



Back Pain



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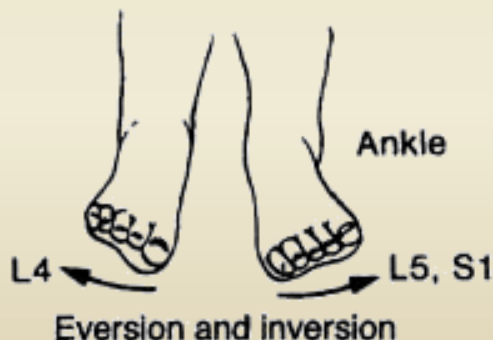
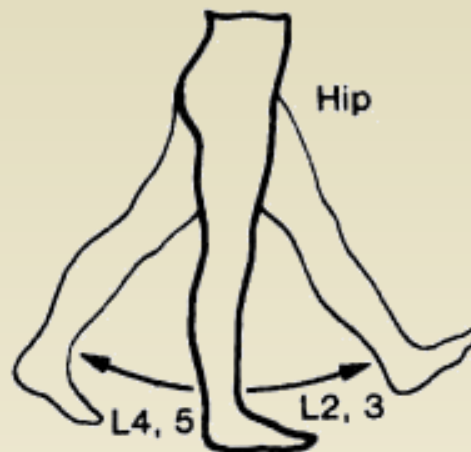
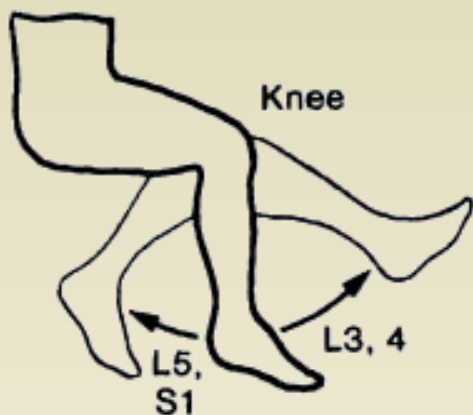
*Rambam School of Pain, Haifa Israel
Founder, Israeli Society of Musculoskeletal Medicine*

The muscles

- Erector spinae
- Multifidus
- Quadratus lumborum



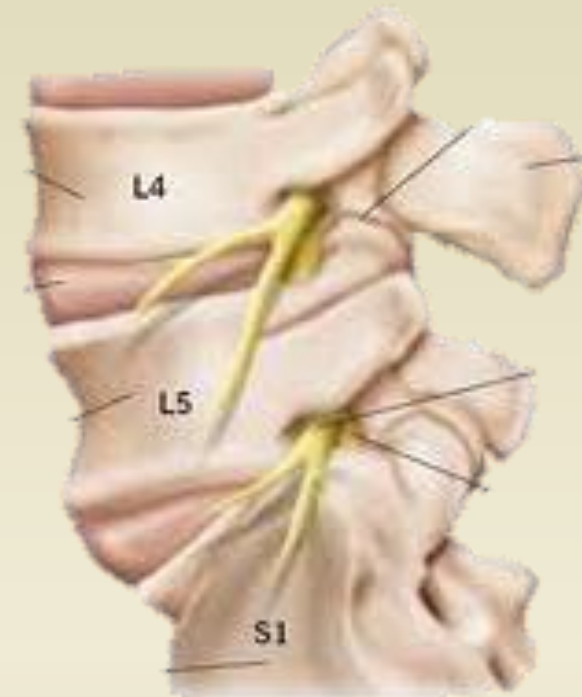
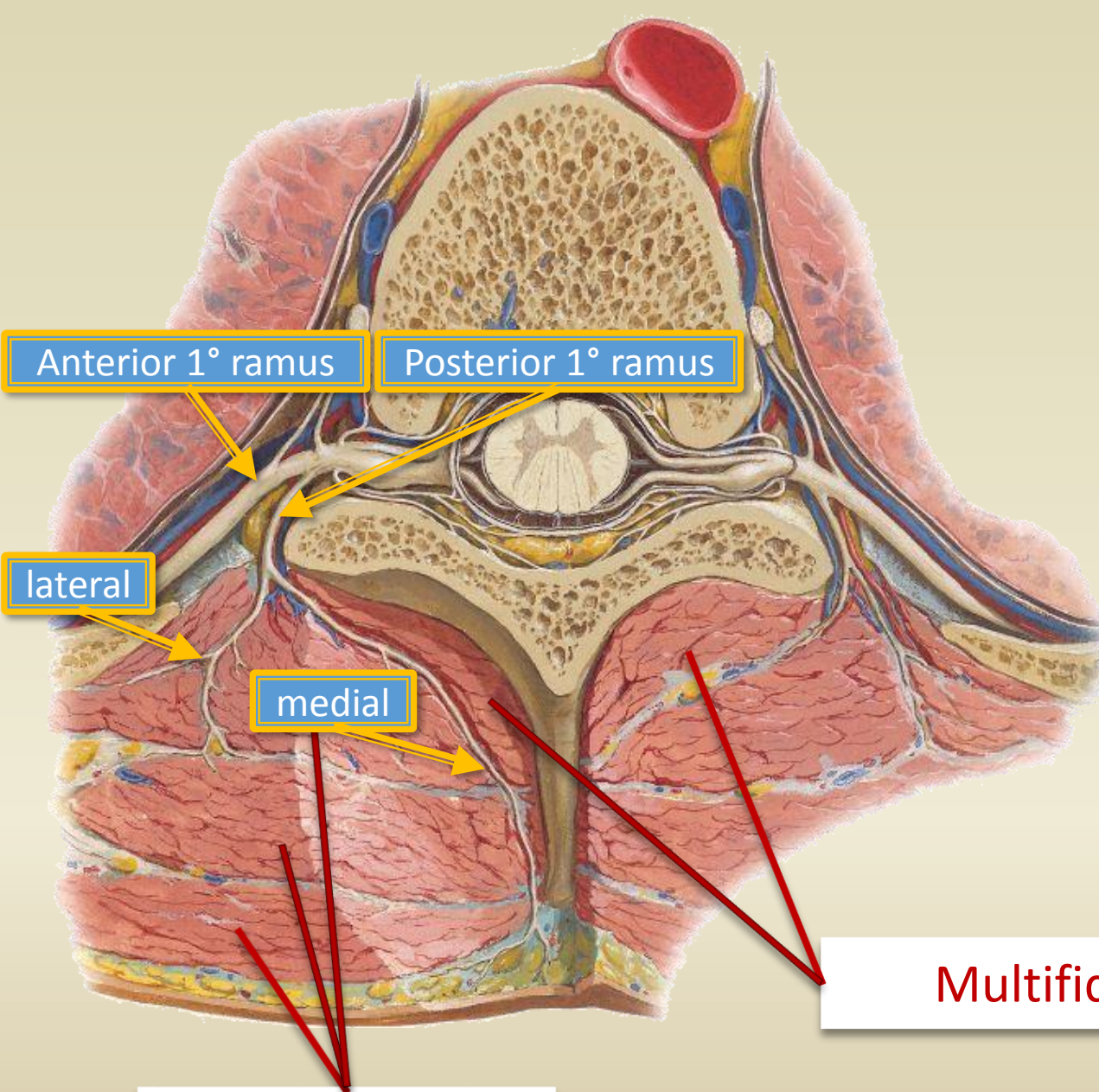
Look for Segmental Findings



This is part of
the low back

- Weakness
- ↓ ROM





Erector spinae

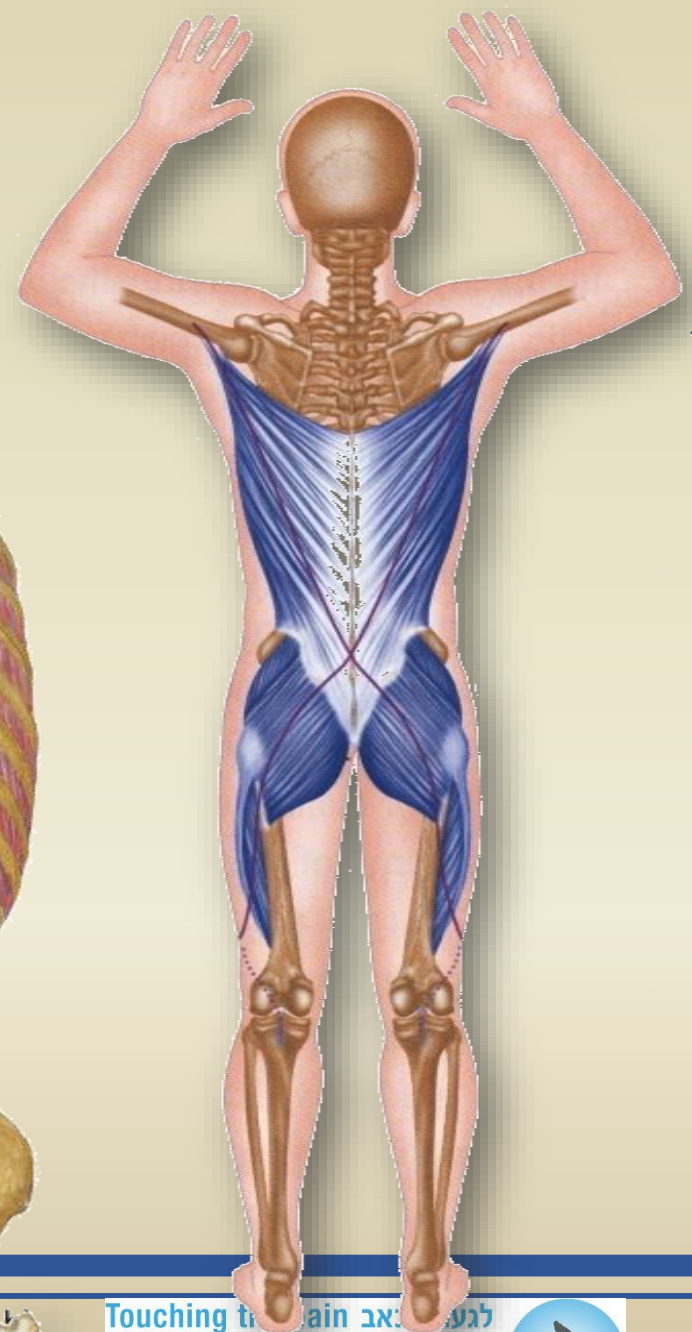
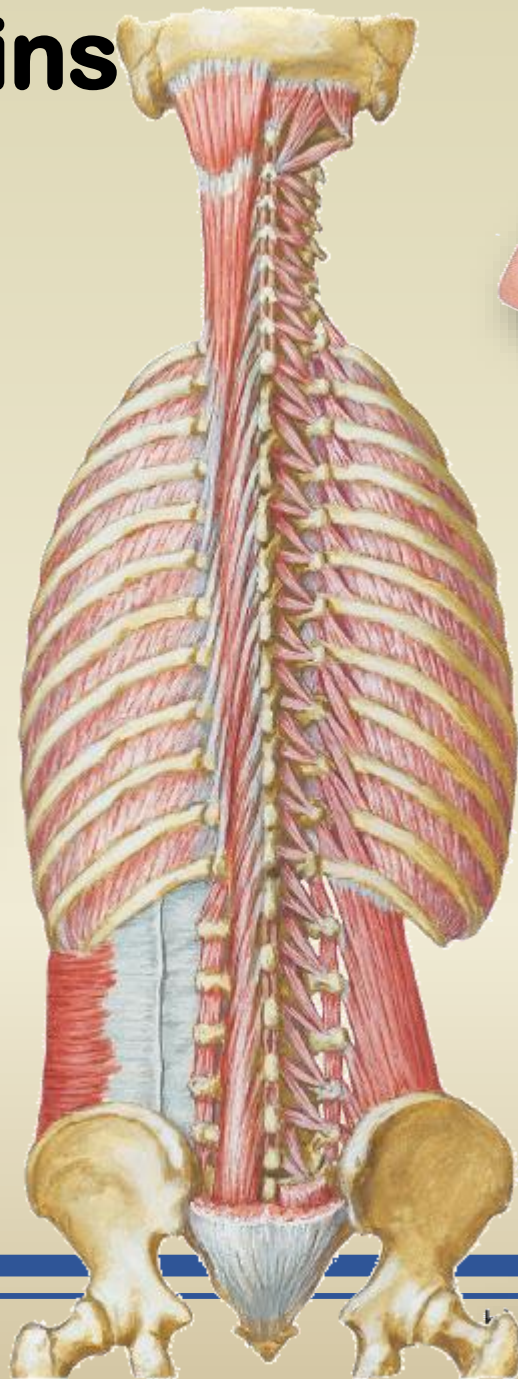
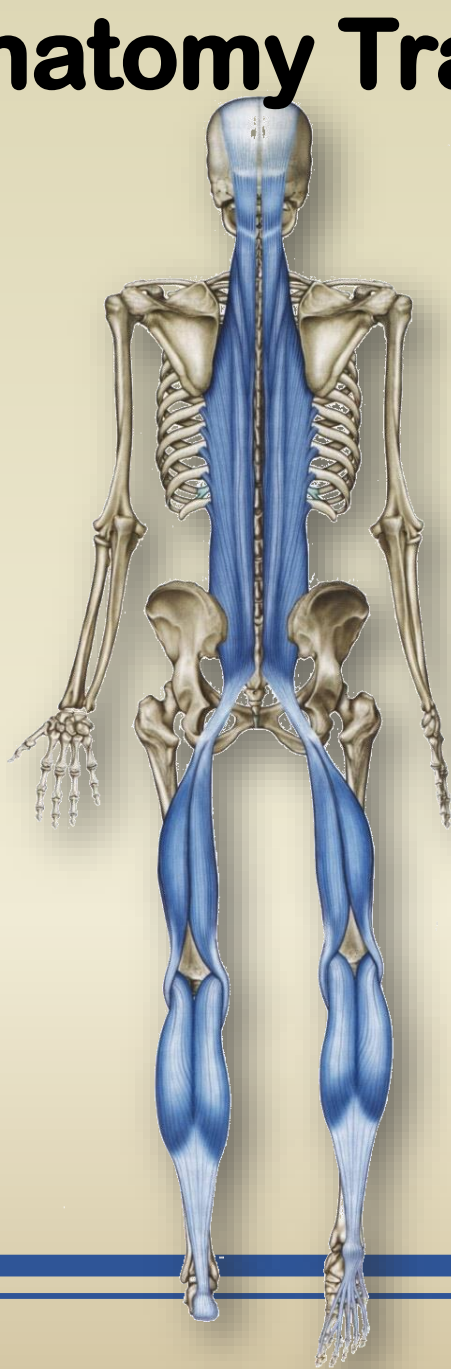
Multifidi

