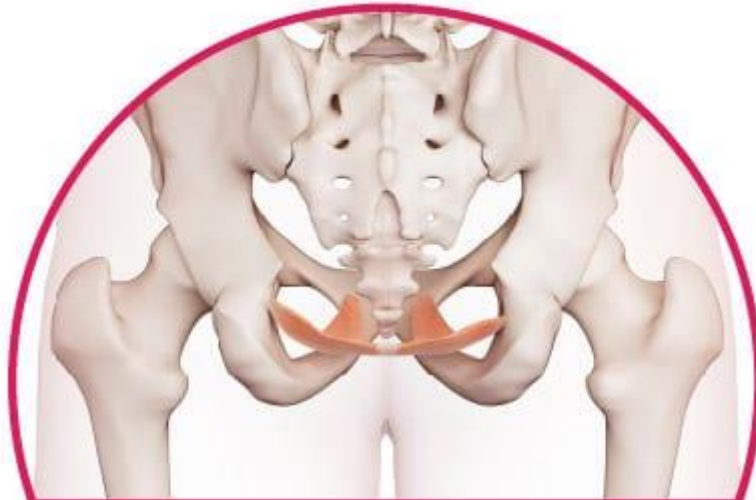




Pelvic Floor
Muscles

DR.REKHA M. MANE



COMPETENCIES AND SLOS

AN48.1		Describe & identify the muscles of Pelvic diaphragm
	48.1.1	at the end of the session the Phase I student shall be able to Describe formation, muscles (attachments, nerve supply), openings, functions and applied aspect of Pelvic diaphragm
	48.1.4	at the end of the session the Phase I student shall be able to Identify the muscles forming pelvic floor and the viscera related to it in male and female.



TEACHING LEARNING OBJECTIVES

- To understand the location of pelvic diaphragm.
- To know various muscle contributing to it.
- To know the morphology of these components.
- To understand the functional role of it.



CLINICAL CASE

65 year old lady with parity 5 came with complaint of something coming out of vagina. Detailed history was taken on which it was found that this is of long duration complaint. Patient was sent for further gynecological examination and it was found that part of uterus is projected through vaginal orifice.

Based on it patient was diagnosed with **UTERINE PROLAPSE**

Explain the anatomical basis of above mentioned condition.



HEADINGS

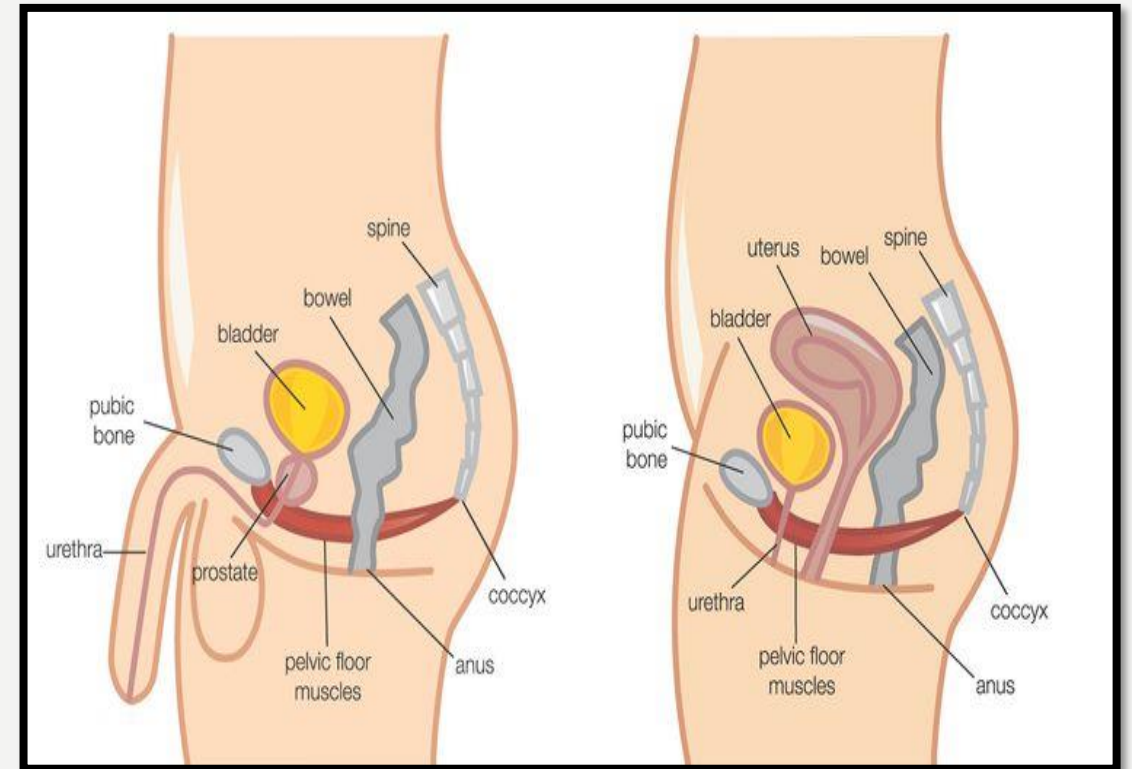
- Introduction
- Components
- Description of components
- Peculiarities
- Openings
- Functions
- Evolution
- Applied Anatomy





INTRODUCTION

- Gutter shaped thin sheet of muscular partition.
- Hangs like hammock around the midline pelvic effluents(Urethra, Vagina and Anal canal).
- Separates pelvic cavity from perineum.



