

#ideaworld



LIMITLESS

# The Anatomy of the Pilates Powerhouse

PRESENTED BY

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## Beverly Hosford, MA



- BS in Exercise Science
- MA in Exercise Psychology
- ACE Personal Trainer
- Fit Pro for 20 years
- Anatomy teacher
- Sleep specialist
- Mama of two boys
- Ski, hike, bike in Montana
- Gardening & cooking

# Guided Visualization



# Anatomy for the Pilates Professional with Sara Grout



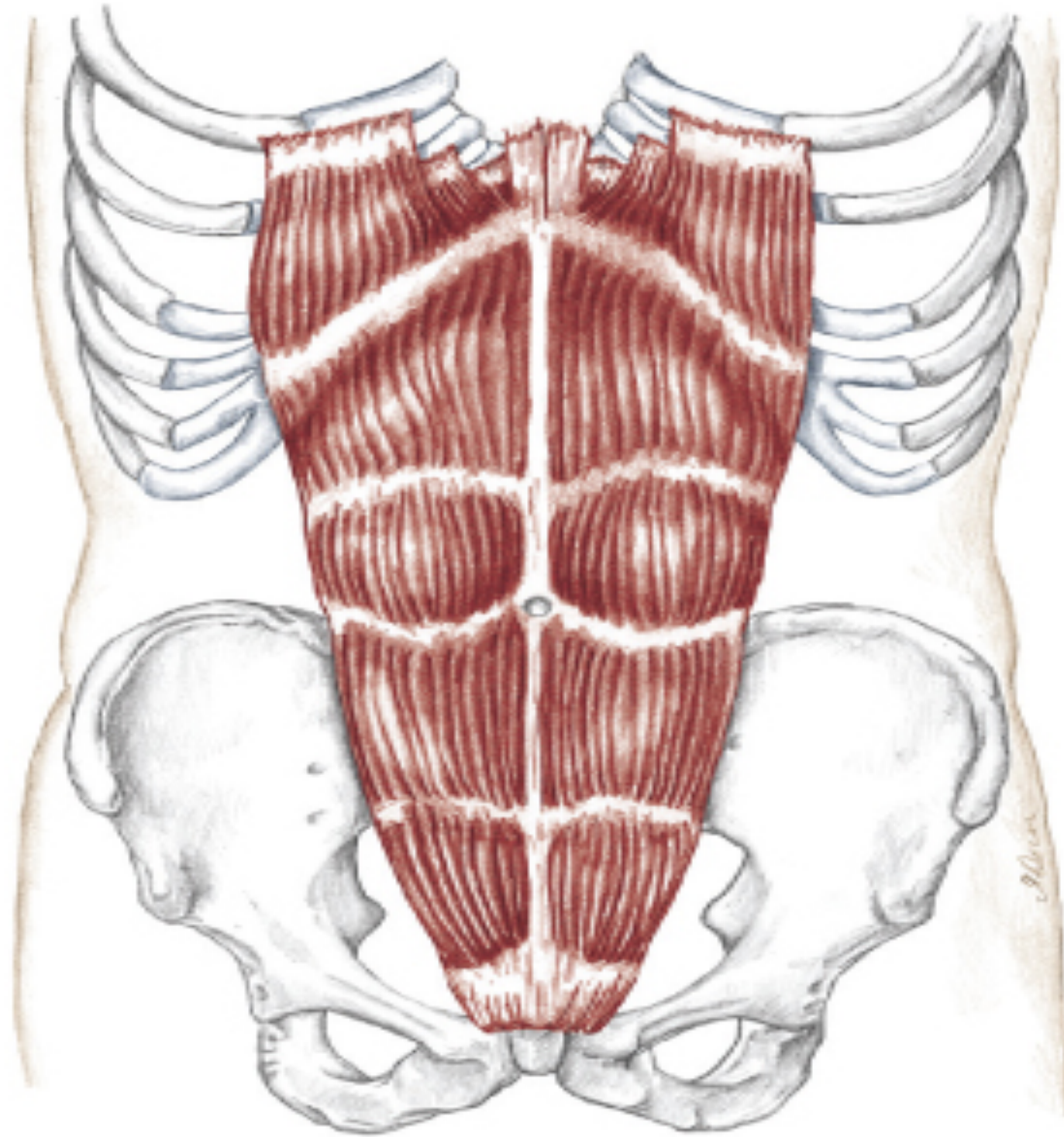


# Phases of Anatomy

1. Look at the images
2. Palpate the muscles on yourself
3. Locate origin and insertion
4. Explore actions
5. Design exercises



## Abdominals - Anterior Muscles

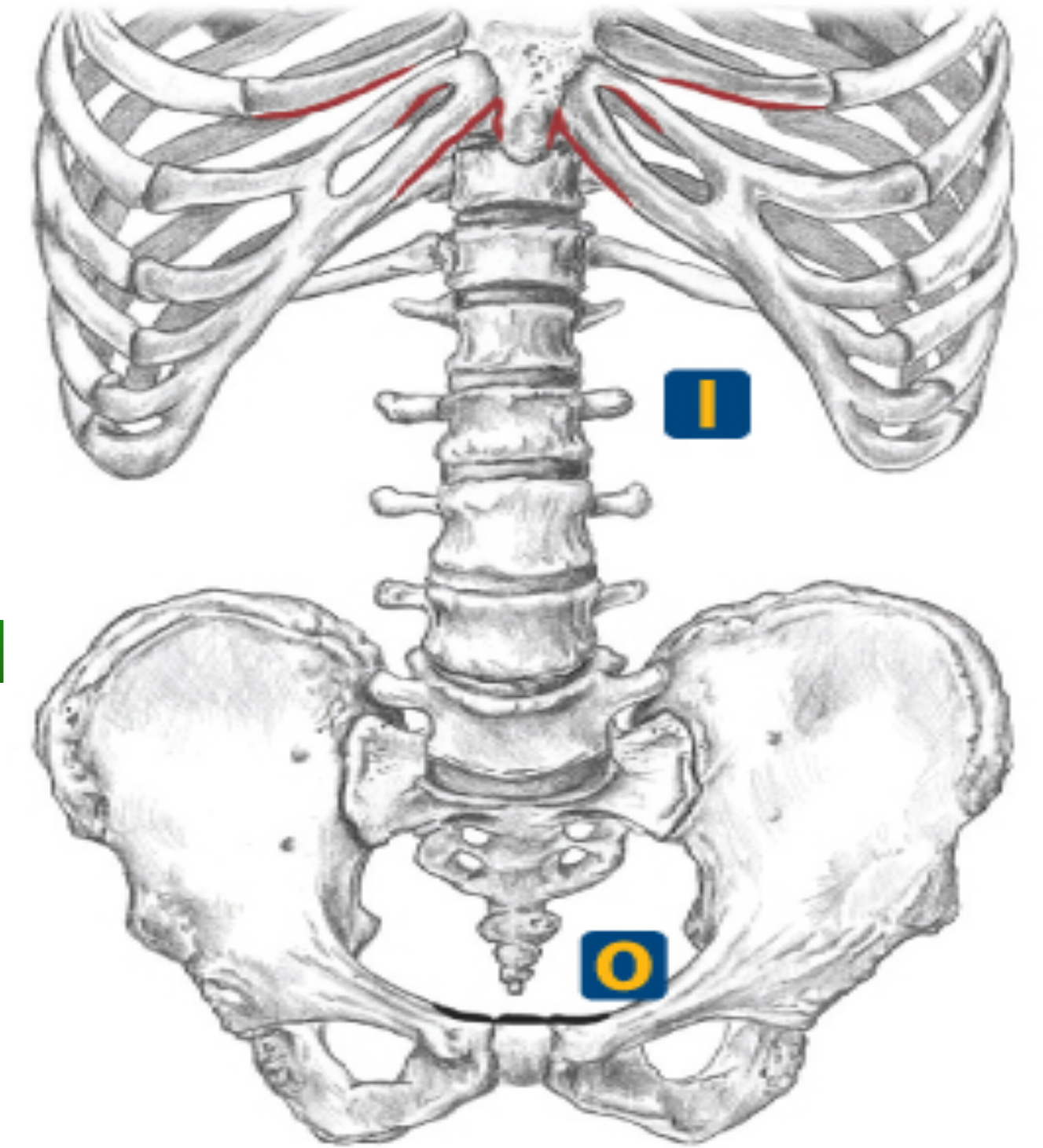


**4.98** Anterior view of rectus abdominis

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### Rectus Abdominis

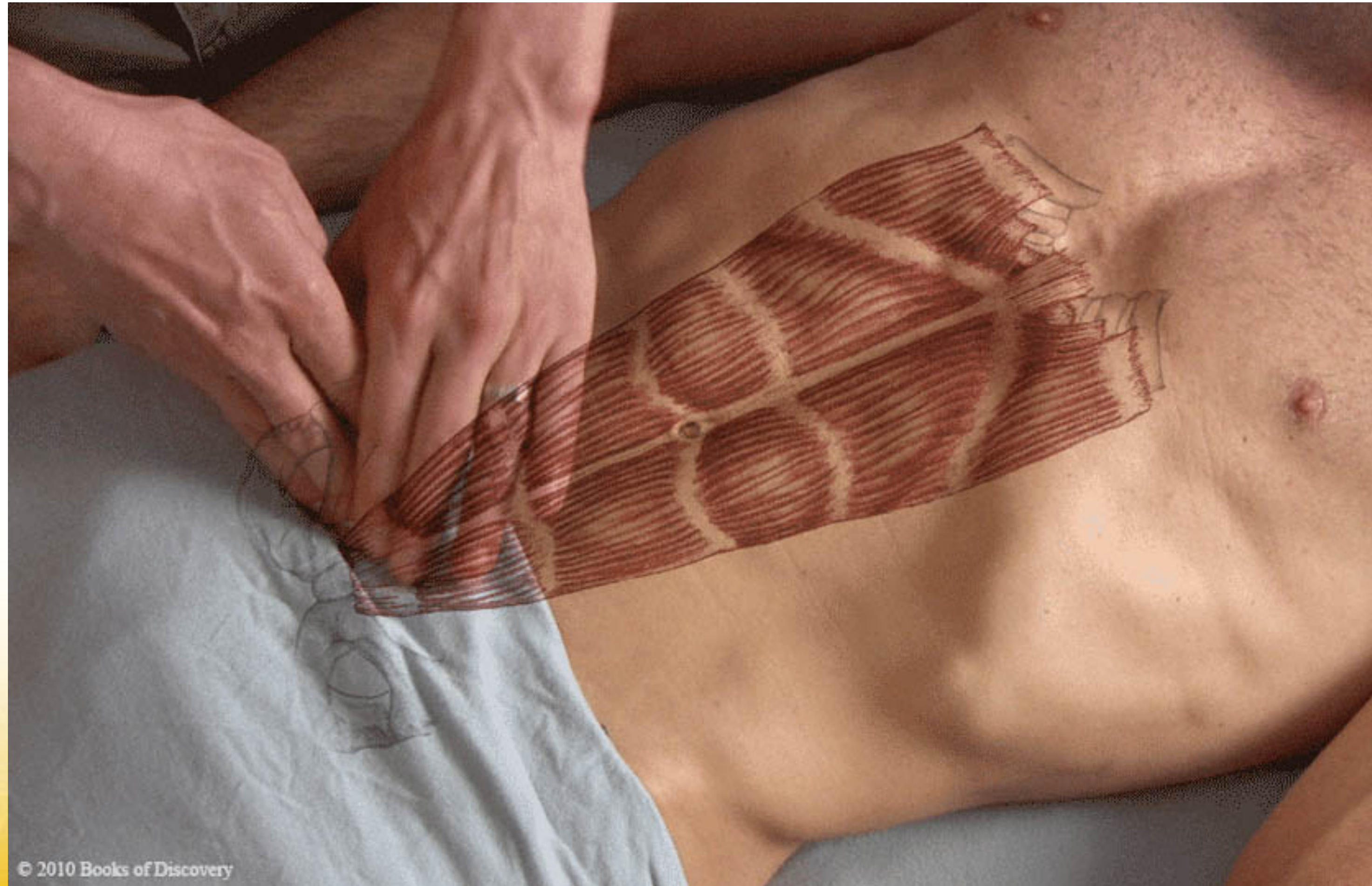
- A** Flex the vertebral column  
Tilt pelvis posteriorly
  - O** Pubic crest, pubic symphysis
  - I** Cartilage of fifth, sixth and seventh ribs and xiphoid process
  - N** T5, 6, T7-11, T12, ventral rami
- 