לגעת בכאב Touching the pain

החברה הישראלית לרפואת שריר שלד
The Israeli Society of Musculoskeletal Medicine



Anatomy Trains



לגעטע טאג טאג טאג

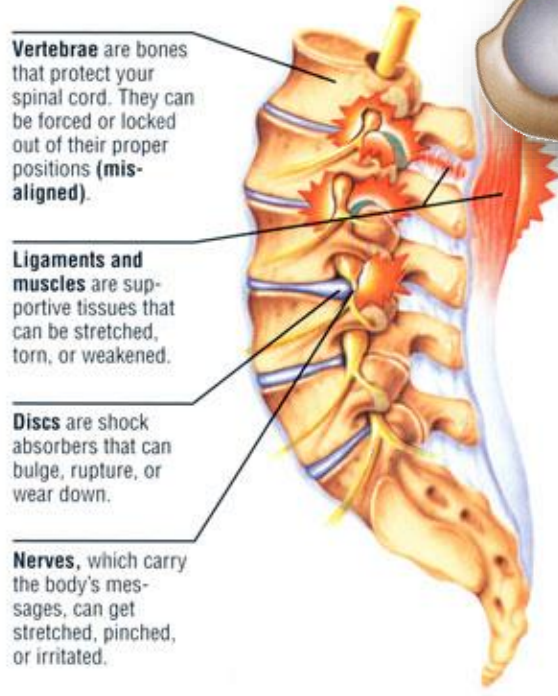
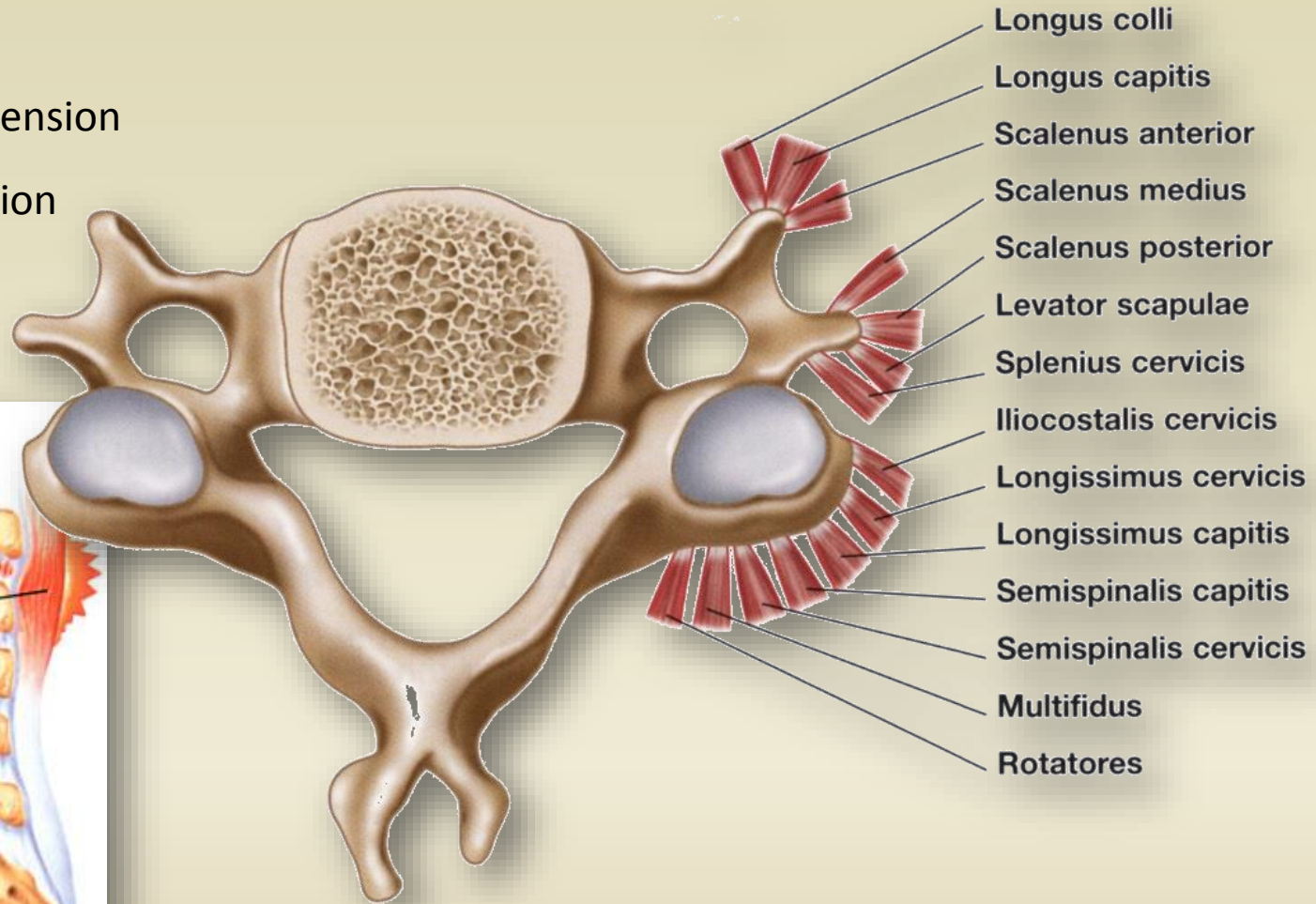
החברה הישראלית לרפואת שריר שלד
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What is the cause of Low Back Pain?

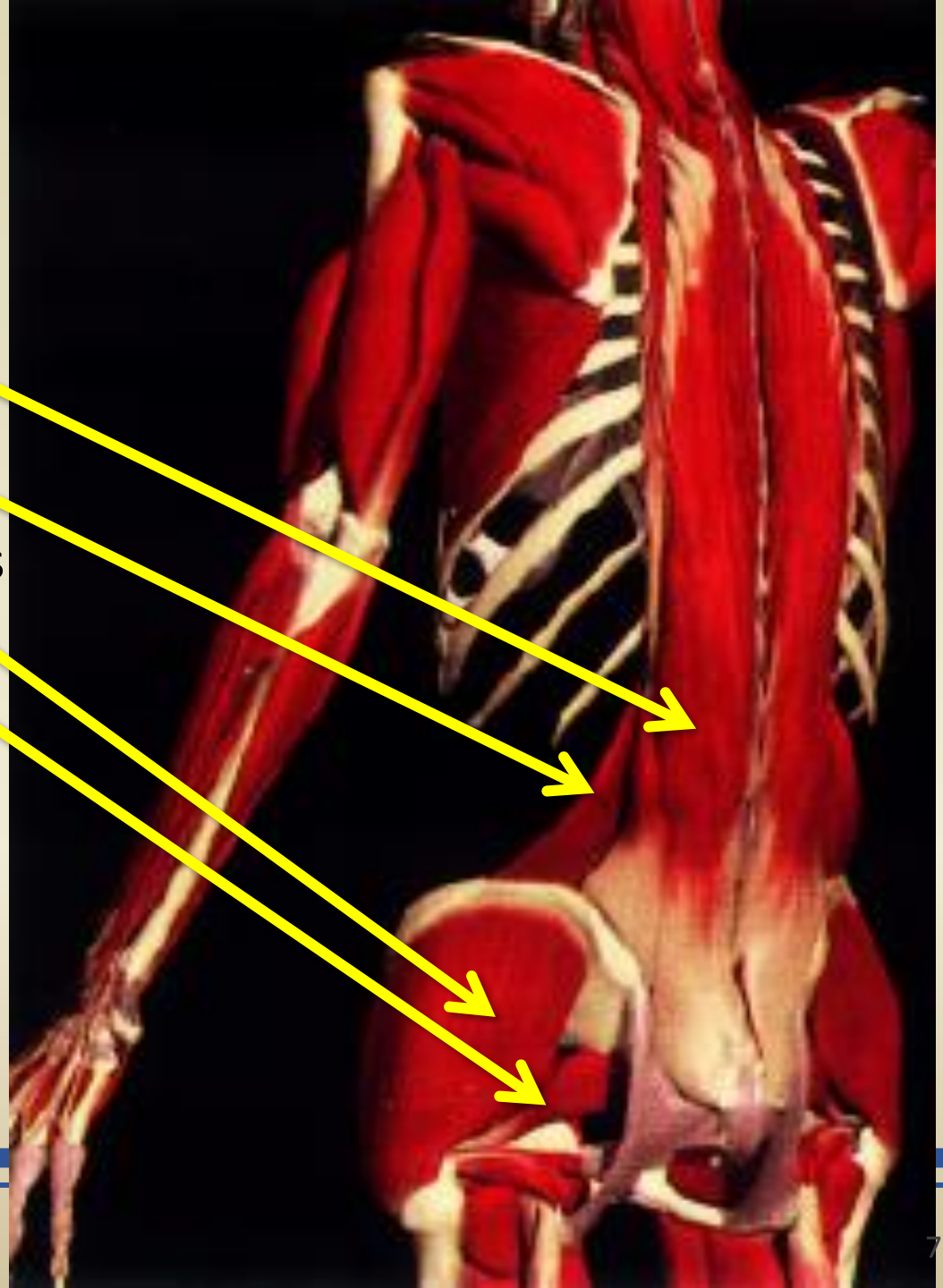
Trunk Flexion-Extension

Trunk Lateral flexion



Cheating – this is a cervical vertebra!

- Erector spinae
- Quadratus lumborum
- Multifidus
- Gluteus medius/minimus
- Piriformis