COMPONENTS

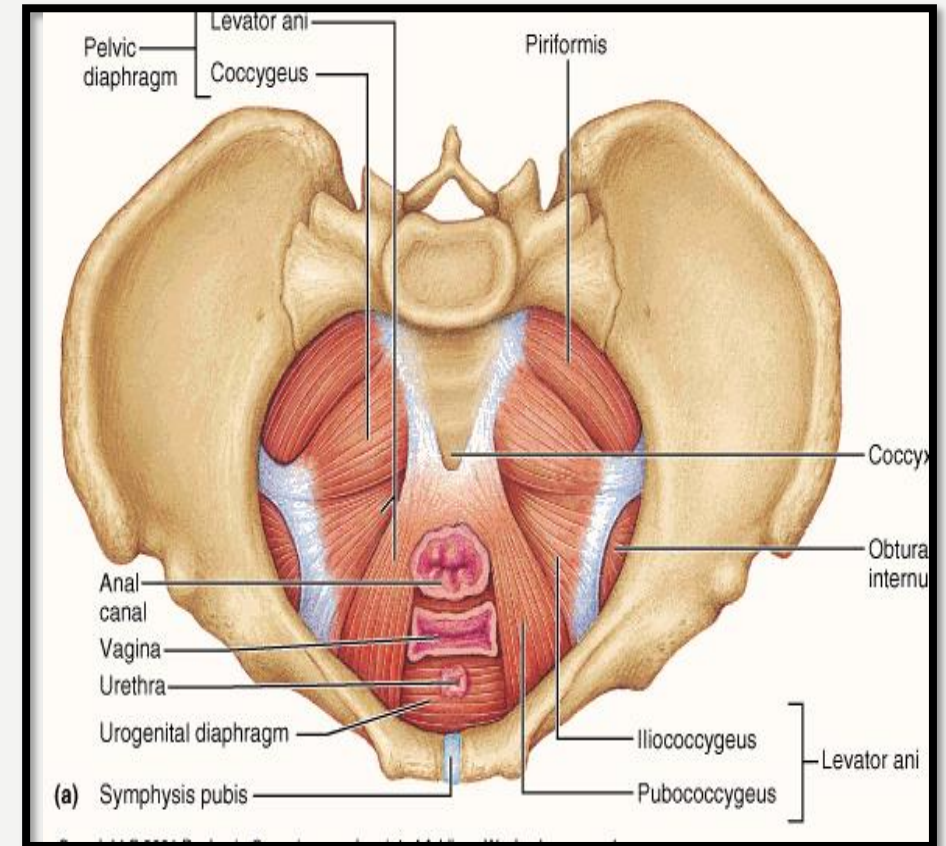
A. Muscles:

1. Levator ani Muscle
2. Coccygeus muscle

[On morphological ground both muscles form one entity]

B. Fascia:

1. Superior fascia of pelvic diaphragm
2. Inferior fascia of pelvic diaphragm



A) 1.LEVATOR ANI MUSCLE

- Two parts:

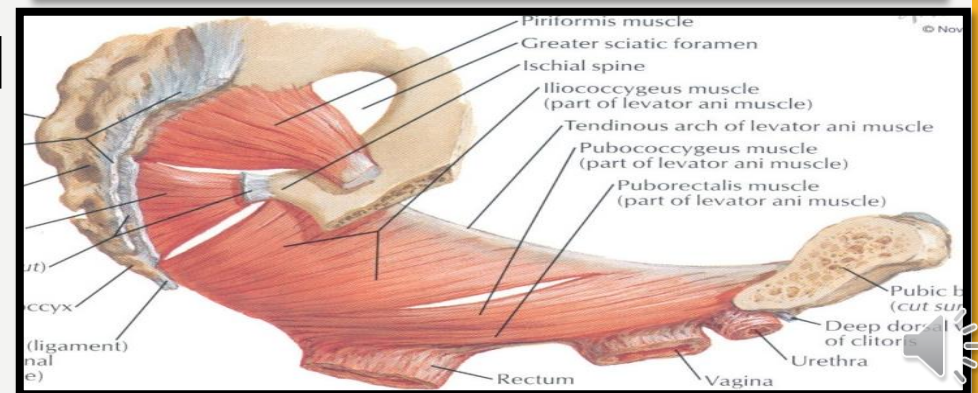
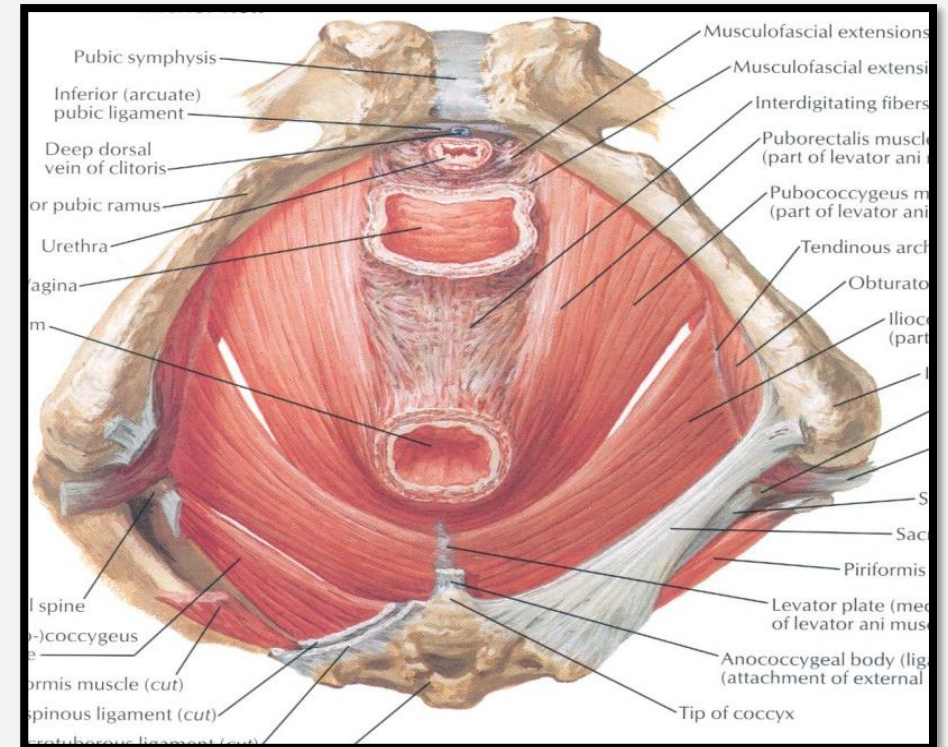
- Ilio-coccygeus and Pubococcygeus

