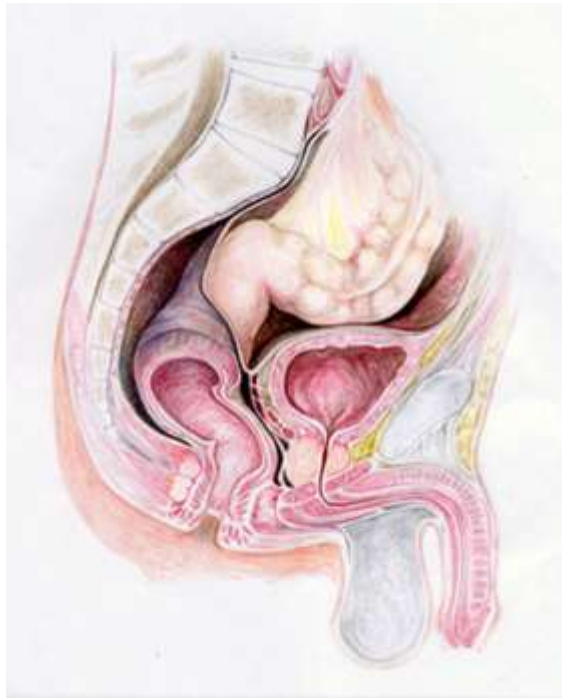




Topographic Anatomy of the Pelvis

1. Pelvis – boundaries, landmarks and regions
2. Peritoneal pelvic compartment
3. Subperitoneal pelvic compartment
4. Subcutaneous pelvic compartment, the perineum
5. Peritoneal formations and spaces – topographical relations

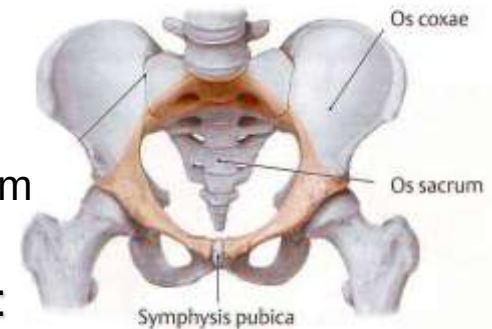


Pelvis

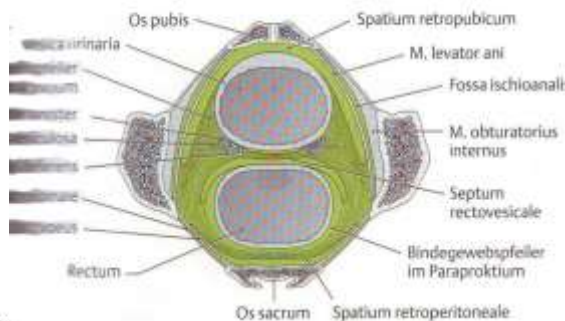
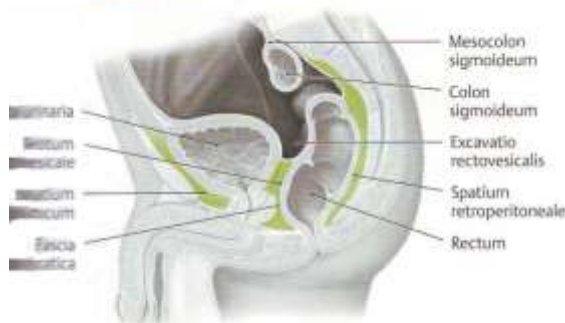
Pelvis – borders and compartments

- cranial border – the pelvic inlet, *linea terminalis*:
 - ✓ the promontorium
 - ✓ *linea arcuata, pecten ossis pubis*
 - ✓ *pubic symphysis*
- caudal border – the soft tissues of the perineum
- lateral border – the walls of the lesser pelvis

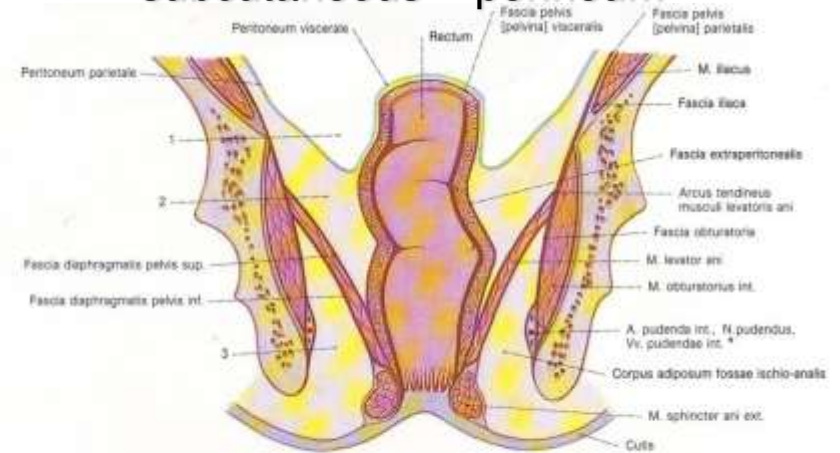
4.1 Beckengürtel und Beckenring



Fazien und Räume im männlichen Becken



- compartments:
 - ✓ peritoneal
 - ✓ subperitoneal
 - ✓ subcutaneous = perineum

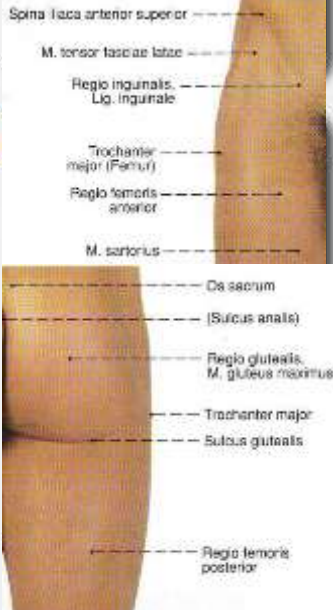


1 = Spatium pelvis peritoneale = cavitas peritonealis
2 = Spatium pelvis subperitoneale = spatium retroperitoneale

3 = Fossa ischio-rectalis (spatium pelvis subcutaneum) = fossa ischio-analis

* Canalis pudendalis (of Alcock)

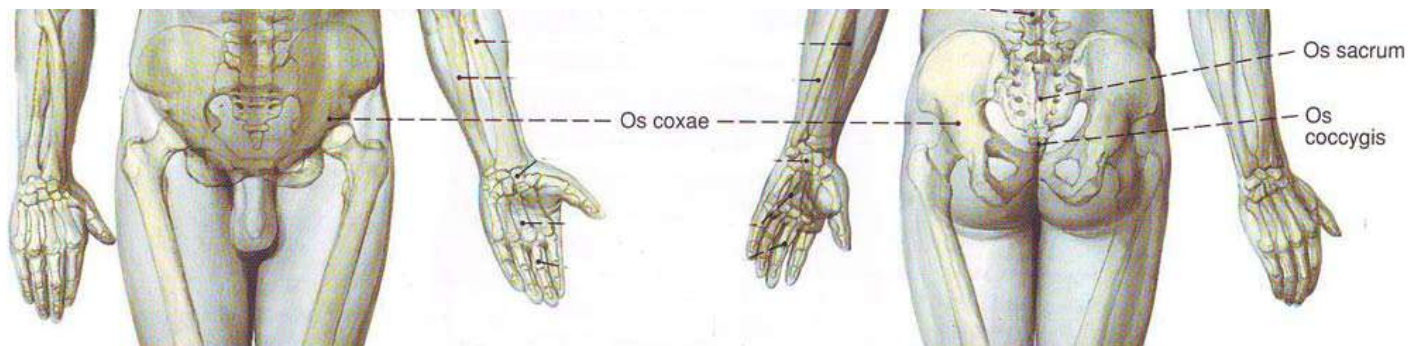
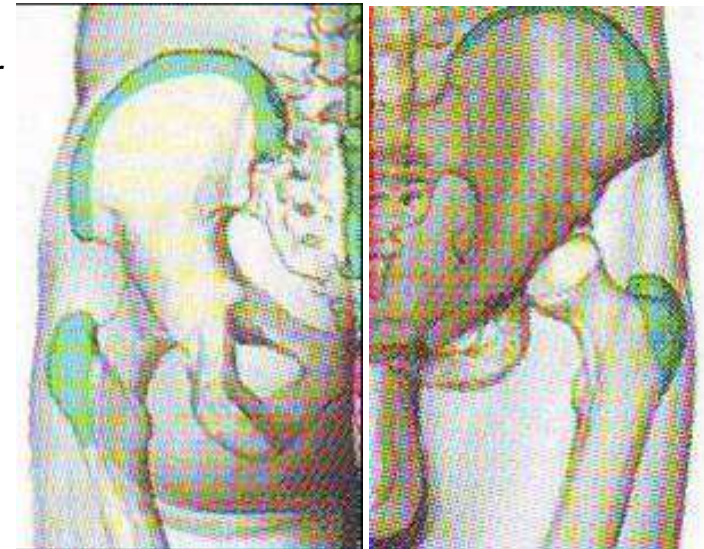
Important landmarks