**4.99** Anterior view showing origin and insertion

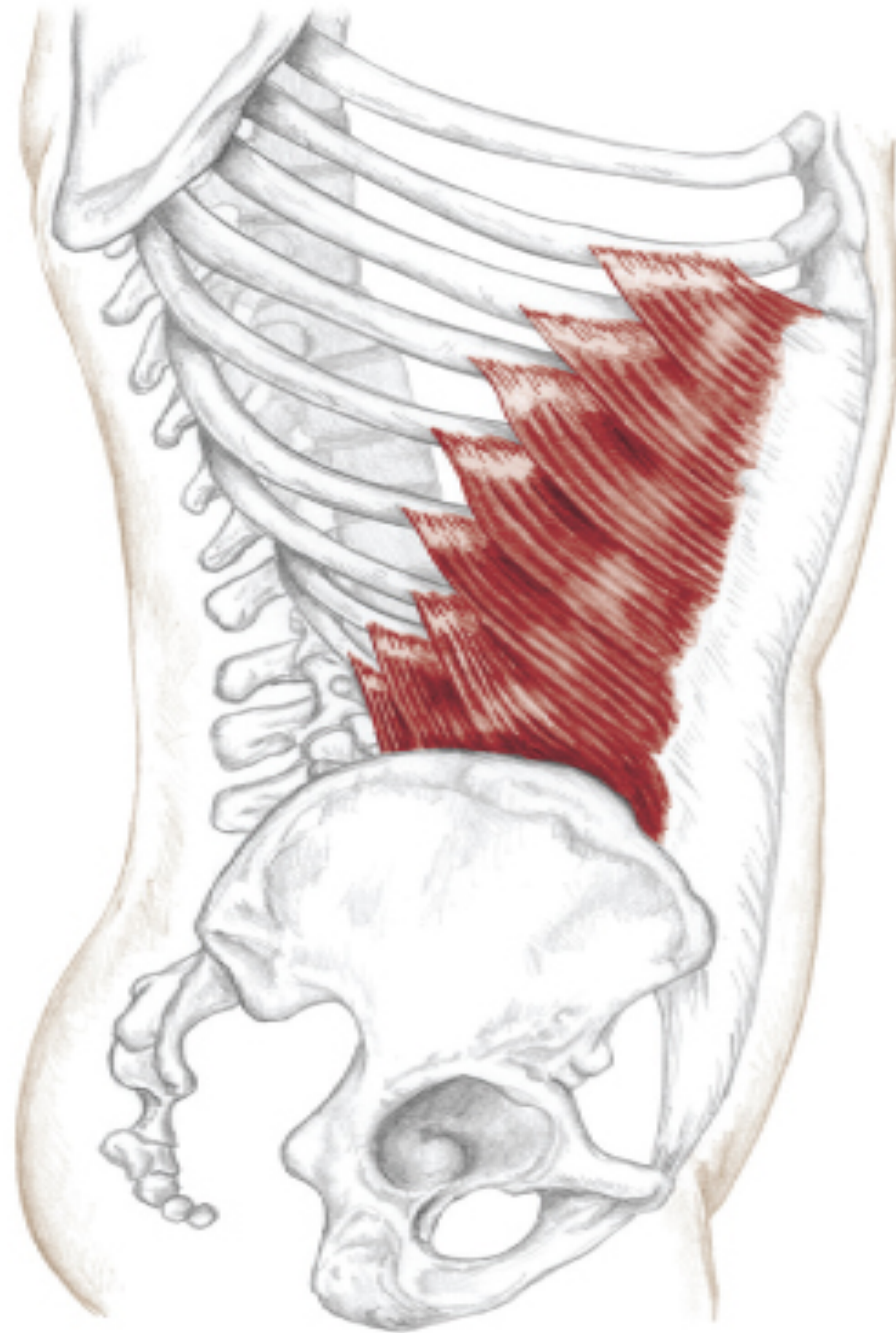


# Rectus abdominus





## Abdominals - Anterior Muscles



**4.100** Lateral view of external oblique

### External Oblique

**A** Unilaterally:  
**Laterally flex** vertebral column to the same side

**Rotate** vertebral column to the opposite side

Bilaterally:

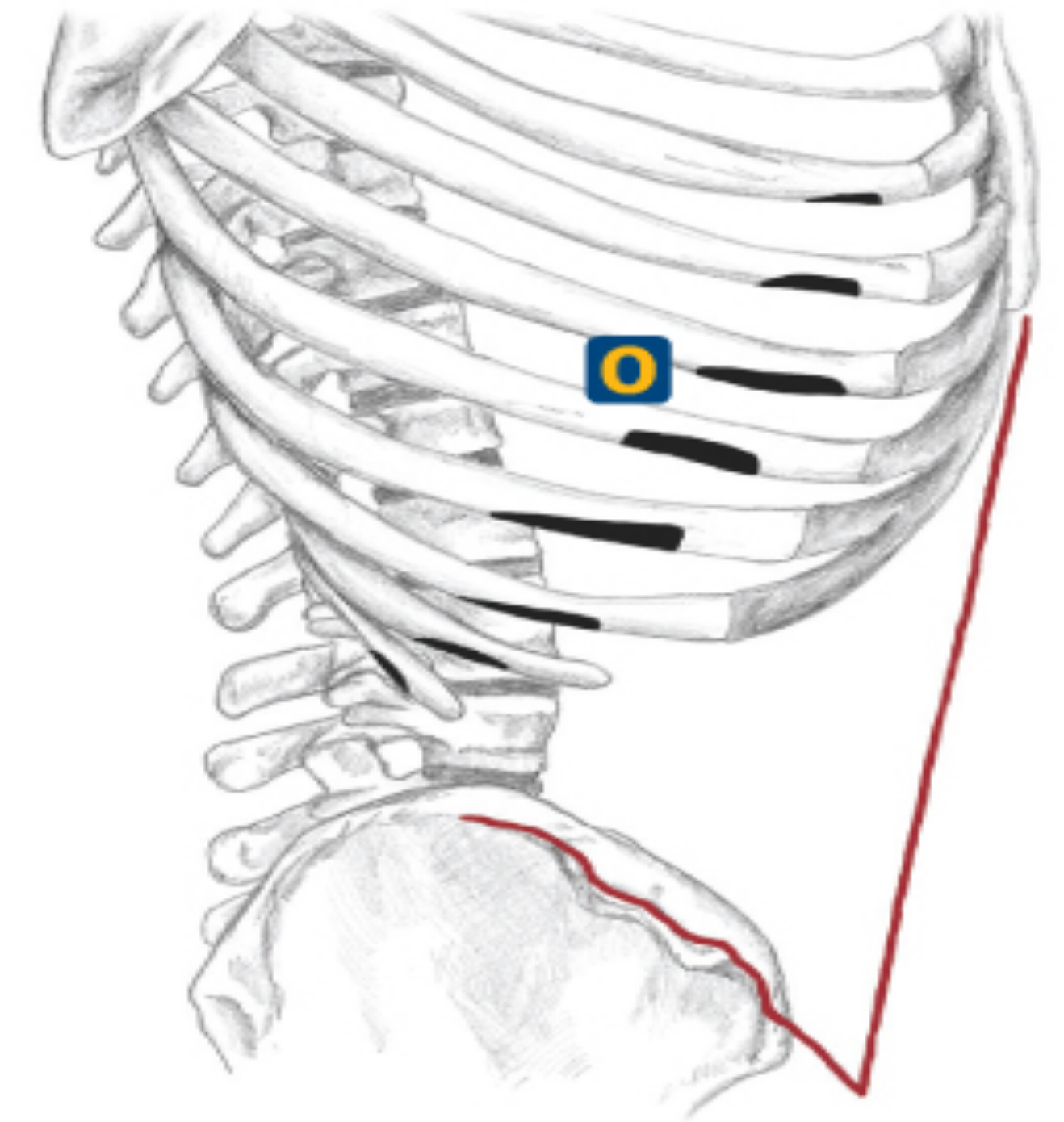
**Flex** the vertebral column

**Compress** abdominal contents

**O** External surfaces of fifth to twelfth ribs

**I** Anterior part of the iliac crest, abdominal aponeurosis to linea alba

**N** (T5, 6), T7-11, T12



**4.101** Lateral view showing origin and insertion

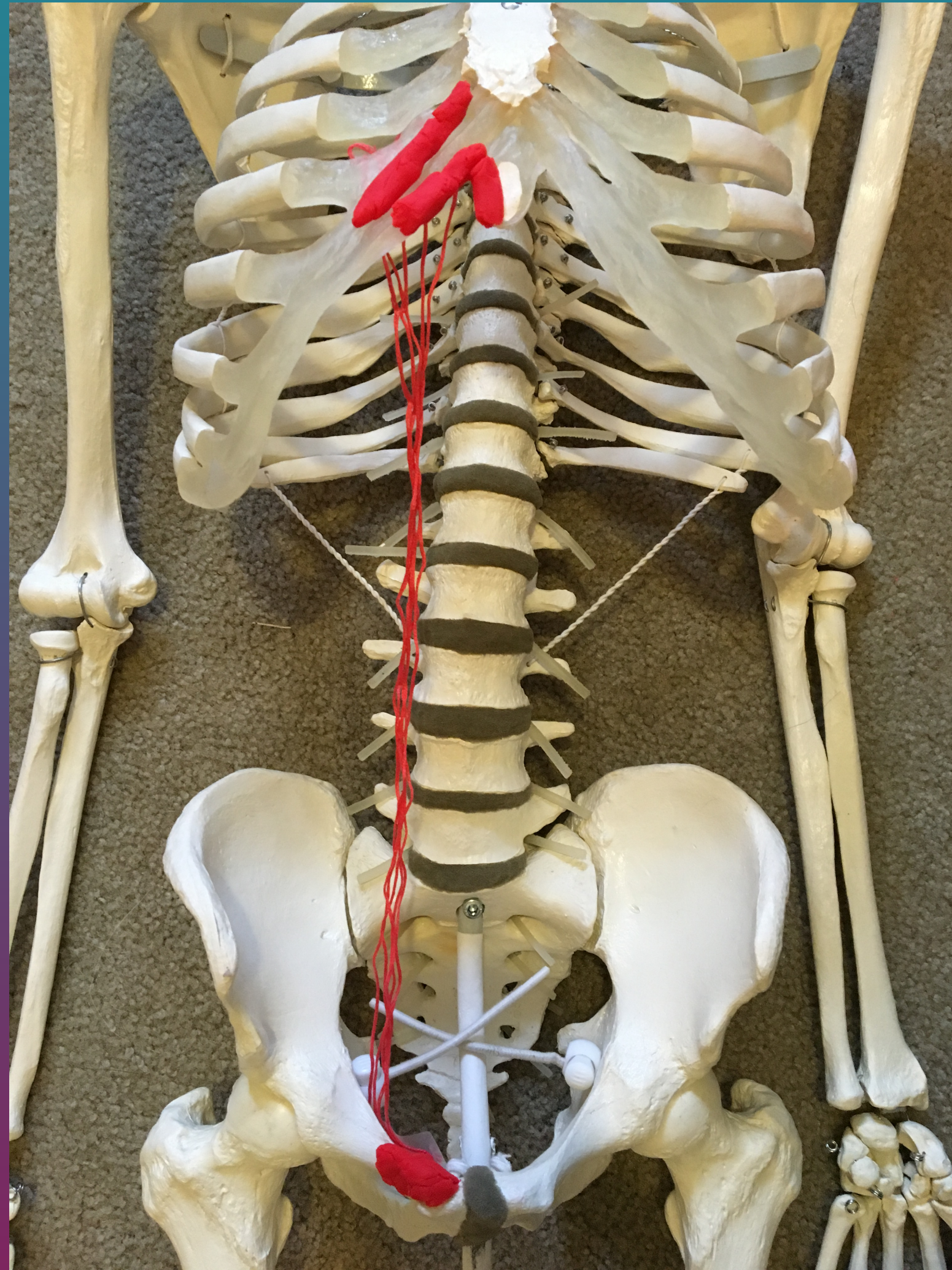


# External oblique





# Find on yourself & partner



Rectus Abdominus

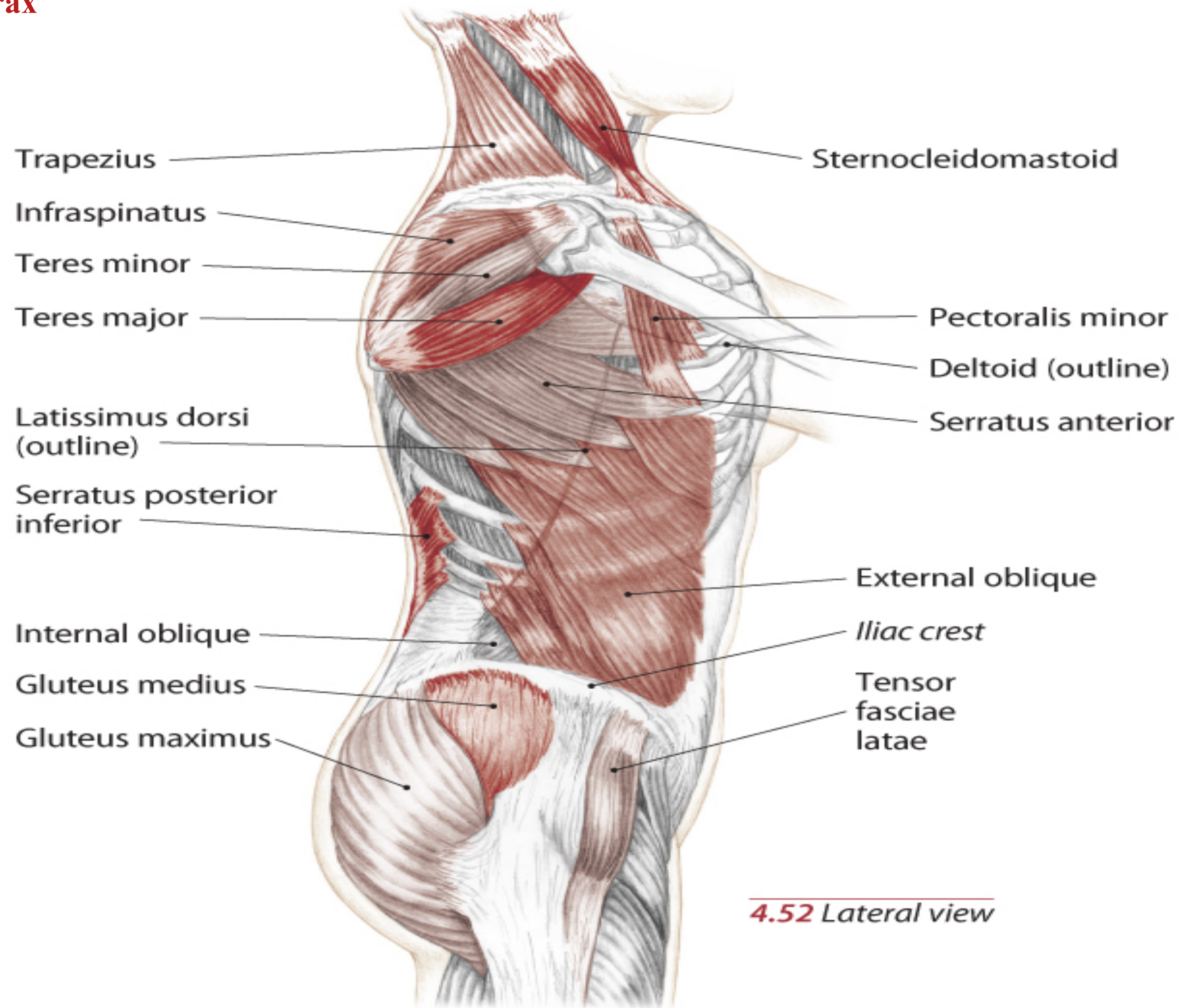


External Oblique



# Muscles of the Spine and Thorax

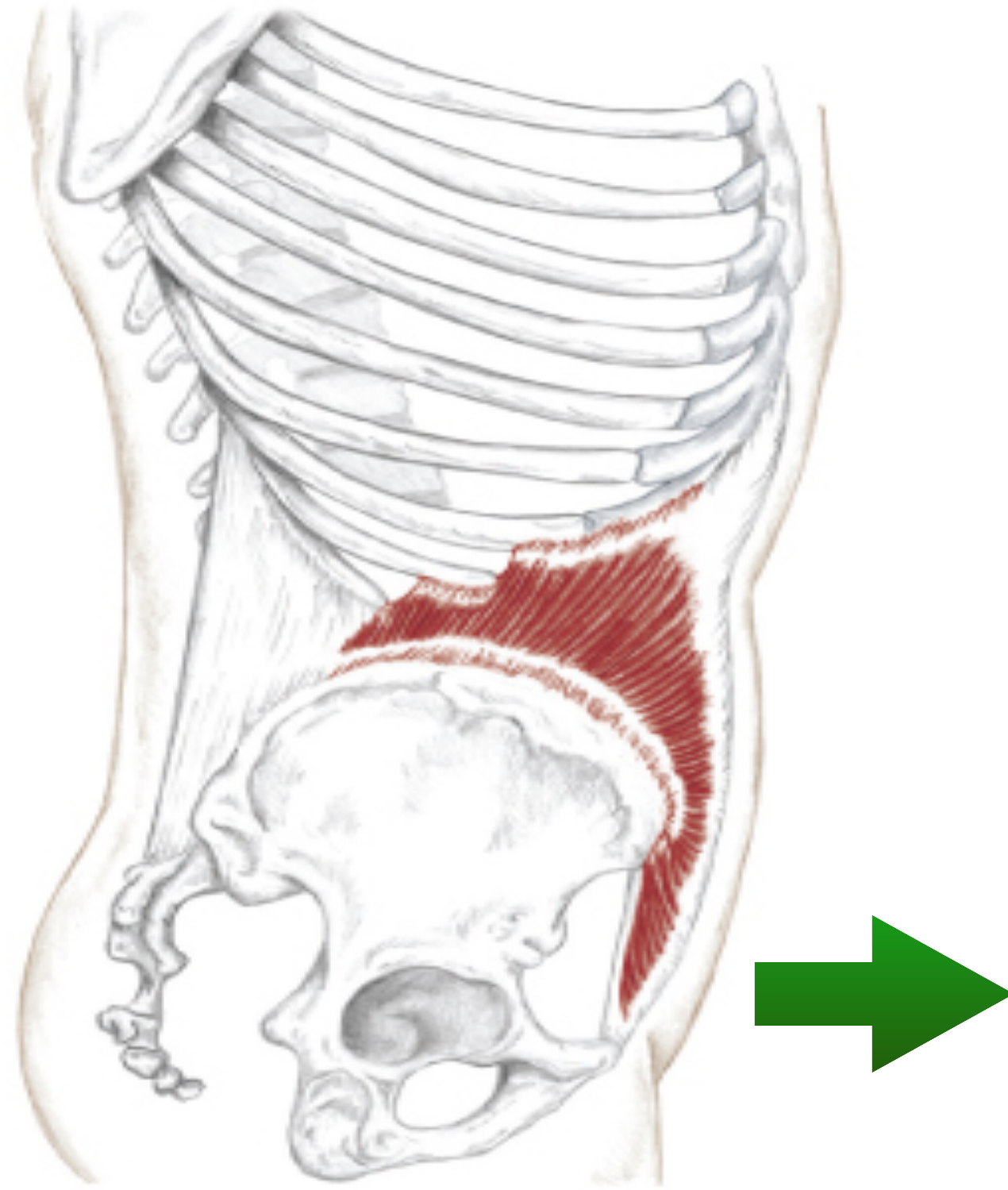
## Lateral View



**4.52** Lateral view

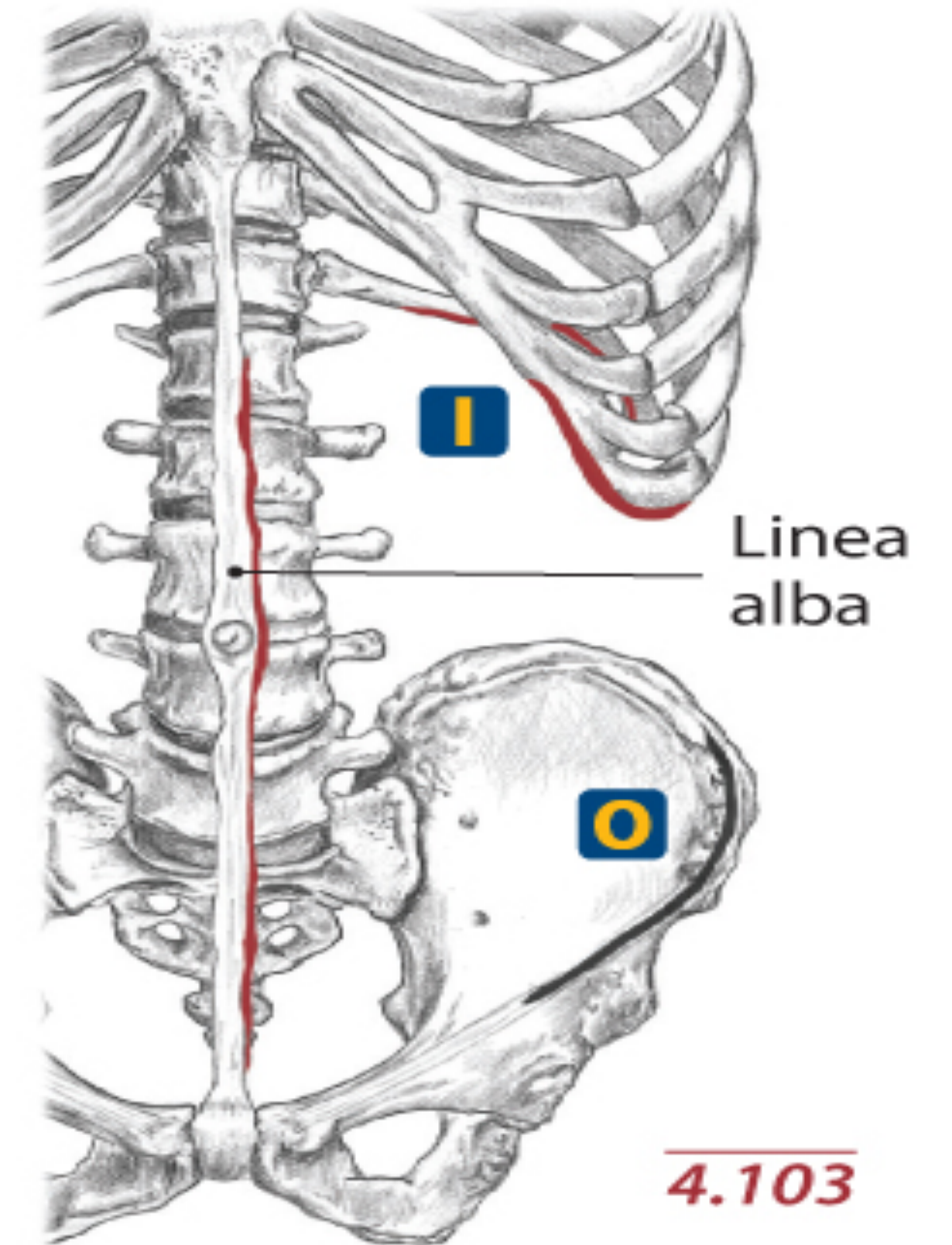


## Internal Oblique



**4.102** Lateral view of internal oblique

- A** Unilaterally:
  - Laterally flex** vertebral column to the same side
  - Rotate** vertebral column to the same side
- Bilaterally:
  - Flex** the vertebral column
  - Compress** abdominal contents
- O** Lateral inguinal ligament, iliac crest and thoracolumbar fascia
- I** Internal surface of lower three ribs, abdominal aponeurosis to linea alba
- N** T7, 8, T9-12, L1, iliohypogastric and ilioinguinal, ventral rami