- Origin :

- Pelvic surface of body of pubis
- Tendinous arch
- Pelvic surface of ischial spine

- Nerve supply:

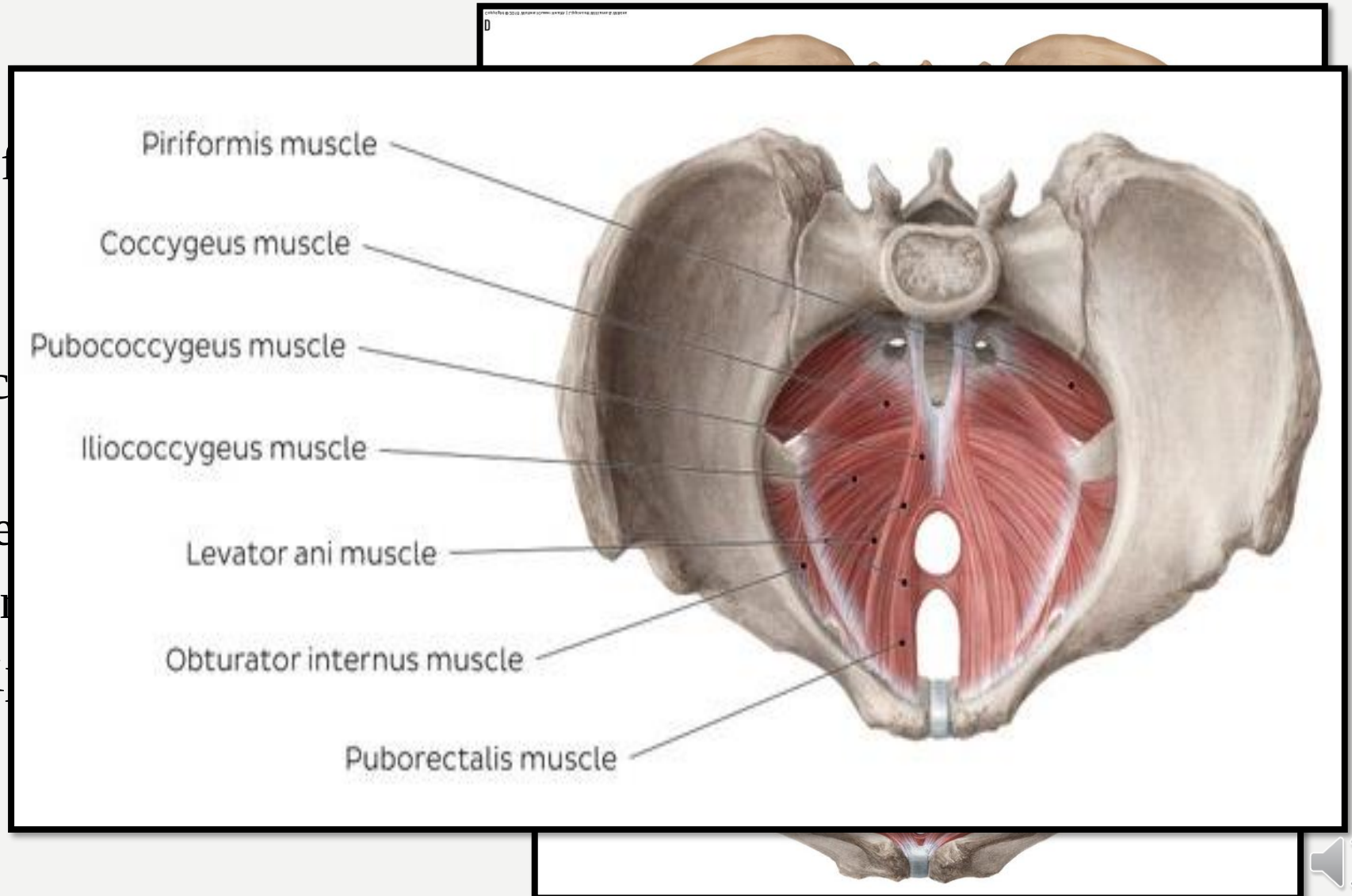
- Posterior part: 4th sacral N.[Pelvic surface]
- Anterior part: 2nd &3rd sacral nerve [Perineal surface]