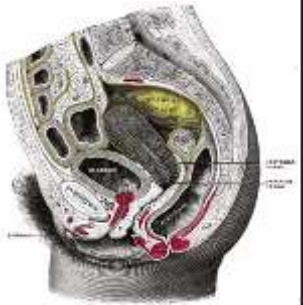
External palpation landmarks

■ Bone points and lines:

- ✓ *spina iliaca anterior superior*
- ✓ *spina iliaca posterior superior*
- ✓ *crista iliaca*
- ✓ *symphysis pubica*
- ✓ *ramus superior ossis pubis*
- ✓ *tuberculum pubicum*
- ✓ *crista sacralis mediana*
- ✓ *apex ossis coccygis*
- ✓ *tuber ischiadicum*
- ✓ *spina ischiadica*
- ✓ *arcus pubis*
- ✓ *promontorium ossis sacri (in females)*



Cavitas pelvis peritonealis



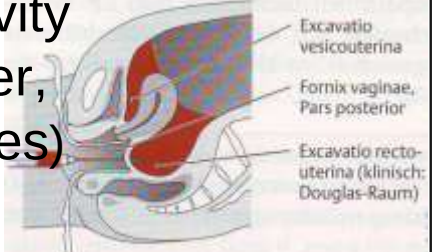
Peritoneal pelvic compartment, *cavum pelvis peritoneale*

- most inferior portion of the peritoneal cavity
- pelvic viscera: the rectum, urinary bladder, the uterus, uterine tubes, ovary (in females)
- in males:

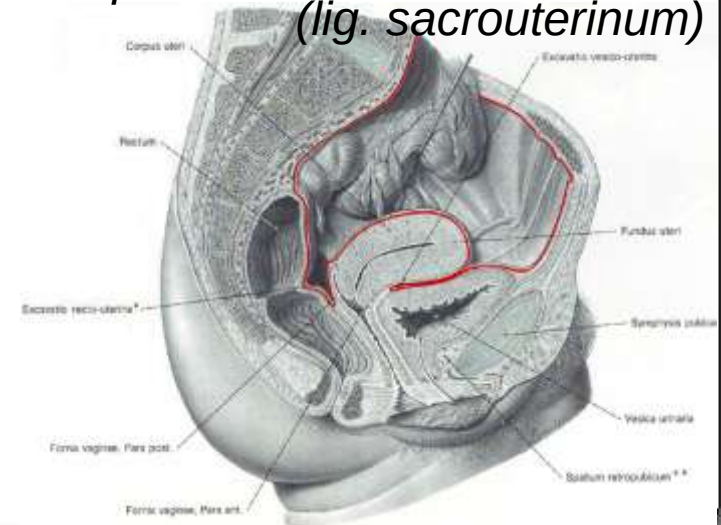
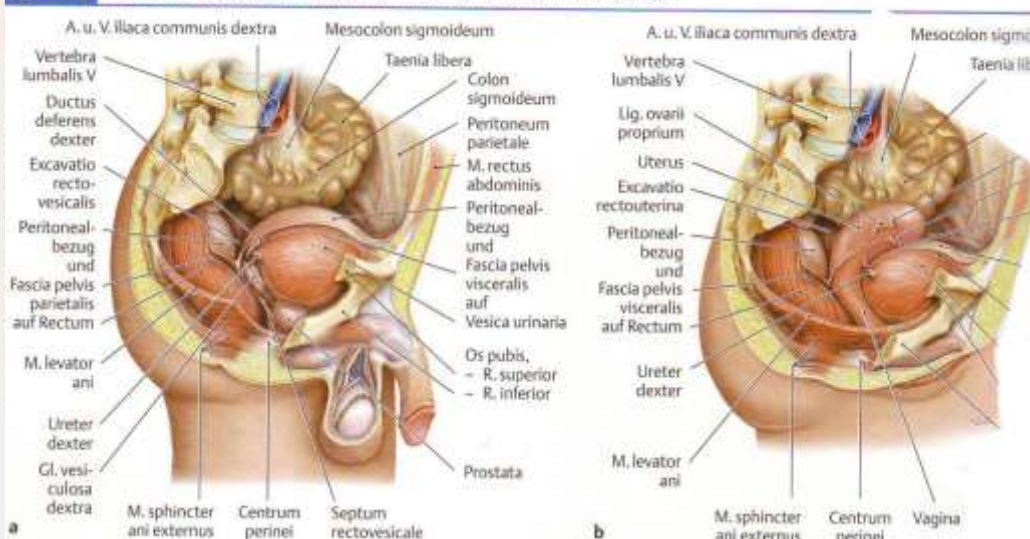
- ✓ *plica vesicalis transversa*
- ✓ recto-vesical excavation (pouch of Ben)
- ✓ *plicae rectovesicales*

- in females:

- ✓ vesico-uterine excavation (pouch of Meiring)
- ✓ recto-uterine excavation (Douglas pouch or space) ⇨ *plica rectouterina* (lig. sacrouterinum)

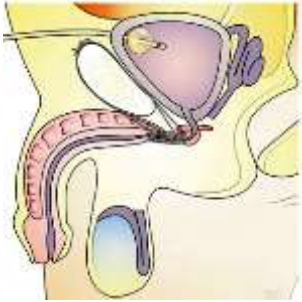


H-1.6 Peritonealverhältnisse im männlichen und weiblichen Becken



Peritoneum parietale anterius

Urinary bladder puncture

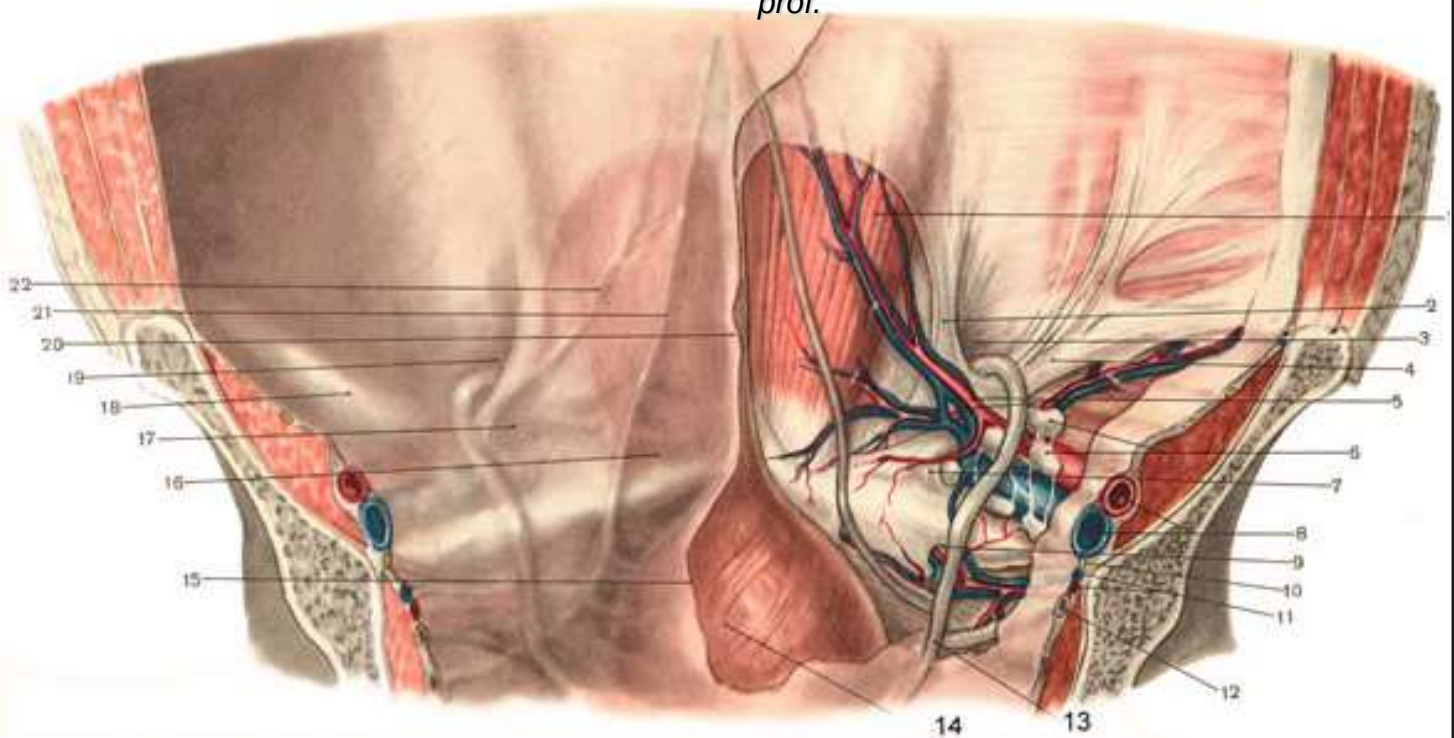


- ✓ *plica umbilicalis mediana* – urachus
- ✓ *plica umbilicalis medialis* – chorda a. umbilicalis
- ✓ *plica umbilicalis lateralis* – a. et v. epigastrica inferior
- ✓ *plica vesicalis transversa*

