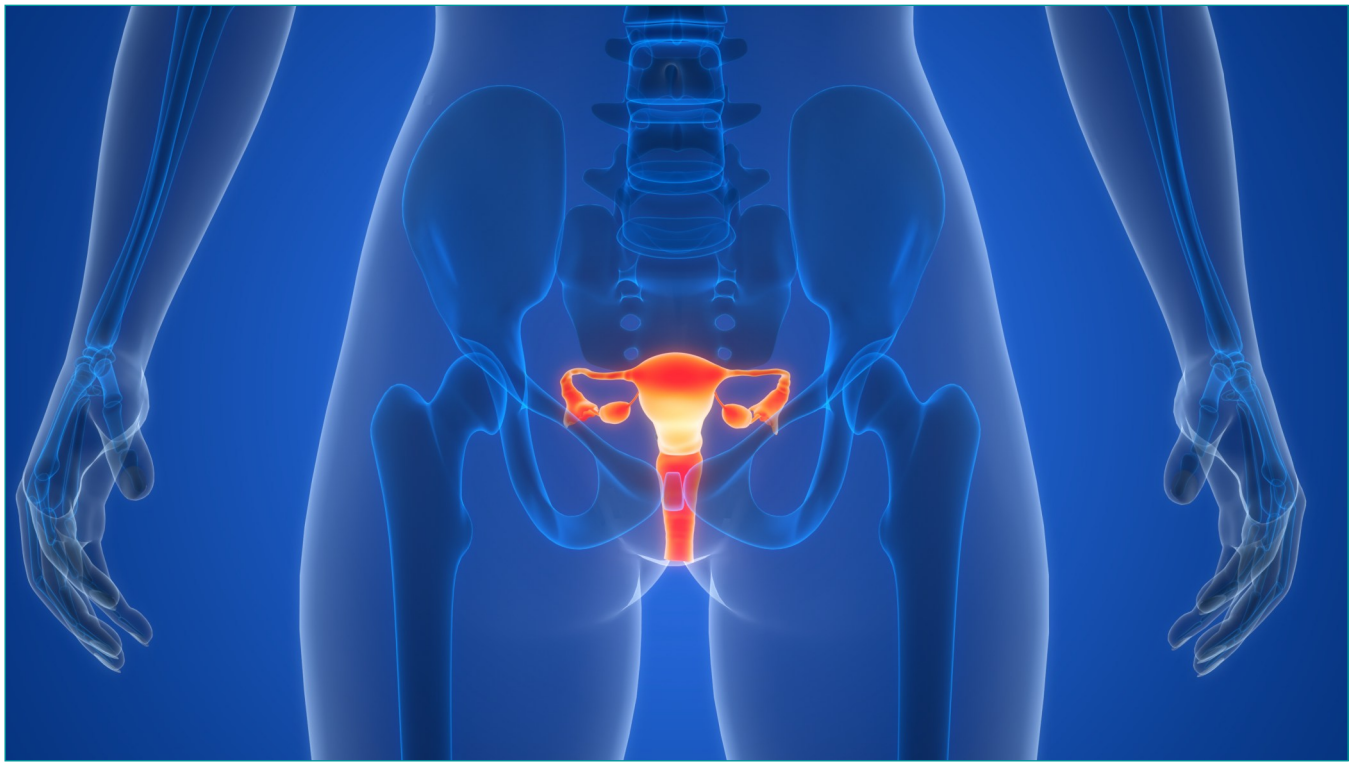
‘The first classroom is in a mother’s womb’

Éric Adams (1960)

‘Be a girl with a mind, a woman with attitude and a lady with a strong pelvic floor’

Anonymous.



17. PELVIS MINOR VROUW

17.10. OSTEOPATHY PELVIS MINOR WOMAN

Biomechanics (Mobility) Uterus

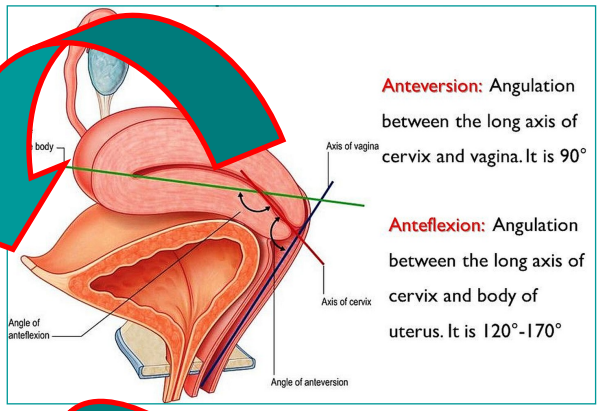
The mobility of the Uterus is related to the respiration, the fascia & ligaments and the turgor of the organs in the compartments of Glenard.

Inspiration: Diaphragm descends]
- Pelvic bones hardly move] Uterus towards Anteversion & Anteflexion sightly
- Costae to lateral] towards the right (compartments of Glenard)

Nota Bene Uterus Biomechanics:

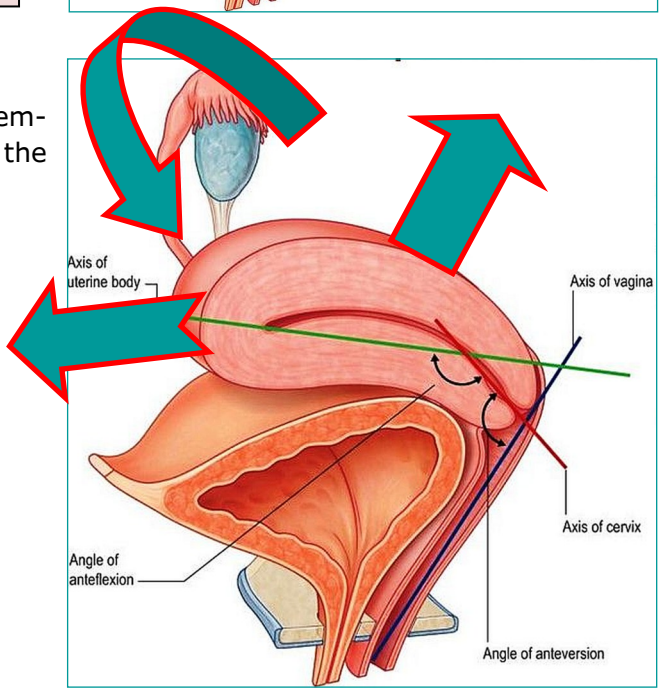
This is the classic description within Osteopathy on the basis of the definition (see Part 1, Chapter 3. Concept visceral).

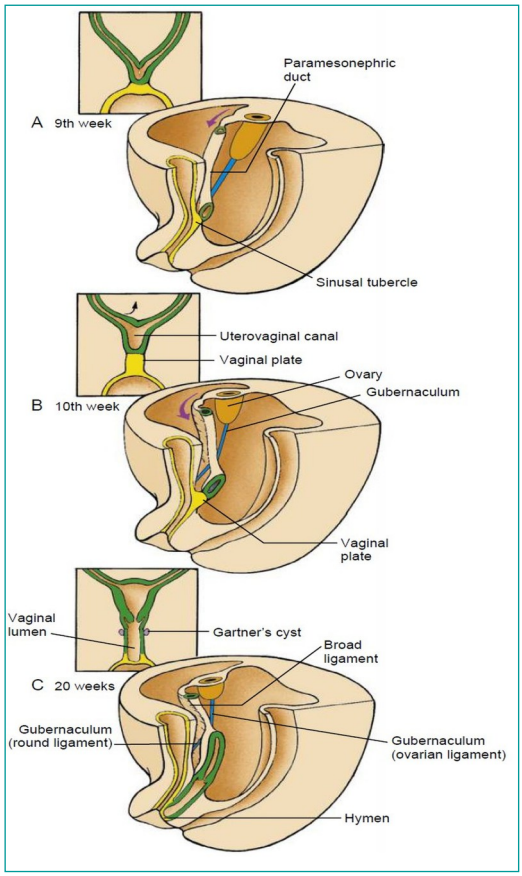
Especially for an organ like the Uterus, this classic description is not representative. The Uterus is a free organ and moves in all directions and must optimally maintain this mobility in all directions for its various functions.