ILIO-COCCYGEUS MUSCLE

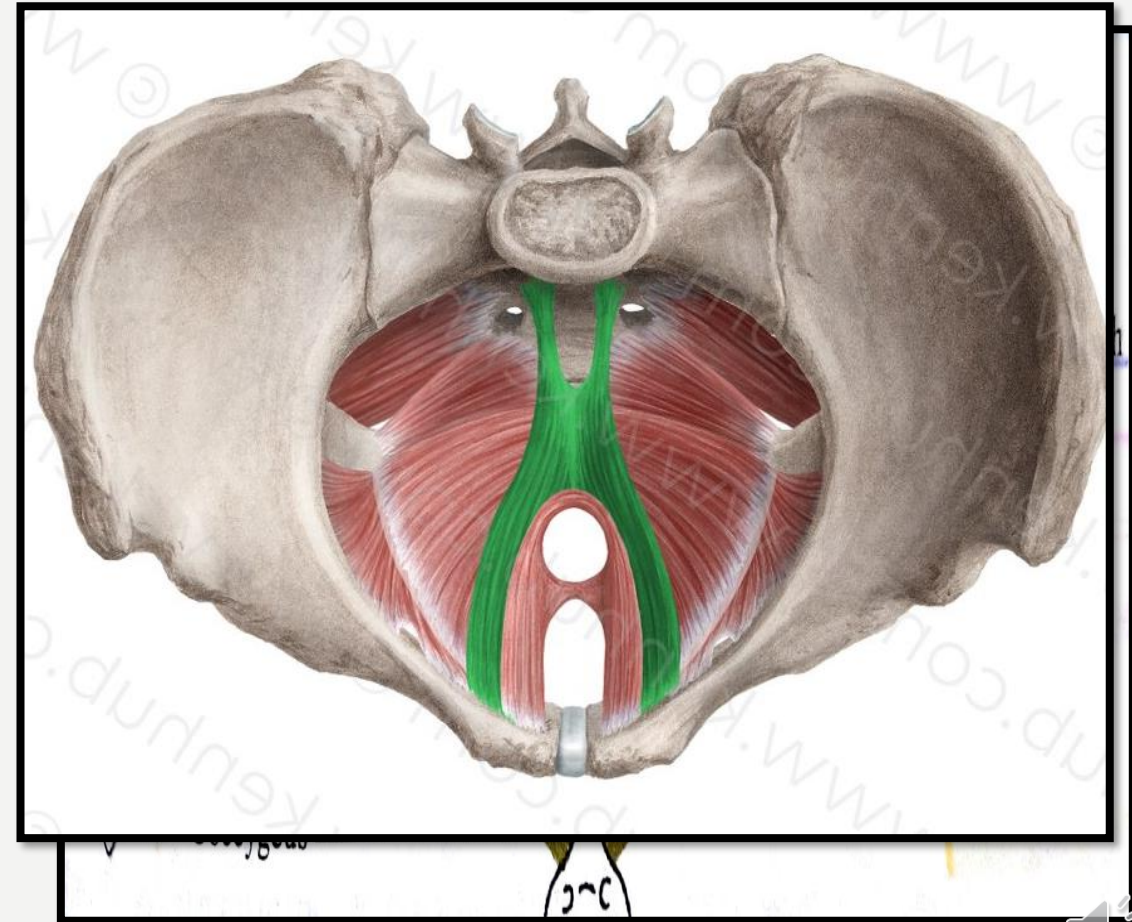
- **Origin:**
 - Posterior half of
 - Ischial spine
- **Direction:**
 - Downward, back
- **Insertion:**
 - Lower two pie
 - Anococcygeal r

[Extends from ti
junction]

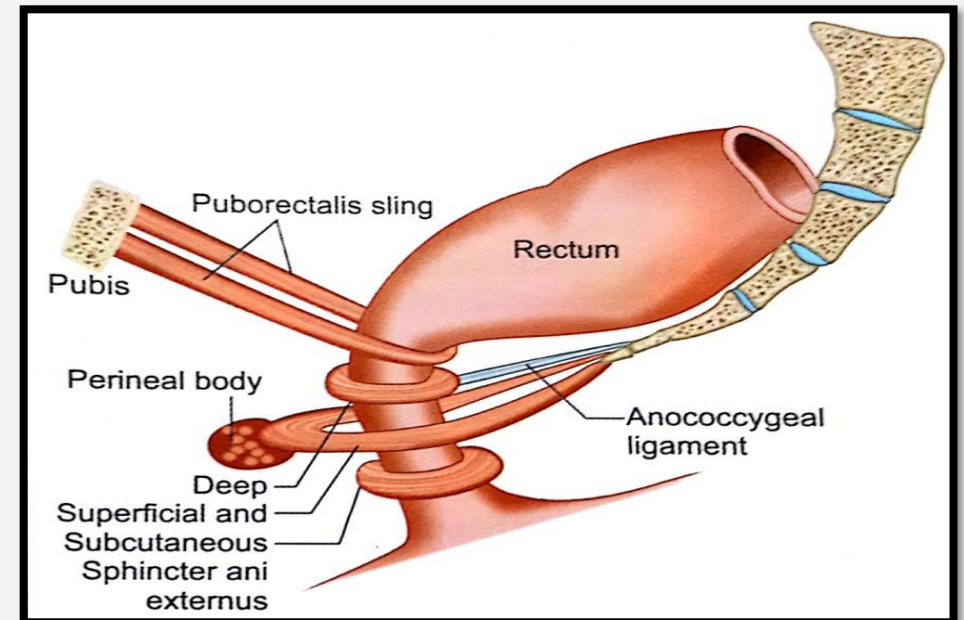
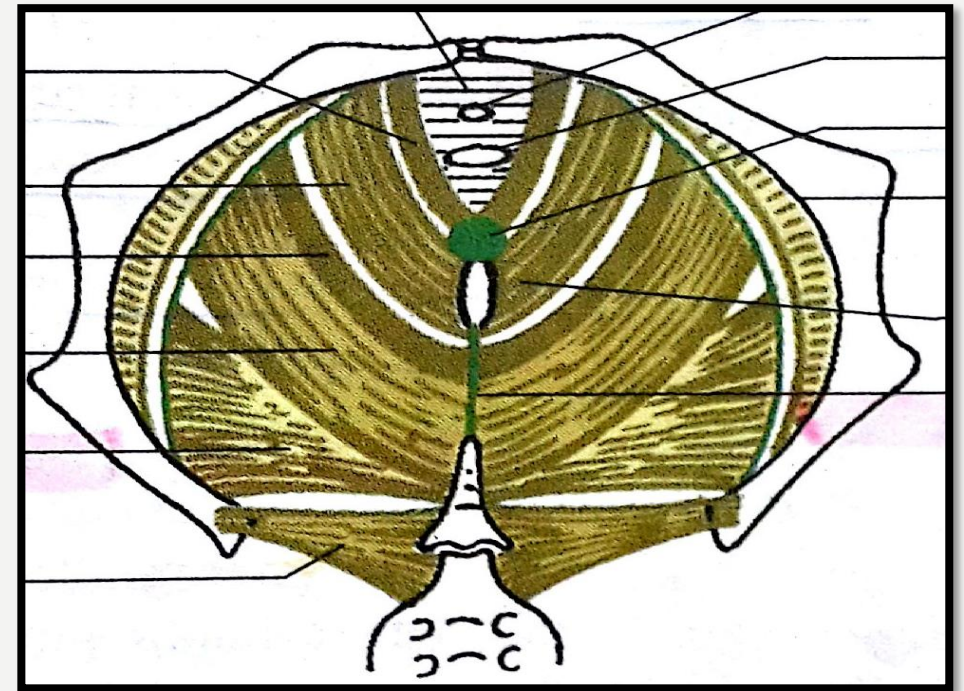