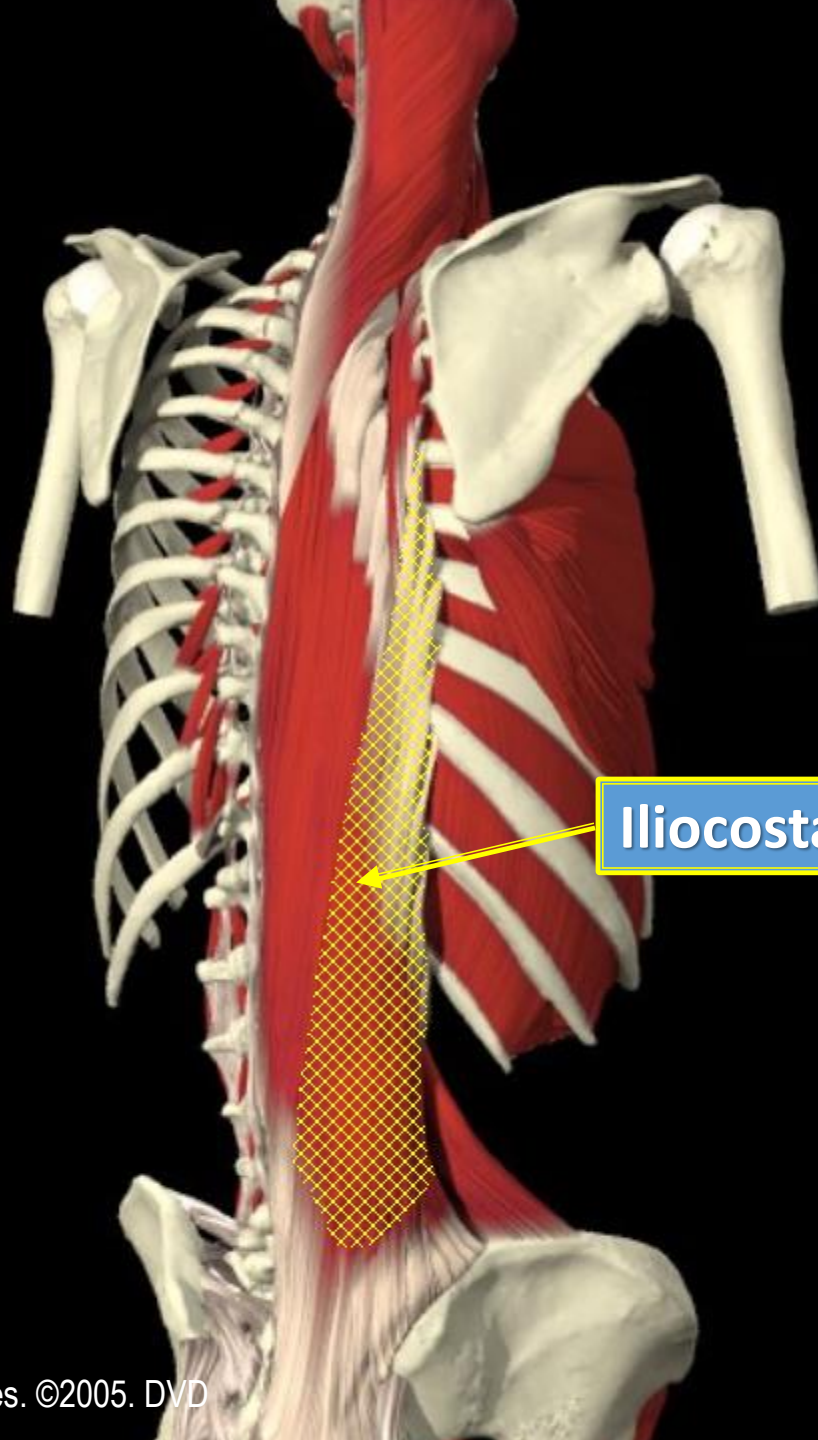
I L S

Layer 1



**I
L
S**

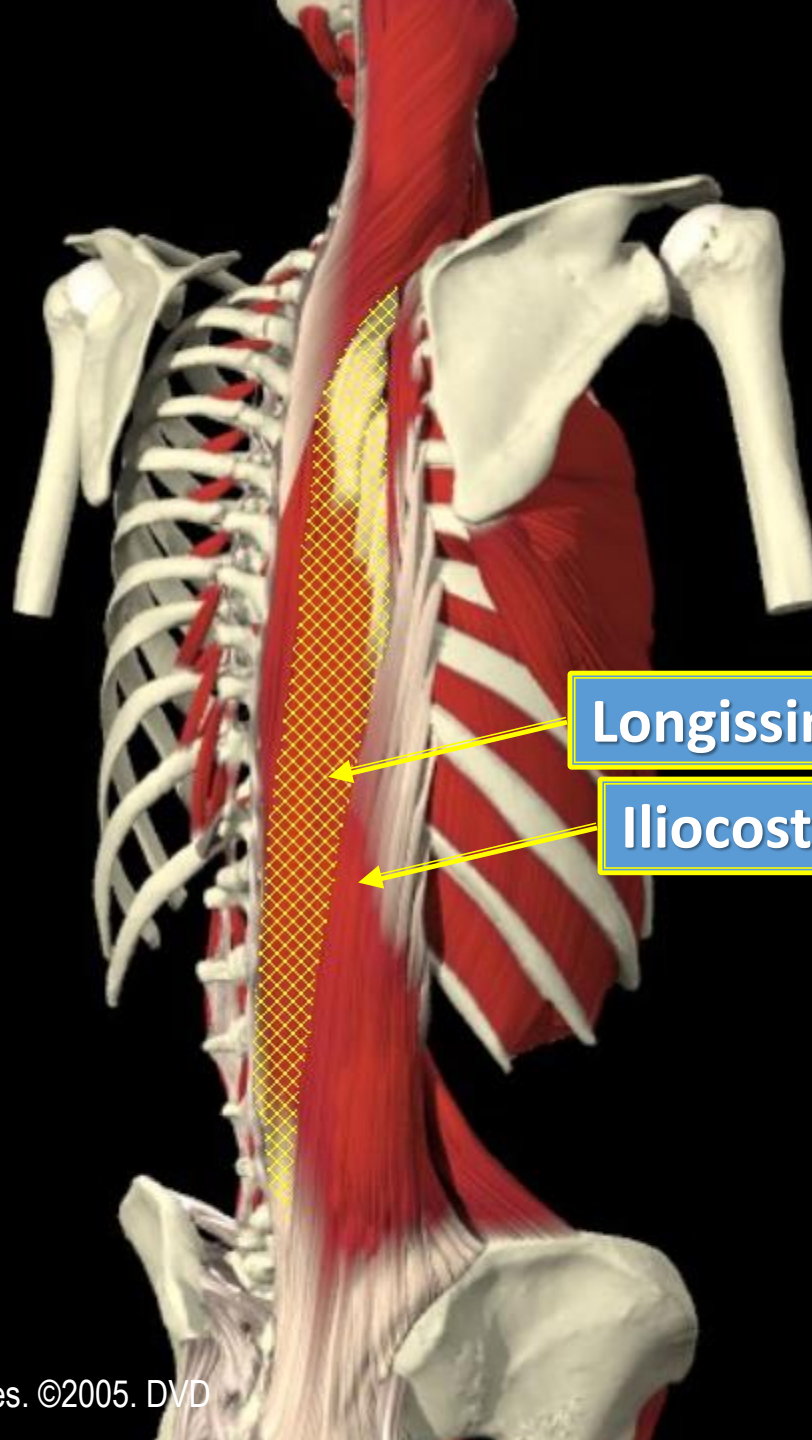
Layer 1



Iliocostalis lumborum

**I
L
S**

Layer 1

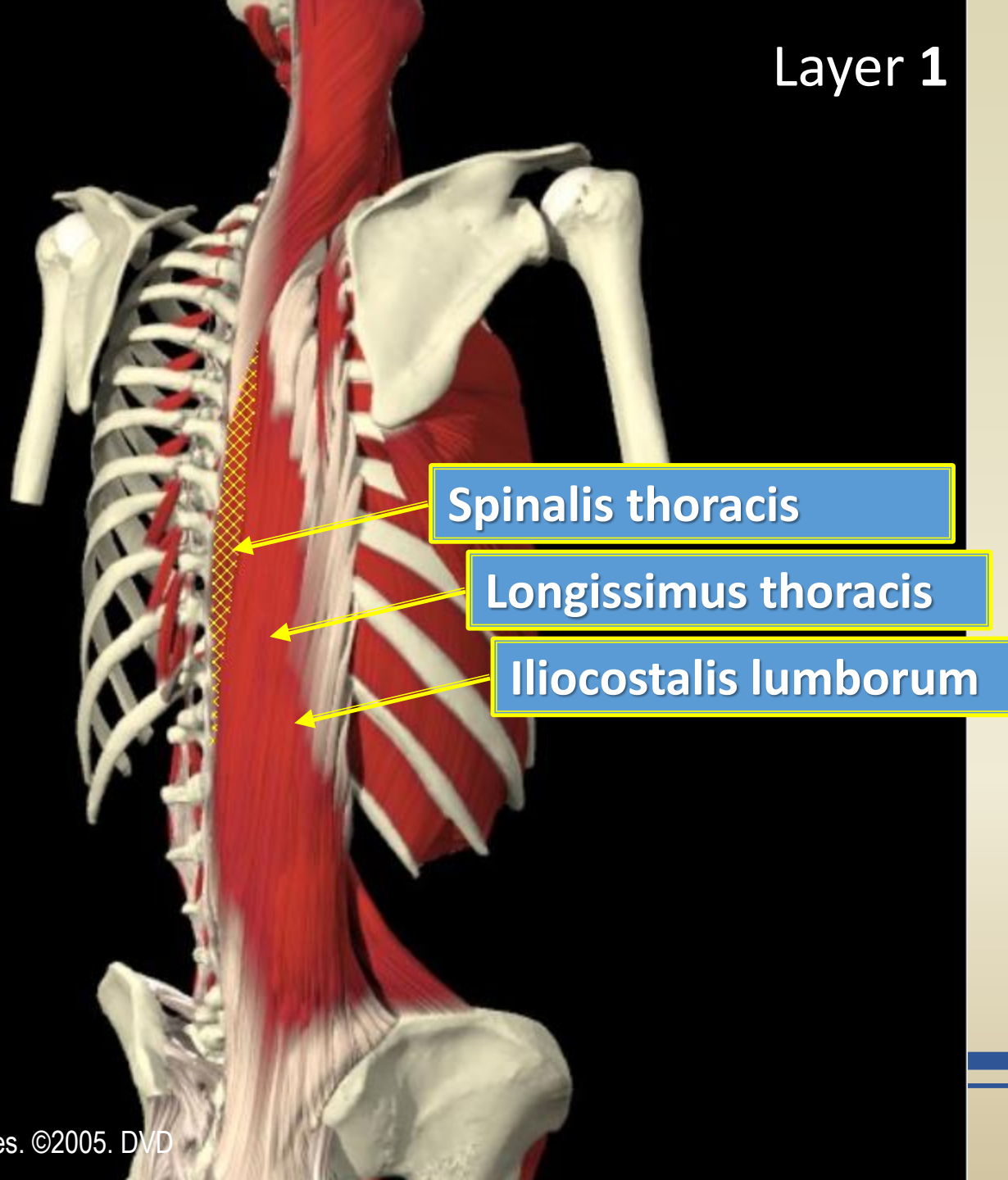


Longissimus thoracis

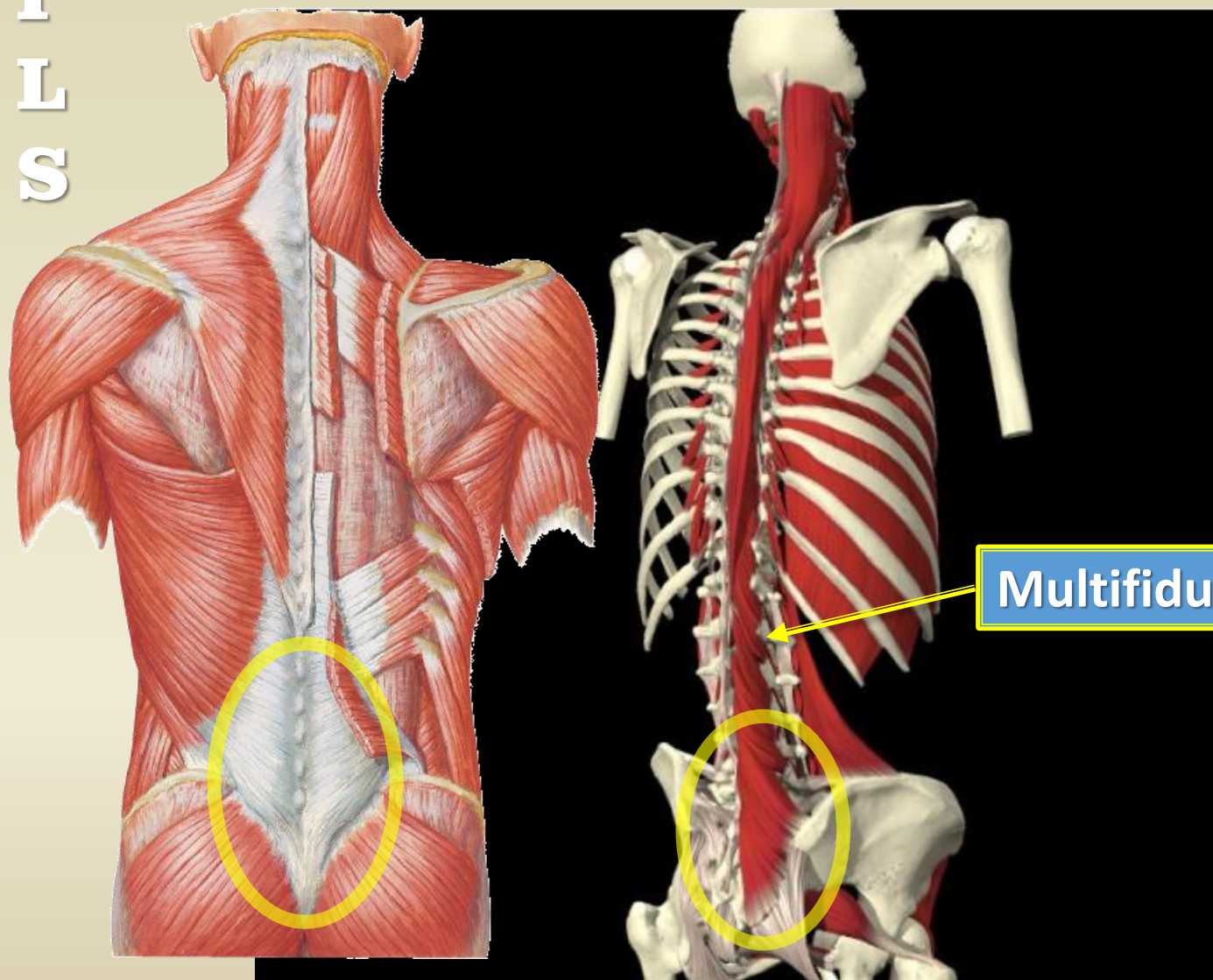
Iliocostalis lumborum

I L S

Layer 1

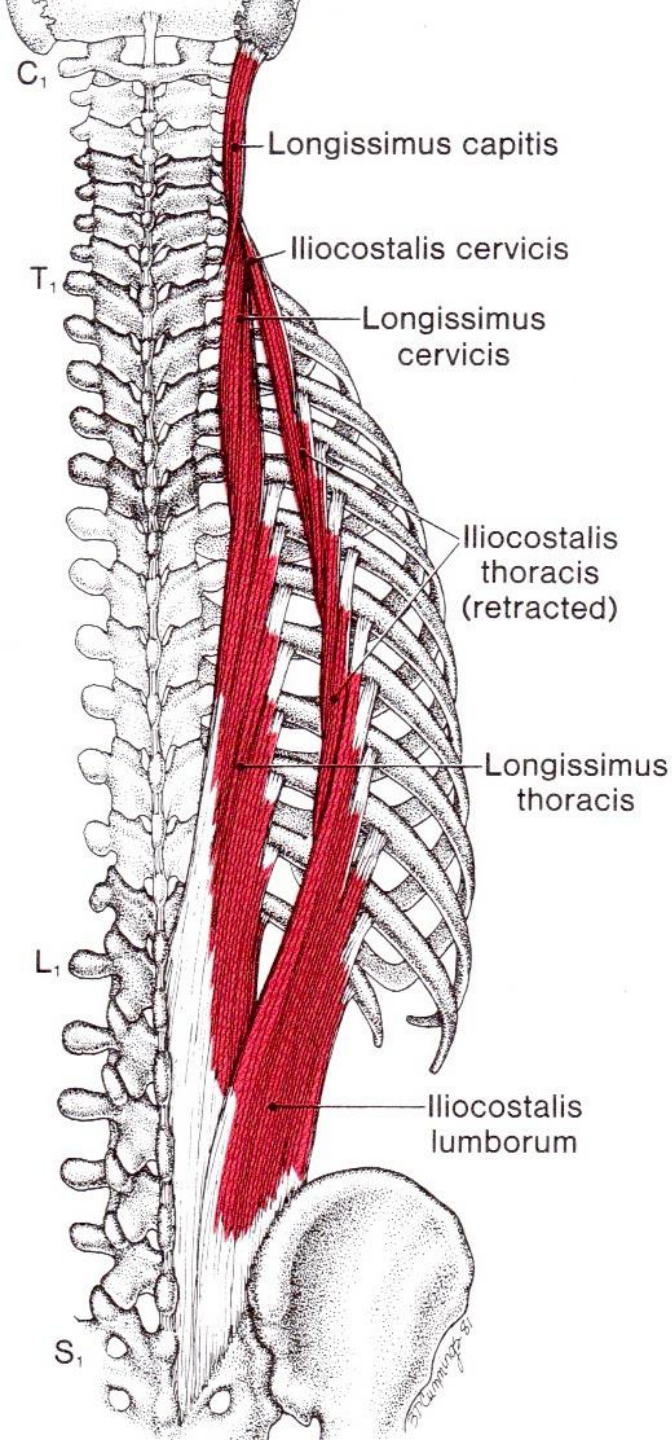