# Internal oblique





# Find on yourself & partner



Yellow: Internal Oblique

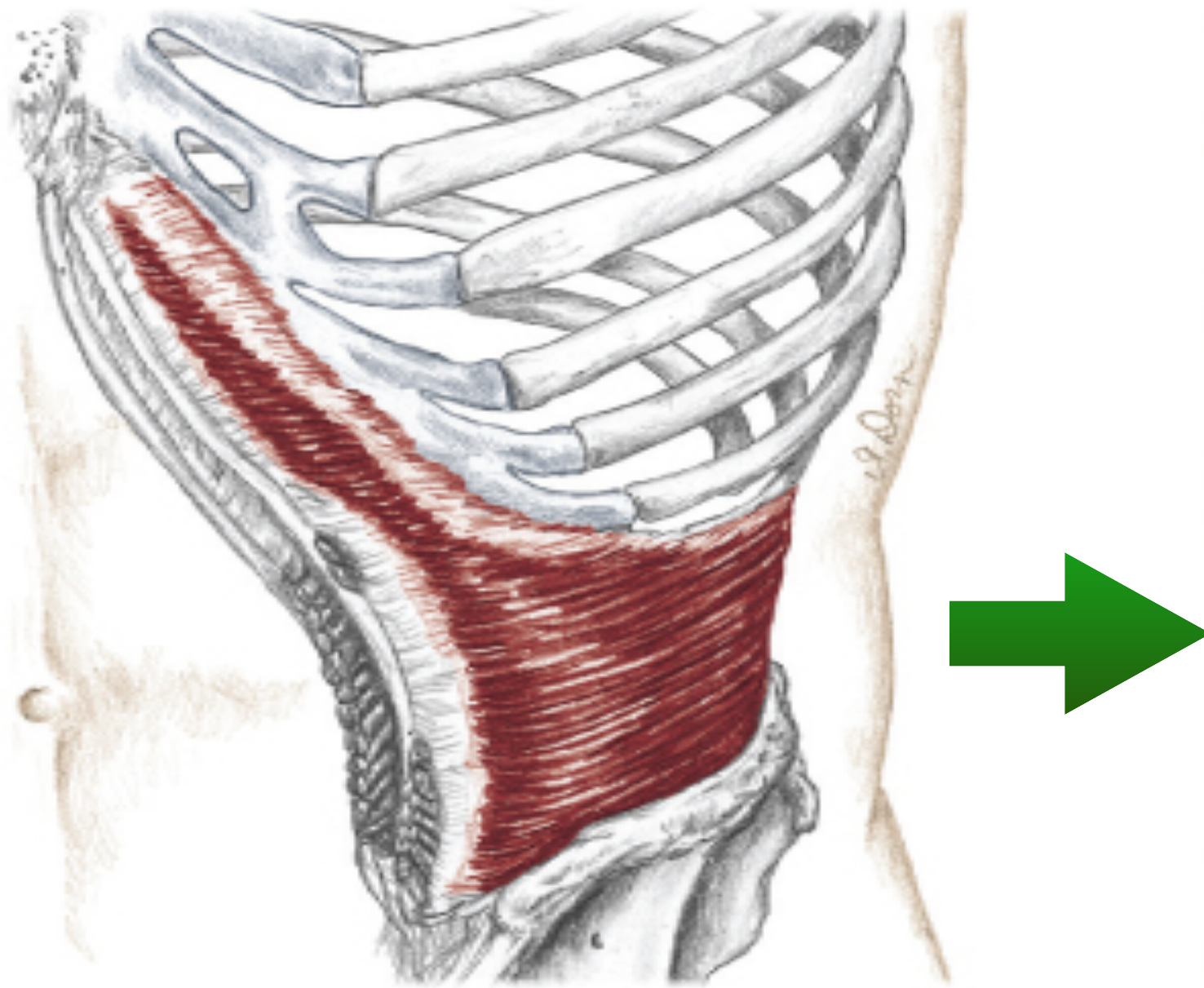


# Abdominal Ribbons





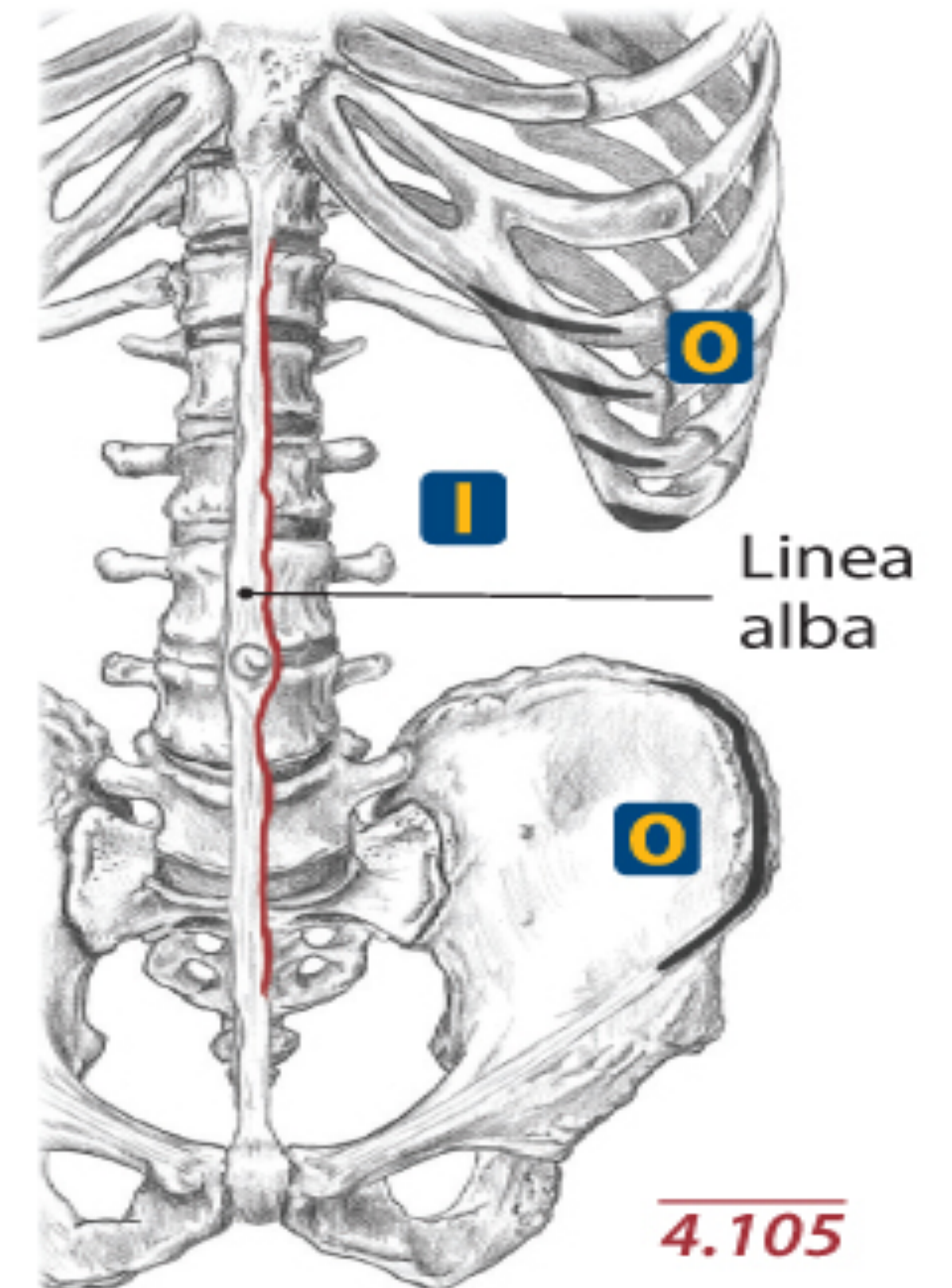
## Abdominals - Anterior Muscles



**4.104** Anterior view of transverse abdominis (both obliques cut and reflected)

### Transverse Abdominis

- A** **Compress** abdominal contents
- O** Lateral inguinal ligament, iliac crest, thoracolumbar fascia and internal surface of lower six ribs
- I** Abdominal aponeurosis to linea alba
- N** T7-12, L1, iliohypogastric and ilioinguinal, ventral divisions

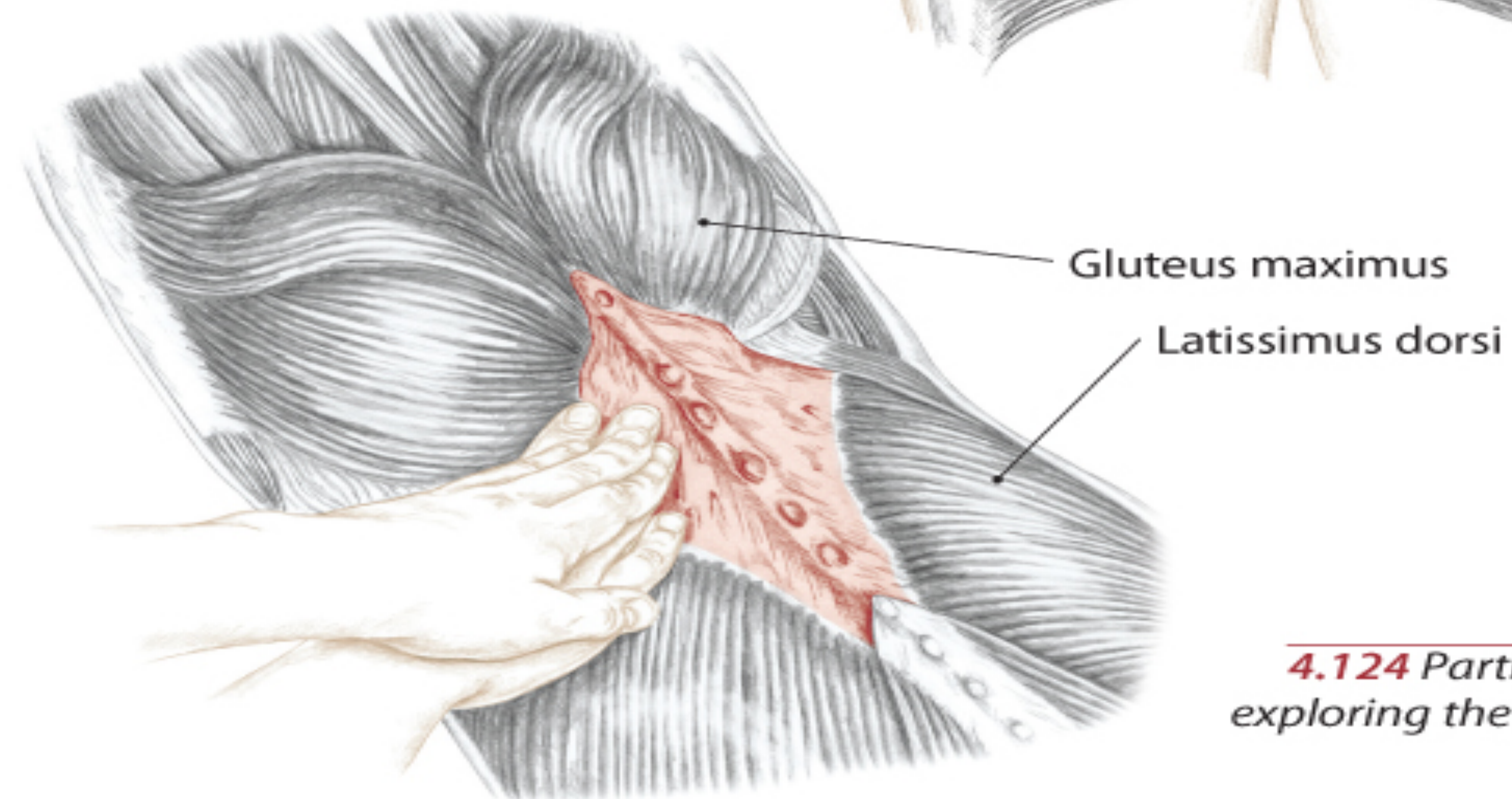
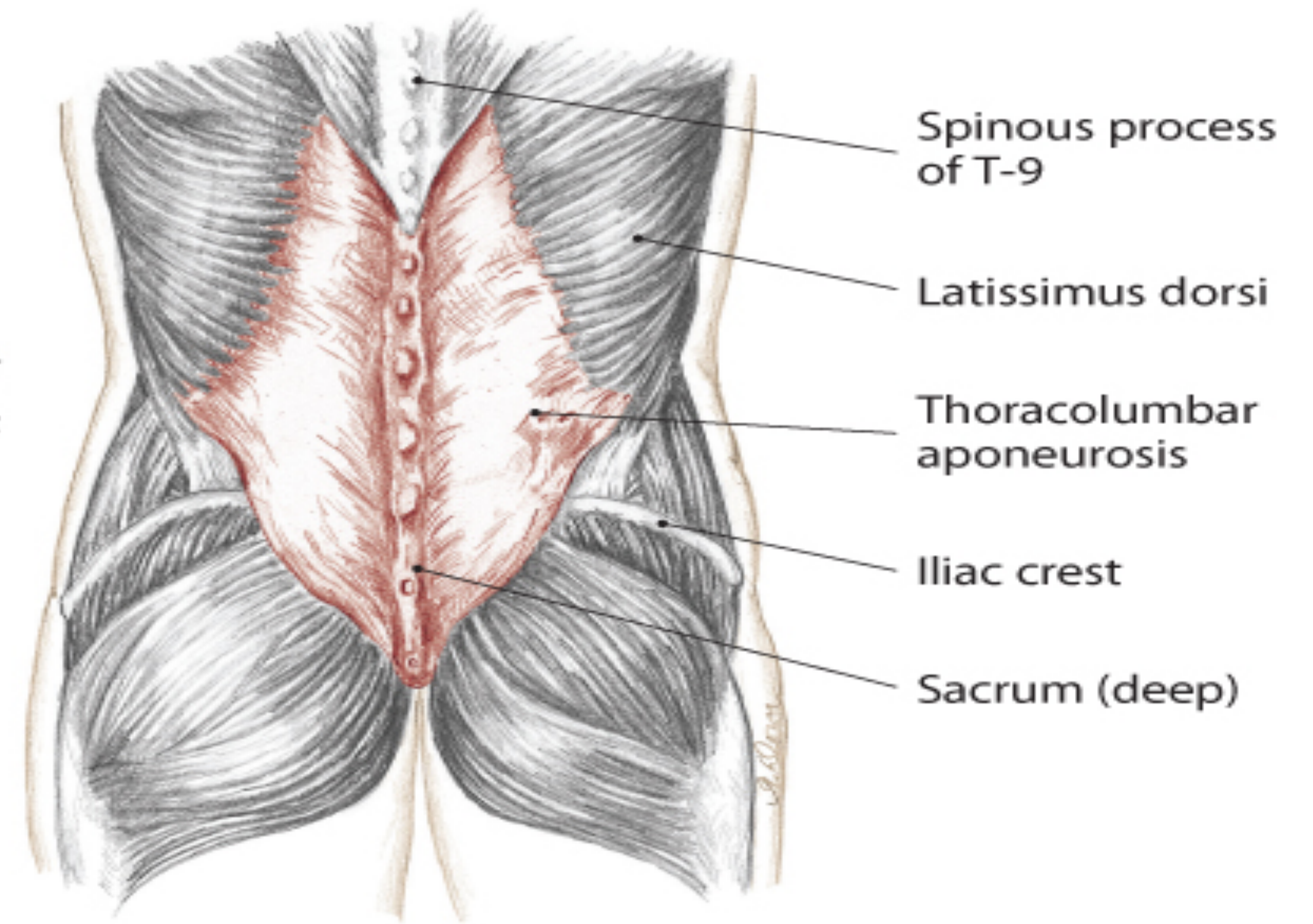