Vitality (Motility) Uterus

The Vitality (Motility) is always connected to the embryonic development (ER-phase). The Uterus and the Tubae are developed to cranial, lateral and anterior.





Nota Bene Vitality Uterus:

This is the classic description based on the global embryonic development (see Part 1, Chapter 3. Concept visceral). This can only be palpated bimanually and vaginally in the Uterus, because of the mobility of the Cervix and the Isthmus.

Sources:

- Larsen, W.J., PhD, Human Embryology, Churchill Livingstone, New York, 1993. Page 414, figure 16.19.
- Gurudasan, Dr. Anatomy of thefemale reproductive system, 2014.

Autonomity (Motricity) Uterus

The classic description does not apply to the female genital organs, since they are under endocrine and not neurocrine control.

It should be clear that the Uterus undergoes movement under the influence of the Menstrual Cycle. The most important are:

- The growth of the Myometrium.
- The proliferation and growth of the Endometrium.
- The displacement of the Oocyte in the Tuba.
- The change in blood flow.

Nota Bene Autonomiteit Uterus:

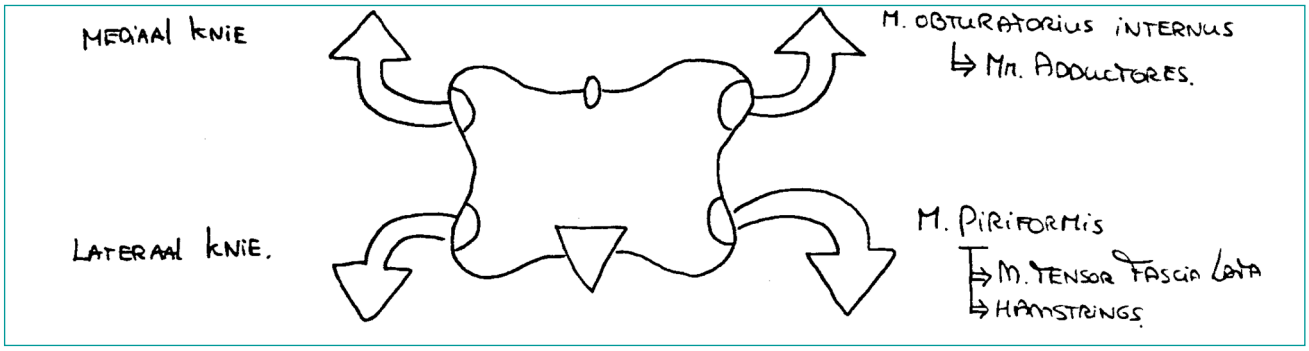
Een klassieke beschrijving aan de hand van de invloed van een zenuwstelsel (zie Deel 1, hoofdstuk 3. Concept visceraal) valt hierbij niet te geven. De endocriene maandelijkse veranderingen zijn voor de osteopathie interessant, omdat de groei, de weefselverandering en de afstoting (menstruatie) een grote mate van vrije mobiliteit verlangen, wil dit probleemloos en pijnvrij verlopen.

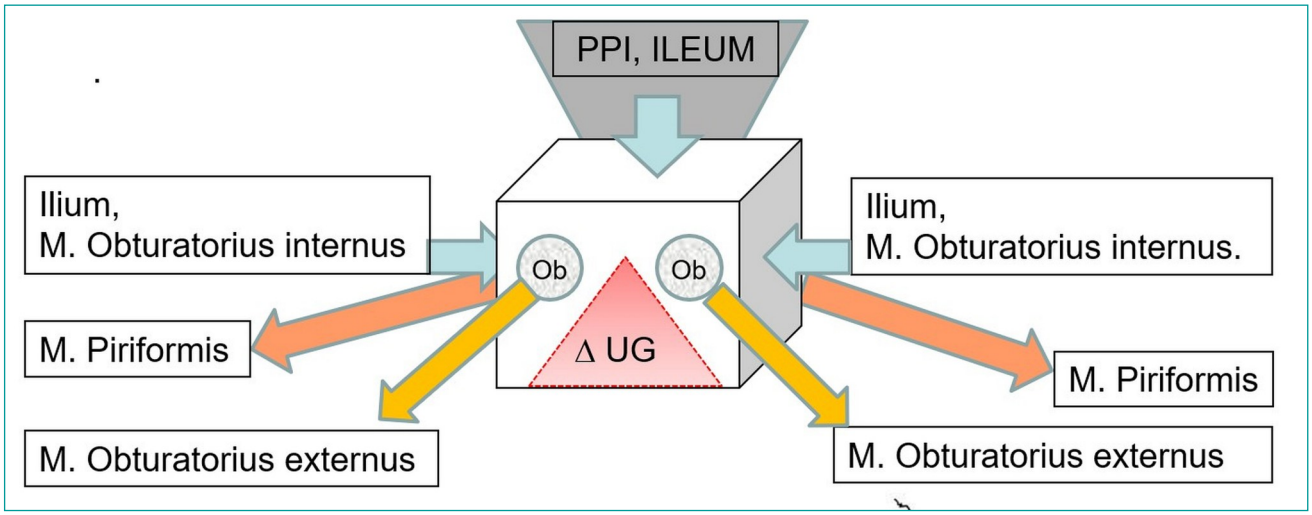
Osteopathic Dysfunctions

1. Pelvic Floor

The myofascial axes from the pelvoic floor are:

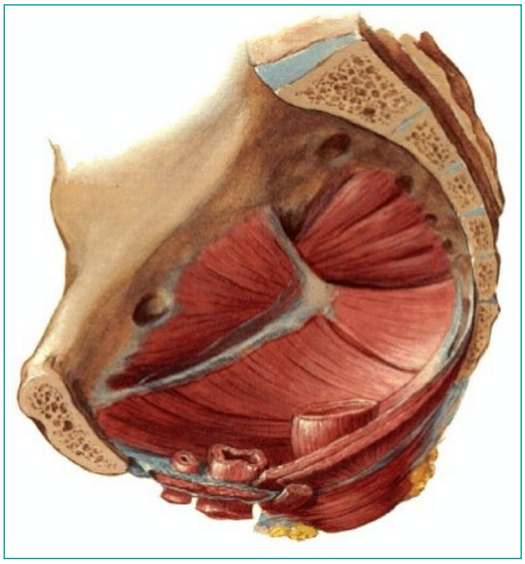
- From the M. Obturatorius Internus —> to ventral —> Mm. Adductores.
- From the M. Piriformis —> to dorsal —> M. Tensor Fascia Lata and Hamstrings.
- Fascia Pelvis is connected tot the fascia Iliopsoica.