I
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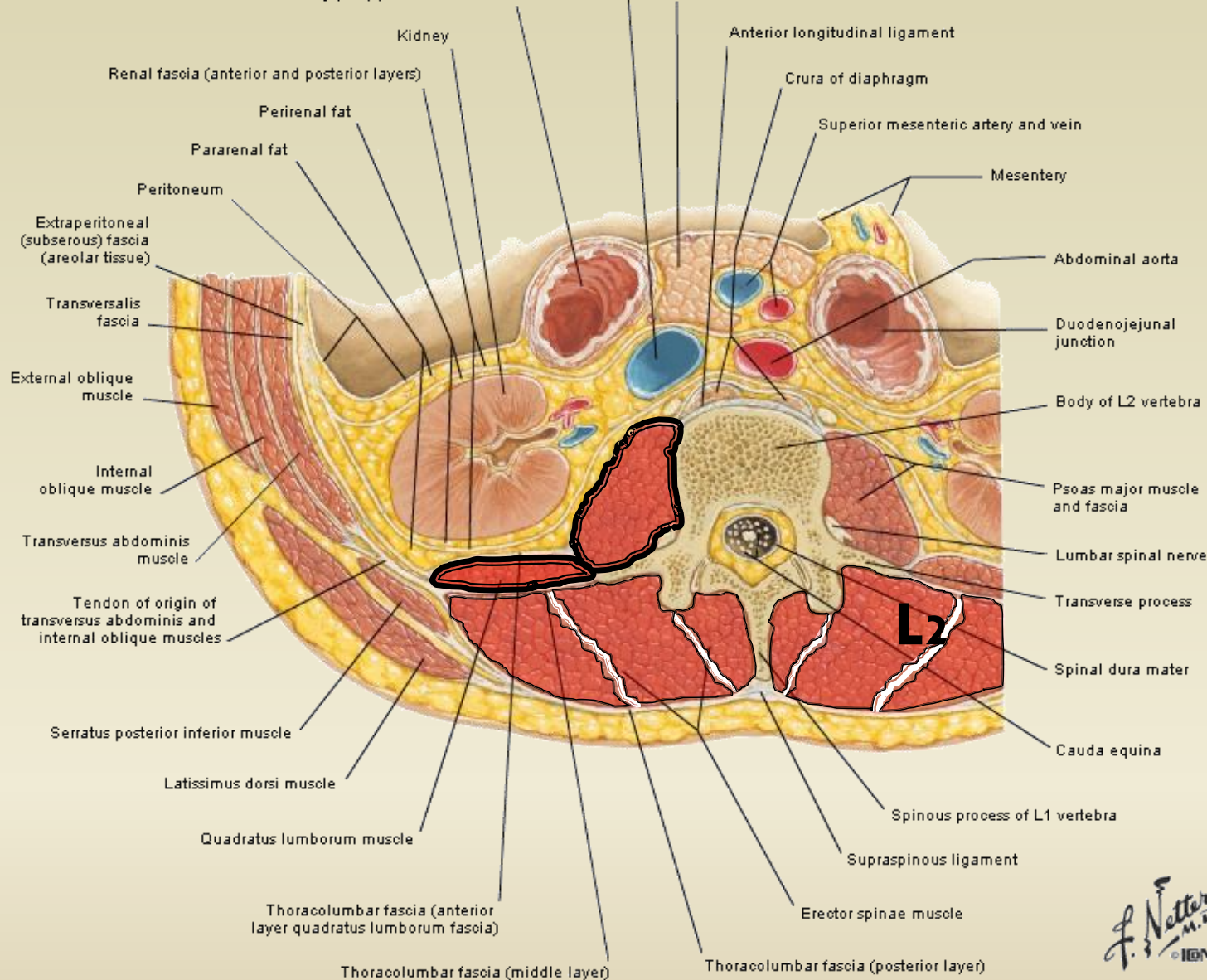
Multifidus

Erector spinae



Innervation:

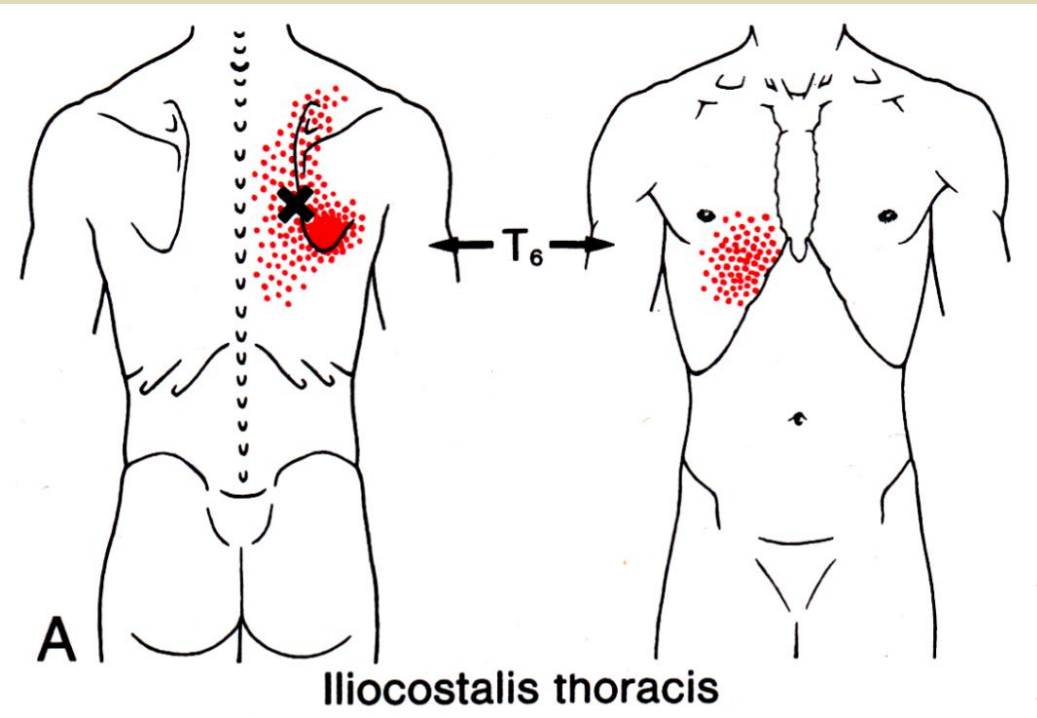
- Dorsal 1° ramus
 - Medial branch
 - deepest spinal mm
 - same level
 - Lateral branch
 - lateral-caudal-dorsal
 - up to 2 segments caudal