⇒ *fossa supravescicalis*

⇒ *fossa inguinalis medialis: anulus inguinalis sup.*

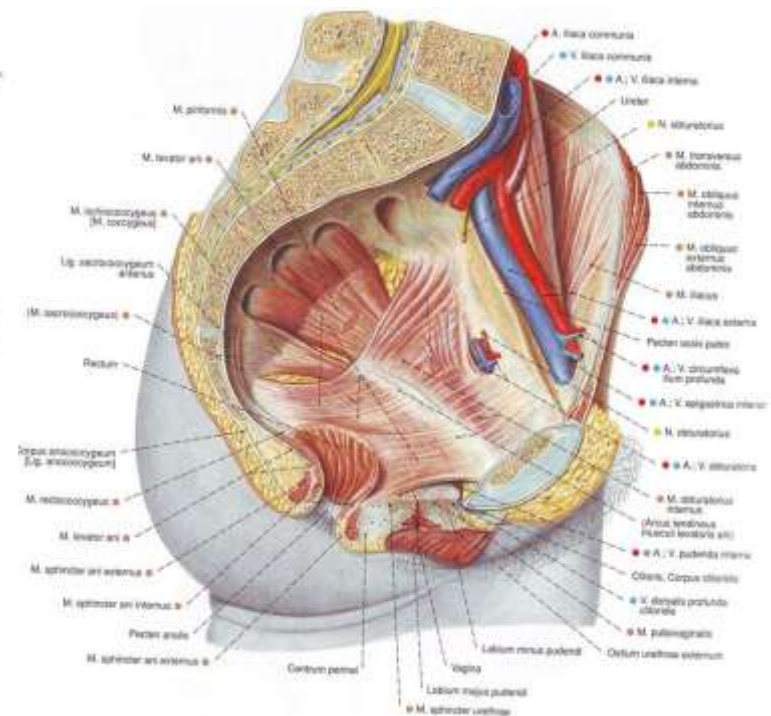
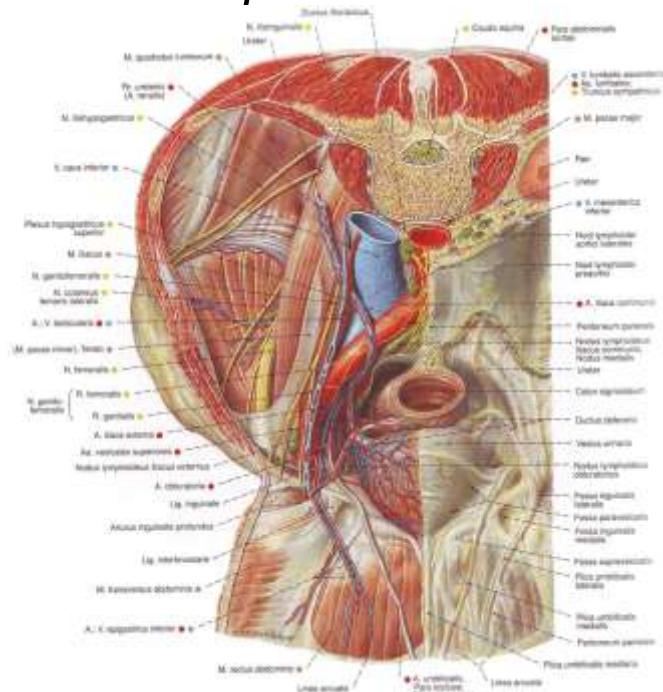
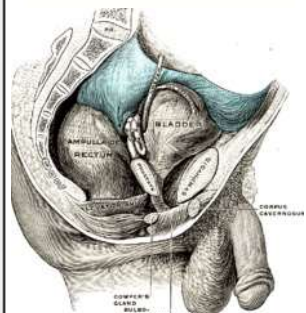
⇒ *fossa inguinalis lateralis: anulus inguinalis prof.*



Subperitoneal pelvic compartment, *cavum pelvis subperitoneale* (extraperitoneal pelvic space)

- *pelveoperitoneum parietale*
- *fascia pelvis parietalis* } *arcus tendineus fasciae pelvis*
- *m. levator ani* } parietal connective tissue spaces
- *fascia pelvis visceralis*

Spatium retroperitoneale



topography

content

Anders Retzius

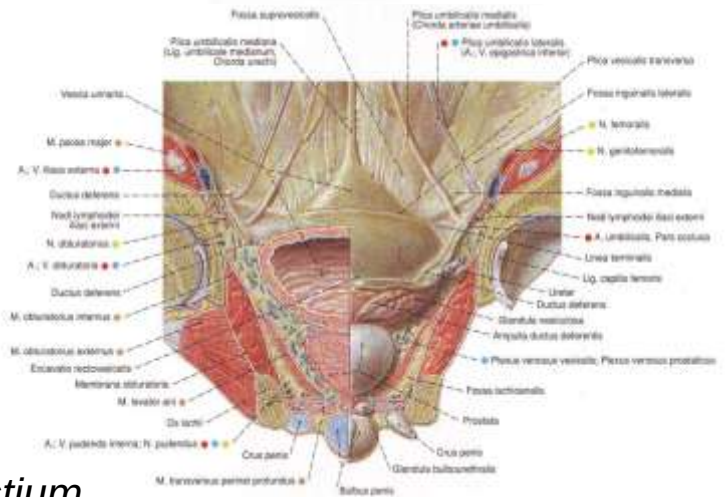
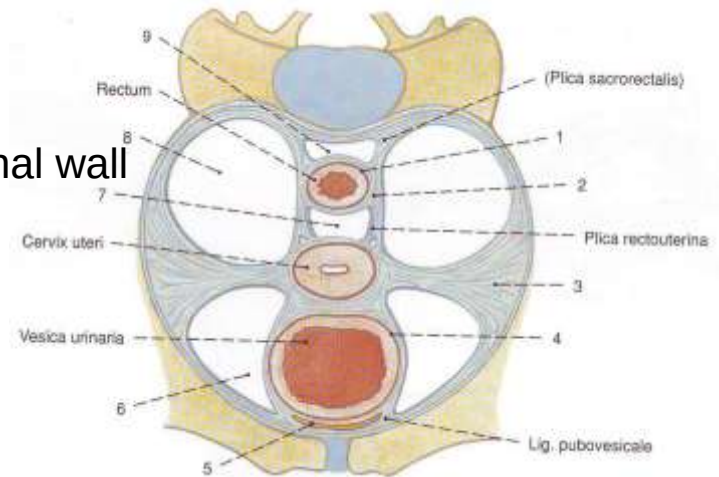
(1796-1860)



The prevesical space, *spatium prevesicale (retropubicum),* *cavum Retziusi*

- boundaries:
 - ✓ anteriorly:
 - the inferior part of the abdominal wall
 - *symphysis pubica*
 - *os pubis*
 - ✓ posteriorly:
 - the anterior aspect of the urinary bladder
 - the prostate (in men)
 - ✓ laterally:
 - *lig. pubovesicale*
 - ✓ floor:
 - the urogenital diaphragm

- content:
 - ✓ *plexus venosus vesicalis*
 - ✓ *plexus venosus prostaticus*
 - ✓ *a. vesicalis superior et inferior*
 - ✓ loose connective tissue:
 - *lig. pubovesicale*
 - *lig. puboprostaticum* (in men)
- *spatium paravesicale* ⇨ *paracystium*



topography

content

Spatium retrovesicale



The retrovesical space, *spatium retrovesicale (prerectale)*

■ boundaries:

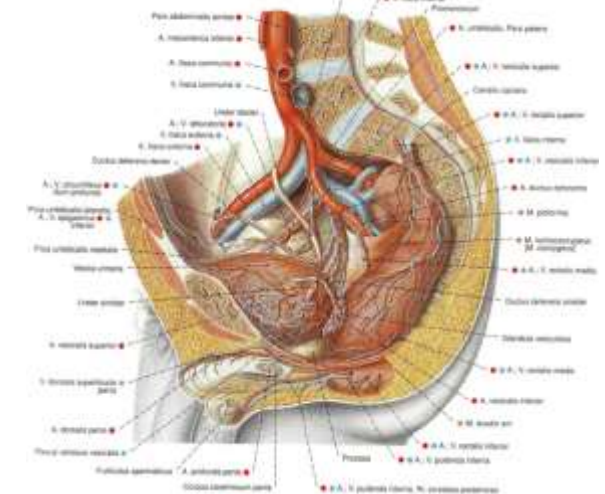
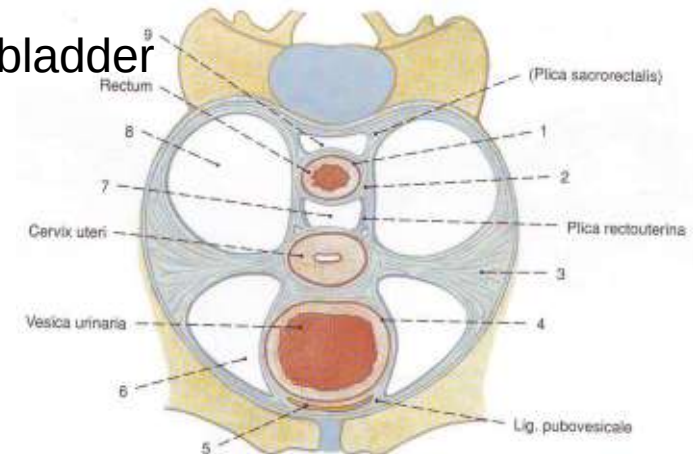
- ✓ posterior wall of the urinary bladder
- ✓ fibrous septum (*septum prerectale*):
 - peritoneum – above
 - perineum – below