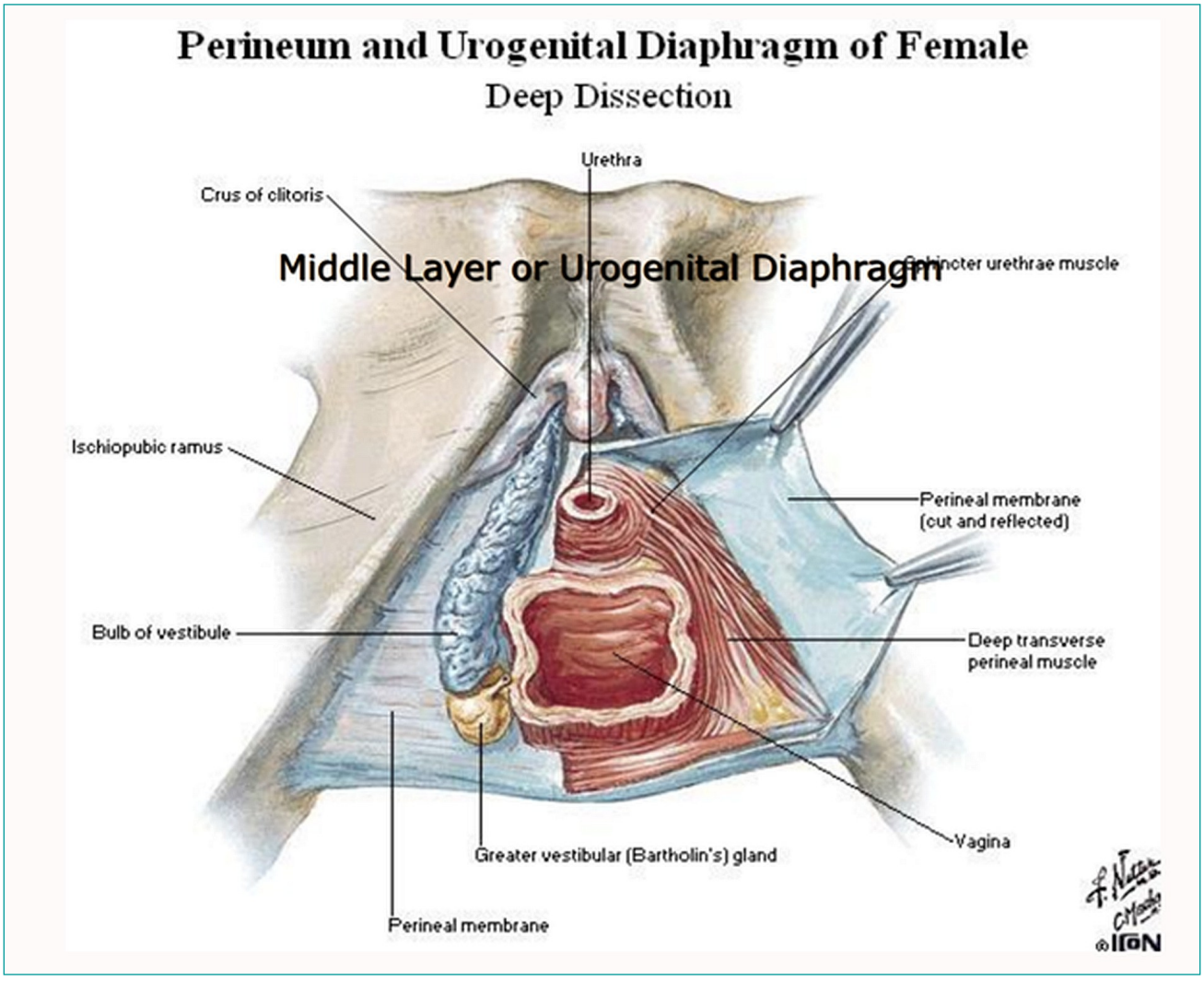




Many dysfunctions in the Pelvis Minor are linked to other dysfunctions:

- The Colon (Caecum and Sigmoïd) 'determine' the position and the freedom of the tuba Uterina (lig. Tuba-colicum).
- Many internal dysfunctions of the Pelvis minor translate themselves into complaints in the musculoskeletal field:
  - ◊ M. Piriformis (N. Ischiadicus —> radiating pain in the leg);
    - ♦ Hamstrings (M. Semitendinosis, M. Semimembranosis —> medial knee (Pes anserinus).
    - ♦ M. Biceps Femoris —> lateral knee / Caput Fibula proximalis (shock absorber).
    - ♦ M. Tensor Fascia Lata —> side of the thigh ('radiation').
  - ◊ M. Obturatorius Internus / Membrana / M. Obturatorius Extenus.
    - ♦ M. Adductor Longus, Magnus (inner side of the thigh —> knee).





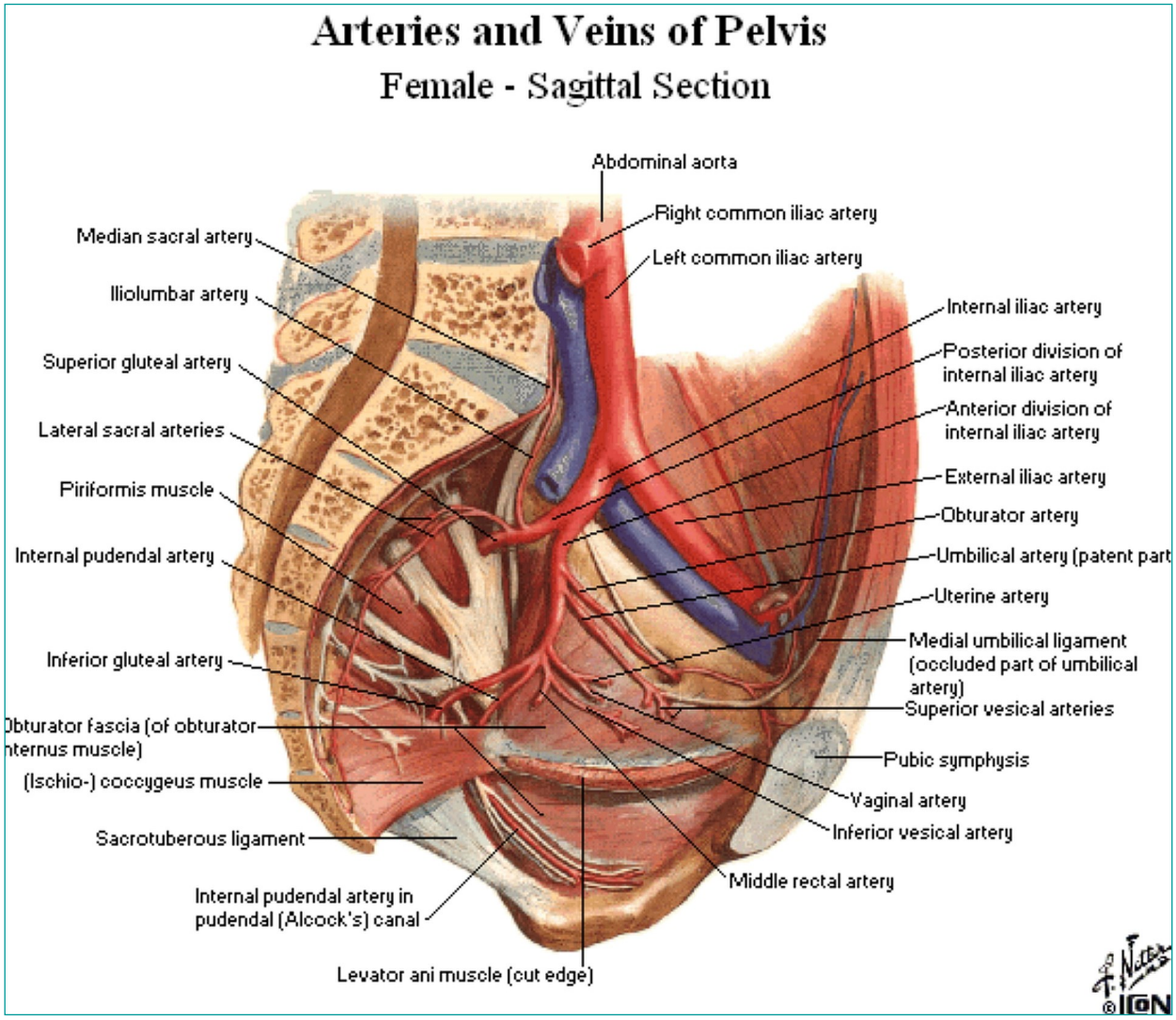
Sources:

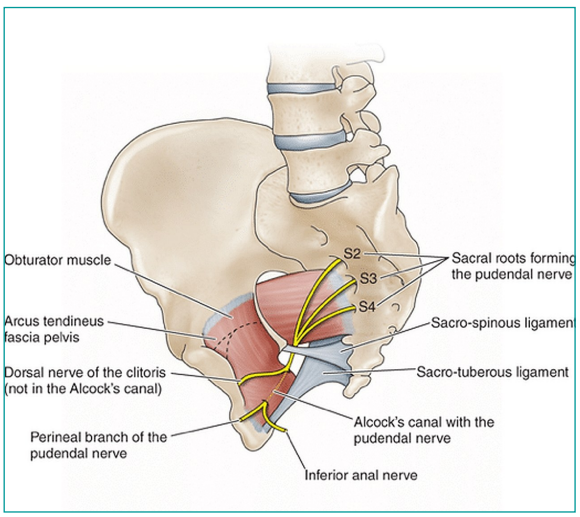
- Netter, Frank H. MD, The Netter Collection of Medical Illustrations, Volume 4 – Integumentary System. Ciba-collection. ISBN: 9780914168010, 1966.
- Gray, H., Anatomy of the Human Body, Arcturus Publishing Limited, PA, 1965, ISBN: 978-1789506549

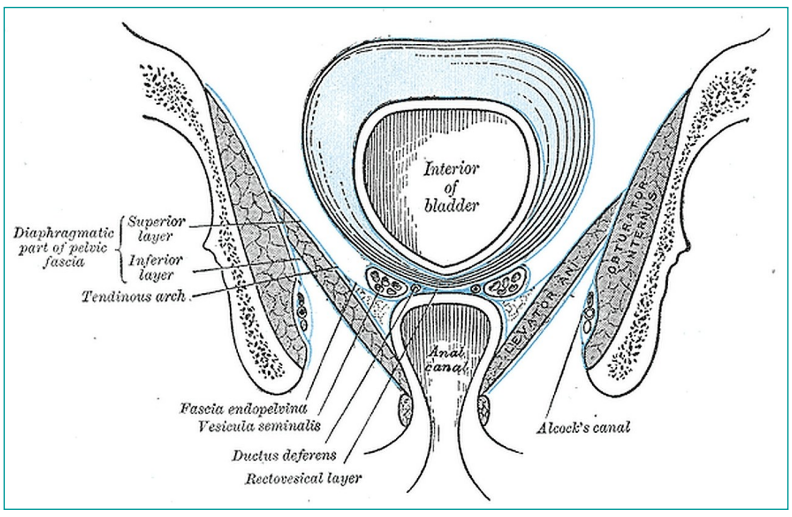
2. Canal of Alcock

The Alcock canal contains the A. V. & N. Pudenda Interna. These are located in an envelope of the Fascia of the M. Obturatorius Interna, near the M. Levator Ani. Also called Canalis Pudendalis.

It is the nurture the pelvic floor, which can become 'pinched' in this canal, mainly obstructing the venous drainage (ischemia).





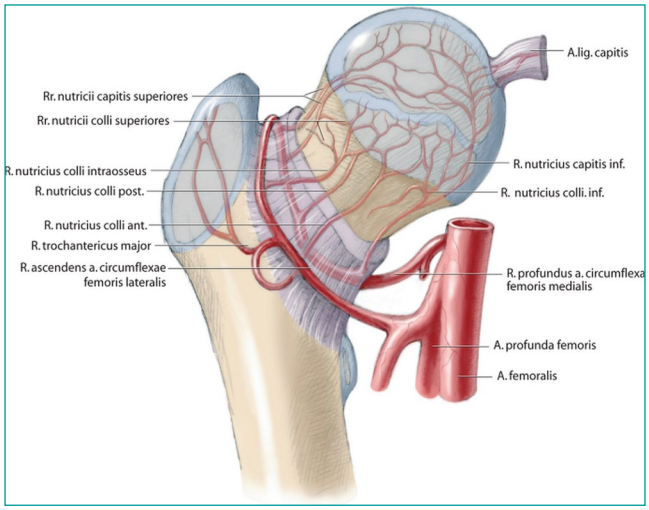


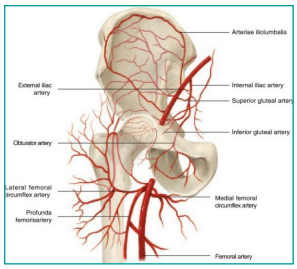
3. Pelvic floor – Coxo-femoral

Both the pelvinal organs and the muscles of the pelvic floor are closely connected to the Coxo-femoral joints.

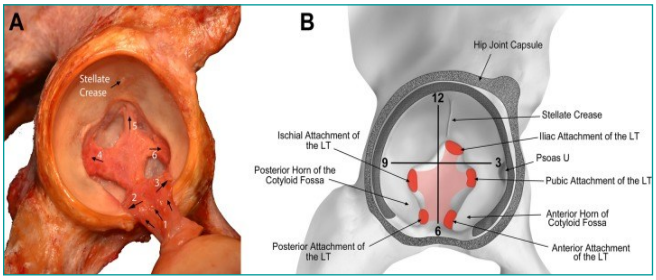
On the one hand directly muscular and fascial, on the other hand vascular. The power supply of art. Coxo-Femoralis is via the Ramus Acetabularis, which runs through the .lig. Capitis Femoris, highly dependent on the condition (read Mobility) of the Pelvinal organs.

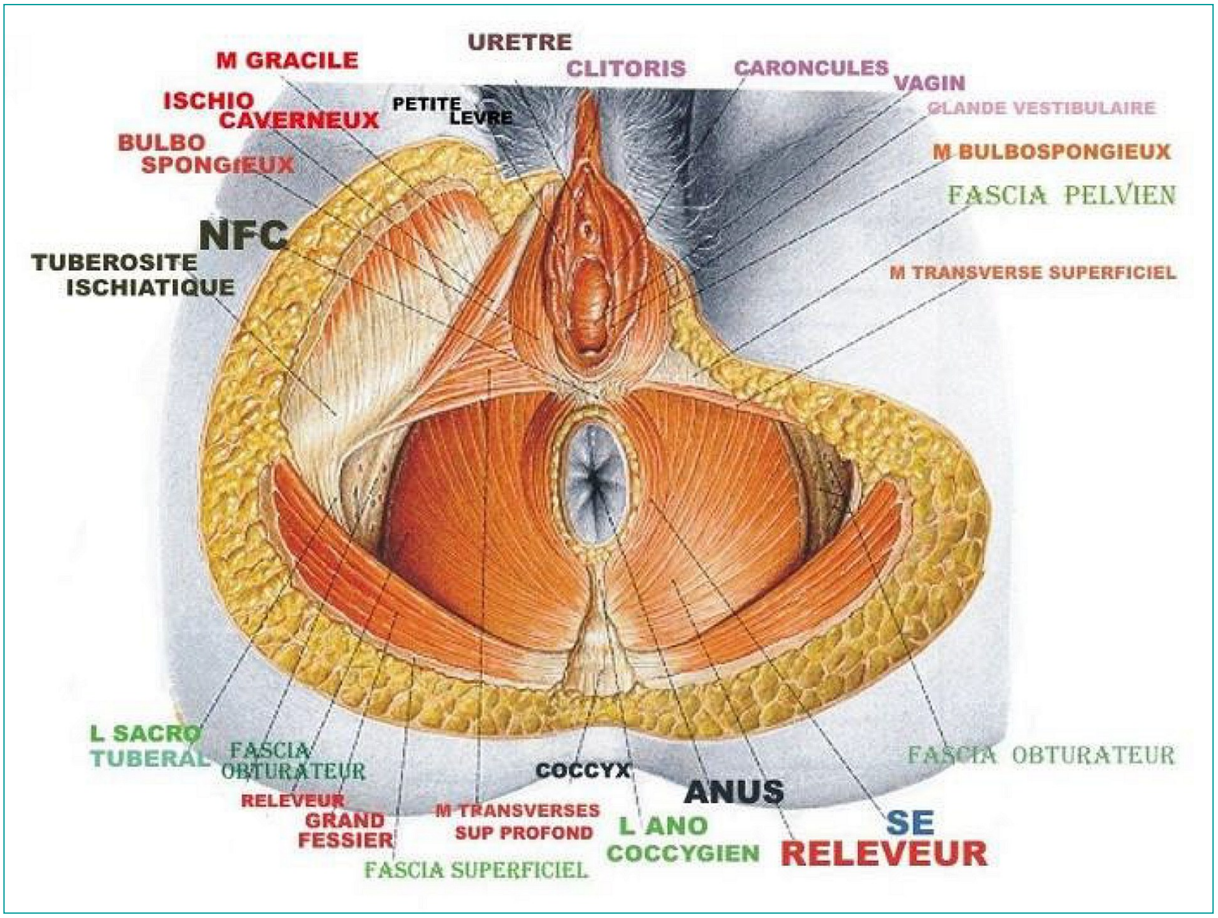
It is logical that (primary or Idiopathic) Coxarthrosis is much more common in women.





