral* venous plexus	Internal iliac lymph nodes.	
Breast	1. Perforating and mammary branches of **internal** thoracic (internal mammary) artery. 2. Mammary branches of **lateral** thoracic artery. 3. Mammary branches of lateral cutaneous branches of posterior **Intercostal** arteries.	-Veins are corresponding to the arteries. -Circular venous plexus is found at the base of nipple, Finally draining into **axillary** & **internal thoracic** veins.	**Subareolar & Deep lymphatic[2] plexuses of the breast drainage:** • **Central & lateral parts** (75%) → **pectoral group** of axillary LN • **Upper part** → **apical group** of axillary LN. • **Medial part** → **internal thoracic (parasternal)** LN, but **Some** pass across the sternum to anastomose with that of **opposite breast.** • **Inferomedial part** lymphatics anastomose with lymphatics of rectus sheath & linea alba, and some vessels pass deeply to anastomose with the **sub diaphragmatic lymphatics**.	

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[2] Lies **on the deep fascia covering pectoralis major.**