

وسهلا



أهلا

يُمنع أخذ السلايدات بدون
إذن المحرر واي اجراء
يخالف ذلك يقع تحت طائلة
المسؤولية القانونية
جميع المعلومات للاستخدام
التعليمي فقط

الأستاذ الدكتور يوسف حسين

رئيس قسم التشريح والأنسجة والأجنة

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

Prof. Dr. Youssef Hussein Anatomy - YouTube

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Diaphragm

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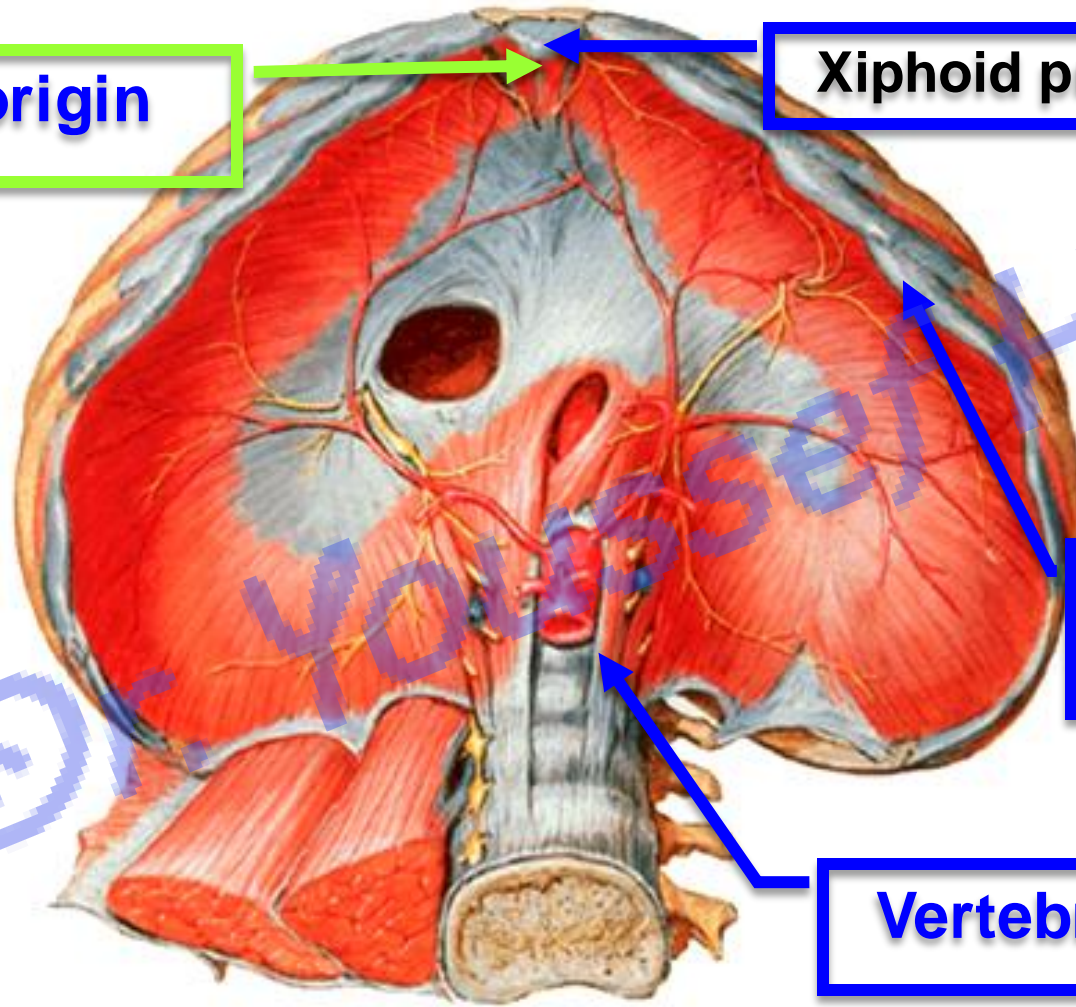
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sternal origin

Xiphoid process

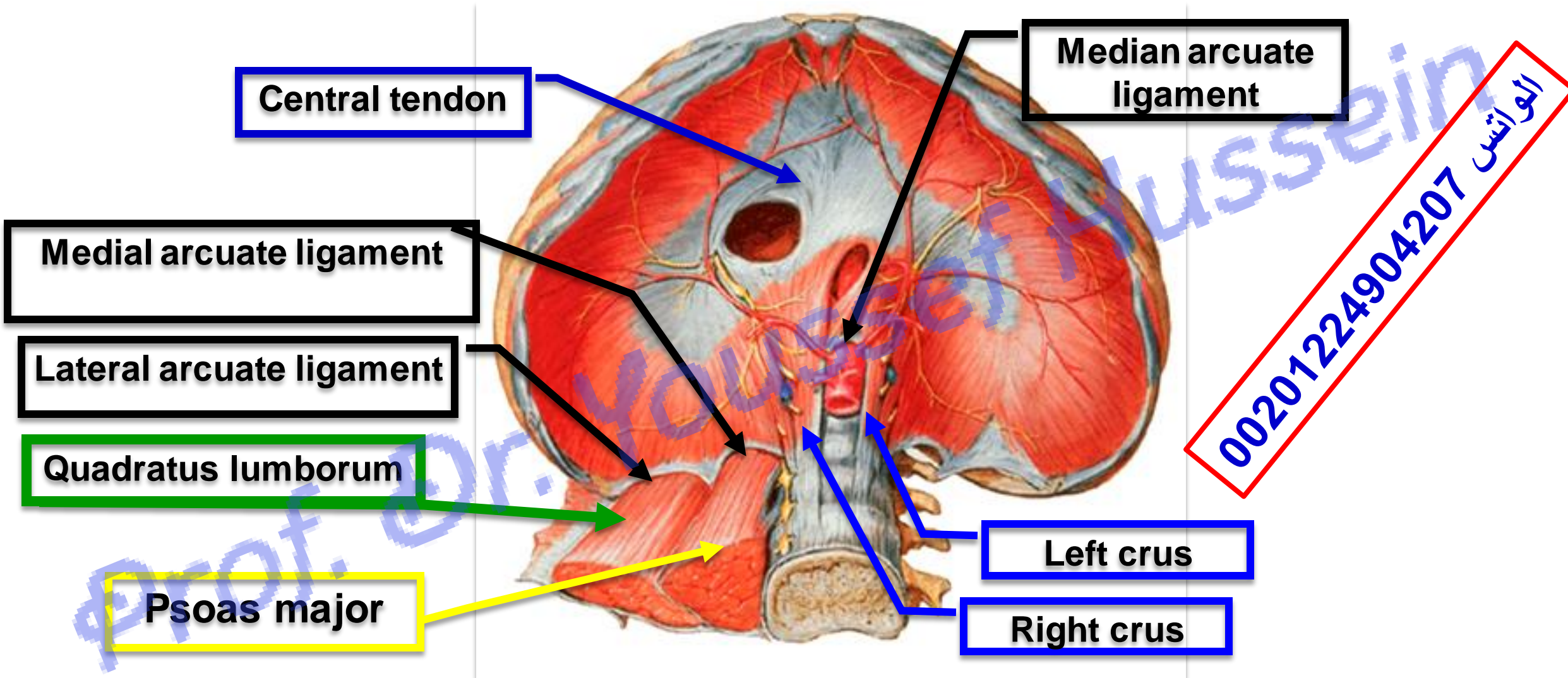
Costal origin
Lower 6 CC

Vertebral origin



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Central tendon

Median arcuate ligament

Medial arcuate ligament

Lateral arcuate ligament

Quadratus lumborum

Psoas major

Left crus

Right crus

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- **Origin of Diaphragm**

1- Sternal origin from the back of the xiphoid process.