PUBOCOCCYGEUS MUSCLE

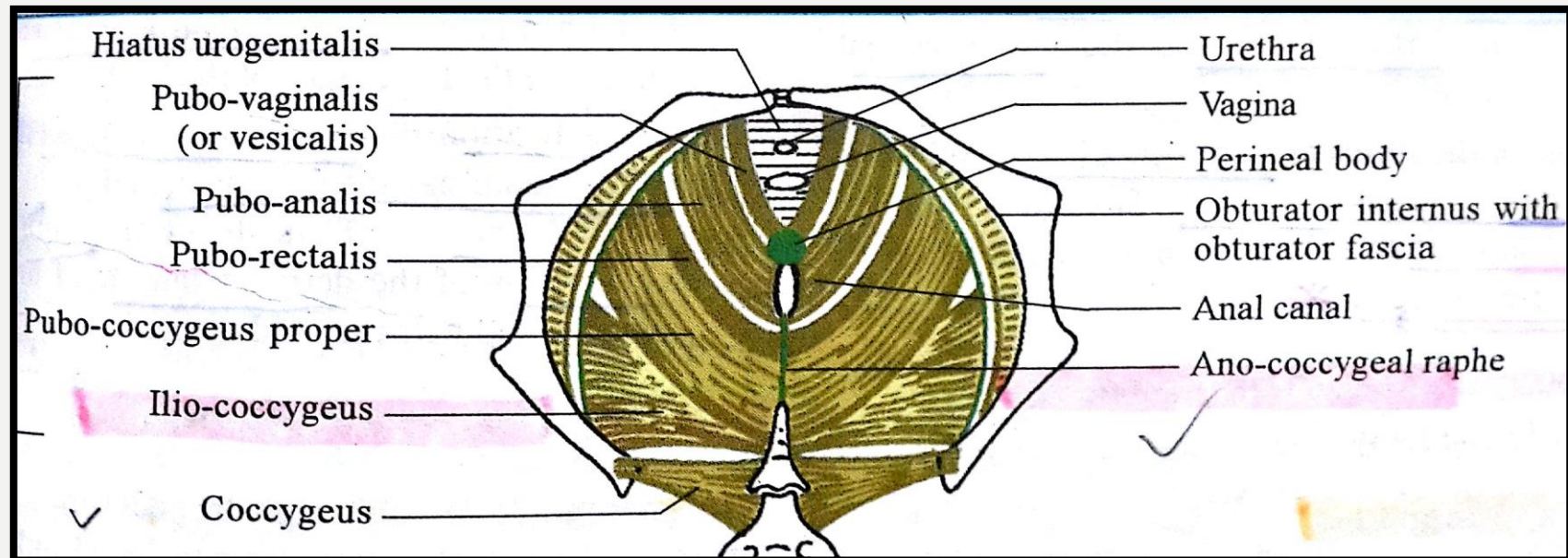
- **Origin:**
 - Anterior half of white line
 - Body of pubis
- **Direction:**
 - Downward, backward and medially
- **Parts:**
 - Pubo-coccygeus proper
 - Pubo-rectalis
 - Pubo-analis
 - Pubo-vesicalis/Pubo-Vaginalis



- ***Pubo-coccygeus proper:***
 - Most posterior fibers
 - Anococcygeal raphe and tip of coccyx
- ***Pubo-rectalis:***
 - Winds the posterior aspects of anorectal junction
 - Continuous with similar fibers of opposite side
 - Pubo-rectal sling
 - Blends with posterior fibers of deep part of sphincter ani externus muscle
 - Maintains continence of faeces.