**4.105**



## Thoracolumbar Aponeurosis

**4.123** Posterior view of lower thorax and pelvis



**4.124** Partner prone, exploring the aponeurosis



# Transverse abdominis

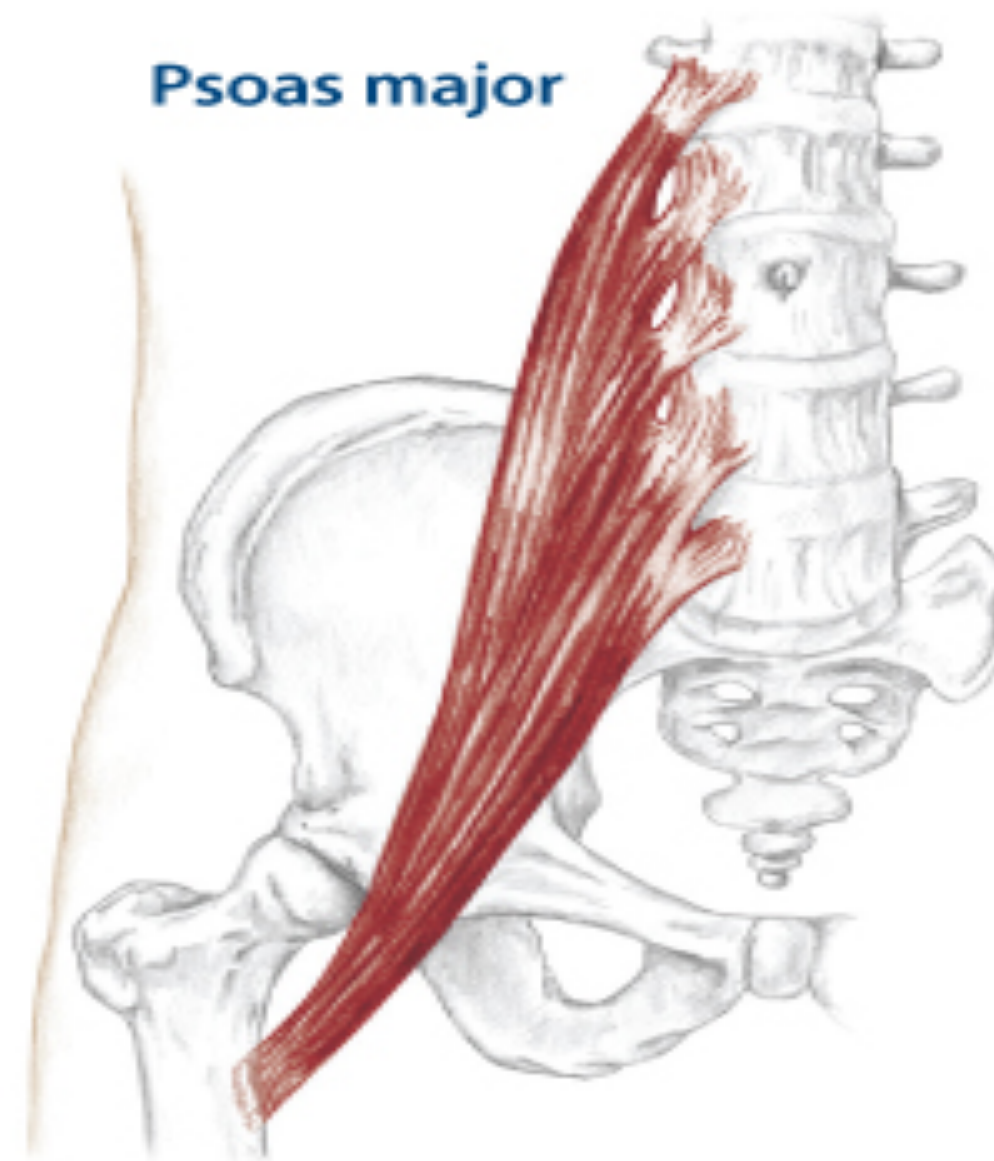




## Iliopsoas - Common Compensation Muscles

### Psoas Major

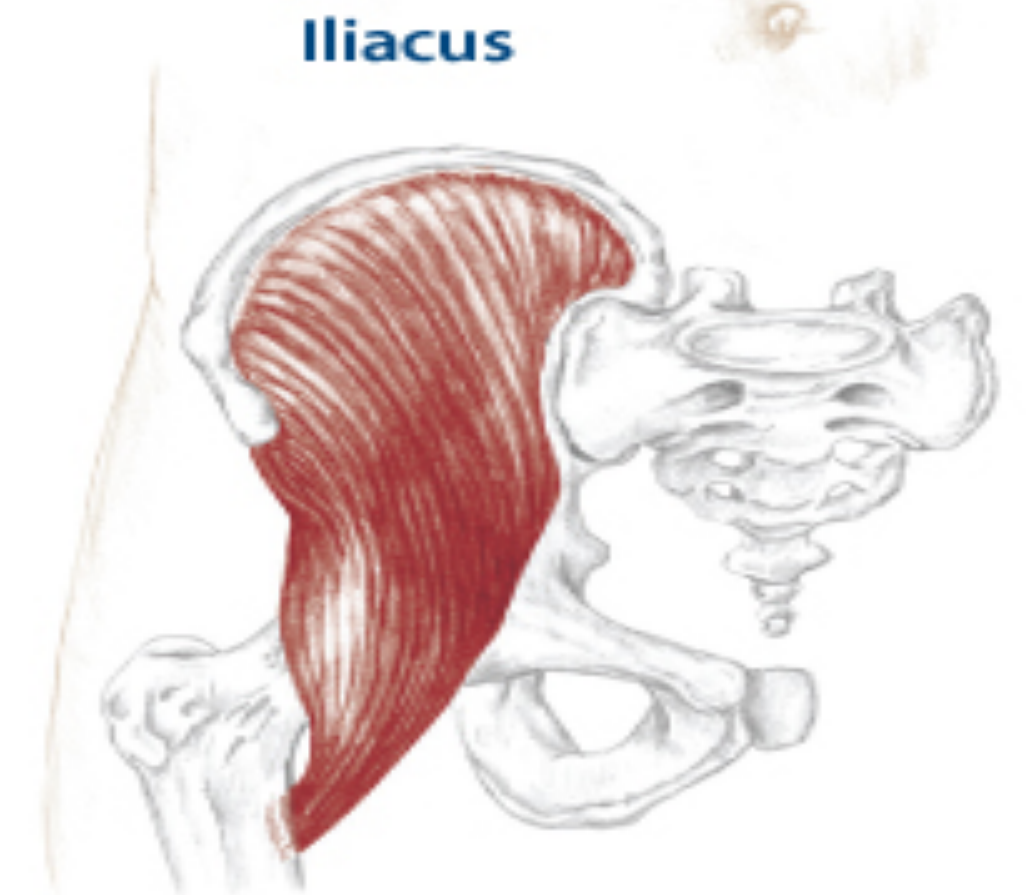
- A** *With the origin fixed:*
  - Flex** the hip (coxal joint)
  - May **laterally rotate** the hip (coxal joint)
- With the insertion fixed:*
  - Flex** the trunk toward the thigh
  - Tilt** pelvis anteriorly
- Unilaterally:*
  - Assist to **laterally flex** the lumbar spine
- O** Bodies and transverse processes of lumbar vertebrae
- I** Lesser trochanter
- N** Lumbar plexus L1, 2, 3, 4



6.127 Anterior view of spine and right hip

### Iliacus

- A** *With the origin fixed:*
  - Flex** the hip (coxal joint)
  - May **laterally rotate** the hip (coxal joint)
- With the insertion fixed:*
  - Flex** the trunk toward the thigh
  - Tilt** pelvis anteriorly
- O** Iliac fossa
- I** Lesser trochanter
- N** Femoral L(1), 2, 3, 4