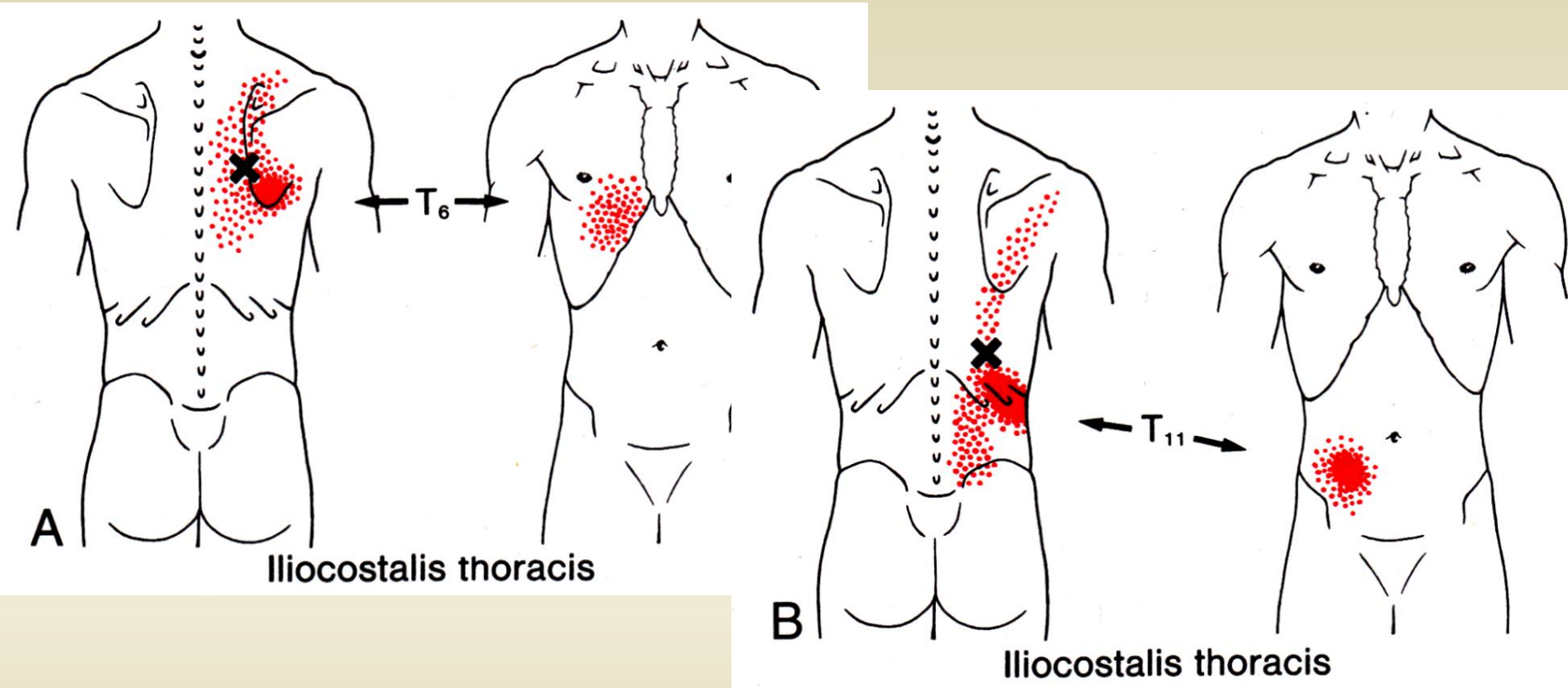
Netter
 M.D.
 © ION



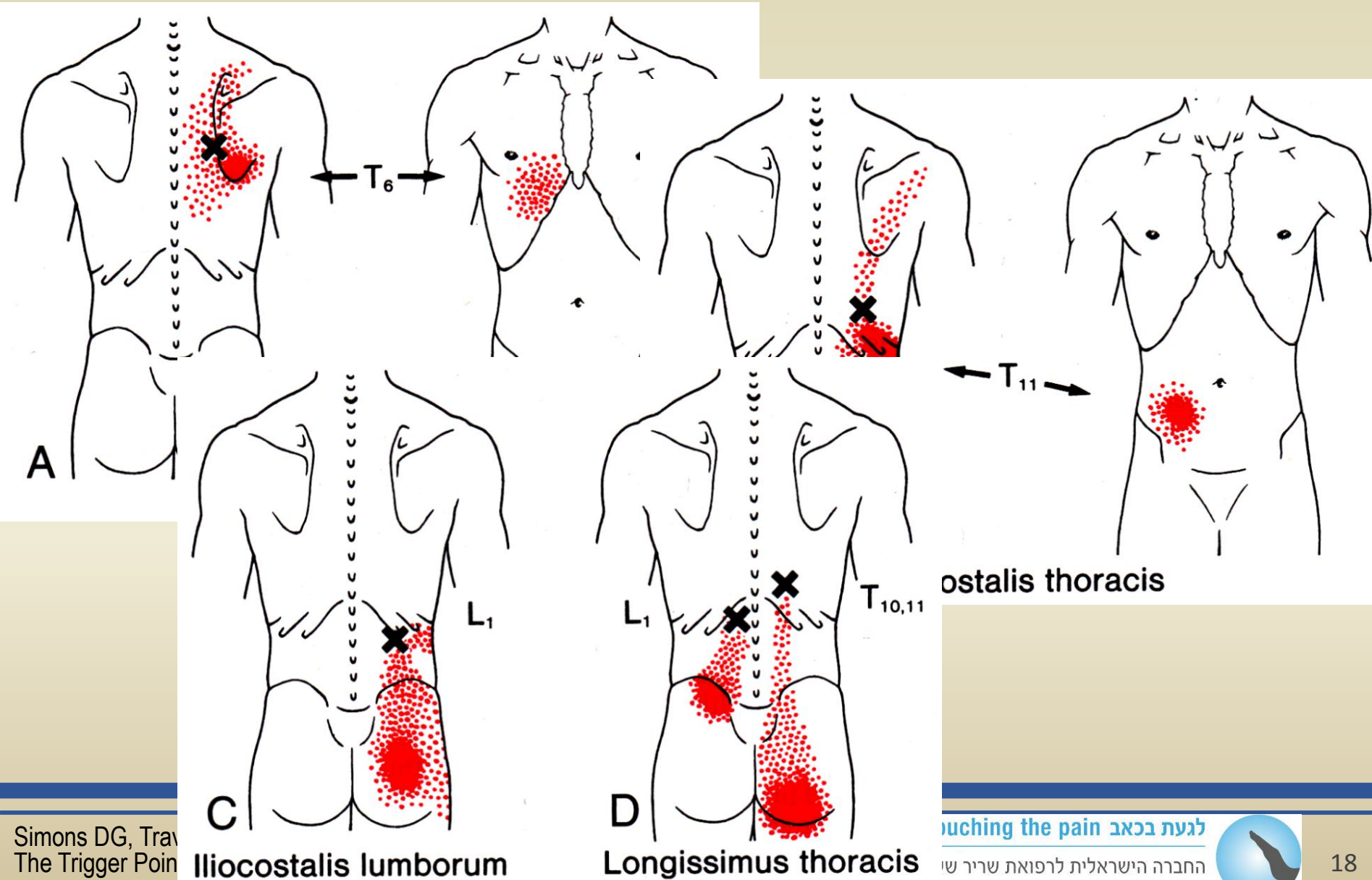
Erector Spinae



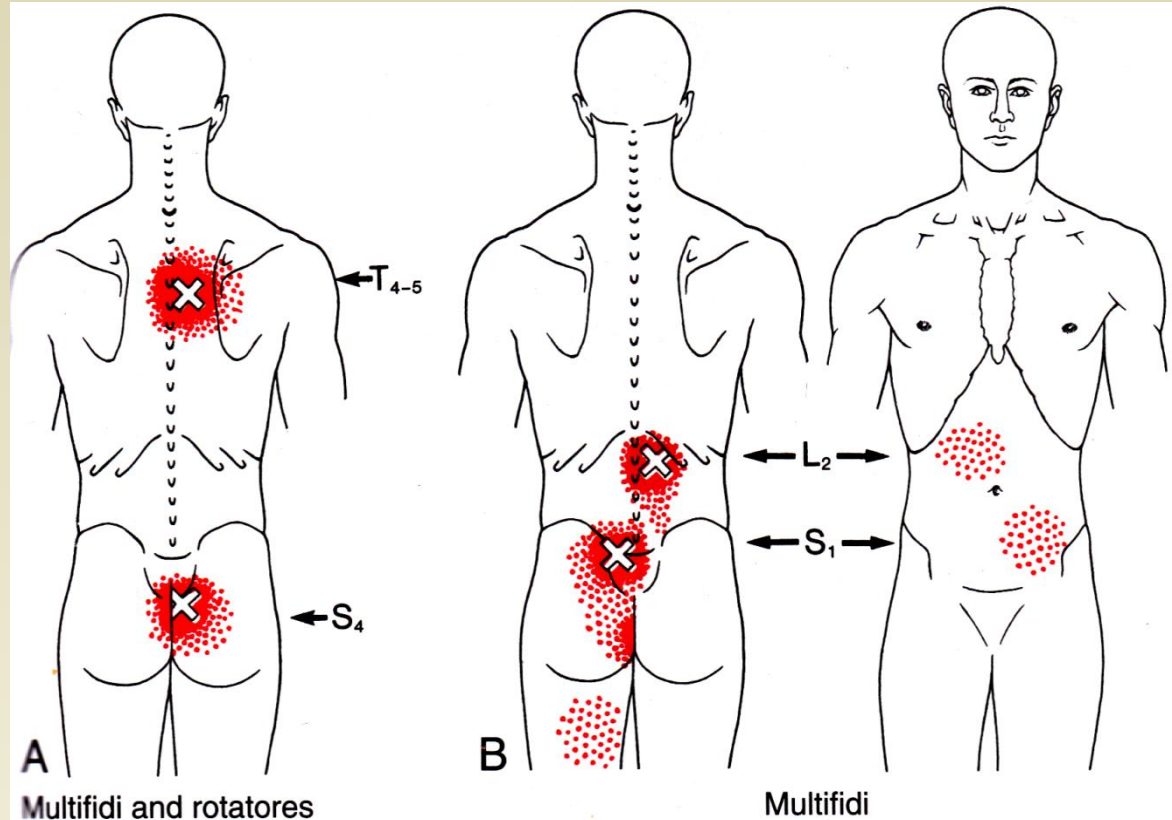
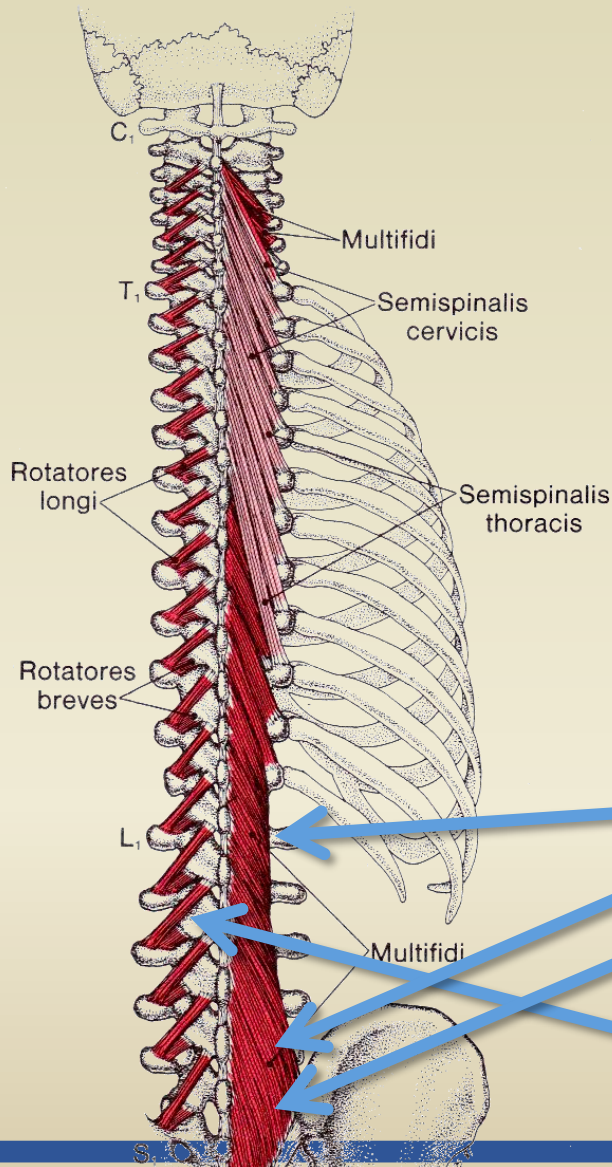
Erector Spinae



Erector Spinae



Multifidi



L1 → abdomen = “visceral”

L5 → referred pain down posterolateral leg

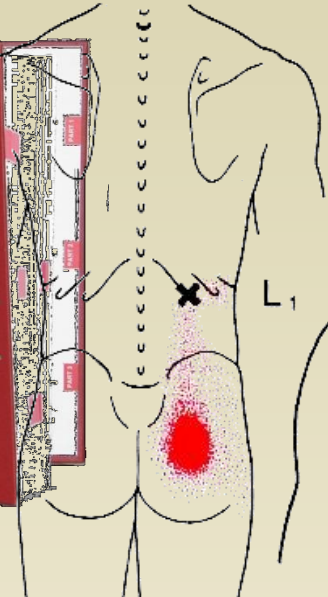
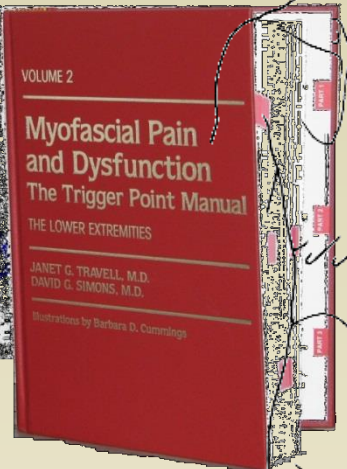
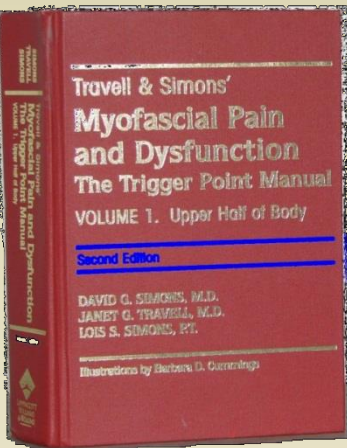
S1 → coccyx (incl. referred tenderness = “coccydynia”)

Rotatores

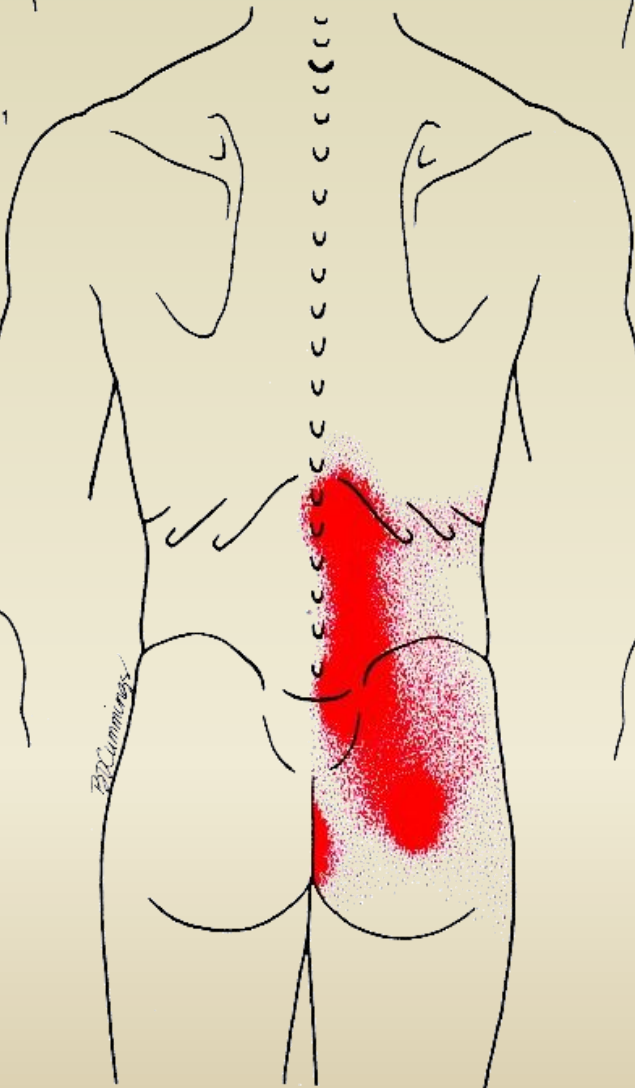
Deep paraspinal or midline pain

Dynamic ligaments

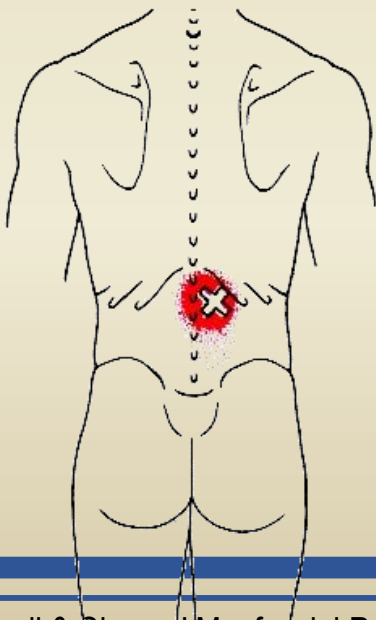
“Articular dysfunction”