■ content in men:

- ✓ *plexus venosus prostaticus*
- ✓ the prostate gland
- ✓ ductus deferens – pelvic part
- ✓ seminal vesicles
- ✓ ureters – pelvic part

■ content in women:

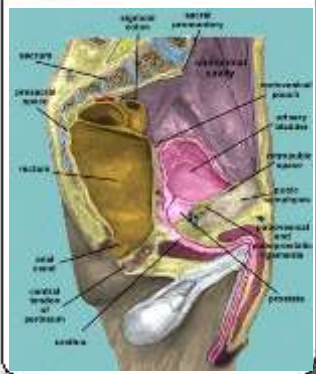
- ✓ vagina
- ✓ *septum pre- et retrovaginale*



topography

content

Spatium presacrale



The retrorectal (presacral) space, *spatium retrorectale (presacrale)*

- boundaries:
 - ✓ posterior wall of the rectum
 - ✓ the sacrum
- content:
 - ✓ loose and adipose tissue
 - ✓ *a. rectalis superior et media*
 - ✓ *aa. sacrales laterales*
 - ✓ *plexus venosus sacralis*
 - ✓ *plexus hypogastricus inferior*
 - ✓ *pars pelvina trunci sympathici*
 - ✓ pelvic lymph nodes
- communication with:
 - ✓ retroperitoneal abdominal compartment
- *paraproctium*

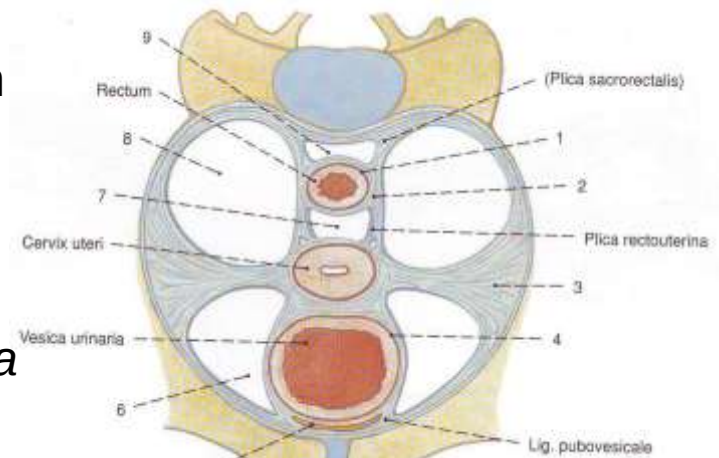
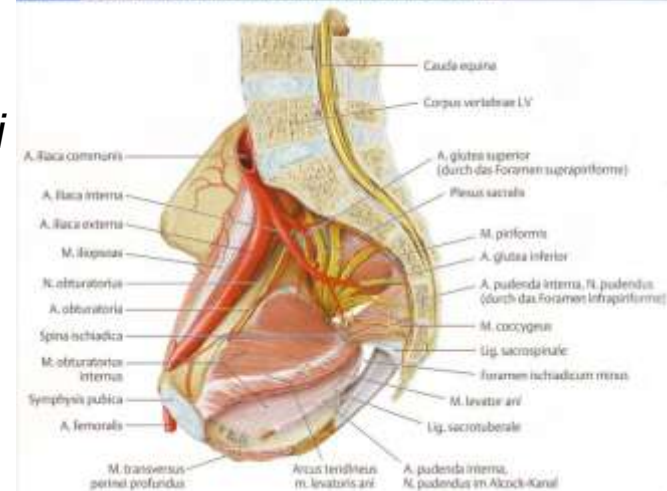


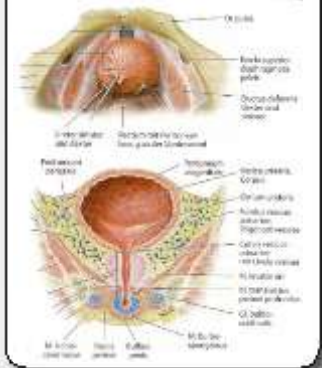
Abb. 2.4 Lage des Plexus sacralis im Beckenraum mit Verlauf seiner Nerven



topography

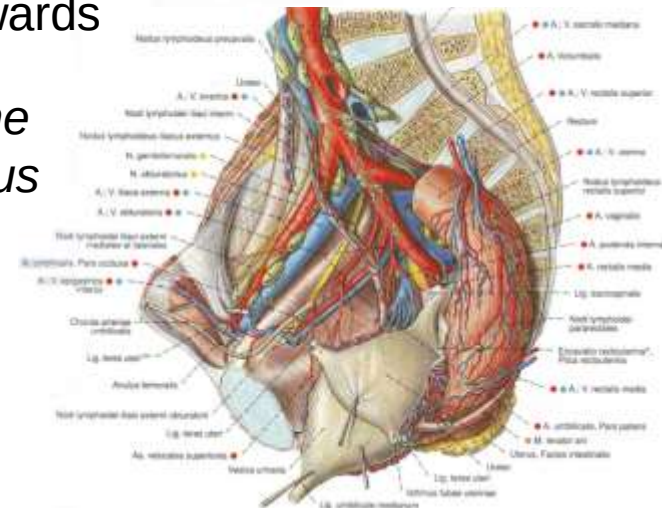
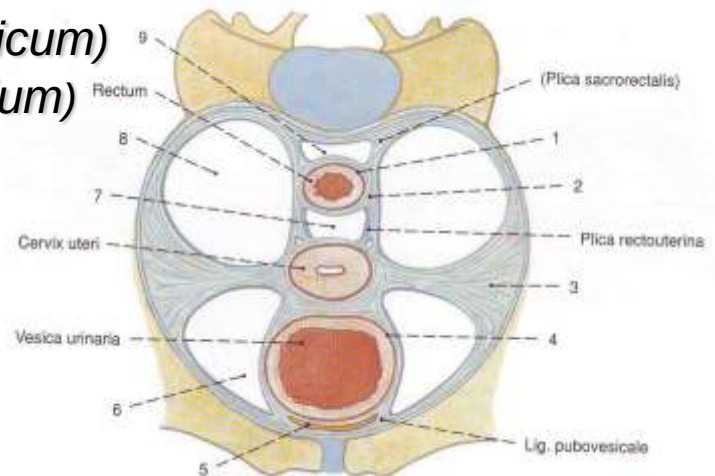
content

Spatium paravesicale



The lateral space, *spatium laterale*

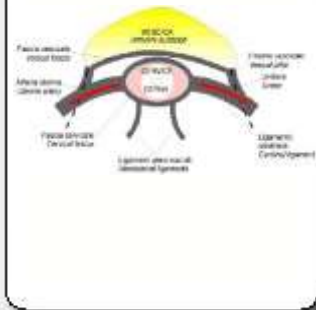
- *spatium paravesicale (paracysticum)*
- *spatium pararectale (paraproctium)*
- location – laterally and between:
 - ✓ *fascia pelvis parietalis*
 - ✓ *fascia pelvis visceralis*
 - ✓ *fascia diaphragmatis pelvis superior* – below
- communication with:
 - ✓ the retroperitoneal space upwards
 - ✓ the gluteal region ⇔ *foramen suprapiriforme et infrapiriforme*
 - ✓ the thigh ⇔ *canalis obturatorius*
- content:
 - ✓ *plexus sacralis*
 - ✓ *plexus hypogastricus inferior*
 - ✓ branches of *a. iliaca interna*
 - ✓ venous plexuses