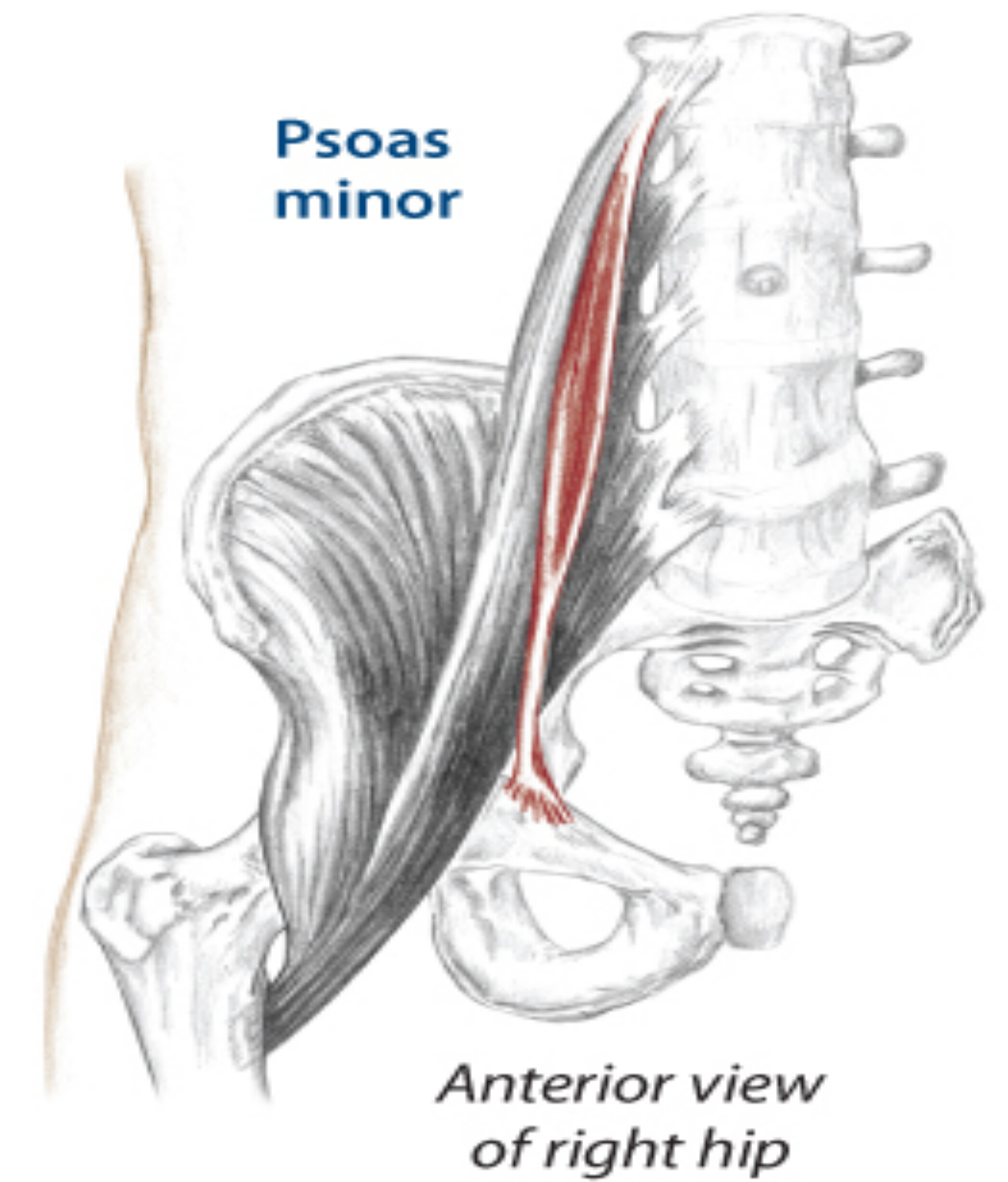


6.128 Anterior view of right hip



## Psoas Minor

- A** Assist to **create** lordotic curvature in the lumbar spine
- Tilt** pelvis posteriorly
- O** Body and transverse process of first lumbar vertebra
- I** Superior ramus of pubis
- N** Lumbar plexus L1, 2



*Anterior surface*

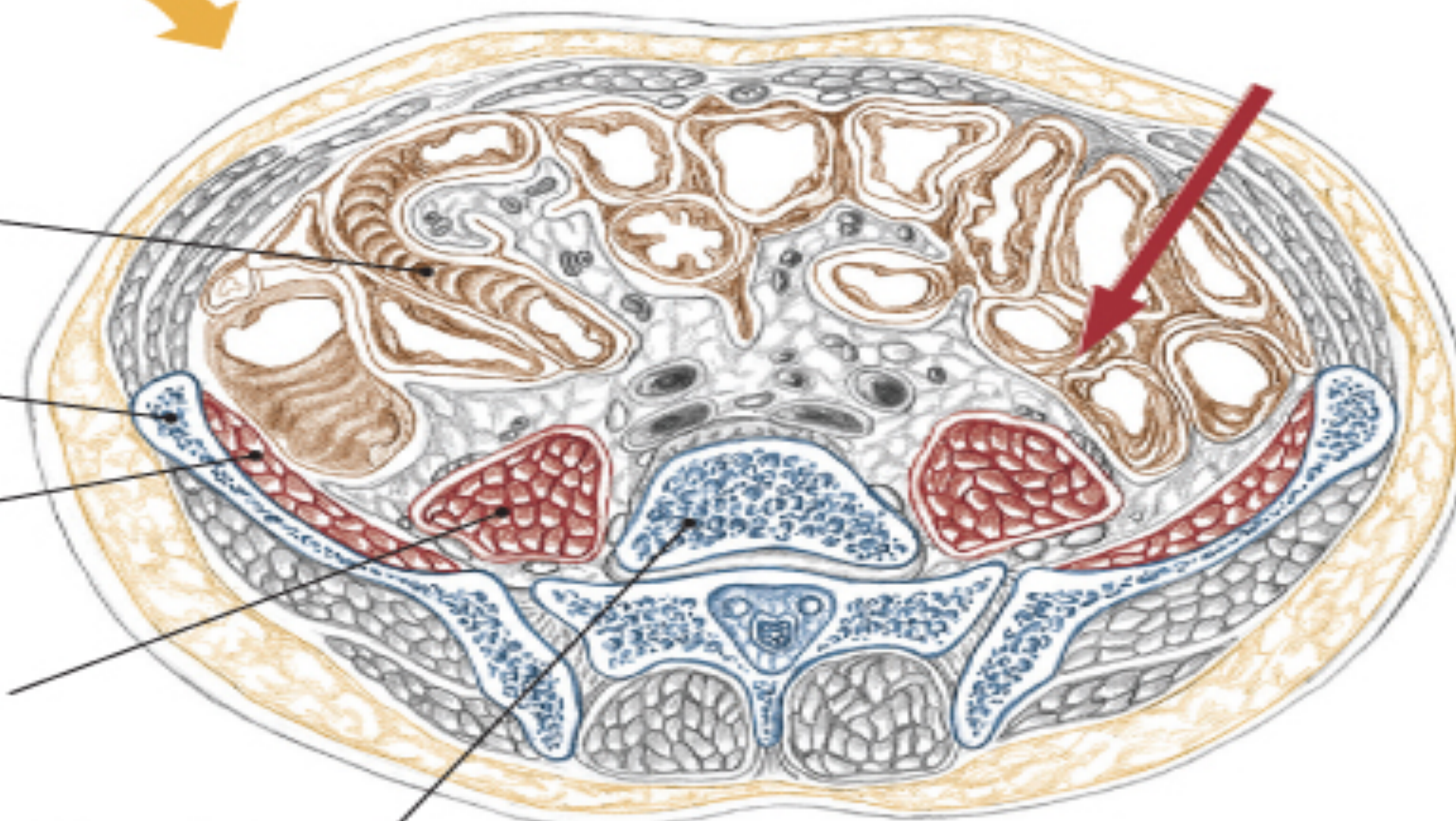
Intestines

Ilium

Iliacus

Psoas major

Body of L-5 vertebra

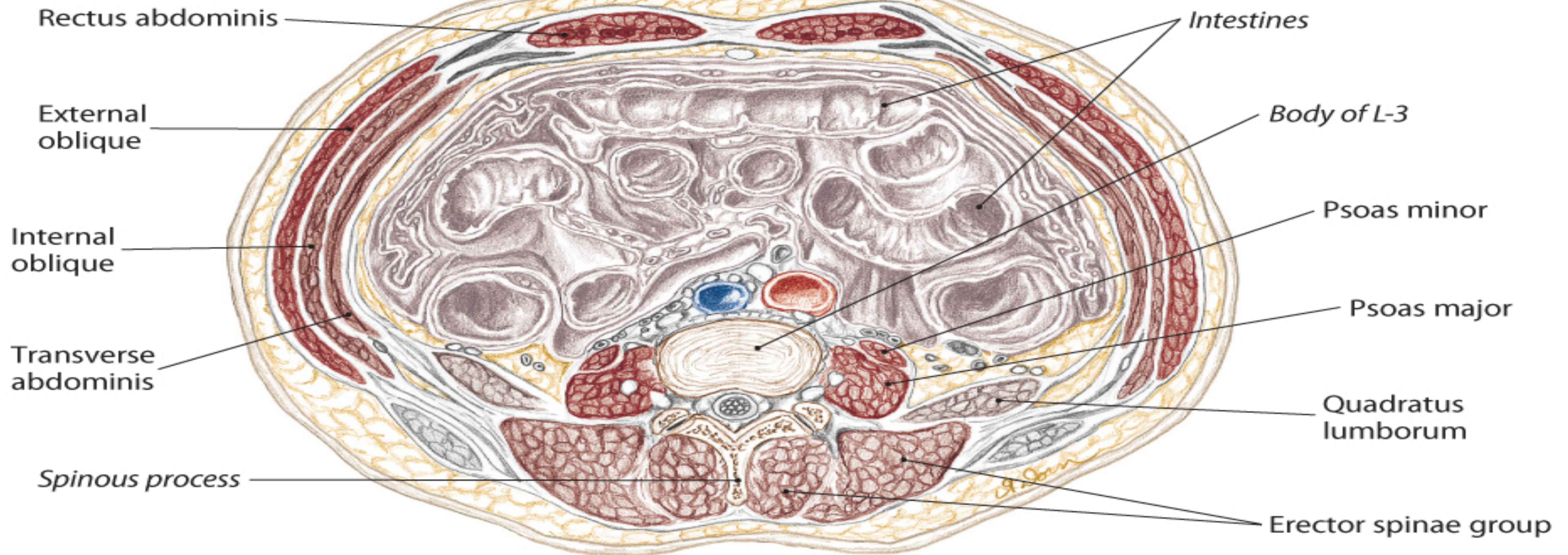
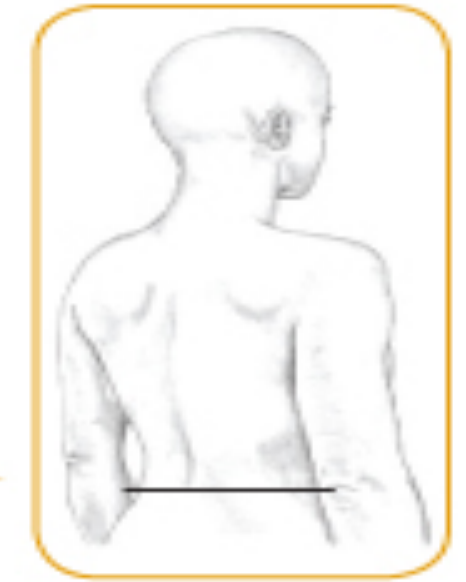


**6.130** Cross section of the trunk at the level of L-5, arrow showing direction of fingers when accessing the psoas major