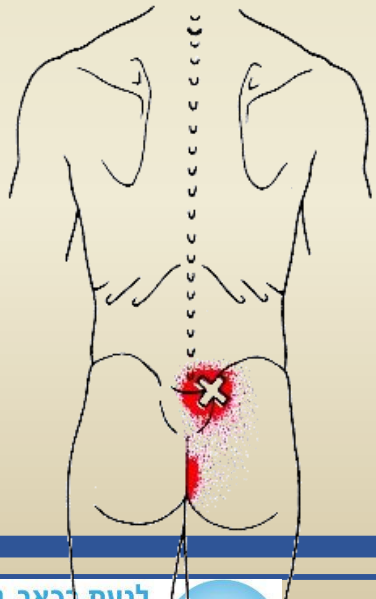
Iliocostalis lumborum



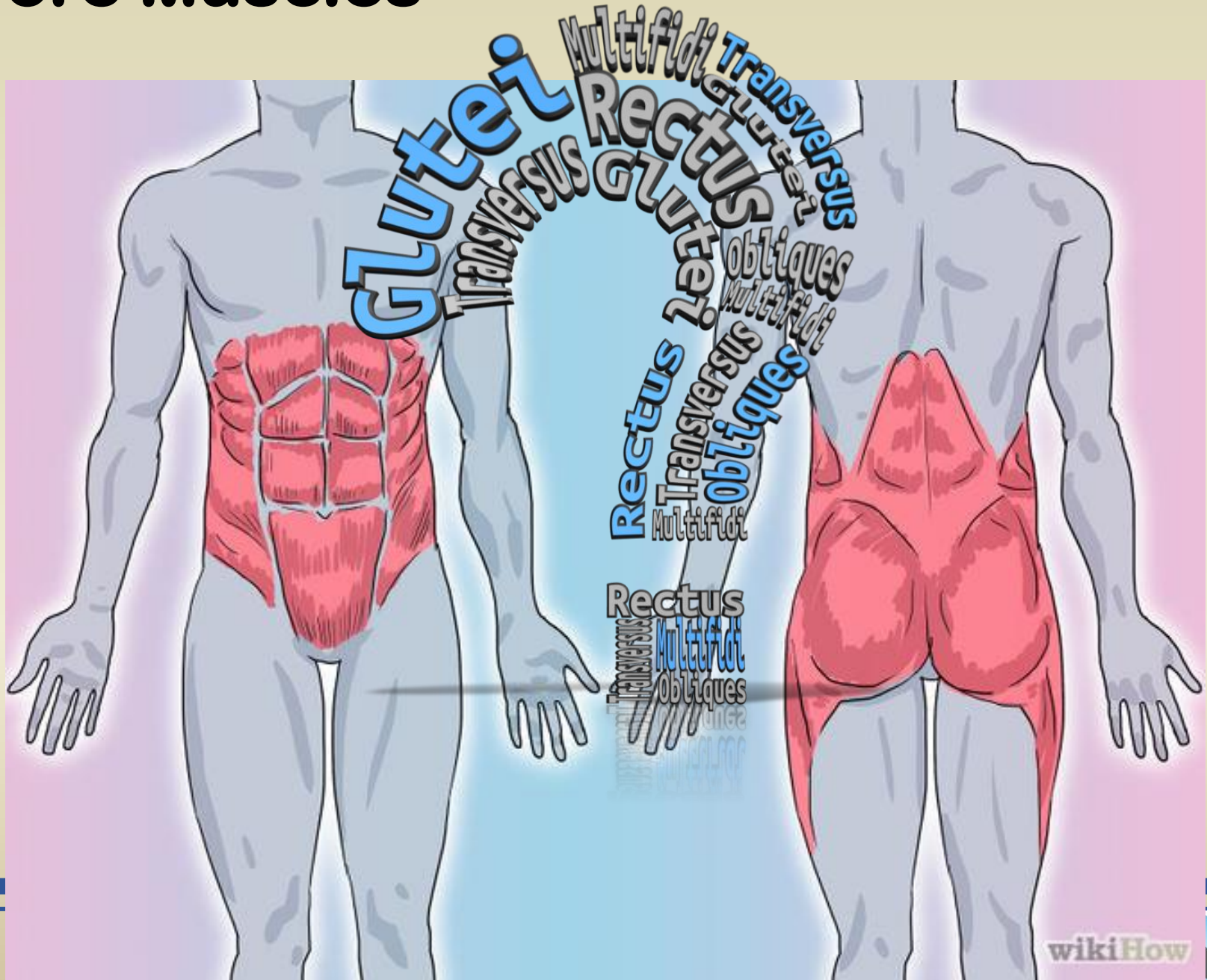
Iliopsoas



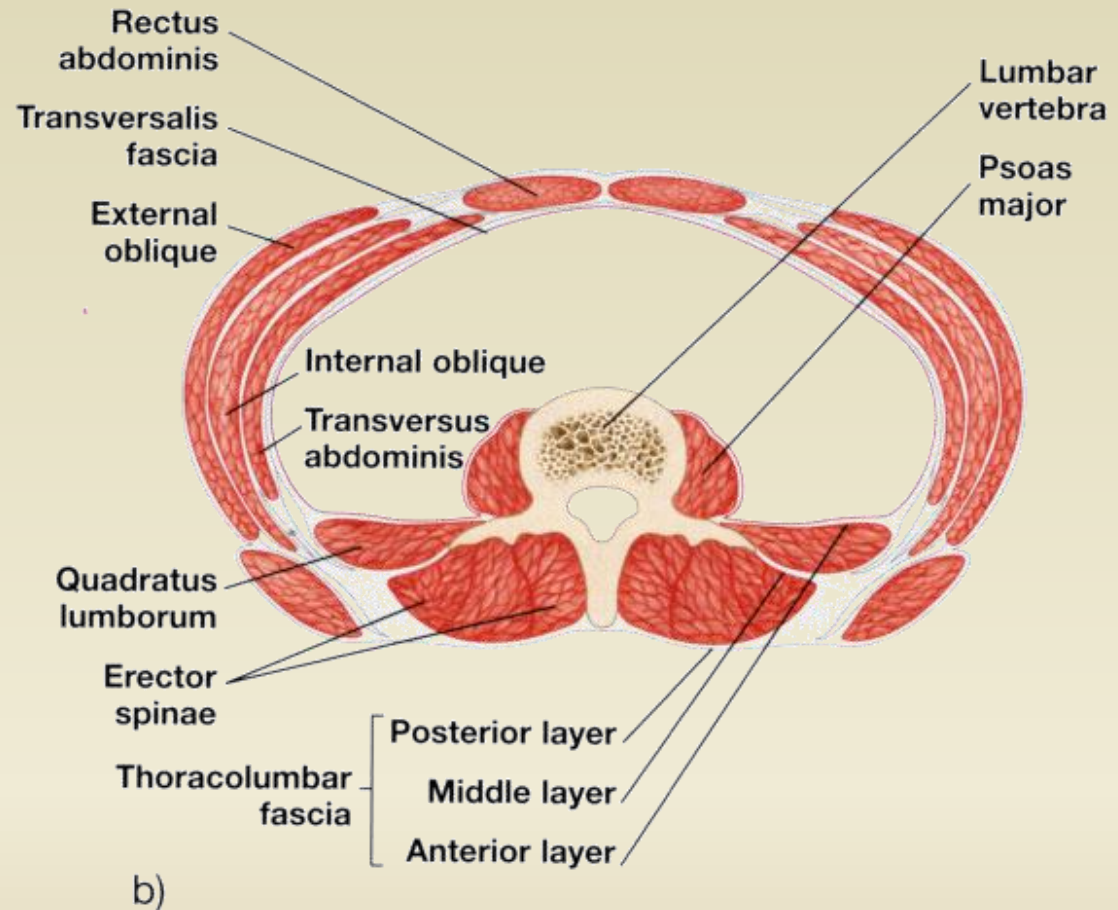
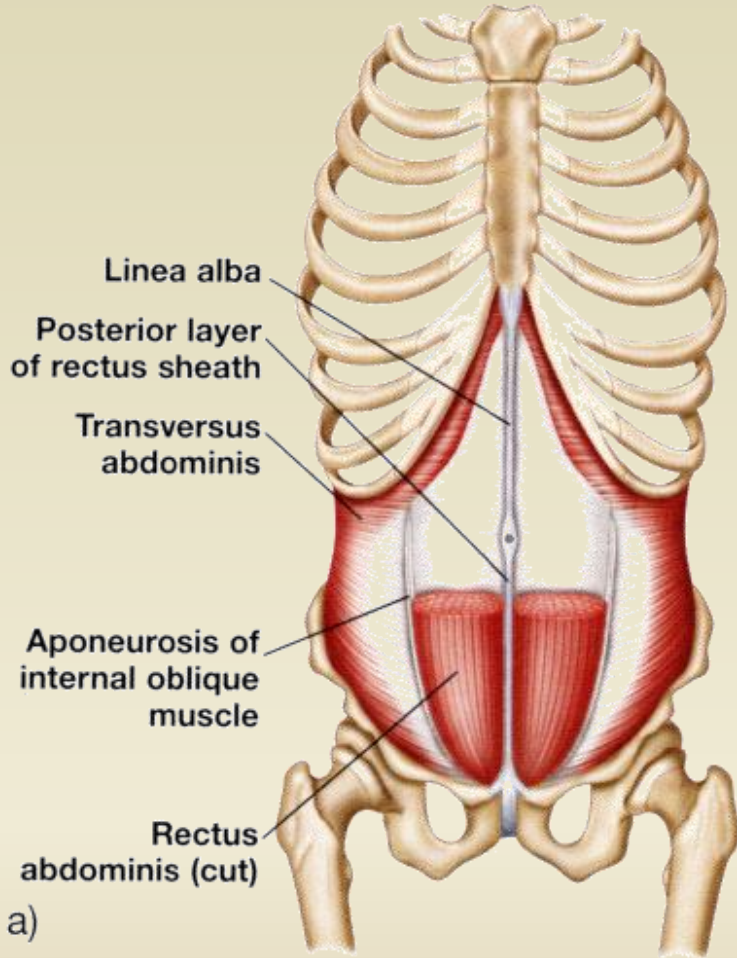
Composite