topography

content

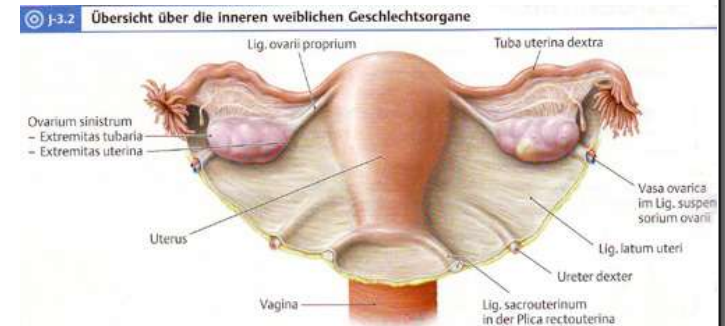
Parametrium



The parametrial space, parametrium

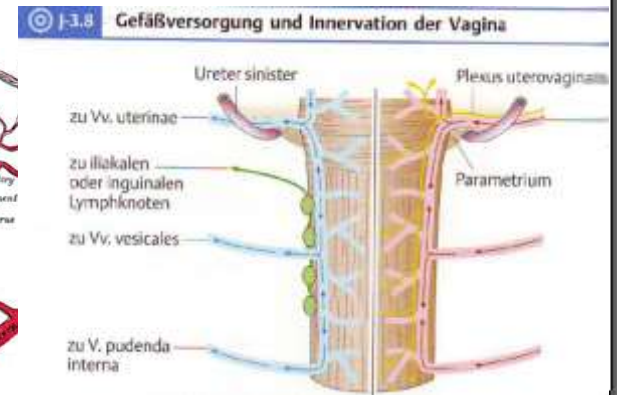
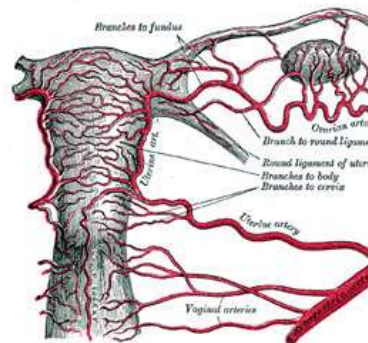
■ Portions and location:

- ✓ the lateral parametrium
⇒ between the layers of *lig. latum uteri* (mesovarium, mesosalpinx, mesometrium)
- ✓ the precervical and retrocervical parametrium
⇒ laterally to the uterine cervix



■ Content:

- ✓ *plexus venosus uterinus et vaginalis*
- ✓ *plexus uterovaginalis*
- ✓ *a. uterina*
- ✓ the ureter
- ✓ lymph nodes

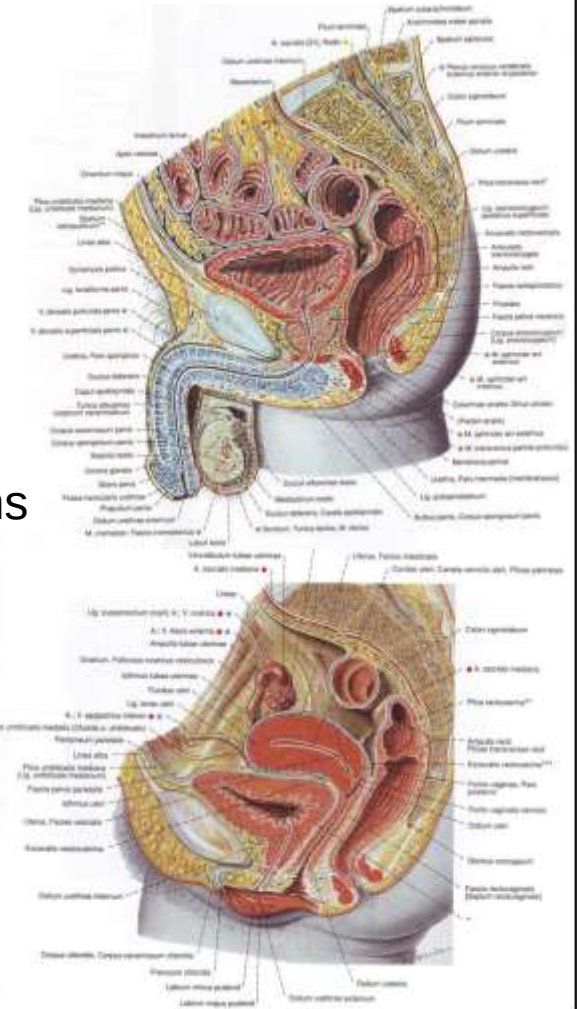


Spatial relationships of the pelvic viscera

- the urinary bladder, *vesica urinaria*
 - the rectum, *rectum*
- in men:*
- the prostate, *prostata*
 - the seminal vesicles, *vesiculae seminales*
 - the pelvic part of the ductus deferens *ductus deferens*

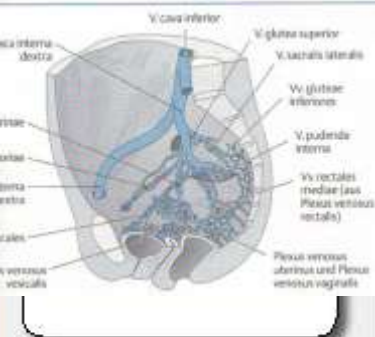
in women:

- the uterus, *uterus*
- the uterine tube, *tuba uterina*
- the ovary, *ovarium*
- the vagina, *vagina*



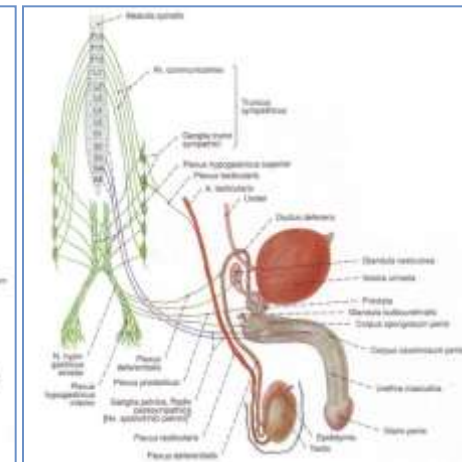
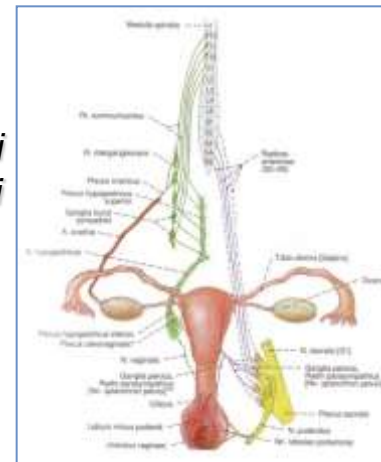
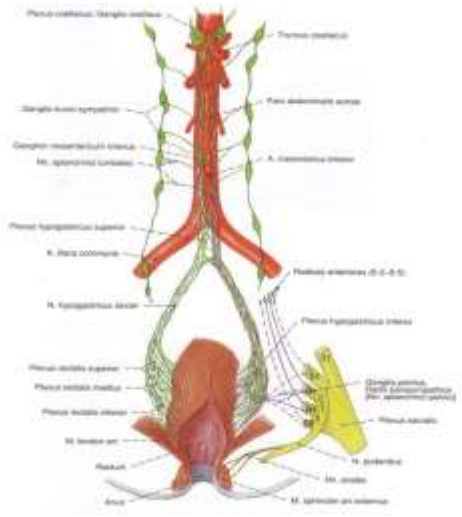
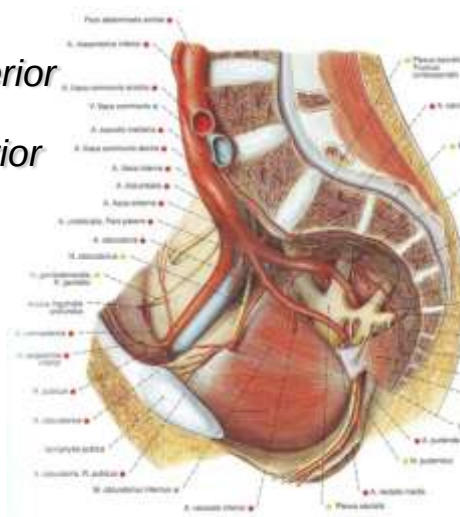
Venous plexuses

Vena iliaca interna und Venenplexus des Beckens



Spatial relationships of the blood and nerve structures

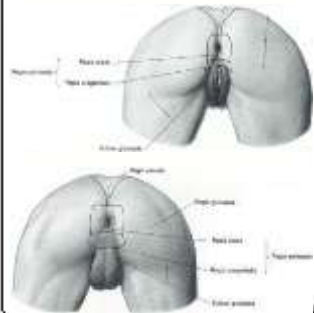
- a. et v. iliaca interna
- plexus hypogastricus superior (presacralis)
- plexus hypogastricus inferior (pelvicus)
- plexus lumbosacralis
- plexus venosus rectalis
- plexus venosus vesicalis
- venous plexuses in men:
 - ✓ plexus deferentialis
 - ✓ plexus prostaticus
- venous plexuses in women:
 - ✓ plexus uterovaginalis
- pelvic lymph nodes:
 - ✓ nodi lymphatici iliaci externi
 - ✓ nodi lymphatici iliaci interni
 - ✓ nodi lymphatici sacrales
 - ✓ nodi lymphatici ischiorectales
 - ✓ nodi lymphatici diaphragmatis pelvis
- pars pelvina trunci sympathici