2- Costal origin: from the lower 6 costal cartilages.

3- Vertebral origin:

a- **Right crus:** from bodies of **upper 3** lumbar vertebrae.

b- **Left Crus:** from bodies of **upper 2** lumbar vertebrae.

c- **Median arcuate ligament:** connecting the two crura.

d- **Medial arcuate ligaments** one on each side connecting crus with the tip of the transverse process of **L1 vertebra.**

e- **Lateral arcuate ligaments**, one on each side, connecting tip of the transverse process of L1 with the last rib.

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- **Actions of the Diaphragm**

- 1- It is the **main muscle of inspiration**.
- 2- It **increases** the intra-abdominal pressure.
- 3- Right crus acts as a **sphincter** for oesophagus.

- **Nerve supply of the Diaphragm**

- ❖ **Motor: Phrenic nerve (C3,4,5) to the inferior surface**
- ❖ **Sensory: Lower 5 intercostal and subcostal nerves**

- **Injury of the phrenic nerve in one side** leading to **paradox movement** (diaphragm ascends during inspiration and descends during expiration)
- Injury of **both sides** leading to **death**.
- Irritation of the diaphragm causes referred pain to the shoulder tip.
- **Hiccough** is the result of repeated spasmodic contraction of the diaphragm.

Vena caval opening

Oesophageal opening

Aortic opening

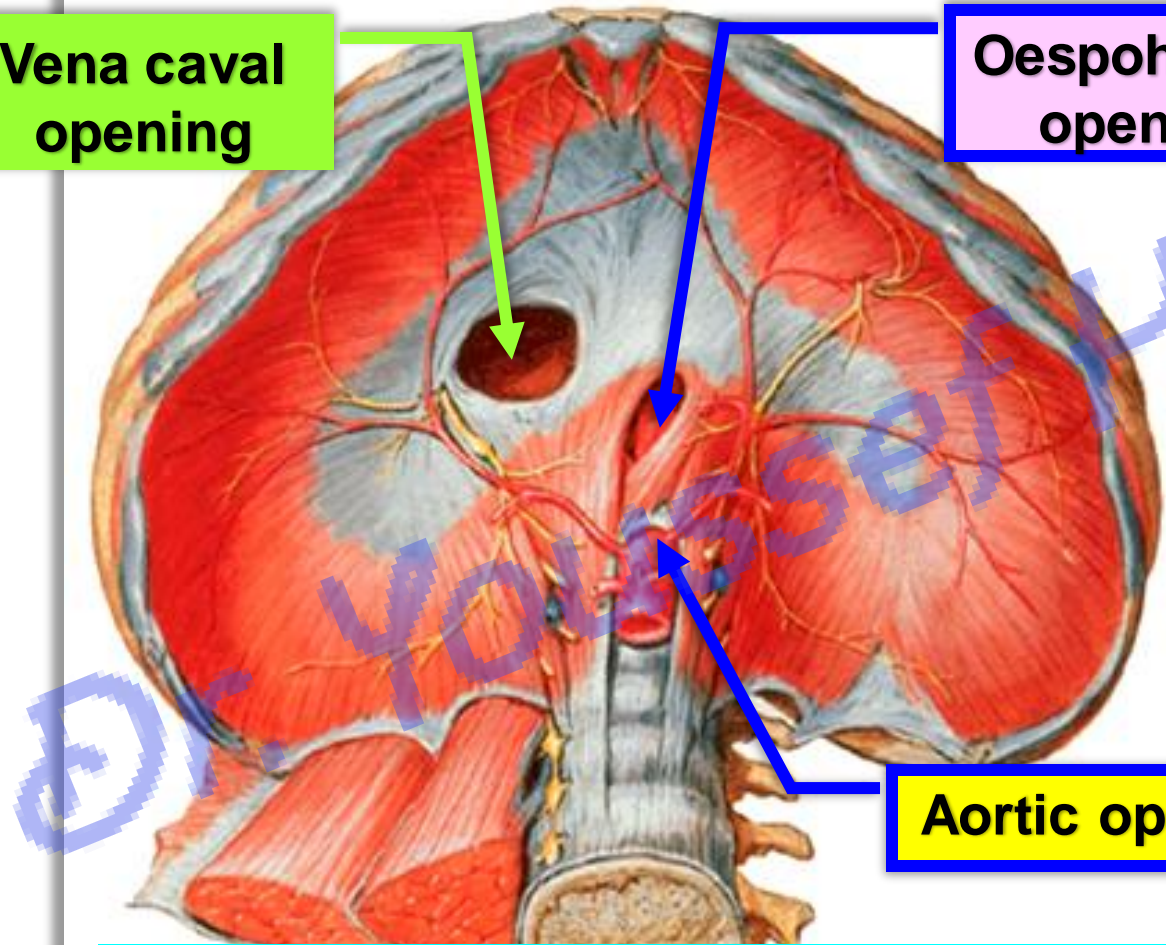
Major openings == Voice Of America

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Prof. Dr. Youssef Hussein



Major openings in the diaphragm (Voice Of America)

	Vena caval opening	Oesophageal opening	Aortic opening
Vertebral level	Opposite T8	Opposite T10	Opposite T12
Site	- One inch right to median plane.	- One inch left to median plane.	In median plane
Contents	a- Inferior vena cava. b- Right phrenic nerve. c- Lymph vessels.	a- Oesophagus b- Oesophageal branches of left gastric vessels. c- Anterior & posterior gastric nerves.	a- Aorta b- Thoracic duct c- Azygos vein

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**** Minor openings of the diaphragm**

- 1- Superior epigastric vessels:** descend between sternal and costal origins.
- 2- Musculophrenic vessels:** pass between slips of the costal origin.
- 3- Lower 5 Intercostal nerves and vessels:** between slips of the costal origin.
- 4- Subcostal nerves and vessels:** pass behind lateral arcuate ligament.
- 5- Sympathetic trunk:** descends behind the medial arcuate ligament.
- 6- Splanchnic nerves** pierce the corresponding crus.
- 7- Hemiazygos vein:** pierces the left crus of the diaphragm
- 8- Left phrenic nerve** pierces the left cupola of the diaphragm.