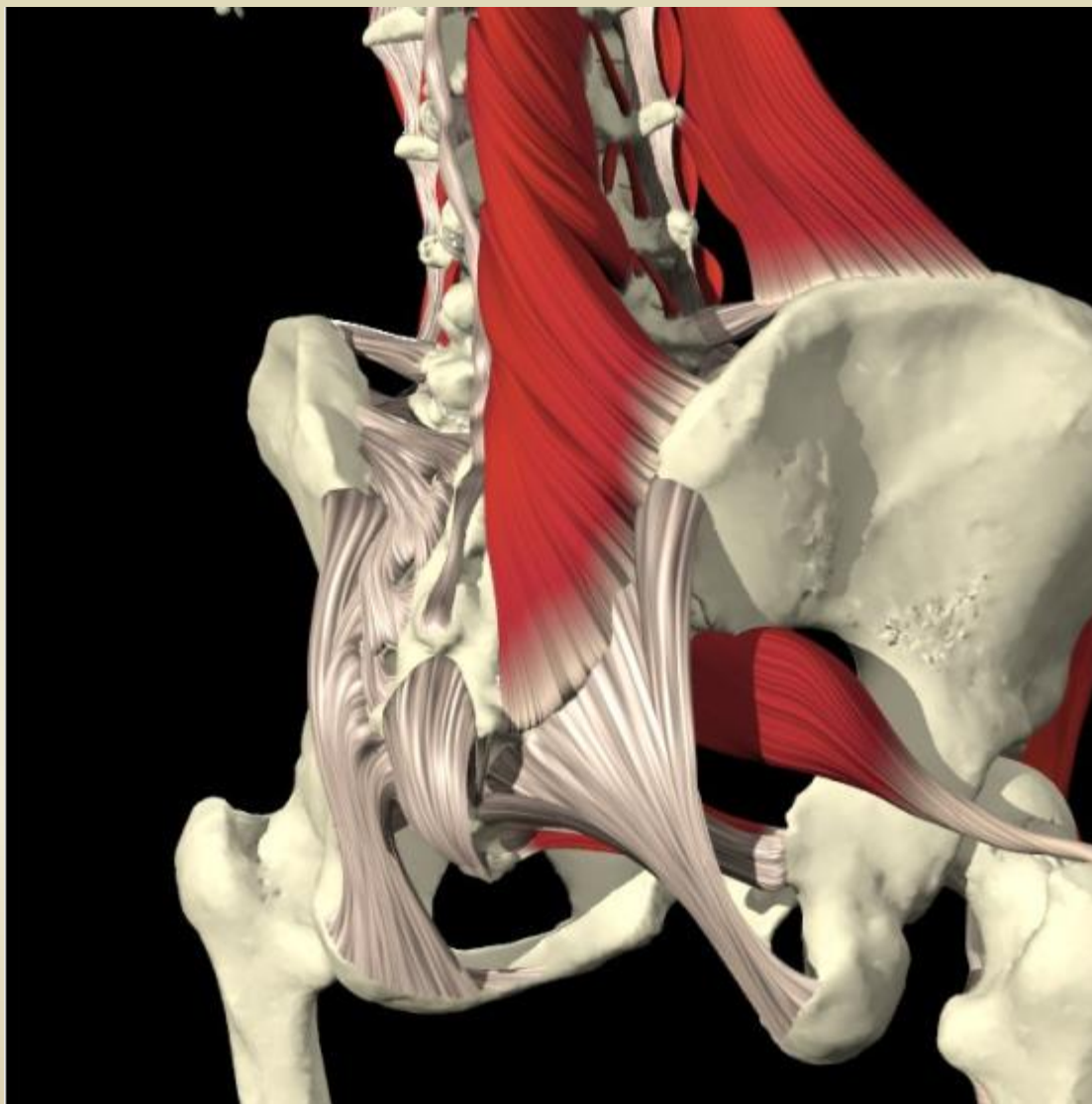


Core Muscles



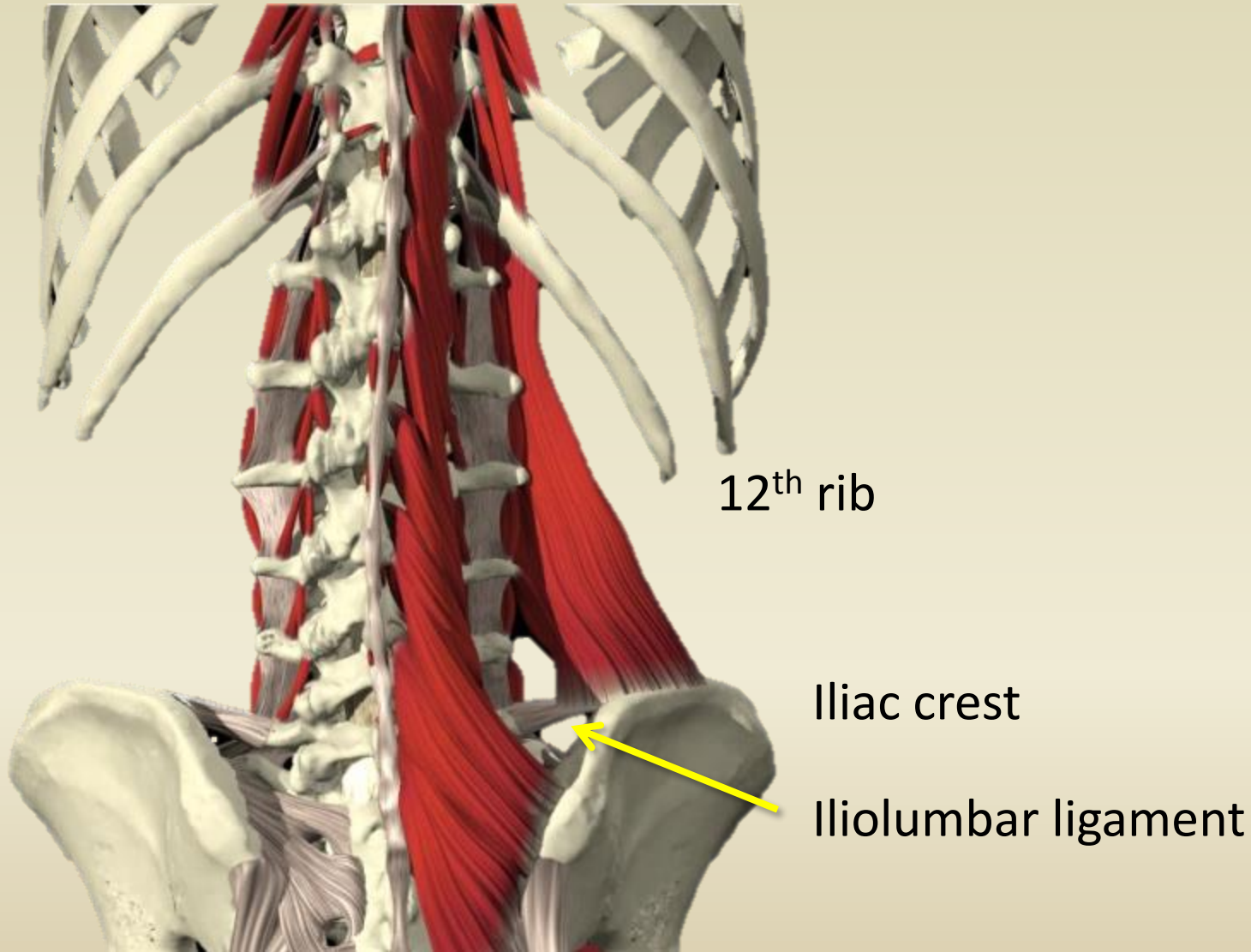
Core Muscles



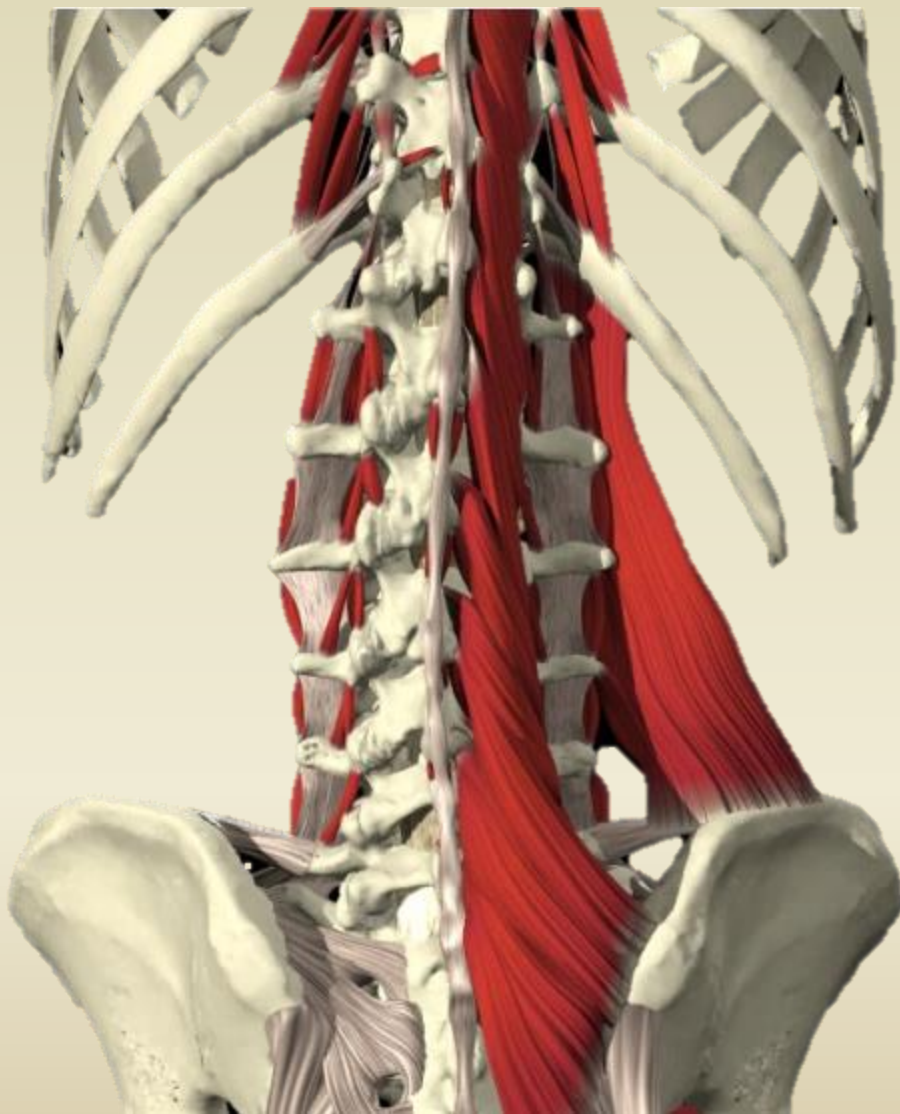




Quadratus lumborum



Quadratus lumborum



Innervation:

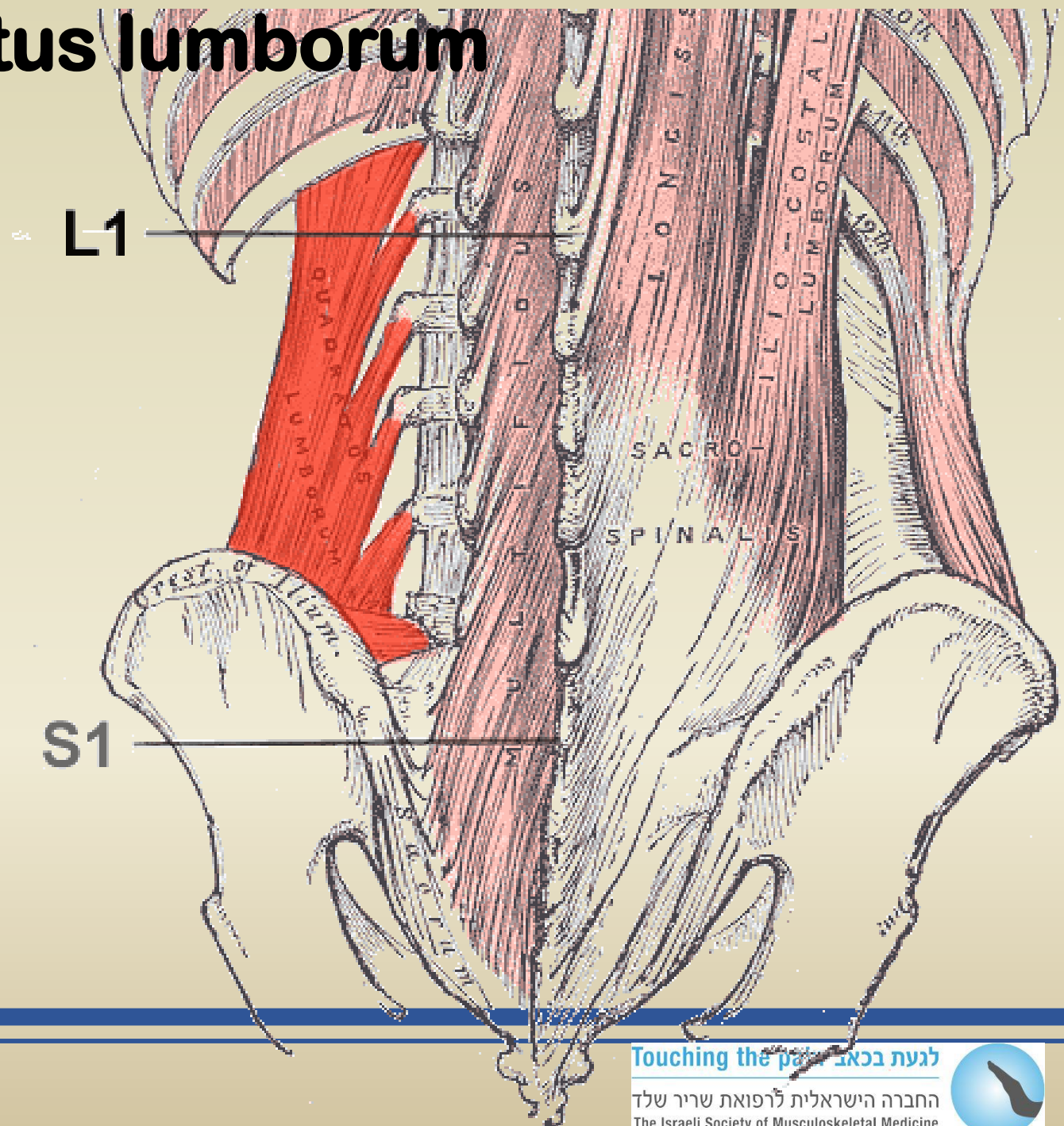
- T12, L1-L4 ventral rami

Action:

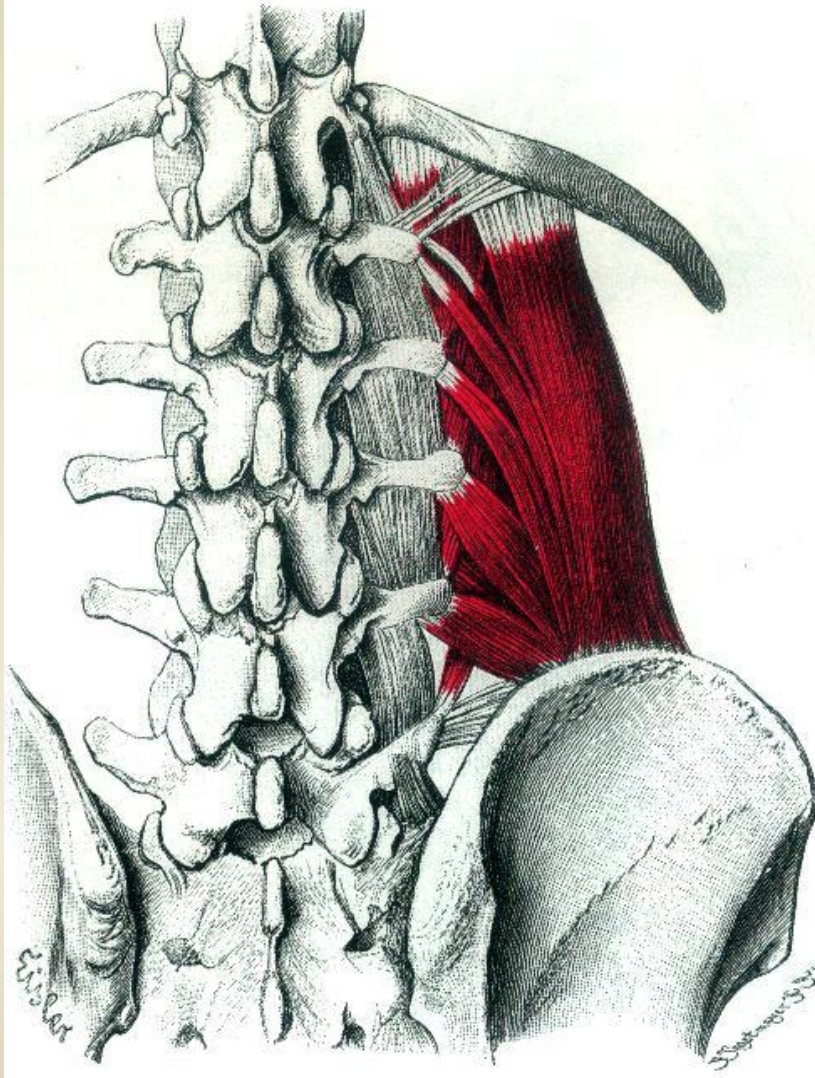
1. Lateral flexion of vertebral column, with **ipsilateral** contraction
2. Extension of lumbar vertebral column, with **bilateral** contraction
3. Fixes the 12th rib during forced expiration
4. Elevates ilium, with **ipsilateral** contraction