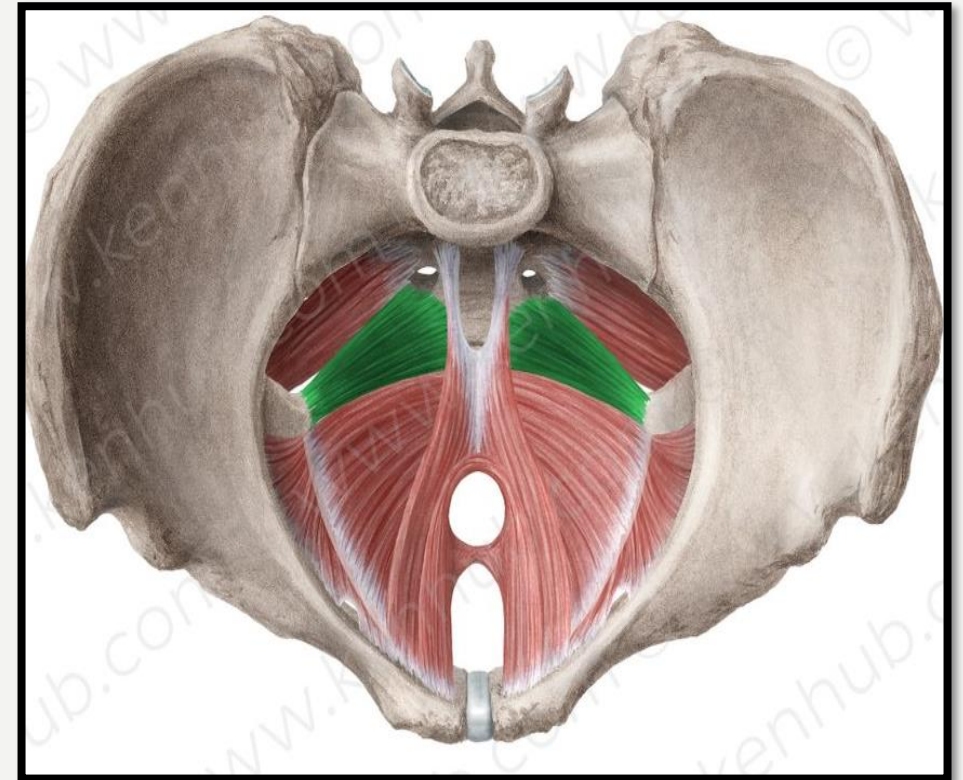


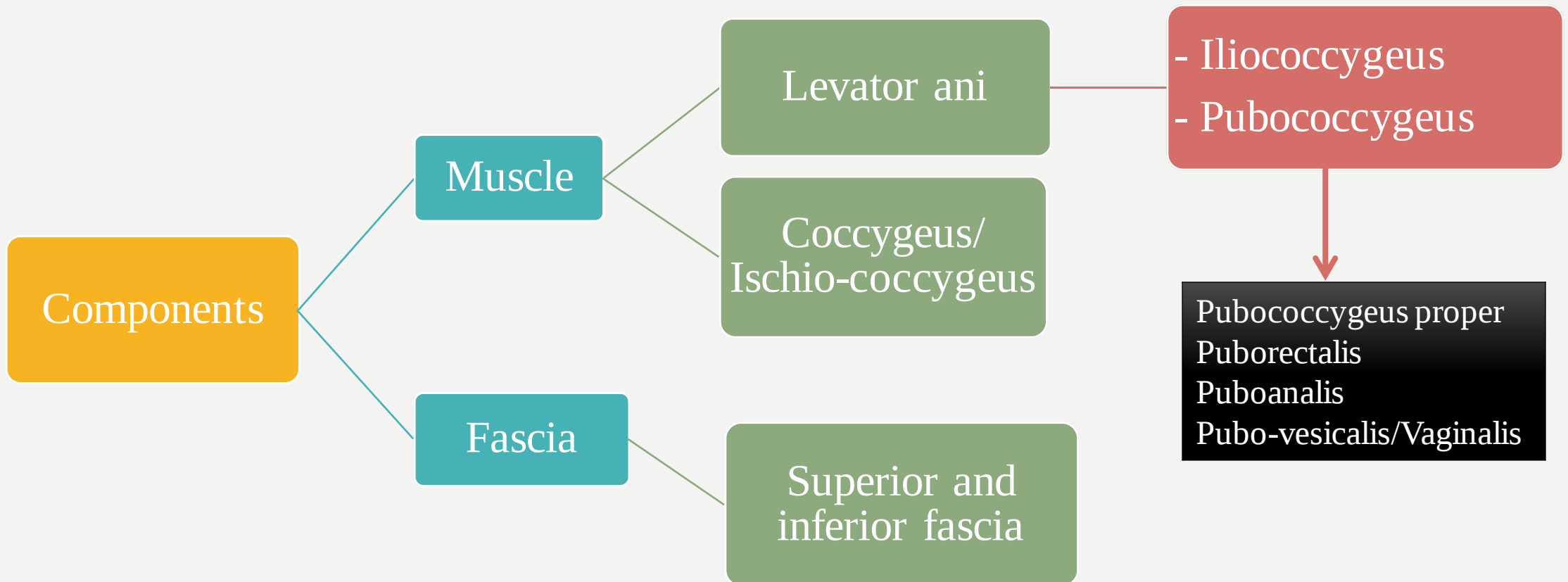
- ***Pubo-analis:***
 - Wall of anal canal between spincter ani internus and externus
- ***Pubo-vesicalis/ pubo-vaginalis:***
 - Most anterior fibers
 - Pass by side of prostate /vagina
 - Inserted into perineal body



A) 2.COCCYGEUS MUSCLE

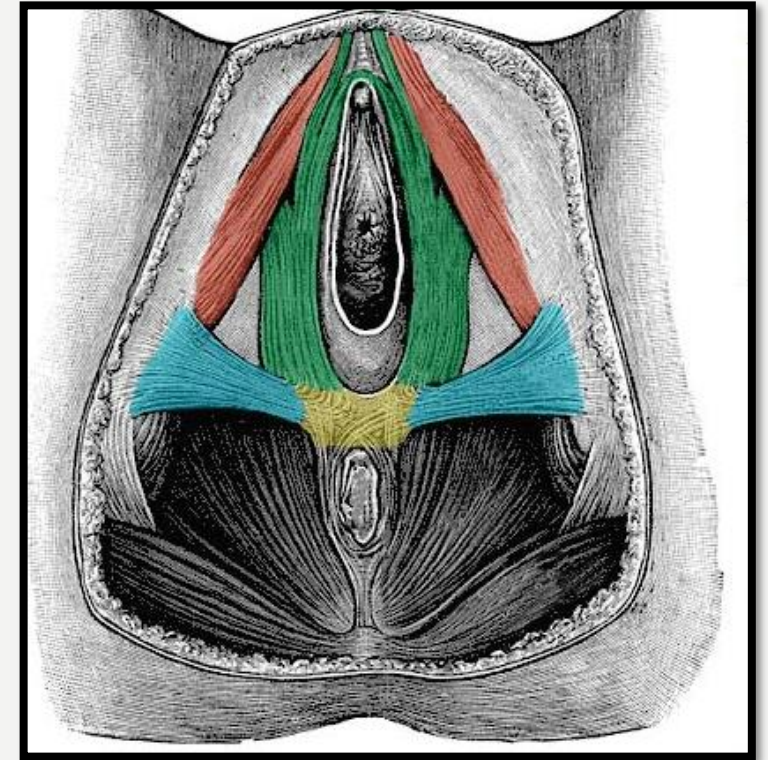
- Also known as *Ischio-coccygeus Muscle*.
- **Shape:** Triangular
- **Origin:**
 - Ischial spine
- **Insertion:**
 - Sides of upper two pieces of coccyx
 - Last piece of sacrum
- **Nerve supply:**
 - 4th & 5th sacral nerve
- Most fibers degenerates to form **Sacro-spinous ligament**