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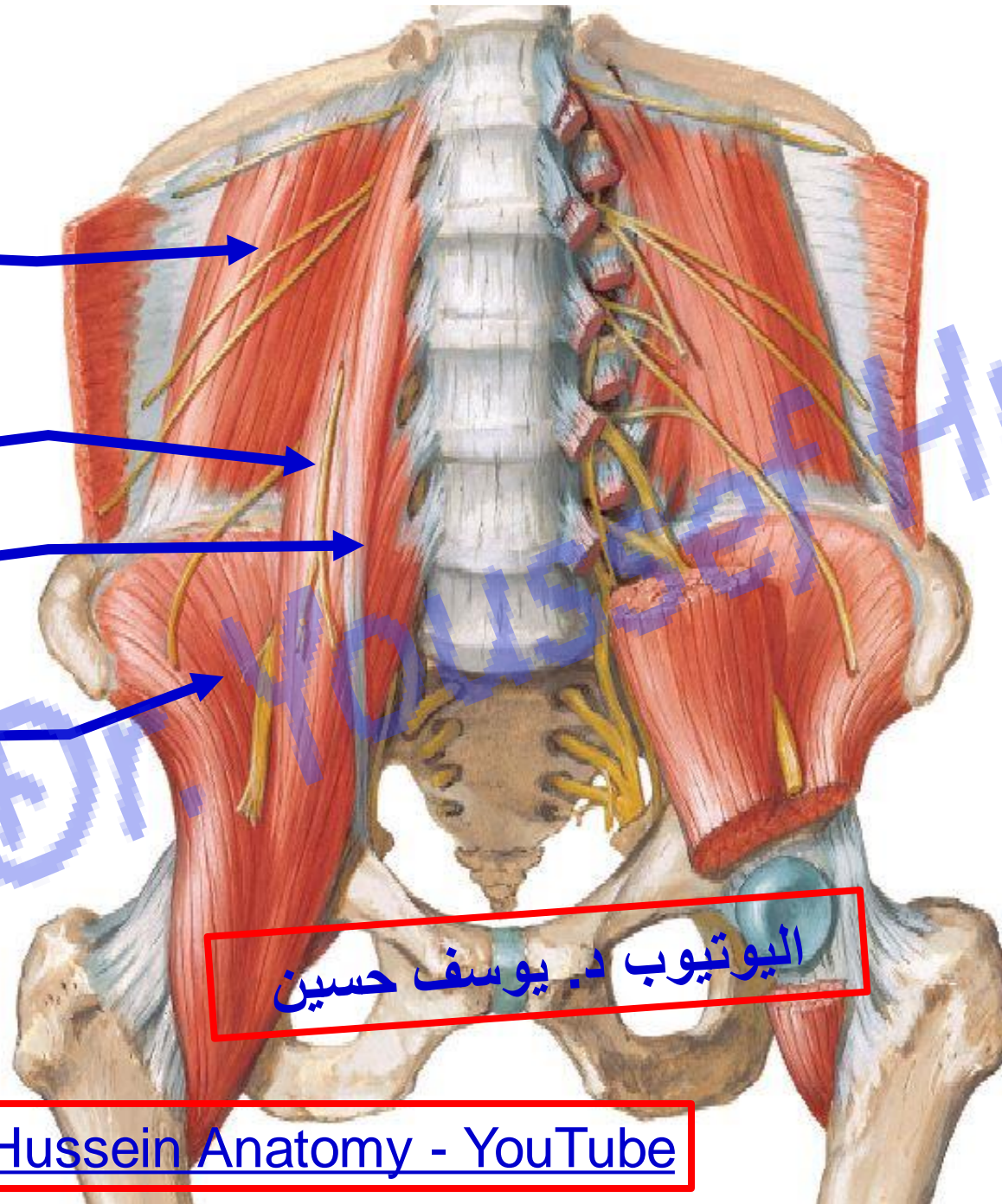
Muscles of Posterior Abdominal wall

**Quadratus
lumborum M**

Psoas major M

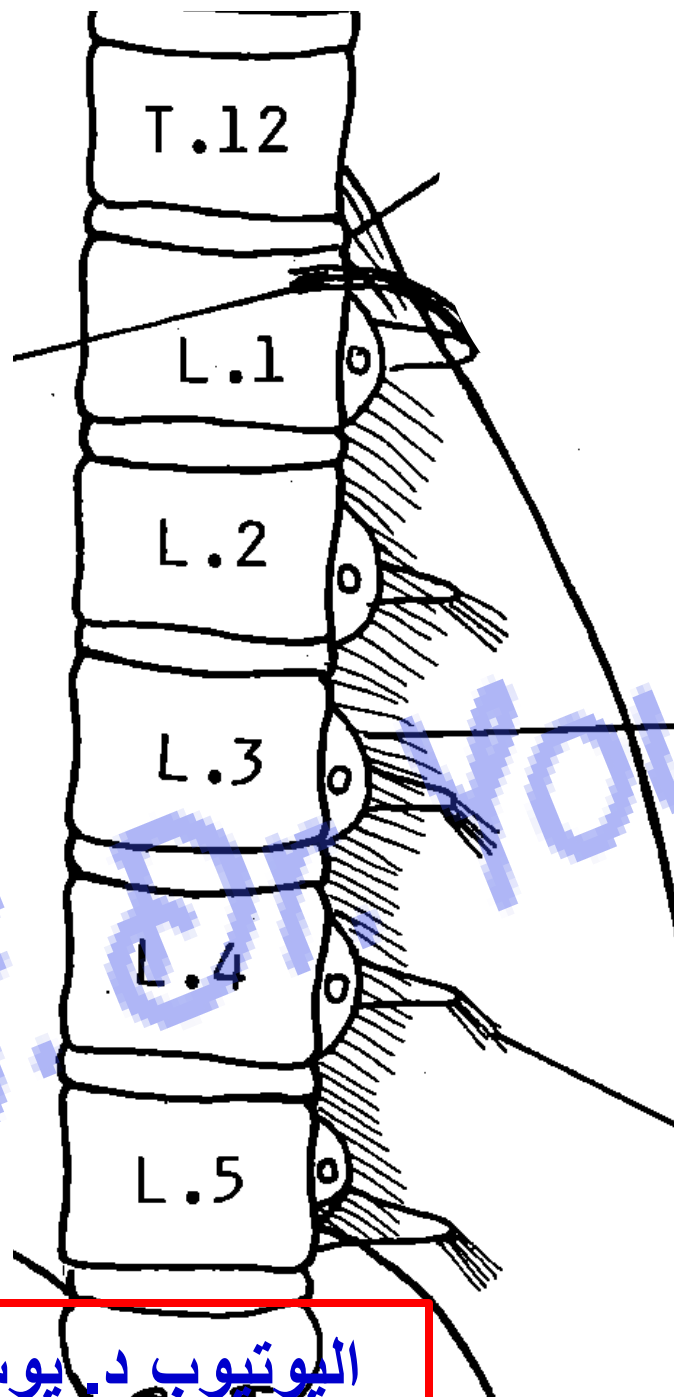
Psoas Minor M

Iliacus M



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• Psoas Major Muscle

** Origin:

a- 5 digitations from transverse processes of lumbar vertebrae.

b- 5 digitations, each from the bodies of 2 adjacent vertebrae and discs in between (the 1st digitation from the T12 and L1).

c- 5 digitations from tendinous arches over the lumbar vessels.