topography

content

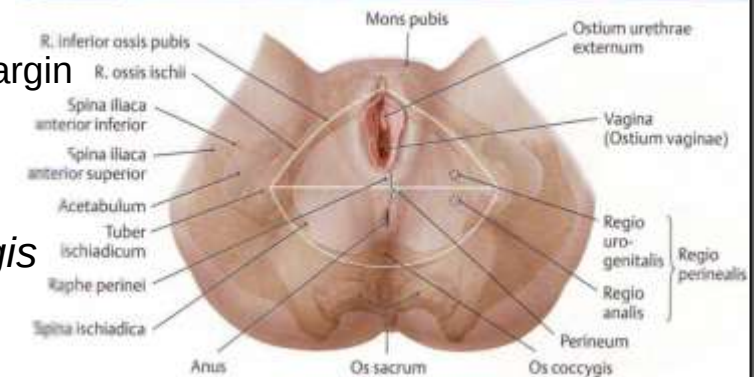
Regio perinealis



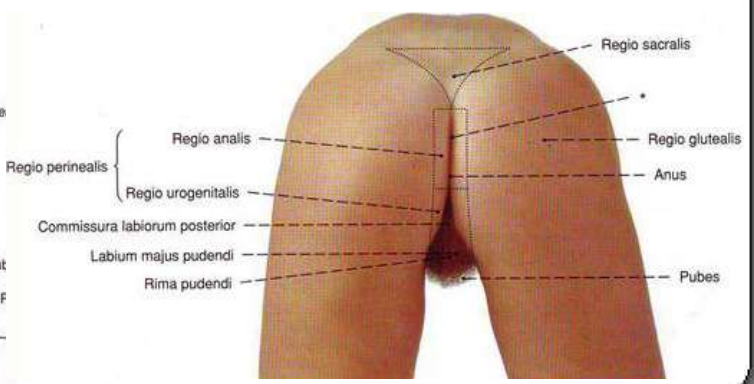
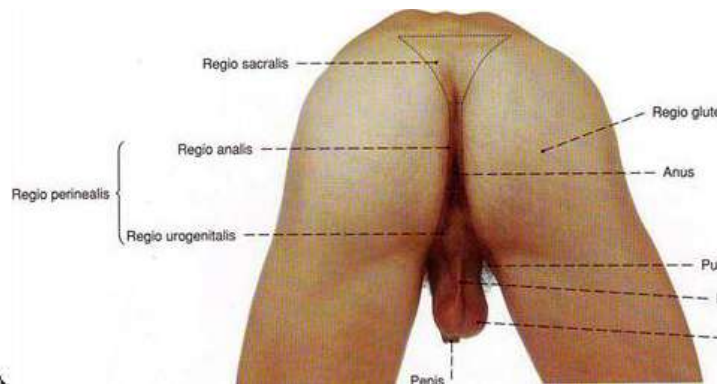
Subcutaneous pelvic compartment, *cavum pelvis subcutaneum*

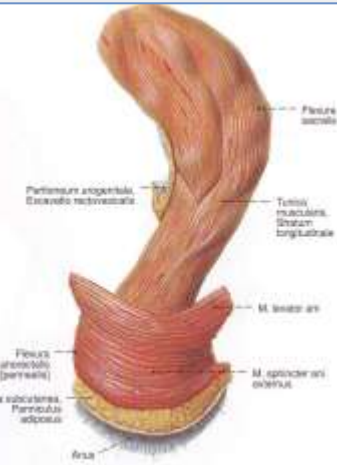
- The perineum, *perineum*
- the pelvic floor boundaries:
 - ✓ anteriorly – inferior symphysis margin
 - ✓ laterally – *os pubis*, *os ischii*, *tuber ischiadicum*, *lig. sacrotuberale*
 - ✓ posteriorly – *apex ossis coccygis*
- *regio perinealis*:
 - ✓ *regio analis* (*trigonum anale*)
 - ✓ *regio urogenitalis* (*trigonum urogenitale*)
- content – muscles and fascias ⇒

C-4.15 Dammregion (Regio perinealis)



diaphragma pelvis
diaphragma urogenitalis





mesenterici inferiores

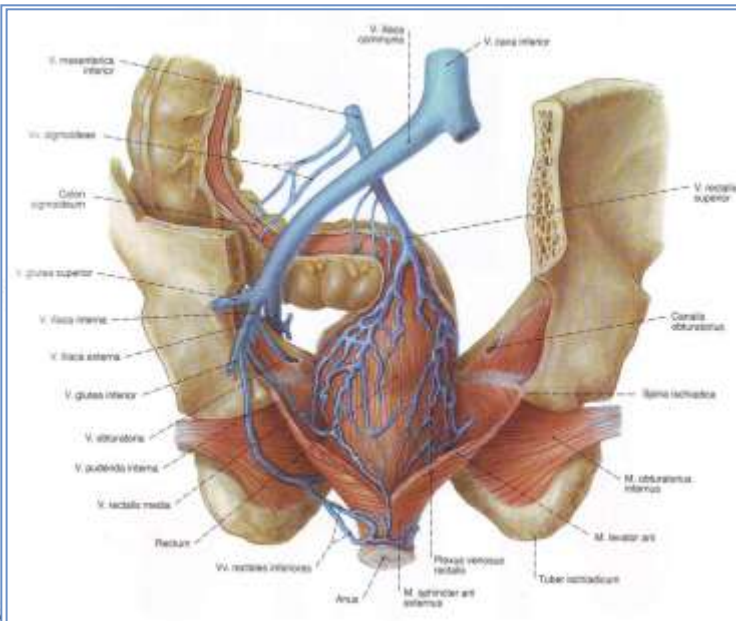
A. mesenterica superior

A. rectalis superior

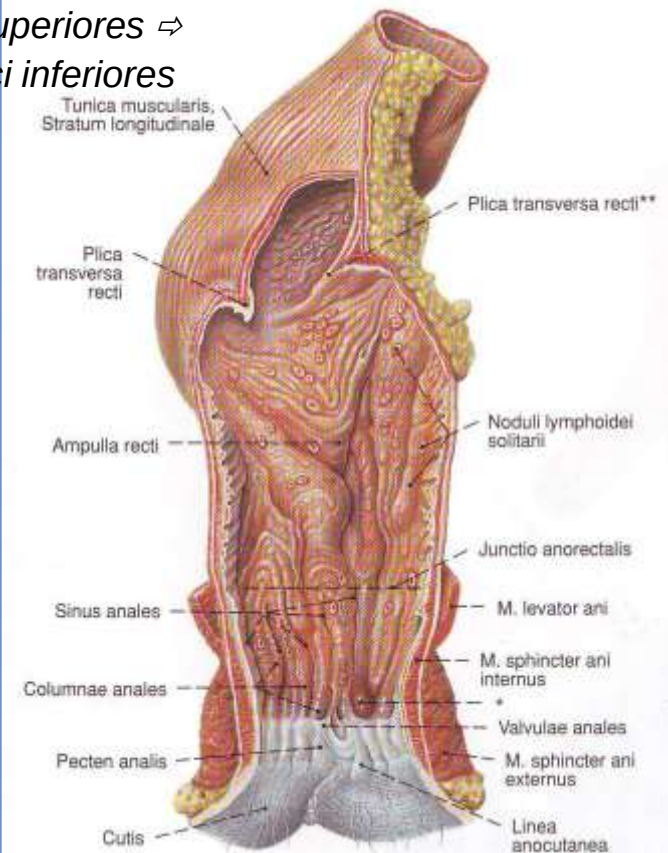
✓ *nodi lymphatici mesenterici superiores*

nodi lymphatici mesenterici inferiores

- 
 ✓ *nodi lymphatici rectales superiores* ⇨
nodi lymphatici mesenterici inferiores
 ✓ *nodi lymphatici iliaci interni*
 ✓ *nodi lymphatici inguinales superficiales*

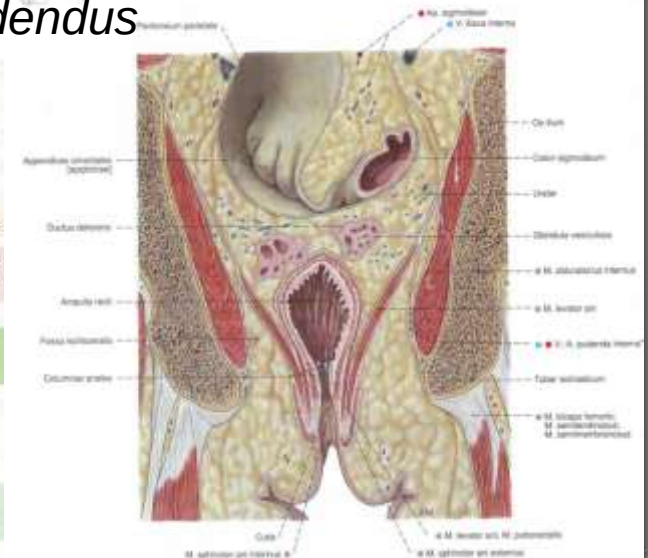
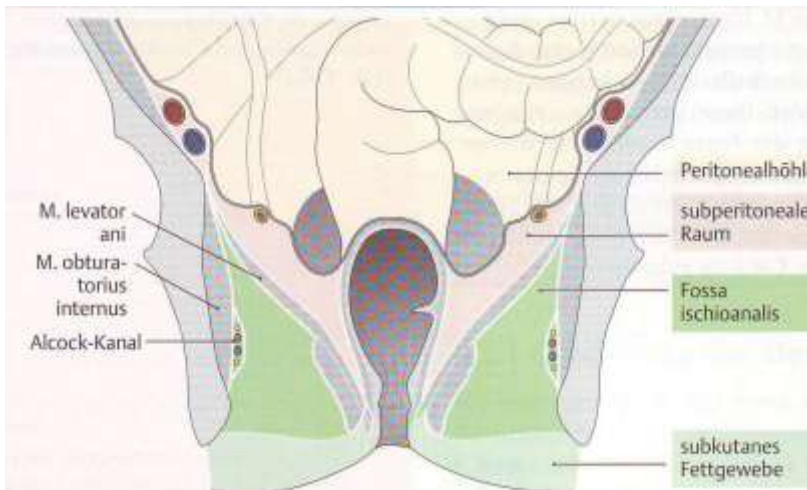