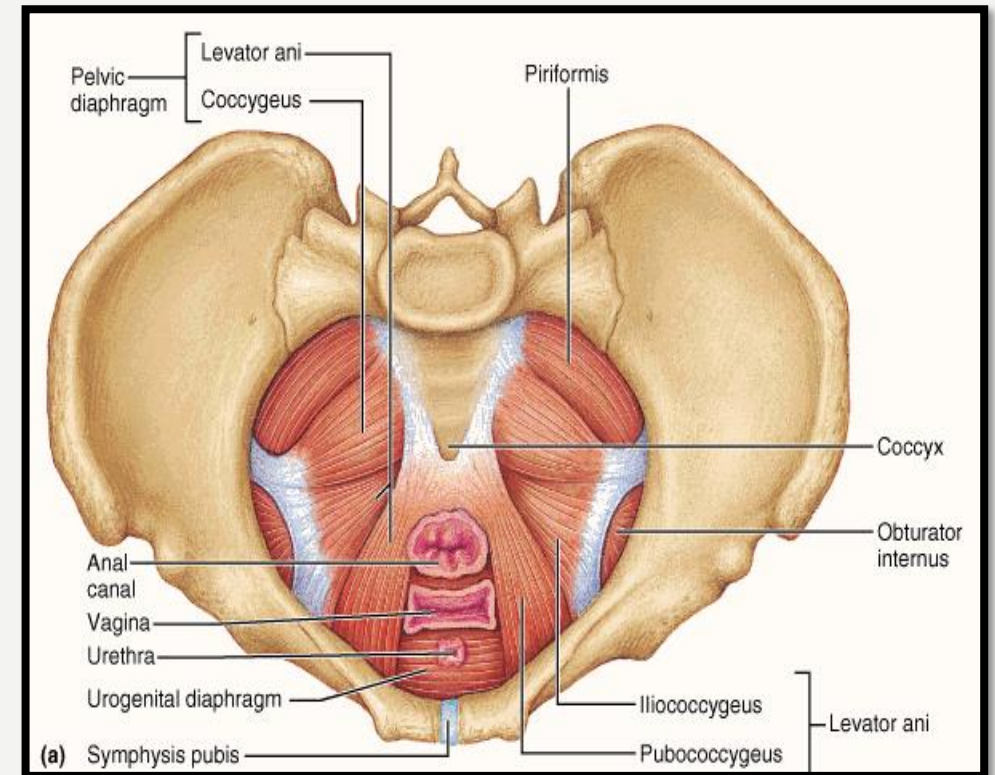
PERINEAL BODY

- Central point of perineum
- Pyramidal in shape
- Fibro muscular node intervening between anal canal and urogenital apparatus.
- Apex receives attachment of:
 - Deep stratum: Levator ani
 - Intermediate stratum: Sphincter urethrae, transversus perinei profundus, deep part of external sphincter
 - Superficial stratum: Bulbospongiosus, transversus perinei superficialis and superficial part of sphincter



PECULIARITIES

- Gutter shaped diaphragm slopes downward and forward.
- Anterior fibers of levator ani overlaps the pelvic surface of posterior fibers at ano-coccygeal raphe.
- Most fibers of ischio-coccygeus and some part of ilio-coccygeus degenerate; thus main brunt of supports lies on pubococcygeus.



OPENINGS

- **Hiatus Urogenitalis:**

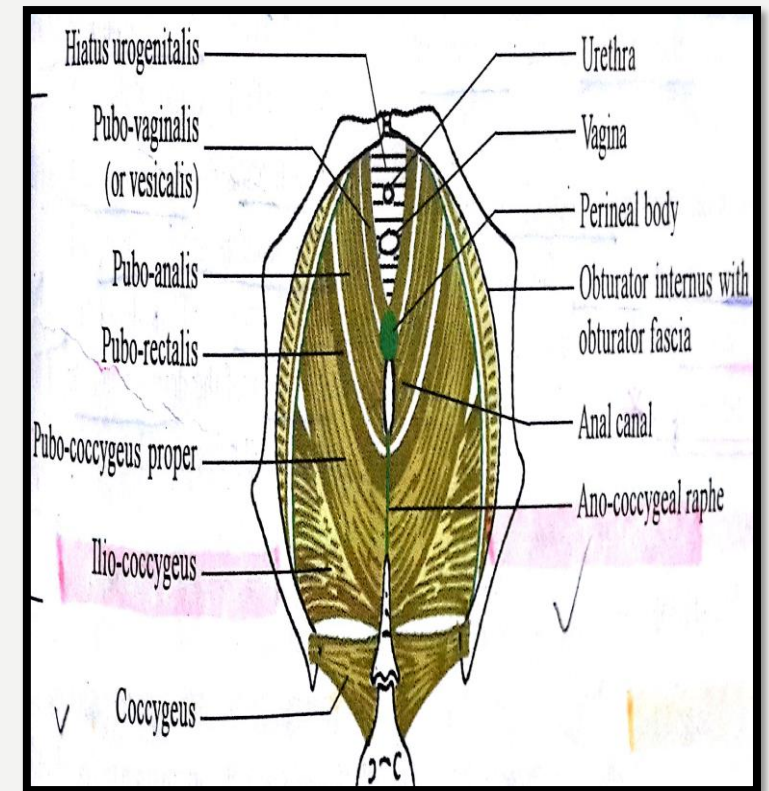
Between anterior fibers of both levator ani Muscle. Transmit urethra and vagina.

- **Hiatus Rectalis:**

Round aperture between perineal body and ano-coccygeal raphe. Transmit anorectal junction.

- **Hiatus Schwalbe:**

Abnormal opening.



FUNCTIONS

1. Supports pelvic viscera in raised intra-abdominal pressure.
2. In male: Anterior fibers of levator ani elevates prostate [Levator prostatae]
3. In female: Anterior fibers of levator ani constrict vagina [Sphincter vaginae]
4. In defecation: Puborectal sling-relax rectum and anal canal; Pubo-anal fibers- elevates anus. Placement of coccyx after its displaced backward during defecation.
5. In parturition: Puborectal sling allows rotation of head.
6. In micturation: Pubo-coccygeus relaxes as intra abdominal pressure rises and bladder neck descends.



EVOLUTION

In pronograde animals

- Muscle originates from pelvic inlet
- Insertion into sides of caudal vertebrae
- Allows movement of tail.