** **Insertion:** iliopsoas into the lesser trochanter of the femur

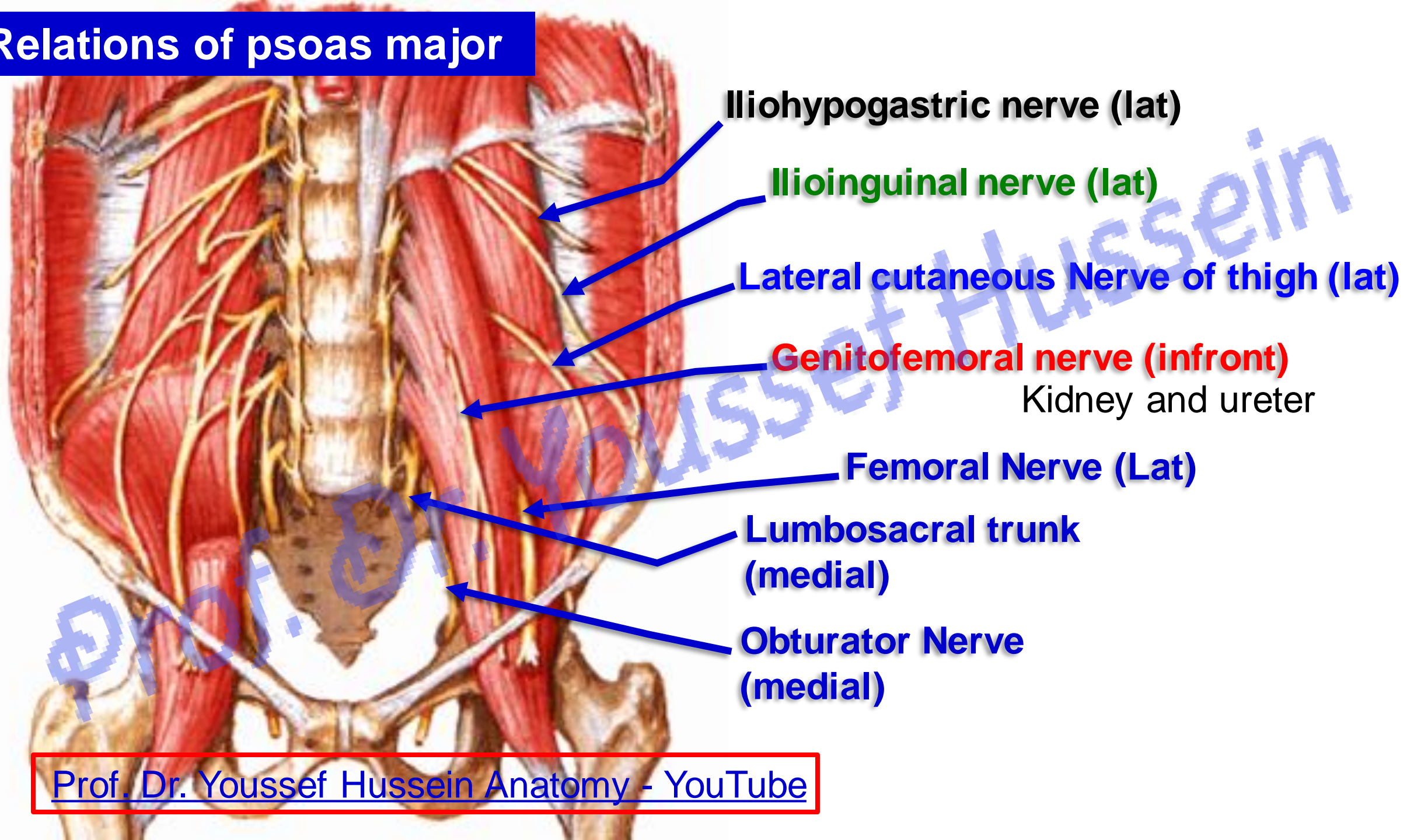
** **Nerve supply:** ventral rami of L1, 2, 3.

** **Actions:**

1- Main flexor of the hip joint.

2- Flexion of the trunk.

Relations of psoas major



**** Relations of psoas major muscle**

- **Within the muscle;** Lumbar plexus.

- **Laterally:** 2 muscles and 4 nerves (lateral branches of the lumbar plexus);

1- Quadratus lumborum.

2- Iliacus muscle.

3- Iliohypogastric nerve.

4- Ilioinguinal nerve.

5- Lateral cutaneous nerve of thigh.

6- Femoral nerve.

- **Medially:** 1- Obturator nerve.

2- Lumbosacral trunk.

- **Anteriorly:**

1- Kidney and ureter.

2- Duodenum.

3- Genitofemoral nerve.

4- Psoas minor (if present).

5- Root of the mesentery and superior mesenteric vessels.

- **Posteriorly:** Hip joint.