- the rectum, *rectum*
- the anal verge, *anus*:
 - ✓ *m. sphincter ani externus*
 - ✓ *lig. anococcygeum*





- borders:
 - ✓ laterally – *tuber ischiadicum, fascia m. obturatorii interni*
 - ✓ medially and superiorly – *fascia diaphragmatis pelvis inferior*
- content:
 - ✓ adipose tissue, *corpus adiposum* – abscesses
 - ✓ neurovascular bundle –
 - a. et v. pudenda interna, n. pudendus*



topography

content

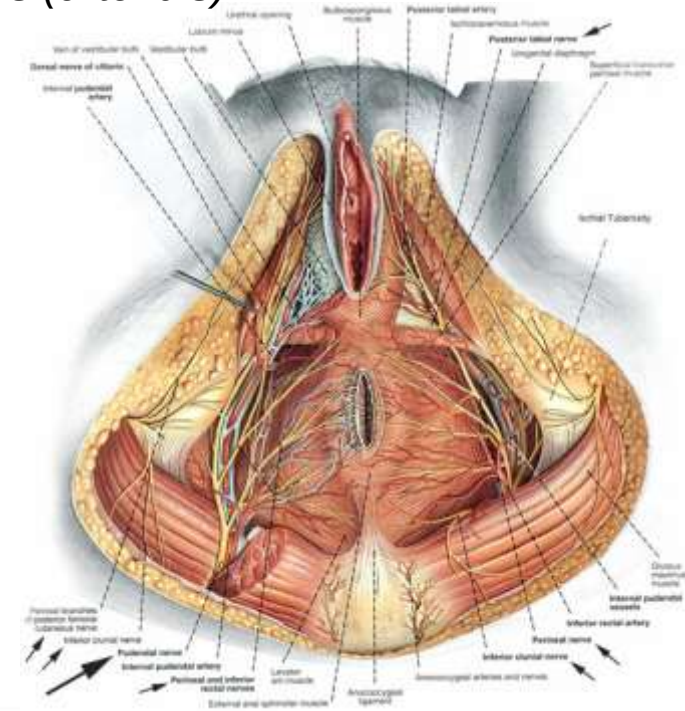
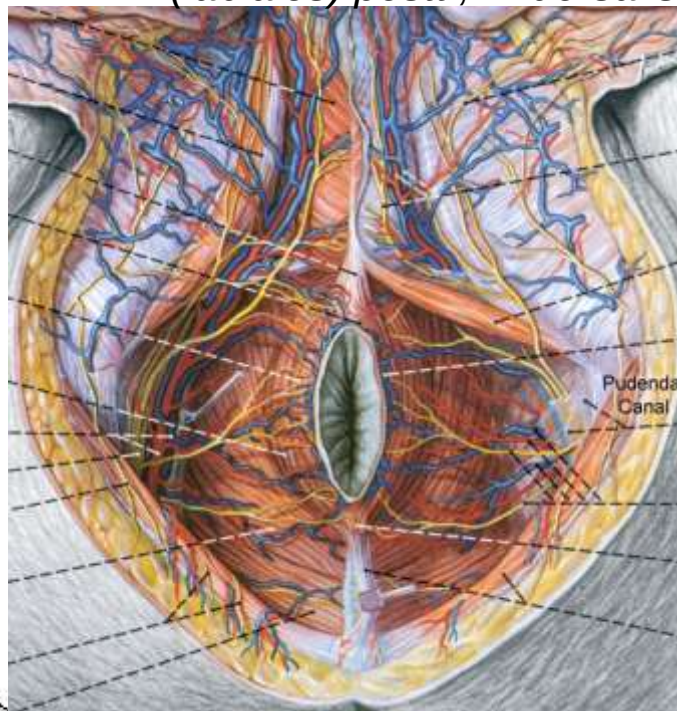
Alcock,

Benjamin Thomas
(1801-1855-?)



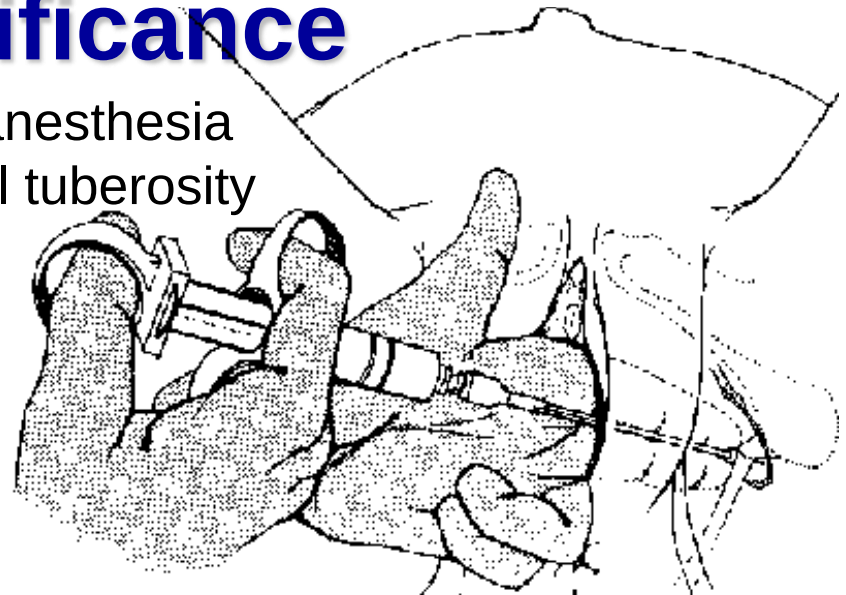
Pudendal canal, Alcock's canal

- a sheath derived from the fascia of the obturator internus muscle, 0.3-0.5 cm in length
- content – regional neurovascular bundle:
 - ✓ *a. pudenda interna* – *a. rectalis inf.*, *a. perinealis*, *aa. scrotales (labiales) postt.*, *a. bulbi penis (vestibuli)*, *a. profunda penis (clitoridis)*, *a. dorsalis penis (clitoridis)*
 - ✓ *n. pudendus* – *nn. rectales inf.*, *nn. perineales*, *nn. scrotales (labiales) postt.*, *n. dorsalis penis (clitoridis)*

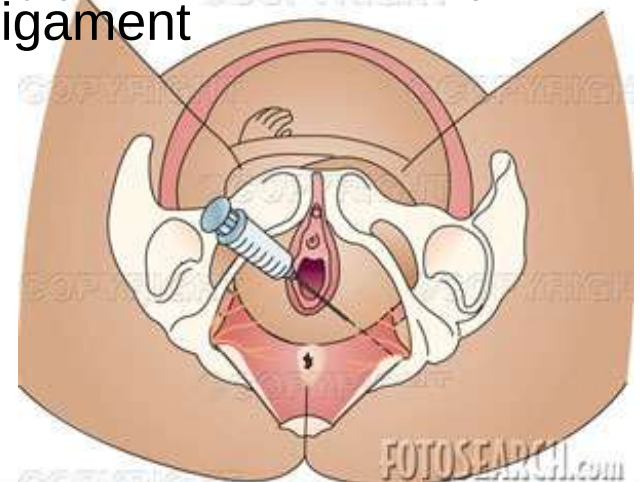
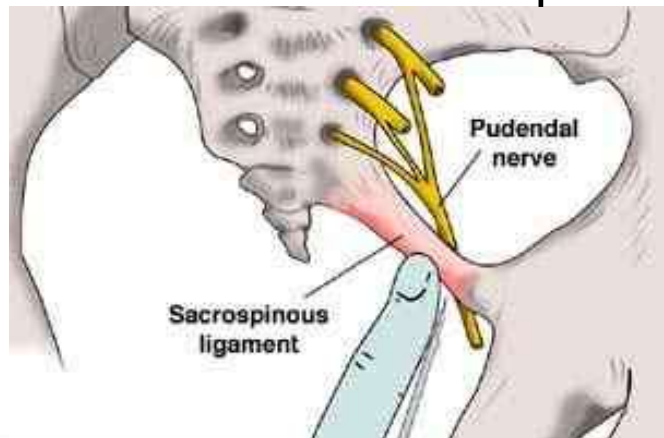