In orthograde mammals

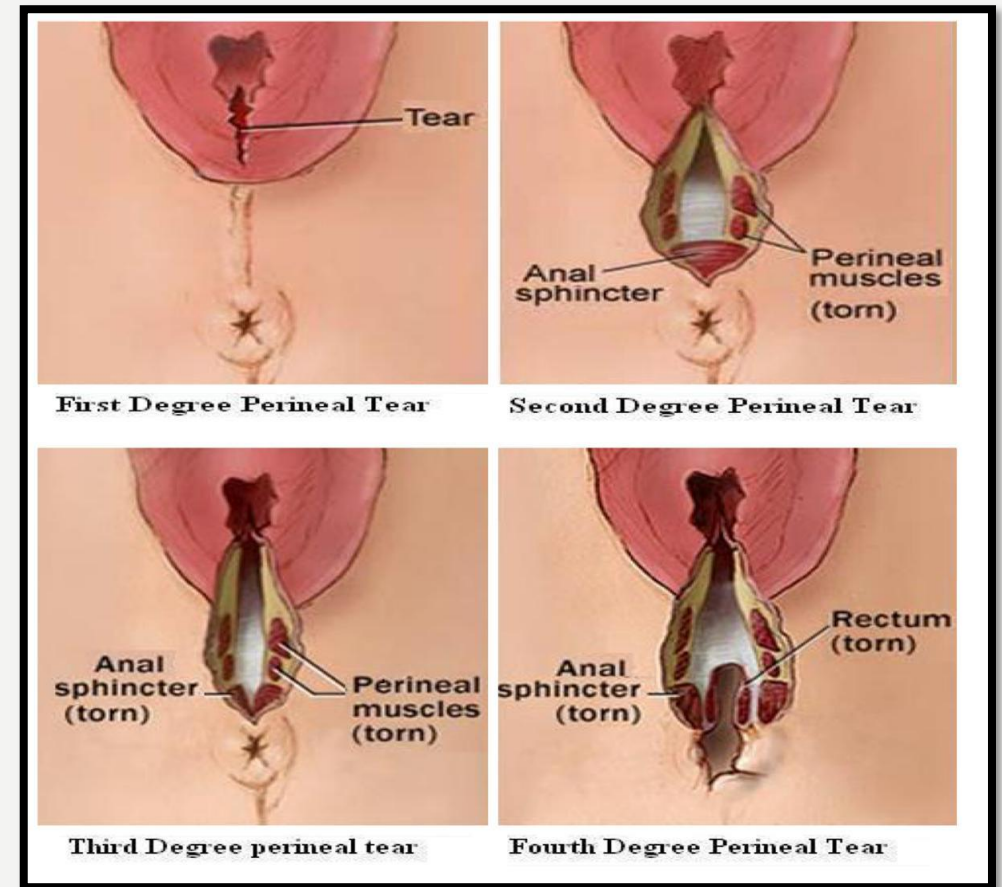
- Tail rudimentary and persists as coccyx
- Migration of Muscle origin from pelvic inlet to white line
- Insertion shifted from caudal vertebrae to area of anal canal
- Supports pelvic viscera



APPLIED ANATOMY

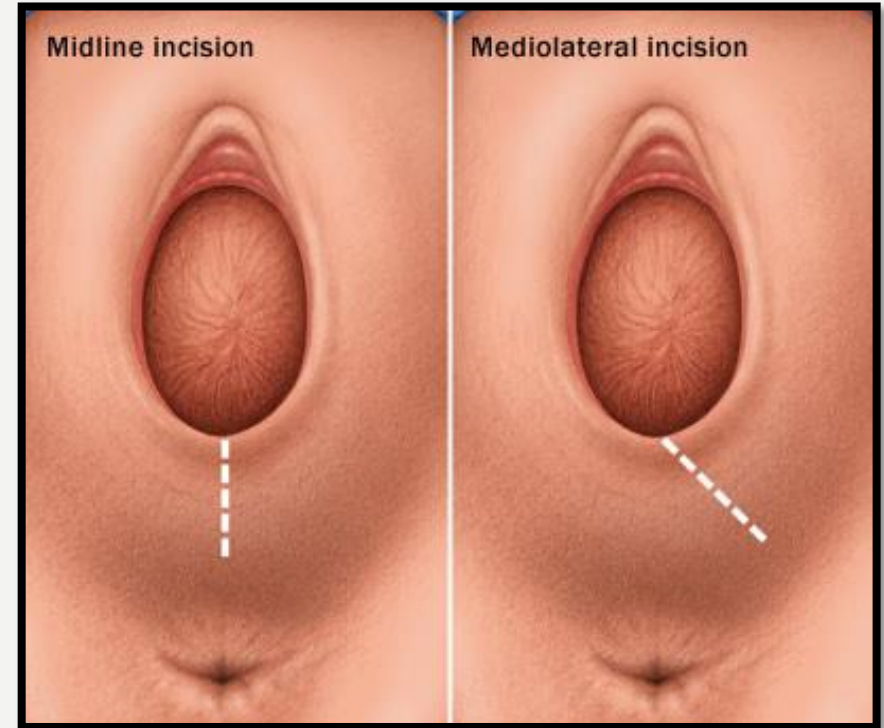
➤ Perineal Body Tear:

- Stretched during labor
- Liable to get injured when fetal head passes through vaginal orifice.
- Tear in perineal body is associated with tear on posterior wall of vagina and anal sphincter
- Rectal incontinence may result
- Weakened PB may predispose to prolapse of uterus.



➤ **Episiotomy:**

- Simple procedure
- Done in third stage of labor
- To prevent irregular and uncontrolled tear in perineum during vaginal child birth.
- Planned incision on posterolateral direction in perianal skin include perineal muscle that are inserted into perineal body and posterior wall of vagina.
- Allow easy passage of head through enlarged vaginal orifice.



THE END



THANK YOU



ASSIGNMENT

- **LAQ**

1. Describe Pelvic diaphragm under following headings?
 - Muscles (4M)
 - Functions (2M)
 - Opening (2M)
 - Applied anatomy (2M)

- **SAQ**

1. Levator ani muscle (5M)
2. Perineal body (3M)