• Psoas Minor Muscle

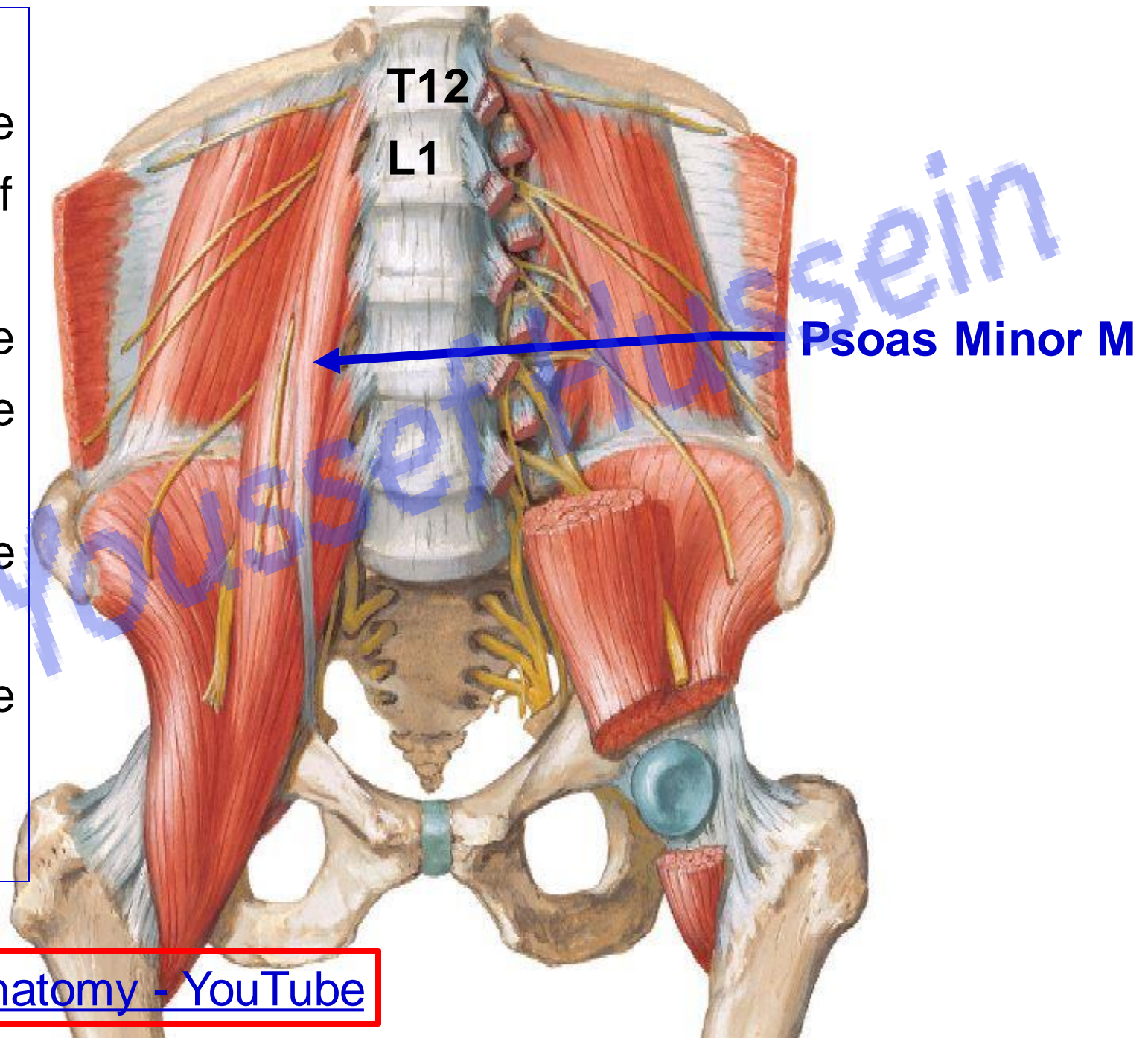
- It is a long slender muscle which is **absent** in about 40% of subjects.

** **Origin:** from the sides of the bodies of T12 and L1 and the disc in between.

** **Insertion:** into the iliopectineal eminence.

** **Nerve supply:** from the ventral ramus of L1.

** **Action:** Flexion of the trunk.



● Quadratus Lumborum Muscle

** **Origin:** Posterior 1/3 of inner lip of iliac crest and iliolumbar ligament.

** **Insertion:**

1- Medial 1/2 of the last rib.

2- Tip of transverse processes of upper 4 lumbar.

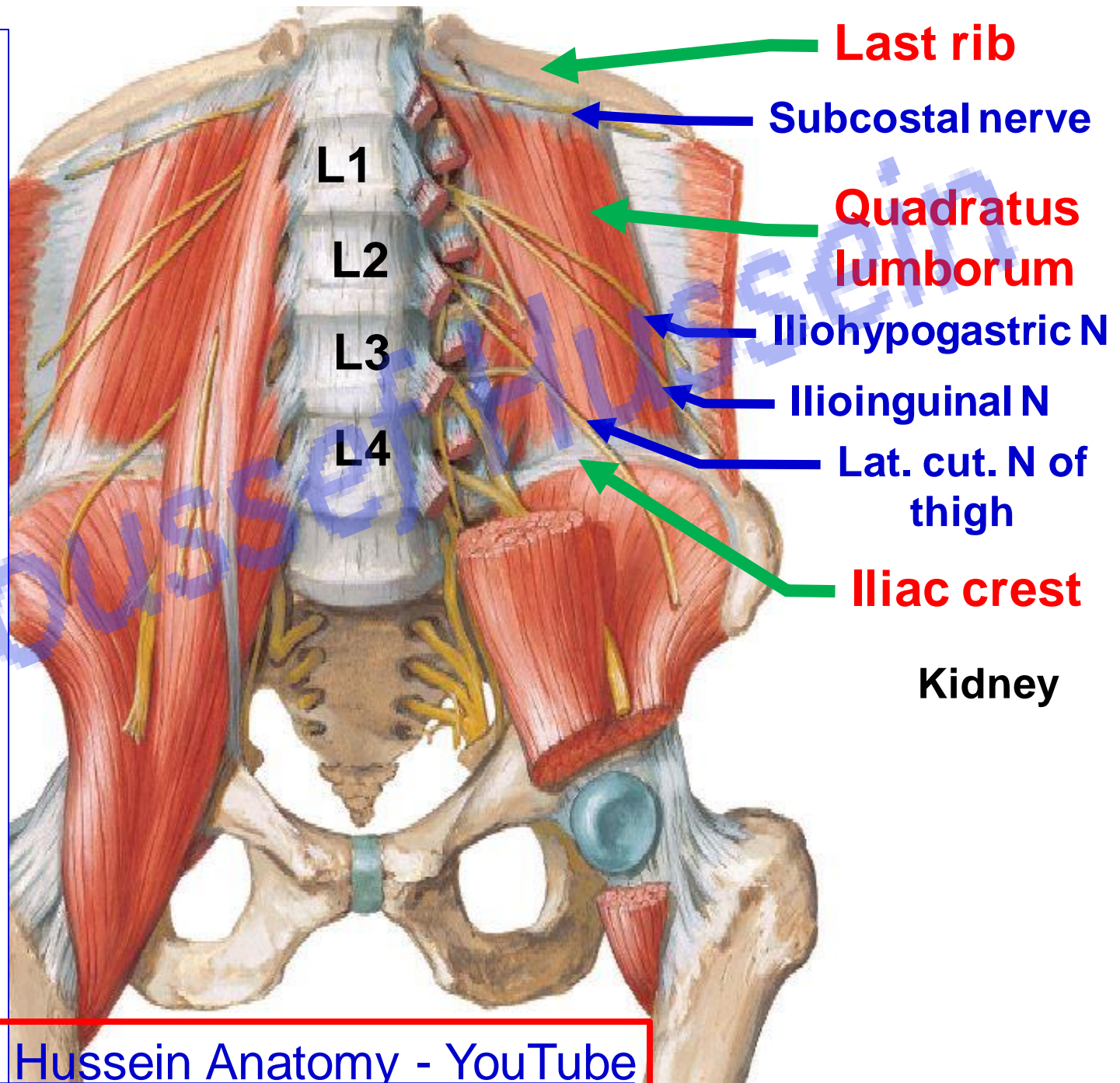
** **Nerve supply:** ventral rami of L1, 2, 3.