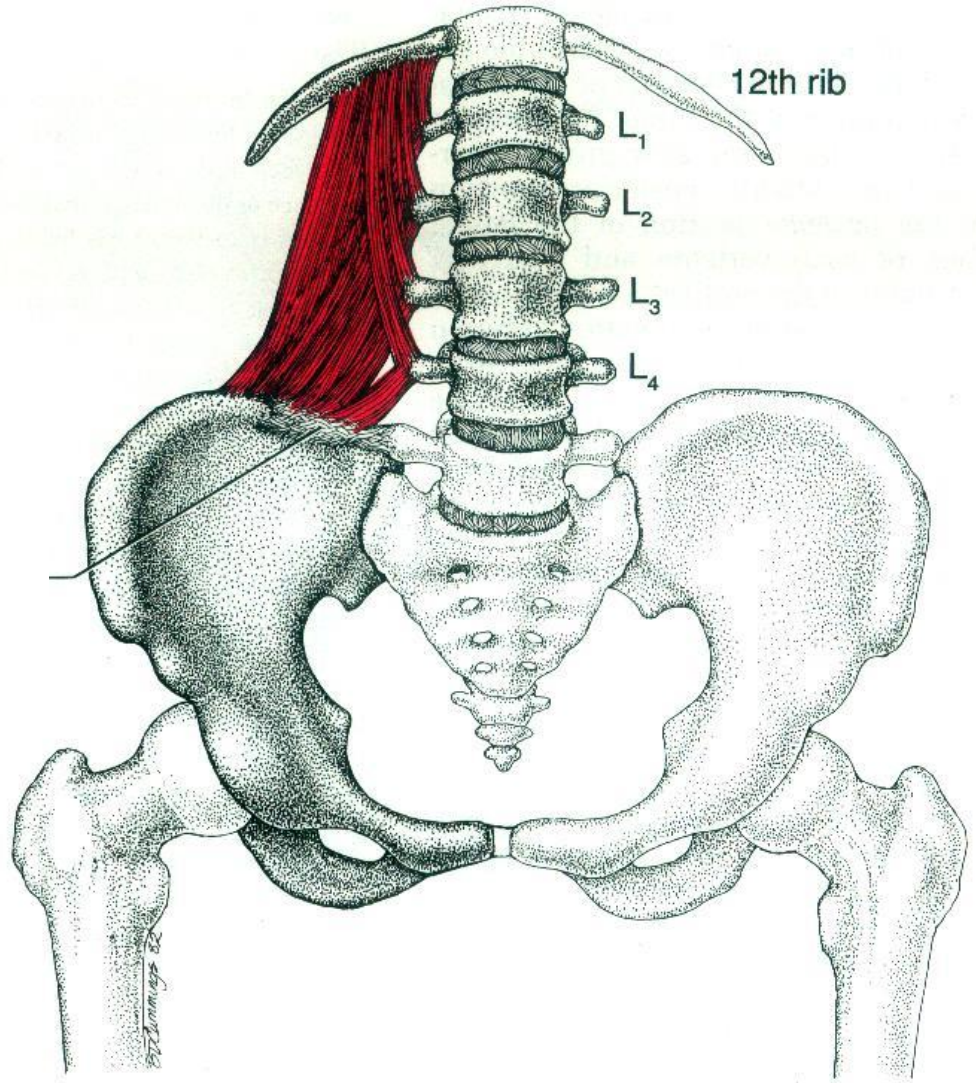
Quadratus lumborum



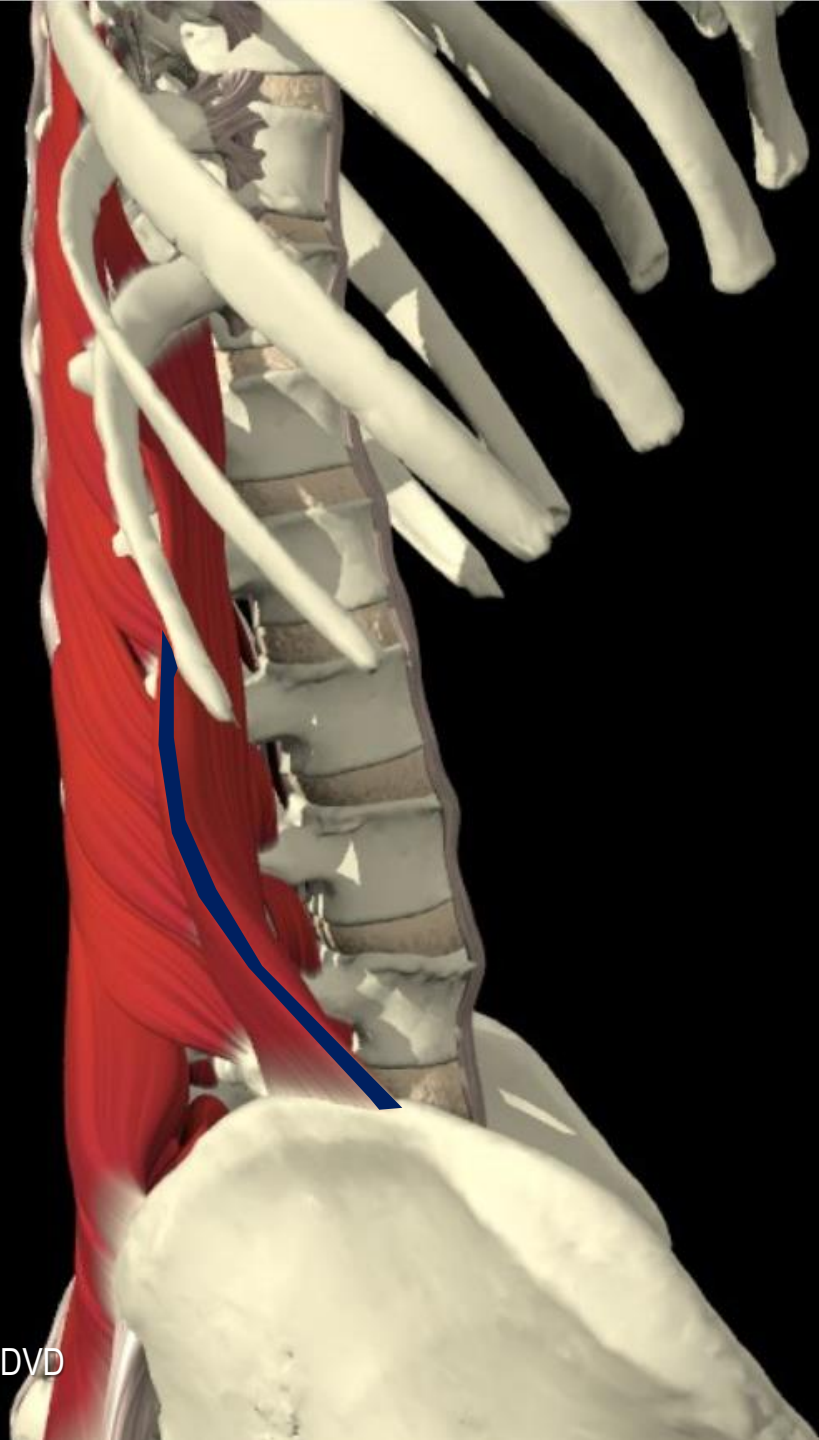
Quadratus lumborum



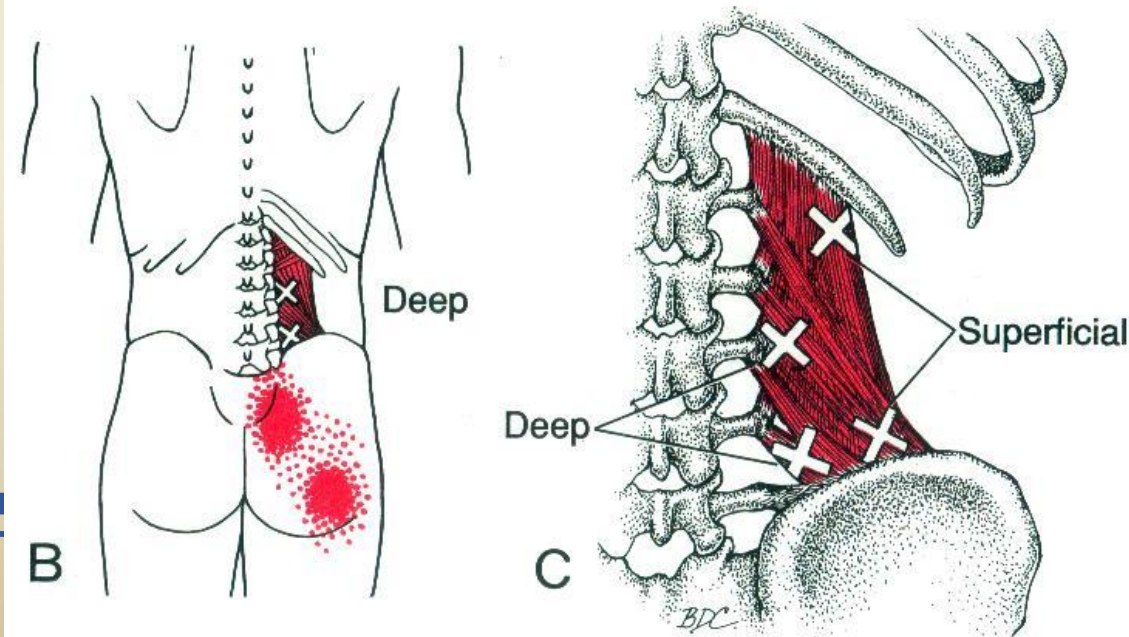
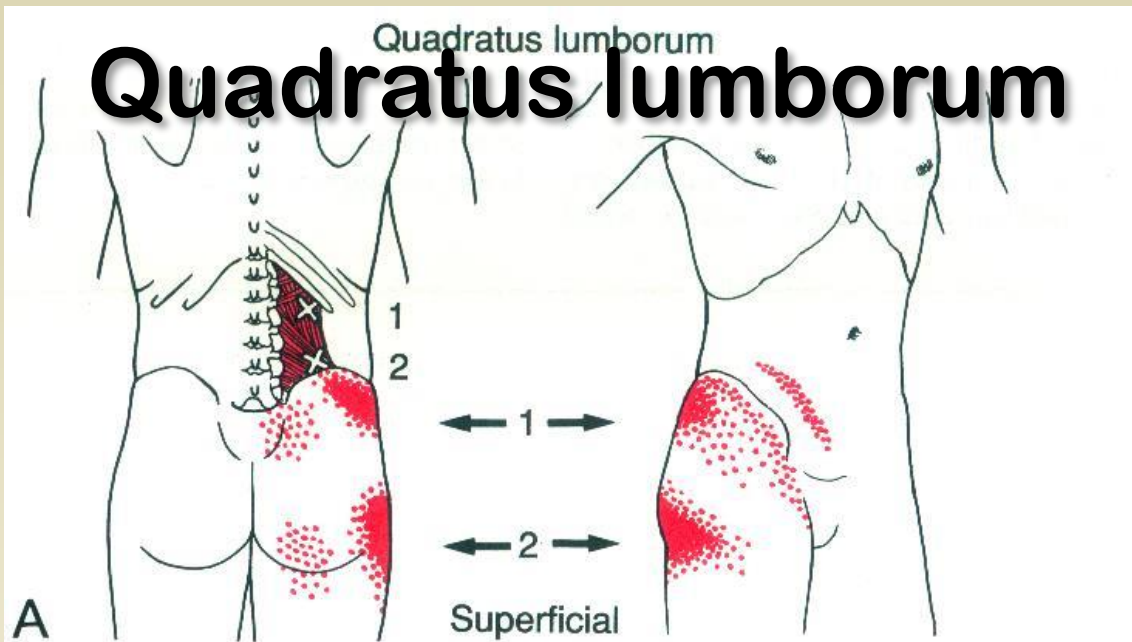
Posterior view



Anterior view



Quadratus lumborum

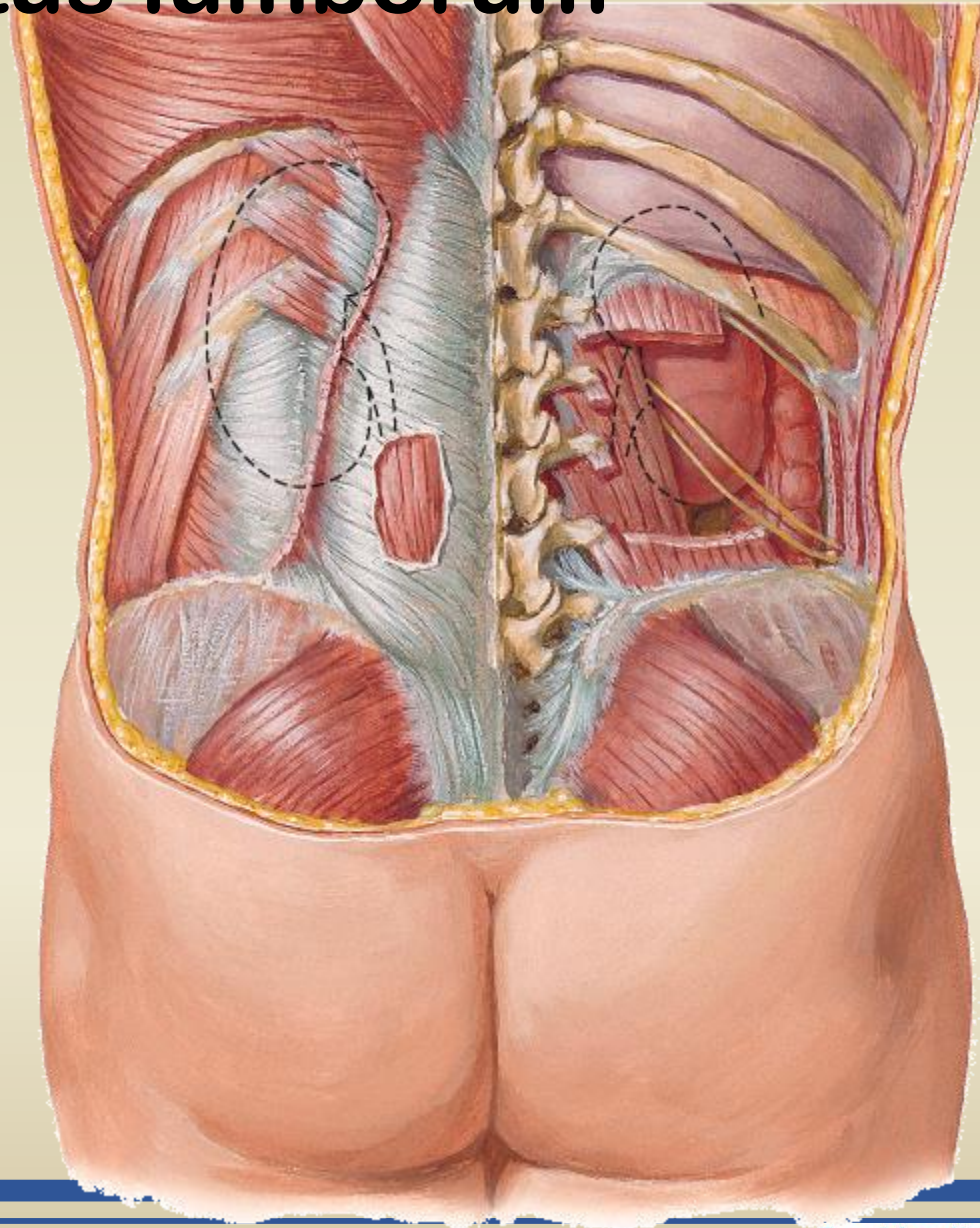


Pain pattern

Typically radiates down
buttock
SI joint
gt. Trochanter

RLQ abdomen

Quadratus lumborum



Quadratus lumborum