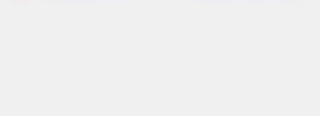
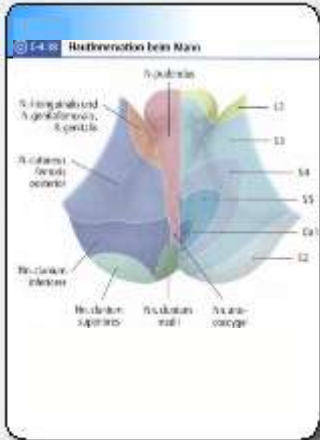
Clinical significance

- saddle and perineal anesthesia
- landmark – the ischial tuberosity



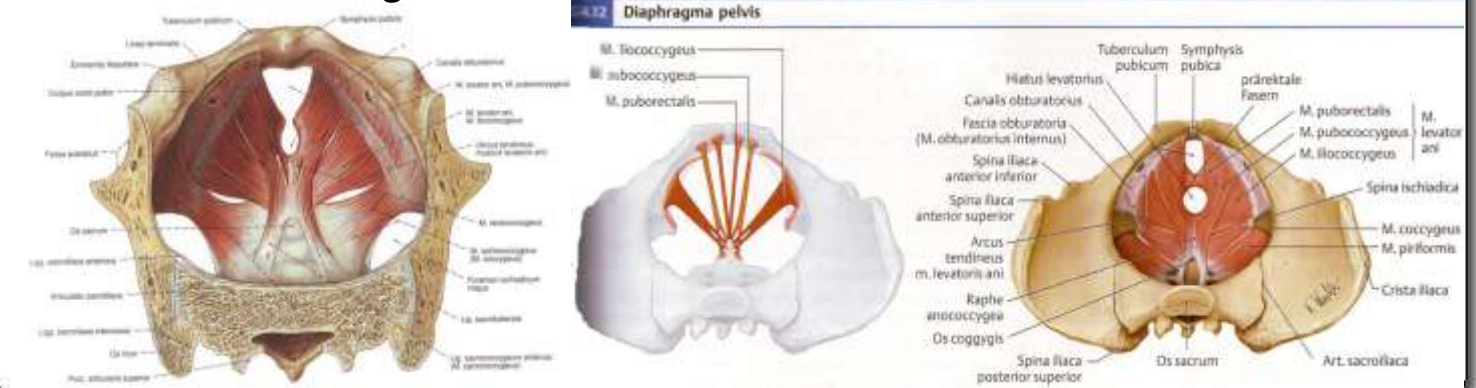
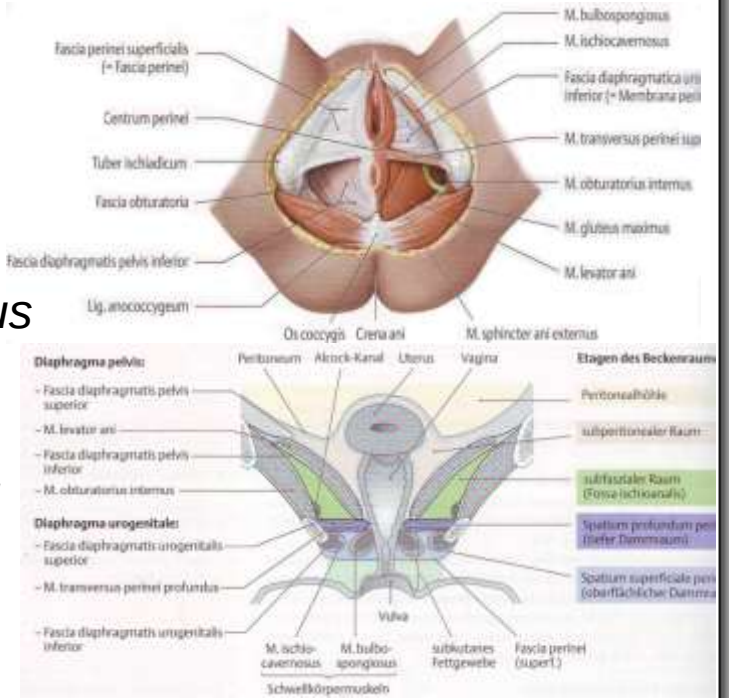
- pudendal nerve entrapment (Alcock canal syndrome) – a chronic neuropathic pain caused by pudendal nerve compression
- landmark – the sacrospinous ligament





The pelvic floor: *diaphragma pelvis*

- Surface anatomy:
 - ✓ skin
 - ✓ subcutaneous fat tissue – a., v. et nn. perineales
 - ✓ *m. sphincter ani externus*, *m. levator ani*, *m. coccygeus*
 - ✓ *fascia diaphragmatis pelvis inferior*
 - ✓ *m. transversus perinei prof.*
 - ✓ *fascia diaphragmatis pelvis superior*
 - ✓ loose connective tissue ⇒ *hiatus urogenitalis*

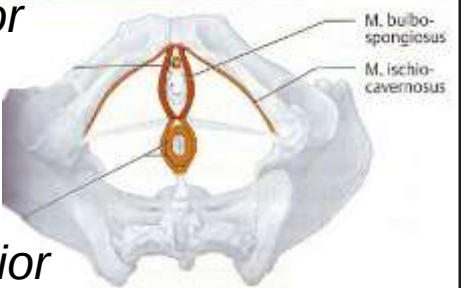
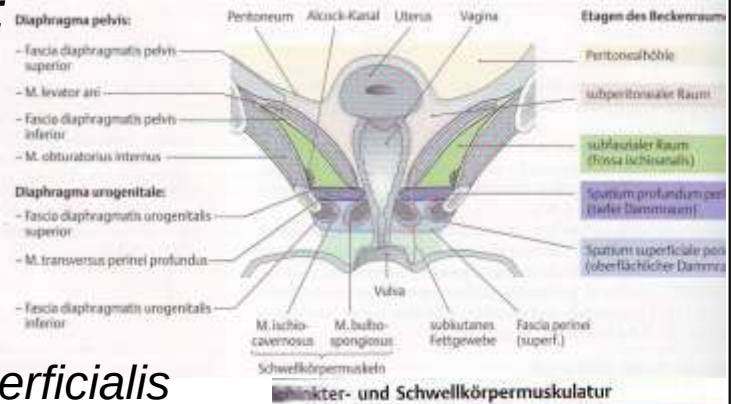


Diaphragma urogenitale

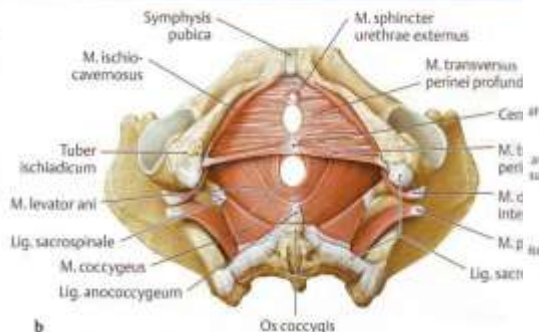
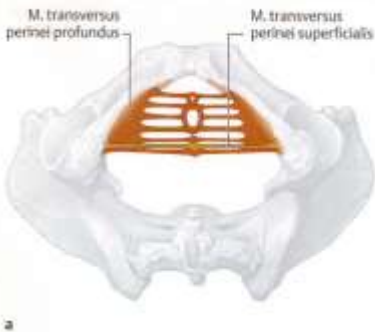



Trigonum urogenitale

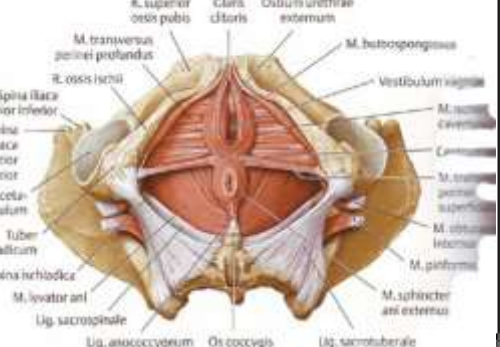
- **spatium perinei superficiale:**
 - ✓ fascia perinei superficialis
⇒ fascia penis (clitoridis)
 - ✓ centrum tendineum perinei (corpus perinealis)
 - ✓ m. ischiocavernosus, m. bulbocavernosus (m. bulbospongiosus)
 - ✓ m. transversus perinei superficialis
 - ✓ fascia diaphragmatis urogenitalis inferior
- **spatium perinei profundum (diaphragma urogenitale):**
 - ✓ m. transversus perinei profundus, m. sphincter urethrae externus
 - ✓ fascia diaphragmatis urogenitalis superior



C-4.13 Diaphragma urogenitale



C-4.11 Beckenboden der Frau



Elvis Pelvis



Thank you ...



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