Ligamentum teres (LT):
1 = transverse attachment
2 = posterior attachment;
3 = anterior attachment;
4 = ischial attachment;
5 = iliac attachment;
6 = pubic attachment.

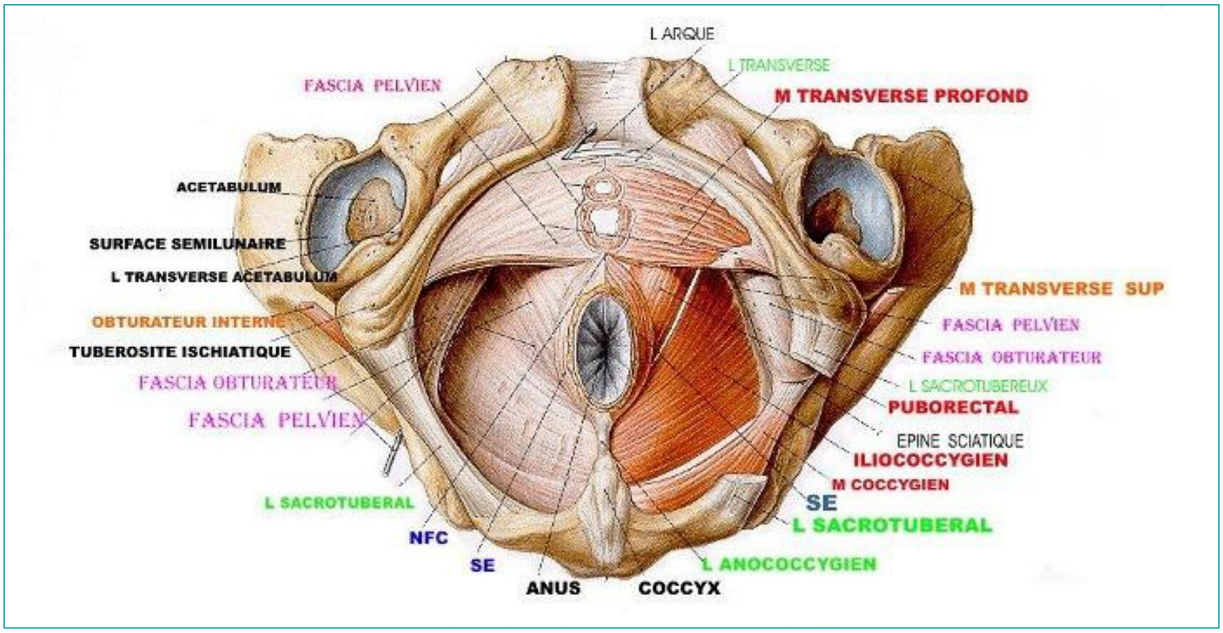




Overview of the Pelvic floor muscles, caudally seen, without the Diaphragm Pelvis.

Note the connections with the 'leg-muscles',
like the M. Gracilis, M. Obturatorius, M. Piriformis.

Note the central place of the Perineum and het os Coccyx.



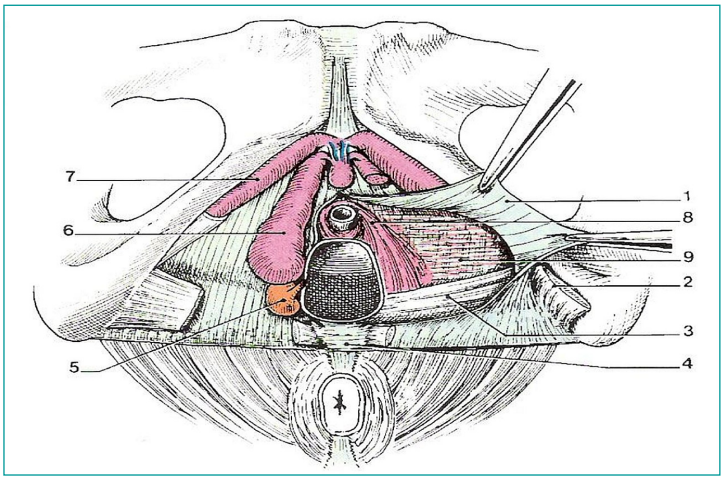
The same picture as on the left, but one layer deeper, that is towards cranial.

Note the relation M. Transversii – M. Obturatorii and the both art. Coxo-Femoralis.

Note the relation of the muscles of the Diaphragm Pelvis (M. Levator Ani (3x), M. Coccygeus and the Lig. Sacro-tuberalis.

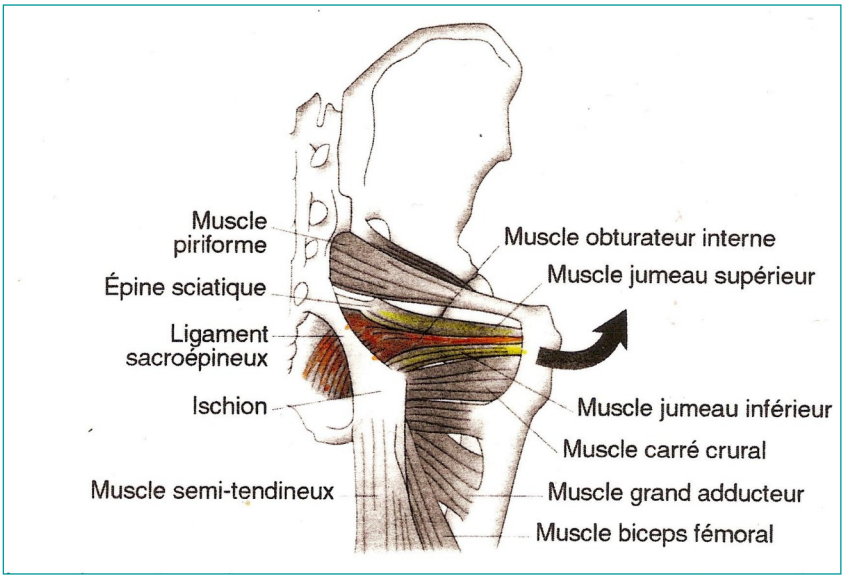
The Perineum:

1. *Fascia inferior Diafragma Urogenitalis.*
2. *Lig. Sacro-tuberalis.*
3. *M. Transversus Perinei Superficialis.*
4. *Centrum Tendineum Perineum.*
5. *Glandula Batholini.*
6. *Bulbus Spongiosus.*
7. *Corpus Ischiocavernosus.*
8. *M. Sphincter Externus Urethra.*



Sources:

- Paulsen, Friedrich, Sobotta Atlas of Anatomy, Package, 16th ed., English/Latin. Musculoskeletal System; Internal Organs; Head, Neck and Neuroanatomy; Muscles Tables. Médecine Sciences Publications; 6e editie, 2013.
- Rosinsky PJ, Shapira J, Lall AC, Domb BG. All about the ligamentum teres: from biomechanical role to surgical reconstruction. JAAOS-Journal of the American Academy of Orthopaedic Surgeons,;28(8):e328-39. 2020.
- Kaiser, M.M., Weinberg, A.M. Diaphysäre Femurfrakturen. In: Engelhardt, M., Raschke, M. (eds) Orthopädie und Unfallchirurgie. Springer Reference Medizin. Springer, Berlin, Heidelberg. 2021.