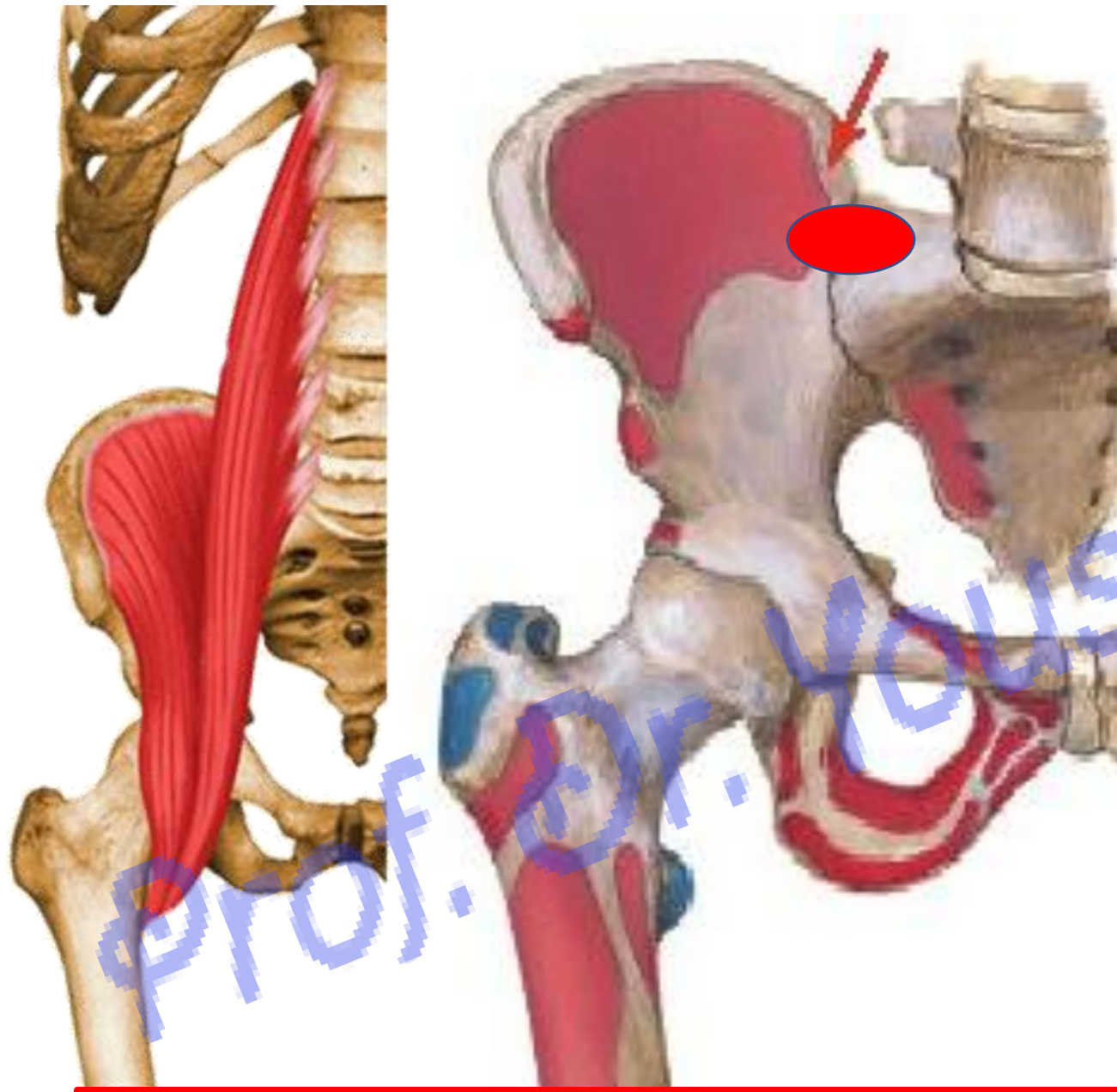
** **Action:**

1- Lateral flexion of the trunk.

2- Fixes the last rib during contraction of the diaphragm

** **Anterior relations**





• Iliacus Muscle

** Origin:

- 1- The iliac fossa of the hip bone.
- 2- Upper surface of the ala of the sacrum.

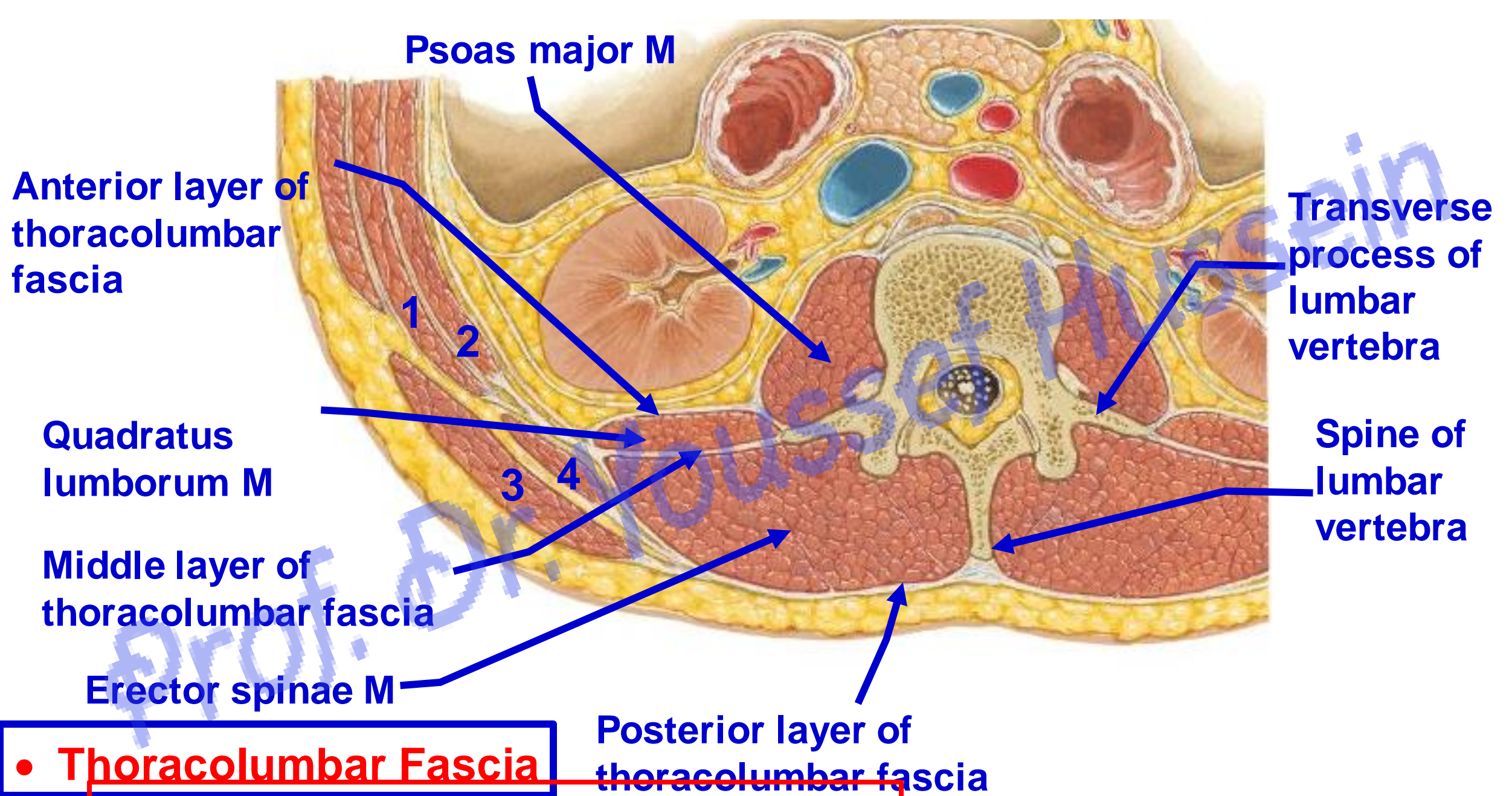
** **Insertion:** iliopsoas into the lesser trochanter of the femur and one inch below it.