## Cross Section of the Thorax Superficial Layers

Anterior surface

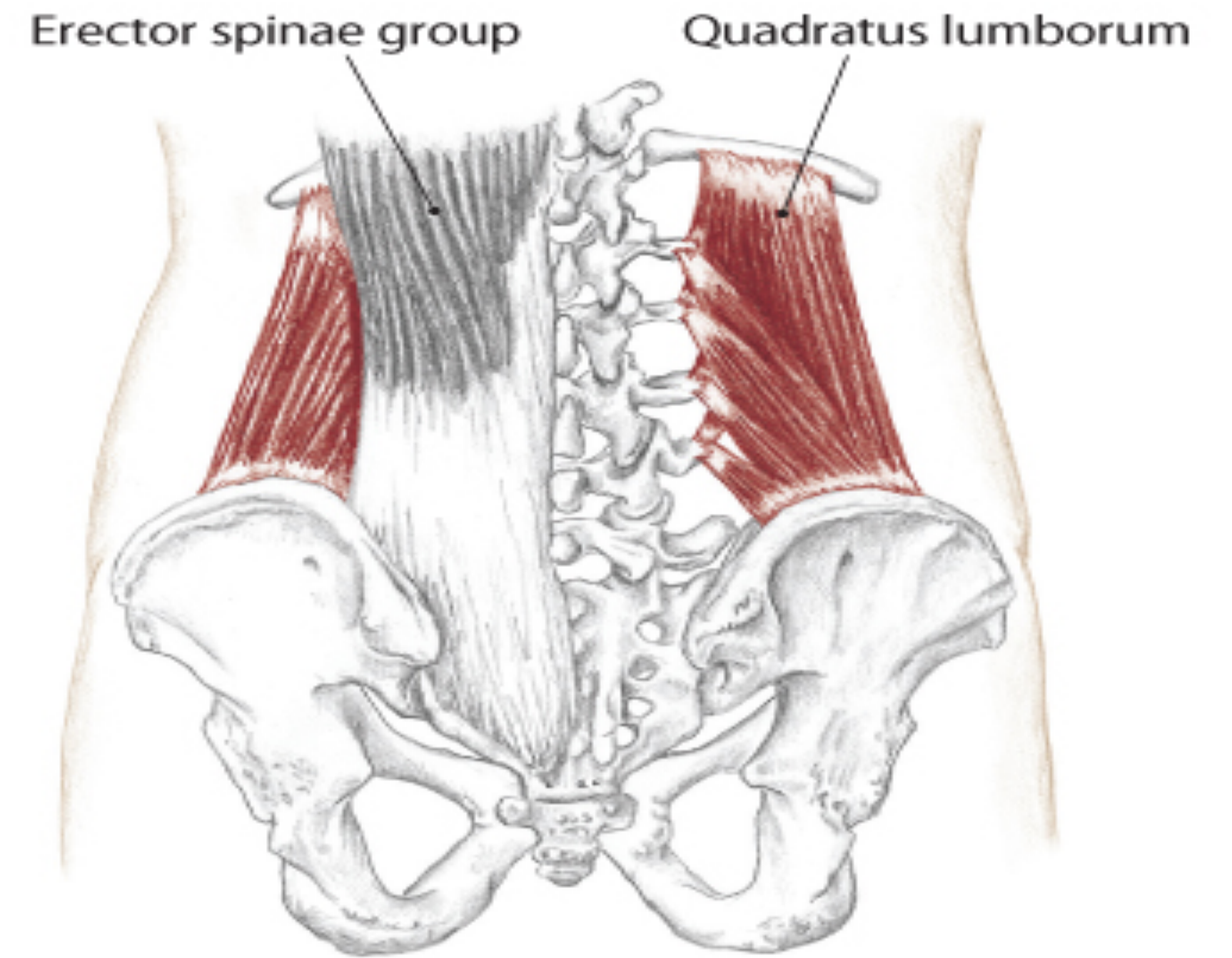


**4.59** Cross section of the abdomen at the level of the third lumbar vertebra

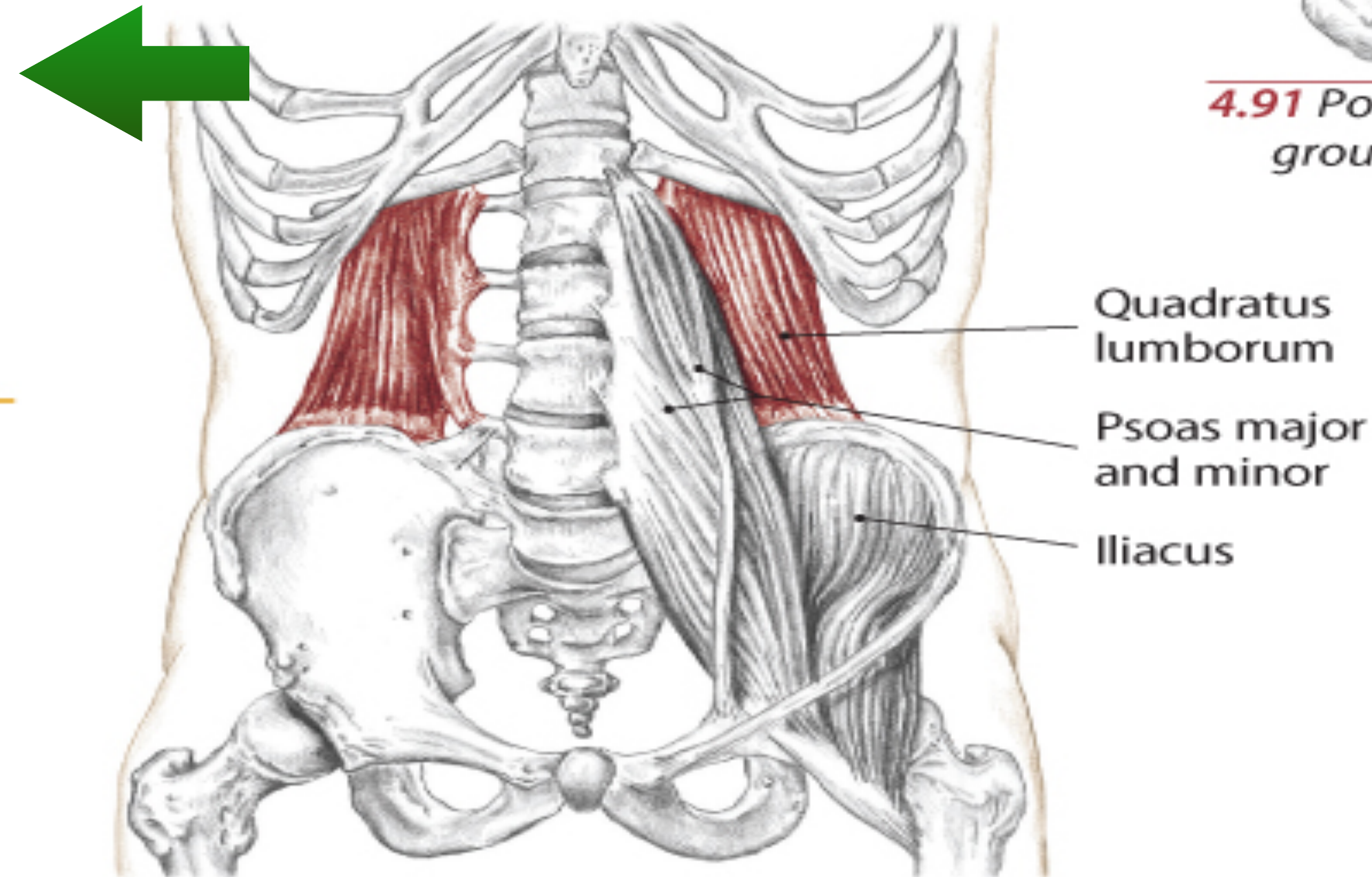


# Quadratus Lumborum

- A** *Unilaterally:*
  - Laterally tilt** (elevate) the pelvis
  - Laterally flex** the vertebral column to the same side
- Bilaterally:*
  - Assist to **extend** the vertebral column
  - Fix** the last rib during forced inhalation and exhalation
- O** Posterior iliac crest
- I** Last rib and transverse processes of first through fourth lumbar vertebrae
- N** Lumbar plexus T12, L1, 2, 3



**4.91** Posterior view, erector spinae group removed on right side



**4.92** Anterior view



## Diaphragm

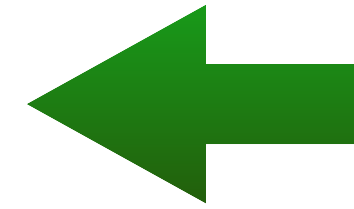
**A** Draw down the central tendon of the diaphragm

Increase the volume of the thoracic cavity during inhalation

**O** Costal attachment:  
Inner surface of lower six ribs

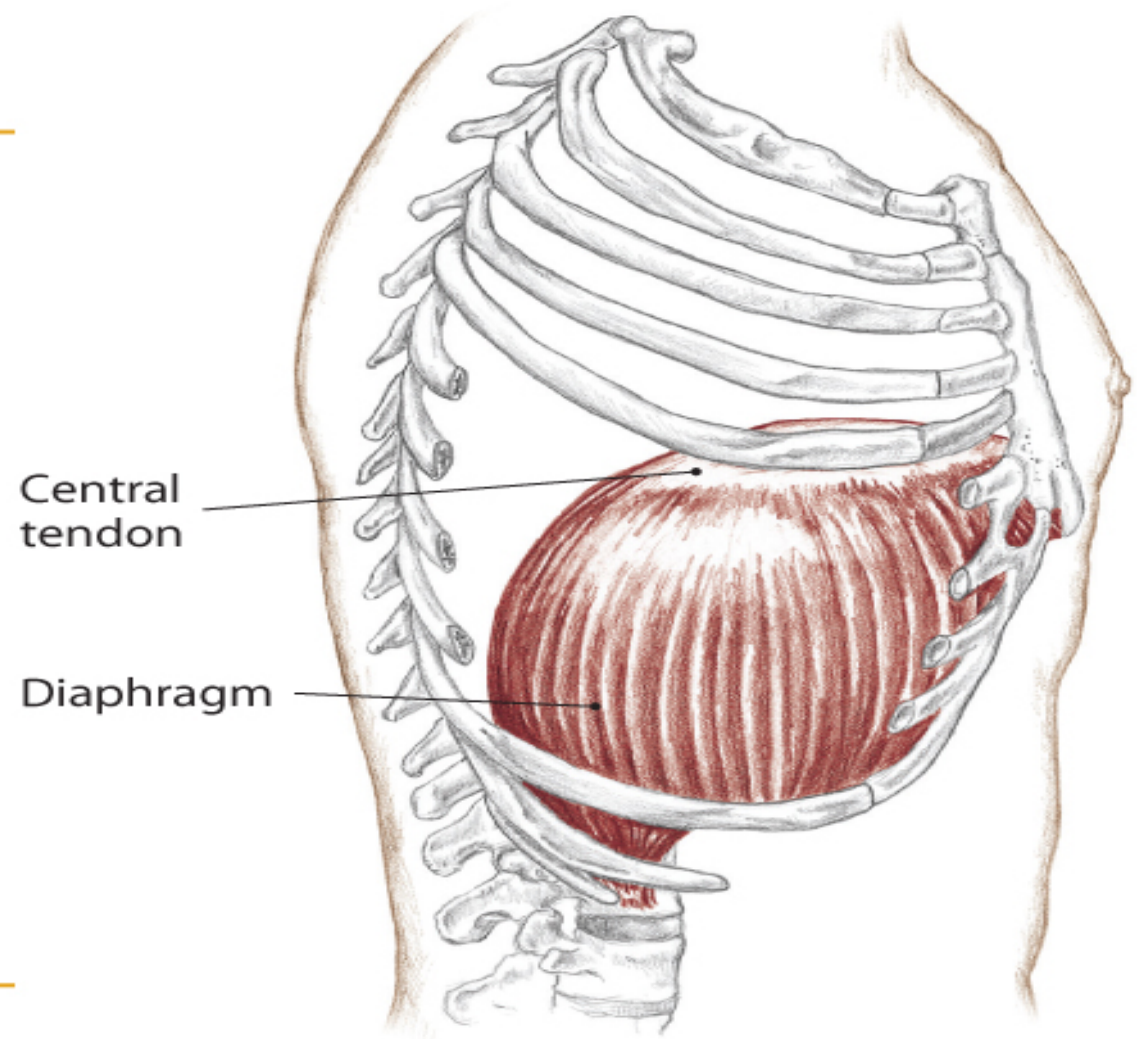
Lumbar attachment:  
Upper two or three lumbar vertebrae