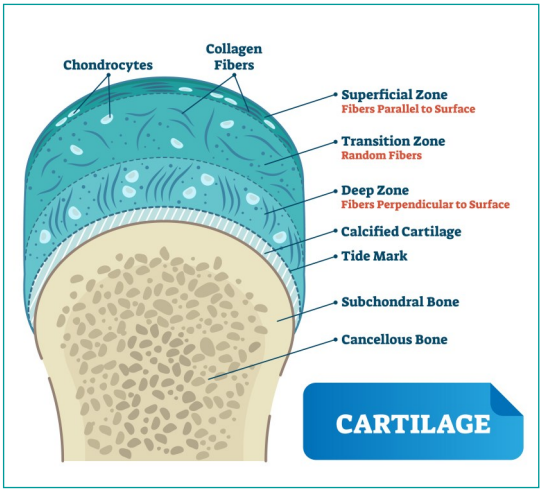
The walls of the Pelvis Minor are closely related to the ligaments and to the muscles of the lower extremity. In fact, they compensate for all pressure differences in the Pelvis minor.

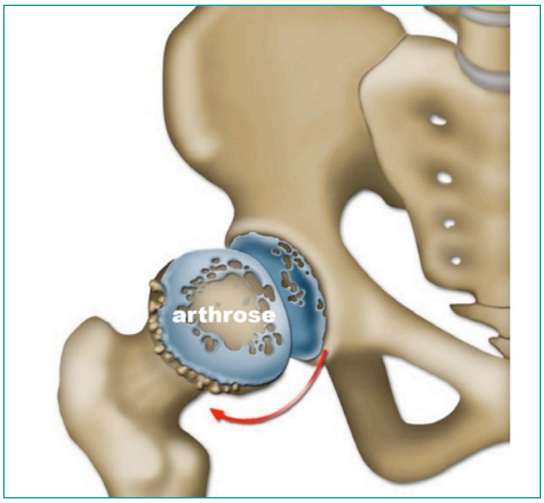
Many complaints of the legs originate in the small pelvis, both men and women. And that applies to all kinds of complaints, such as heavy legs, walking problems, radiation and sports injuries.

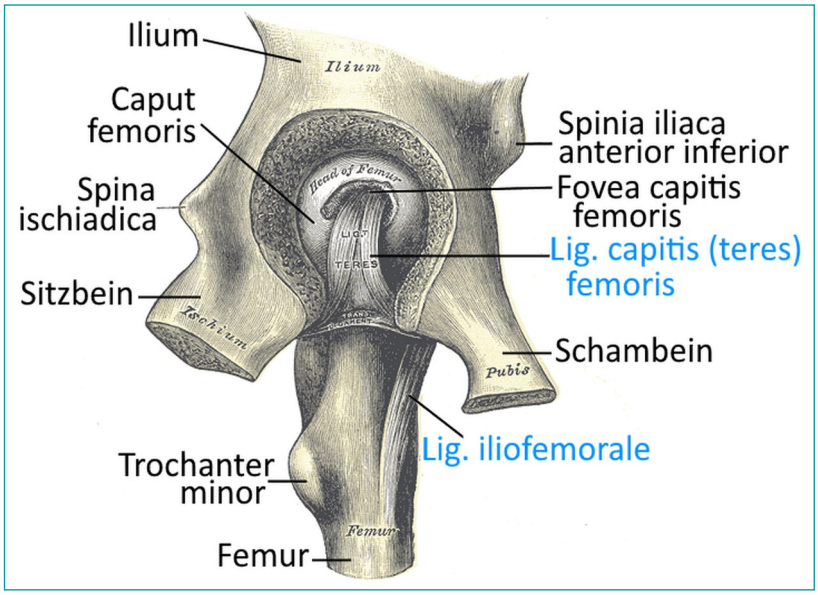
Synovia is the dialysate of blood plasma, at the art. Coxo-femoral is mainly obtained from the A. Capitis Femoris (through lig. Capitis Femoris) from the A. Obturatorius.

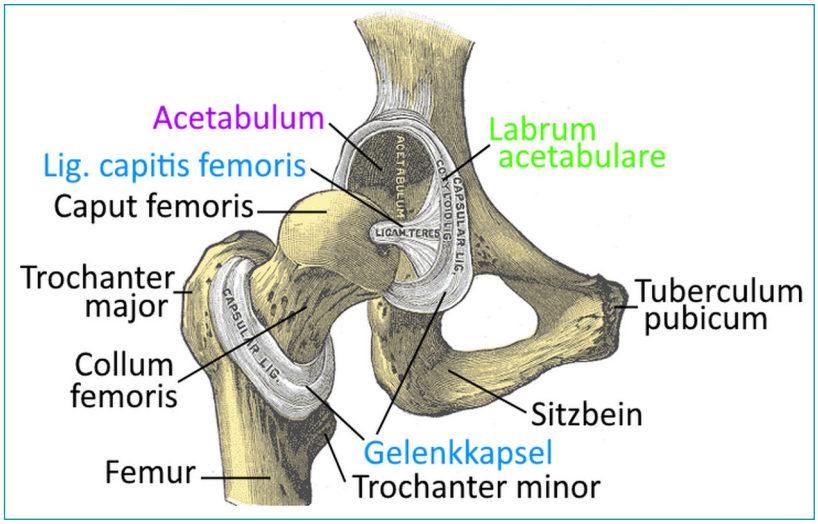
Stasis, pressure, loss of mobility of the Pelvinal Organs, indicates alteration of the vascularization of the hip.

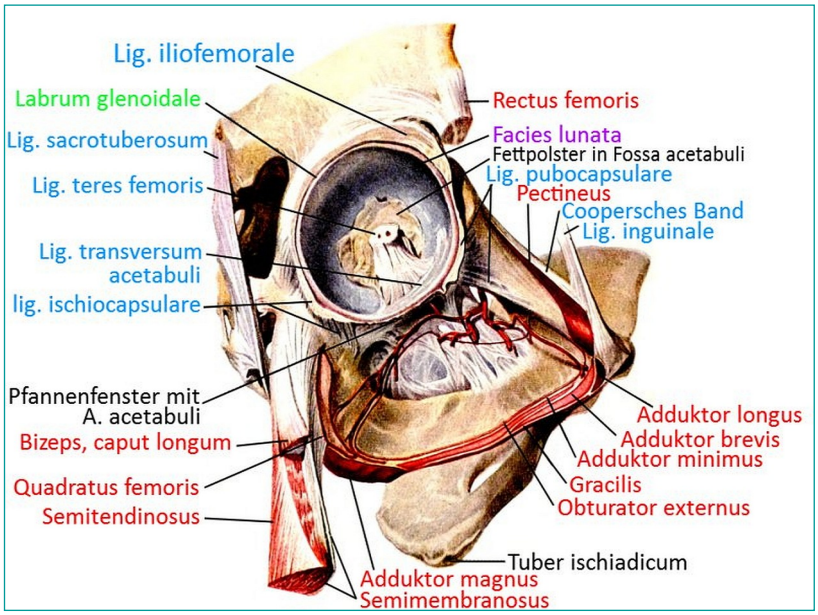
As a result, the balance between chondroclasts and chondroblasts is disturbed, resulting in osteoarthritis. Logically, often one-sided.