** **Nerve supply:** femoral nerve.

** **Action;** flexor of the hip Joint.

Thoracolumbar Fascia

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• **Thoracolumbar Fascia**

• Thoracolumbar Fascia

- This is a very strong deep fascia which covers and encloses muscles of the back.
- It splits into 3 layers.

a- Anterior layer: covers the **front of the quadratus lumborum** and is attached to the tips of the transverse processes of lumbar vertebrae.

b- Middle layer: covers the **back of the quadratus lumborum** and is attached to the tips of the transverse processes of lumbar vertebrae.

c- Posterior layer: covers the **back of the erector spinae** (sacrospinalis) muscle and is attached to the spines of the lumbar vertebrae.

- **Superiorly**, it is thickened to form the **lateral arcuate ligament of diaphragm**.

N.B: The thoracolumbar fascia gives origin to

- 1) Internal abdominal oblique muscle.
- 2) Transversus abdominis muscle.
- 3) Latissimus dorsi muscle. 4) Serratus posterior inferior M

- **Psoas fascia**

- It covers the ventral aspects of the psoas major muscle.

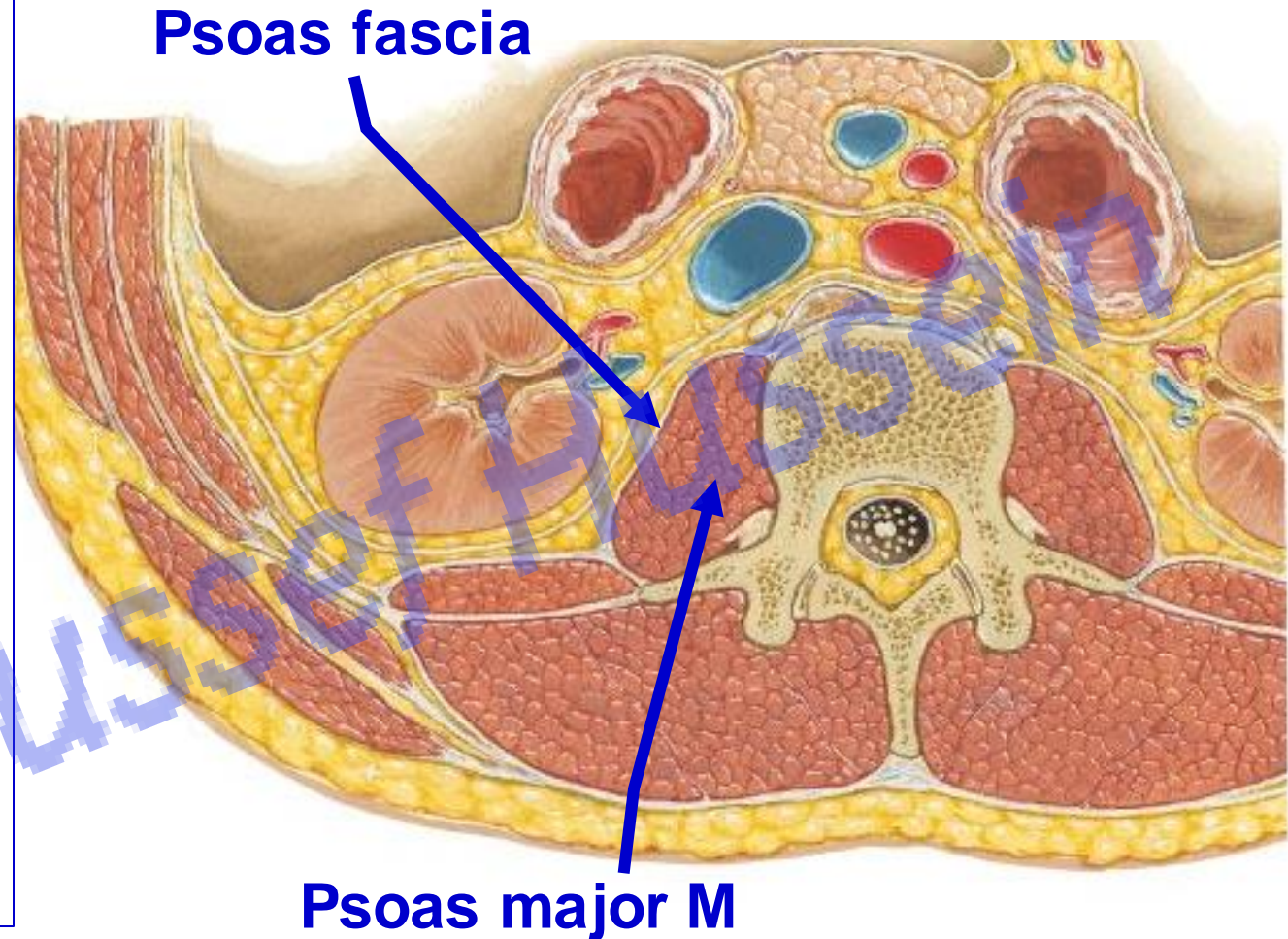
- ** **Attachments;**

- **Medially** to the lumbar vertebrae.

- **Laterally** fused with thoracolumbar fascia.

- **Superiorly**, thickened to form the medial arcuate ligament of diaphragm.

- **Inferiorly**, continues with fascia iliaca.



- **Psoas abscess**

- Pus in the lumbar region reaches the front of the thigh just below the inguinal ligament through the psoas fascia.