Sternal attachment:  
Inner part of xiphoid process



**I** Central tendon

**N** Phrenic C3, 4, 5



**4.108** Lateral view of thorax showing diaphragm in position of exhalation

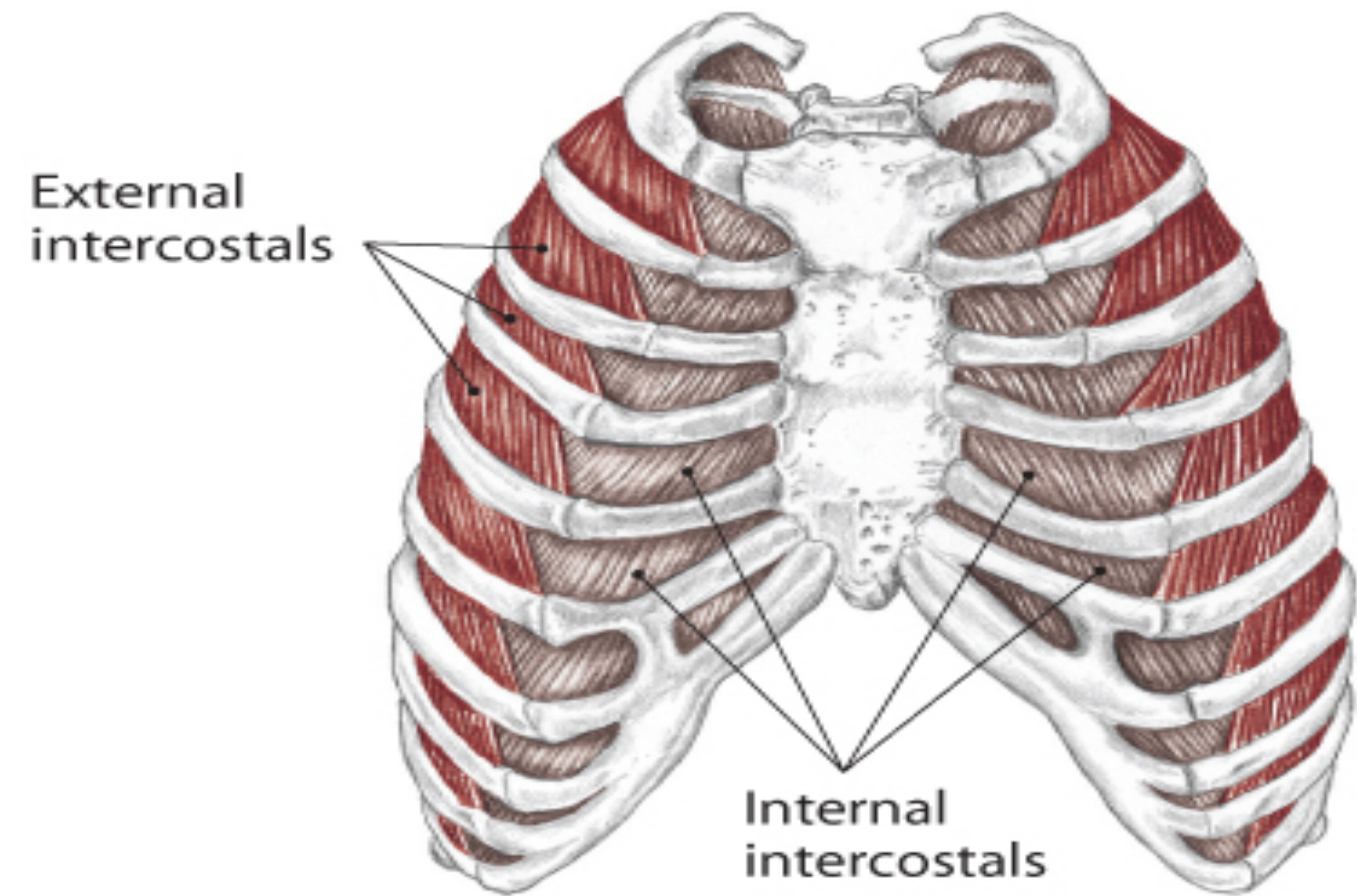
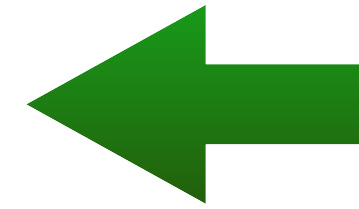


## Intercostals

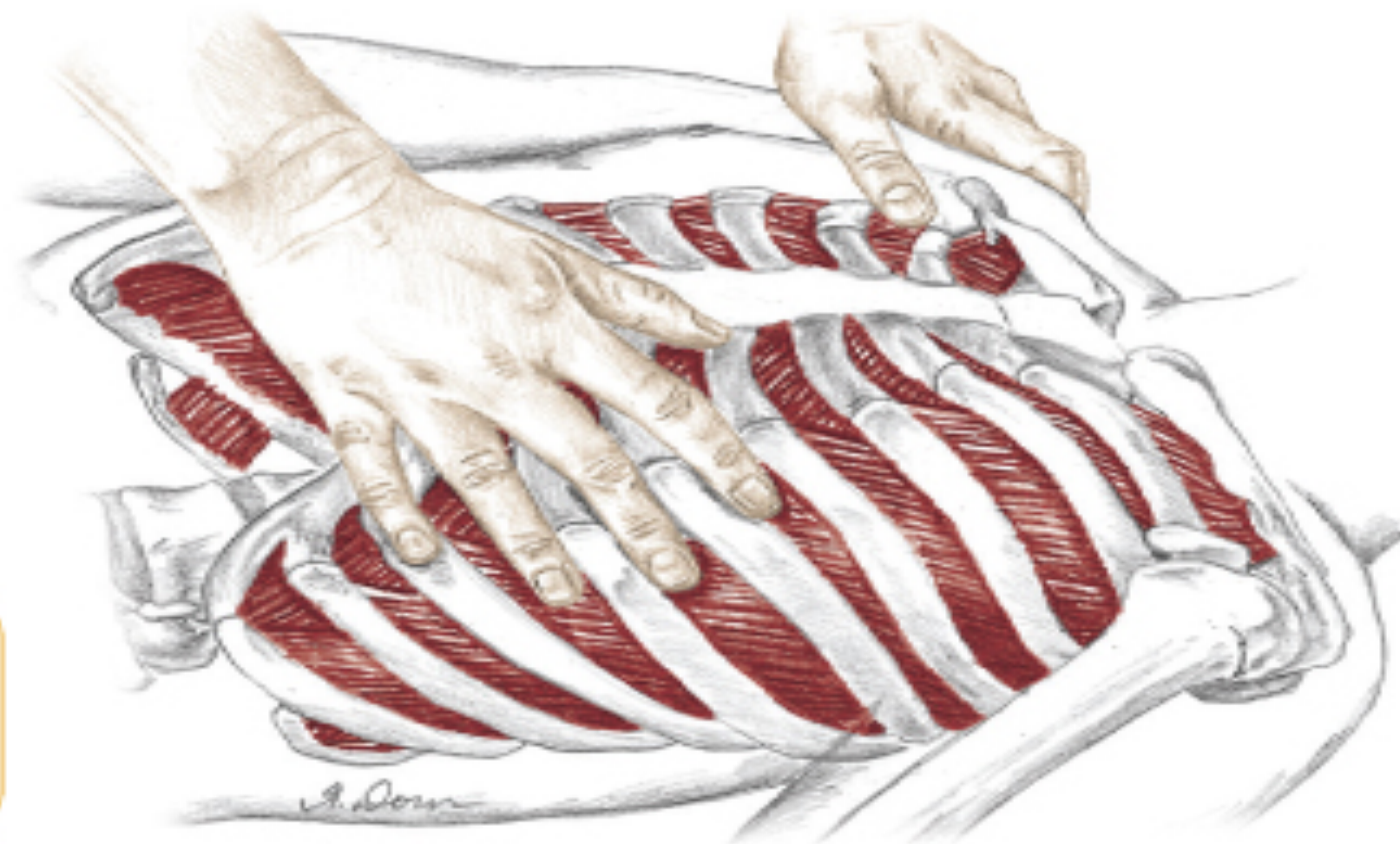
**A** *External Intercostals:*  
Draw the ribs superiorly (increasing the space of the thoracic cavity) to assist with **inhalation**

*Internal Intercostals:*  
Draw the ribs inferiorly (decreasing the space of the thoracic cavity) to assist with **exhalation**

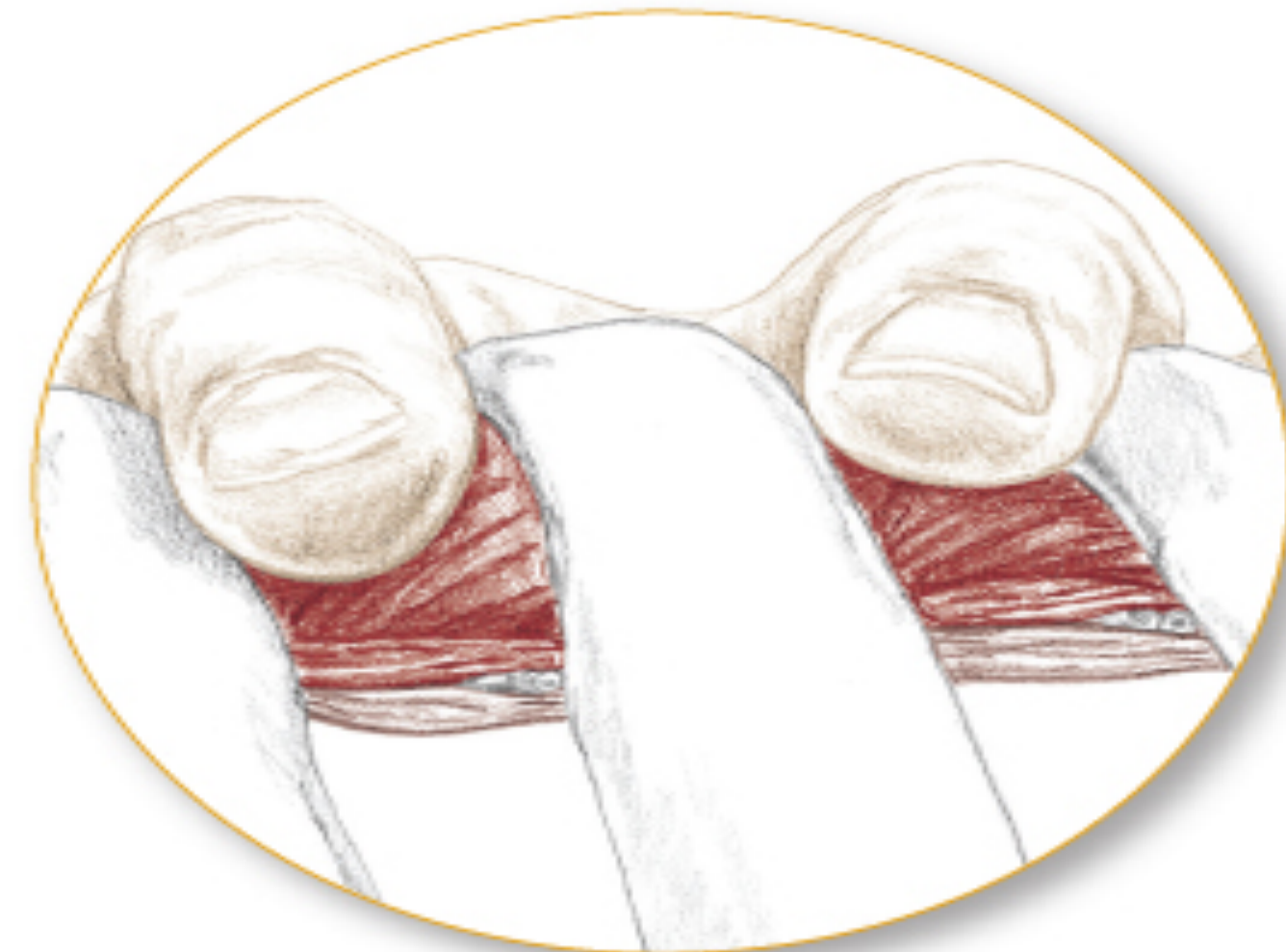
- O** Inferior border of the rib above
- I** Superior border of the rib below
- N** Thoracic



**4.112** Anterior view of rib cage



**4.113** Partner supine



**Cross section of palpating intercostals**



# Find on a partner



Orange: Iliocostalis

Blue: Longissimus

Yellow: Semispinalis

Pink: Multifidus

Purple: Rotatores

Red: Interspinalis

Green: Intertransversarii



# Movement & Exercise

Spine twist

Swimming series

Saw

Rolling like a ball



Free-Write : 5 minutes

What does your core want to say to you today?



Watch Andy teach the Spine  
and get a *guided visualization*.



[www.BeverlyHosford.com/spine](http://www.BeverlyHosford.com/spine)



Images courtesy of Trail Guide to the Body  
and  
Andy the Skeleton

@askandytheskeleton



**STAY IN TOUCH!!!**

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