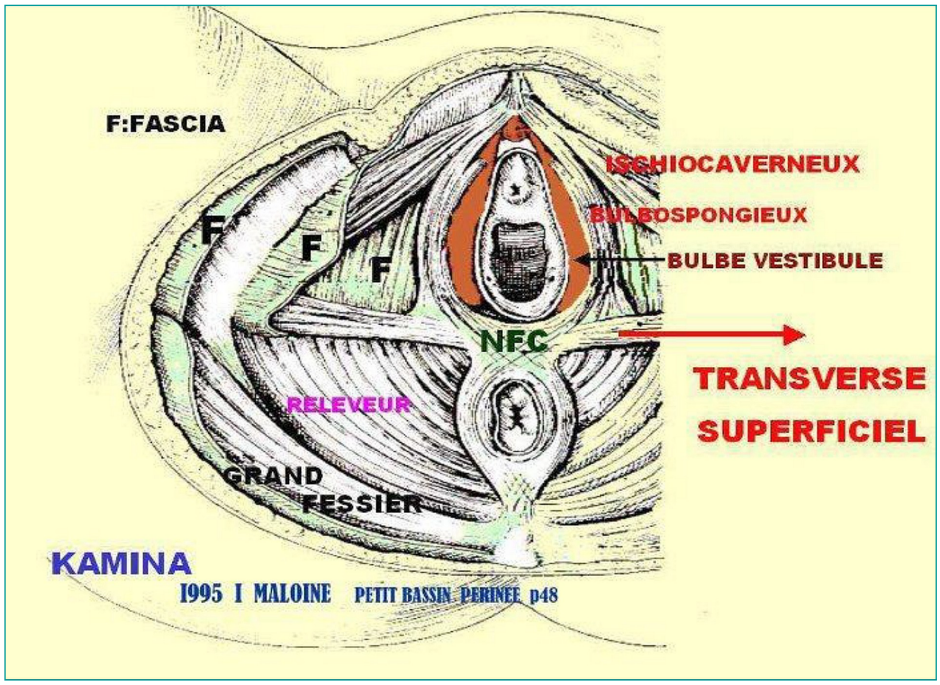




4. Fascia Pelvis Minor

Different layers of fascia of the Pelvis Minor. Note the striking matters:

- M. Rectus Abdominis with its own fascie & fascia Transversalis —> towards Symphysis (periost) —> towards lig. Suspensorium Clitoris.
- Subcutane fascie of the Perineum, also called the Fascia of Colle.
- Vesica Urinaria (own tunica serosa) & Vagina-Uterus (own tunica serosa) & Rectum (own tunica) <——> on top of that (cranial) the Peritoneum Parietalis Inferior (continuation of PPA and PPP).
- All fascia are connected to thw pelvic floor, with the Perineum as a central point. This lower network hangs streched between Symphysis and os Coccyx (and lateral walls).

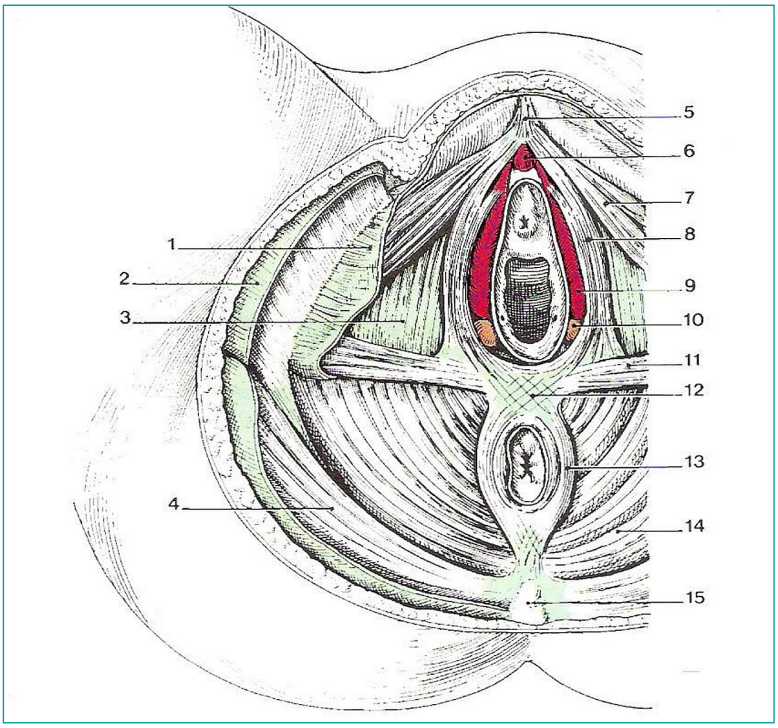


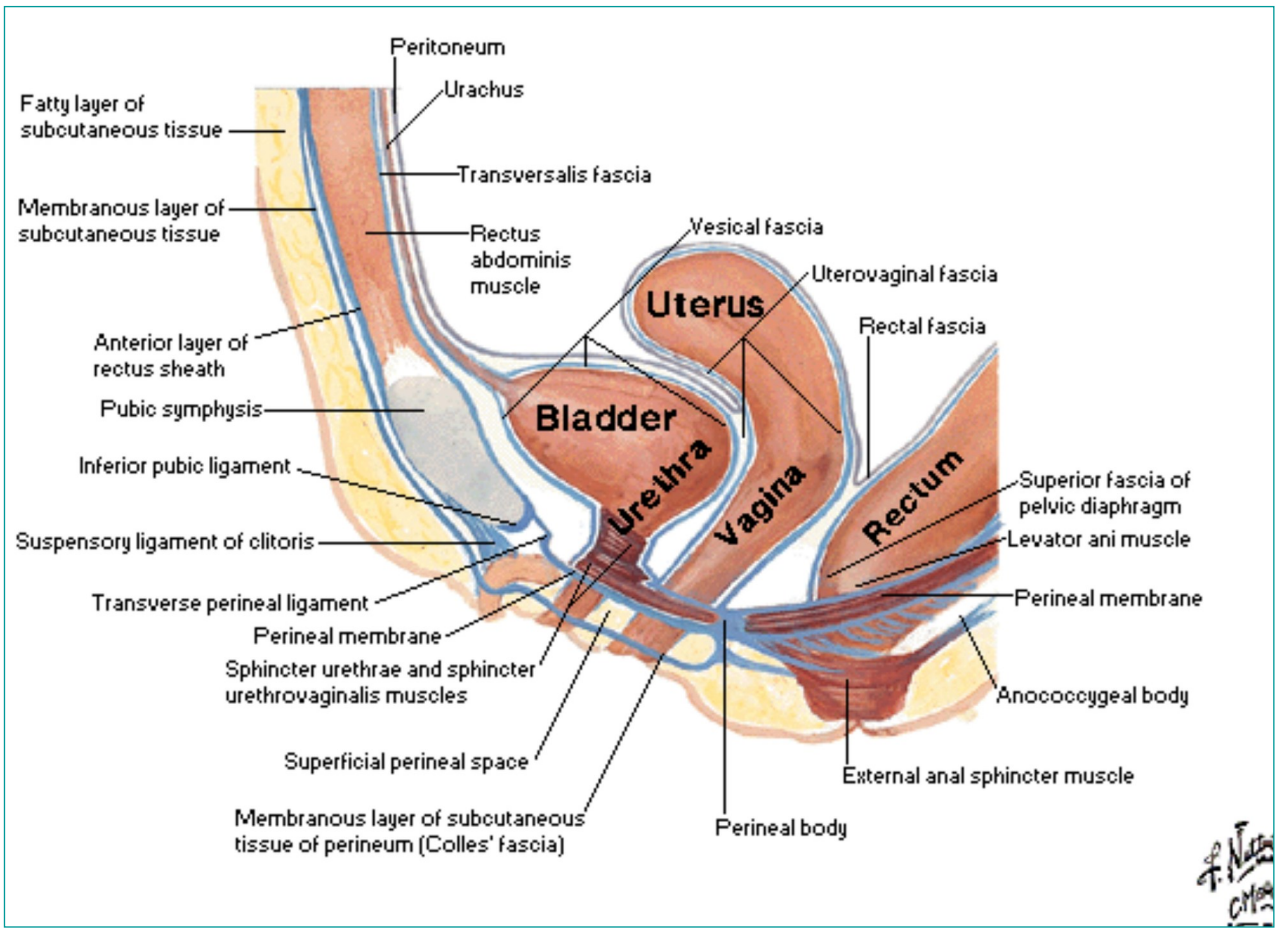
***From an osteopathic perspective**, it is interesting to pay attention to the different fascia (F), of the different Diaphragms of the Pelvis Minor.*