- Triangle of Marcille

- Contents

Sympathetic chain

Obturator nerve

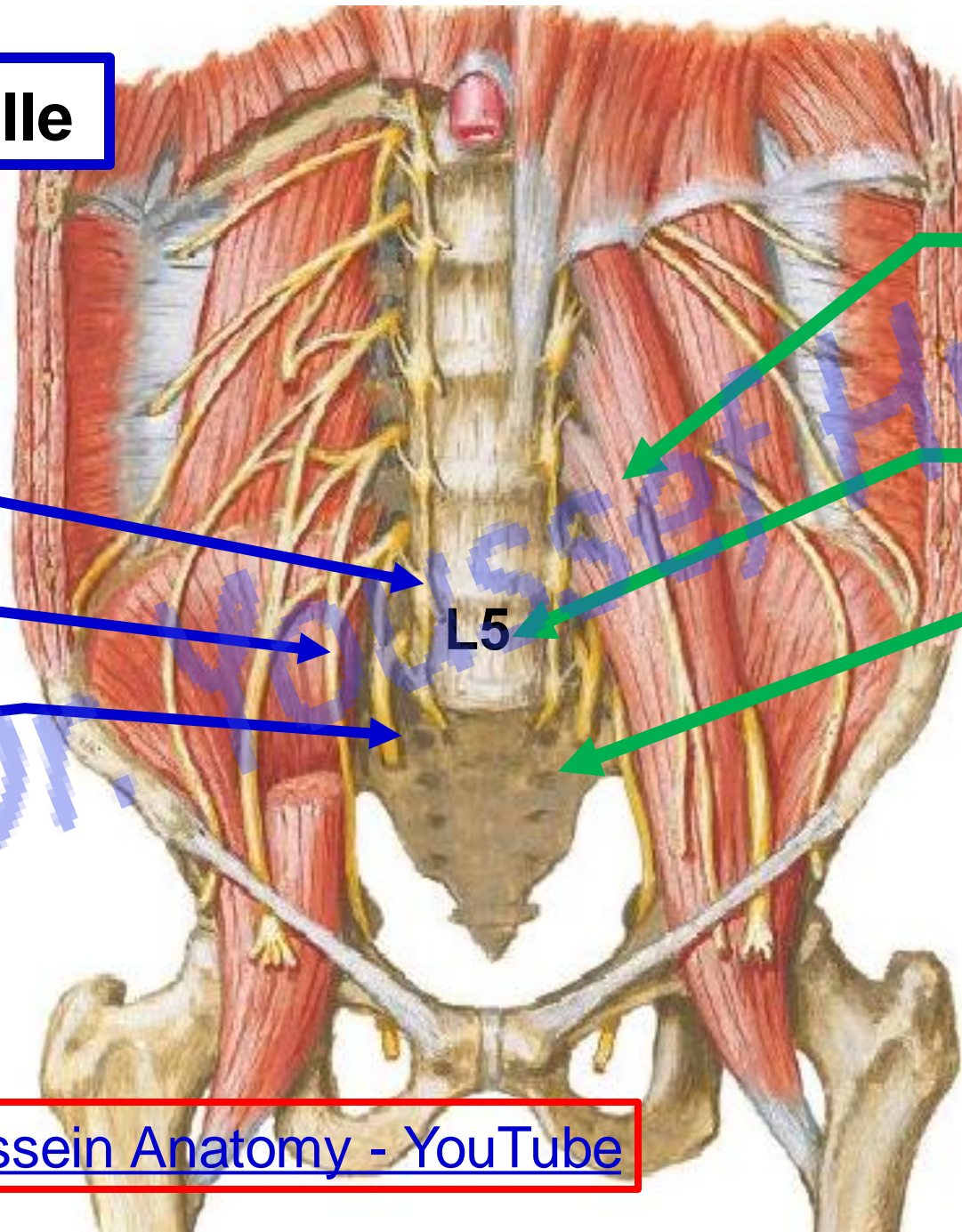
Lumbosacral trunk

- Boundaries

Psoas major
(lateral)

Body of L5
(medial)

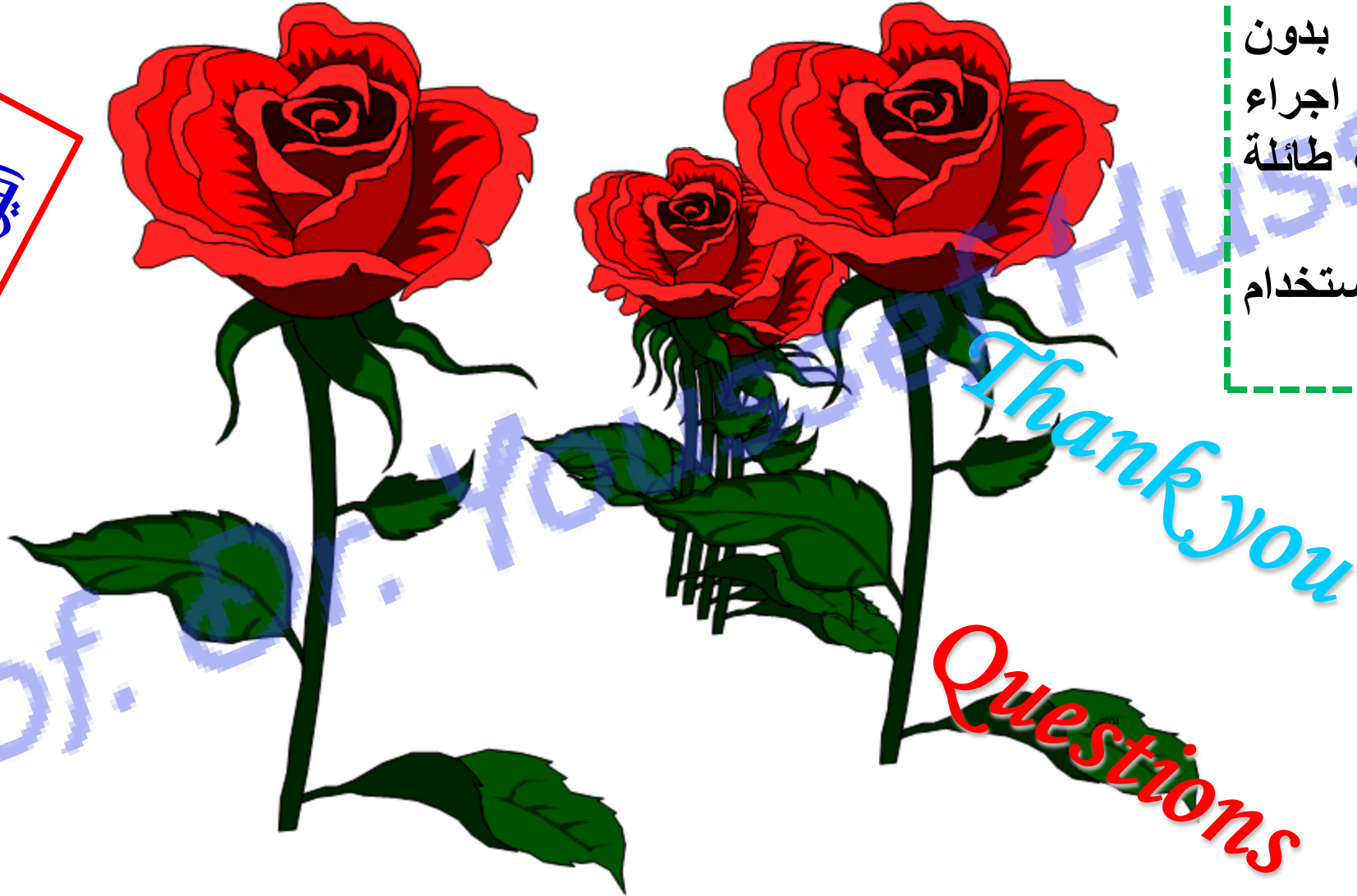
Ala of sacrum
(base)



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