These fascia are gliding surfaces, closely related to the Peritoneum, that is, they produce an oil film.

This production takes place through movement, in this case of the different muscles. Immobility stops this production and makes the fascia stick together.

1. *Fascia Superficialis Perineum.*
2. *Fascia Lata.*
3. *Fascia Inferior Diafragma Urogenitalis*
4. *M. Gluteus Maximus.*
5. *Lig. Suspensorium Clitoris.*
6. *Clitoris (glans).*
7. *M. Ischio-cavernosis.*
8. *M. Bulbo-spongiosis.*
9. *Bulbus Spongiosis.*
10. *Glandula Bartolini.*
11. *M. Transversus Perinei Superfiscialis.*
12. *Centrum Tendineum.*
13. *M. Sphincter Ani Externus.*
14. *M. Levator Ani.*
15. *Os Coccyx.*



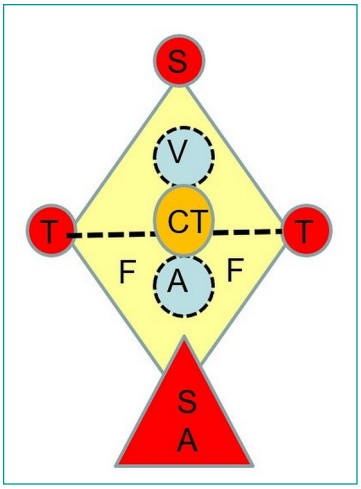


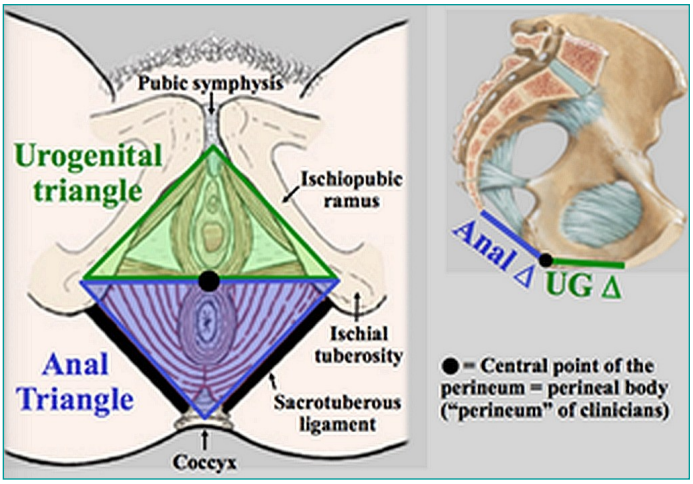
Vesica Urinaria (own tunica serosa) & Vagina-Uterus (own tunica serosa) & Rectum (own tunica) <——> on top of that (cranial) the Peritoneum Parietalis Inferior (continuation of PPA and PPP).

5. Perineum

In the centre of the pelvic floor is a tendon-like plate: Centrum Tendineum, which is formed by muscular and tendinogenic radiations of the M. Levator Ani, M. Transversus Perinei Profundus et Superficialis, M. Bulbospongius and M. Sphincter Ani Externus.

In other words, almost all muscles of the pelvic floor attach to the Centrum Tendineum. Or in other words, the Centum Tendineum, as a central tendon plate, is kept at healthy tension by many muscles.





Damage to the Perineum affects the function of these muscles. Damage can be caused by:

- *Trauma (fall on a hard or pointed object).*
- *Childbirth (cutting, tearing).*
- *Far-reaching ptosis;.*

On the one hand, a healthy tension of all (!) pelvic floor muscles is certainly necessary: not too much and not too little.

Damage to or scarring in the Perineum therefore requires an adjustment of all organs and connective tissue in the Pelvis Minor.

Intermezzo: fire brigade

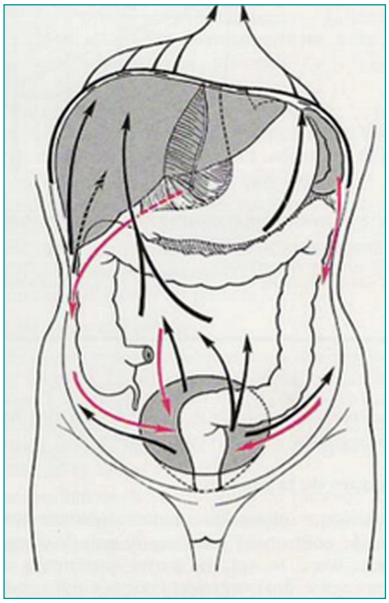
I like to compare the Centrum Tendineum of the Perineum with the safety net of the fire brigade in New York.

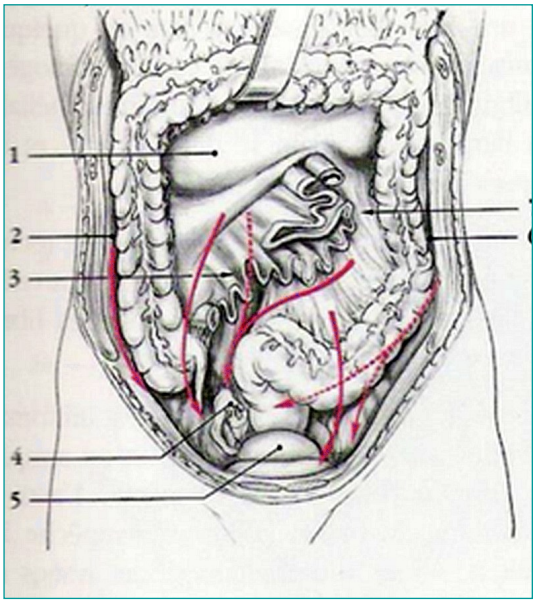
As long as all firefighters (muscles of the pelvic floor) pull equally hard, the cloth has a good tension. When one pulls harder or softer, the cloth pulls crooked and loses its function.

6. Circulation Pelvis Minor

Normally, the discharge of the Pelvis Minor, both venous and lymphatic, is done via the Phreno-Hepatic pumping function. Both the Hepar and the Diaphragm (passage V. Cava Inferior and Ductus Thoracicus) have a suction effect. But also the normal intestinal peristalsis promotes the flow to cranial.

With the increase in age and with the reduction of peristalsis, the discharge from the Pelvis Minor also decreases.





Peritoneal circulation:

- *Black: normal (physiologic)*
- *Red: dysfunctional ('pathologic').*

Purulent and hematogenic processes can descend into the Pelvis Minor. Especially infra-mesenteric, inter-sigmoidal and para-ovareal, as far as the Cavum of Douglas.

Bron: Kaminga, P. Prof., Dictionary Atlas d'anatomie, Mailoine S.A., Paris, 1984.