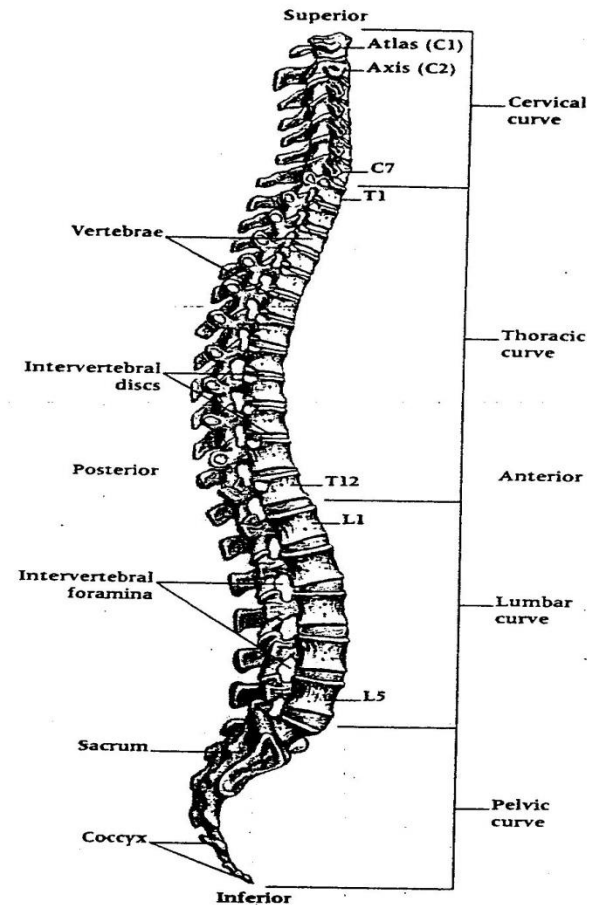


# THE SPINE

# THE SPINAL COLUMN

- The spine or vertebral column is composed of 33 individual bones called vertebrae.
- 24 vertebrae are movable and 9 are immovable
- The movable vertebrae include the cervical, thoracic, and lumbar vertebrae.
- The immovable vertebrae make up the sacrum and coccyx.



460

Figure 20-1

Vertebrae and curves of the different regions of the spinal column.



# CERVICAL SPINE (C1-C7)

- The cervical spine consists of 7 vertebrae (C1-C7).
- The first two vertebrae are called the atlas (C1) and axis (C2).
- These two vertebrae function to support the head onto the spinal column and to permit cervical rotation.

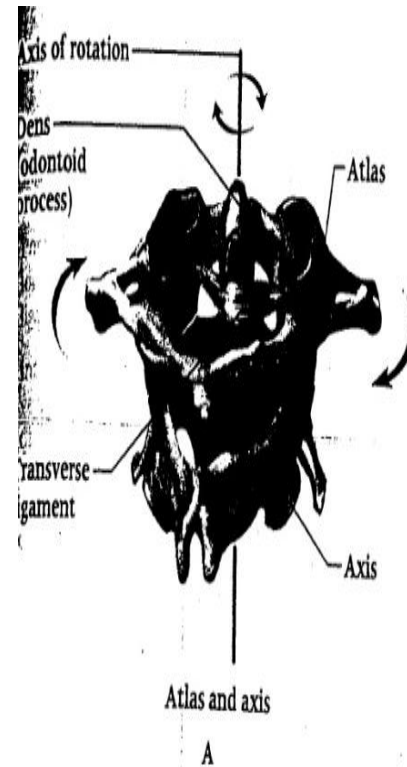
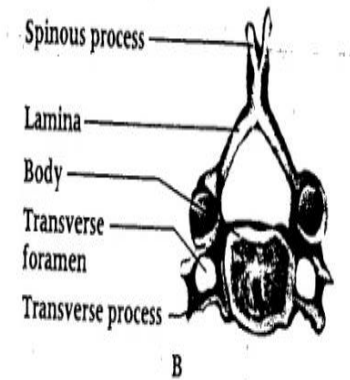


Figure 20-2

Anatomy of A. the atlas, axis, and B. cervical vertebrae.



# THORACIC SPINE (T1-T12)

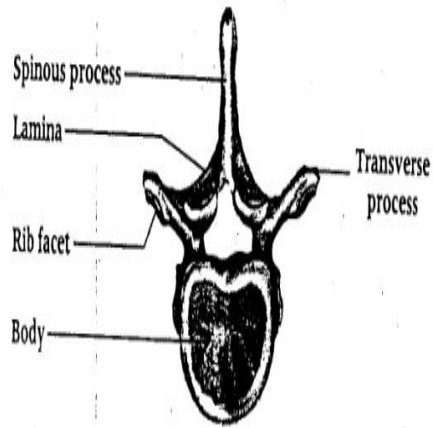


Figure 20-3

Anatomy of the thoracic vertebrae.

- **The thoracic spine consists of 12 vertebrae.**
- **Thoracic vertebrae (T1-T10) articulate with the ribs (thorax).**
- **There is little movement in the thoracic spine.**



# LUMBAR SPINE (L1-L5)

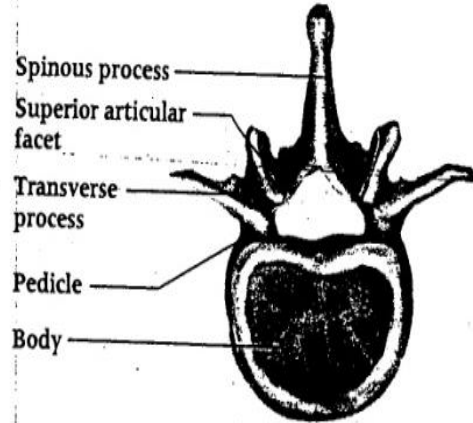


Figure 20-4  
Anatomy of the lumbar  
vertebrae.

- **The lumbar spine is composed of five vertebrae (L1-L5).**
- These vertebrae are the main support of the lower back.
- Rotation is important in the lumbar spine.



# SACRUM AND COCCYX

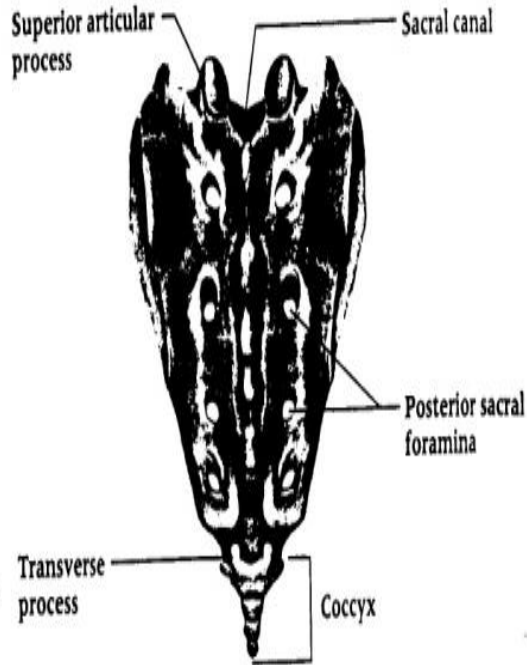


Figure 20-5  
Anatomy of the sacrum and coccyx.

- Sacrum is formed by the fusion of 5 vertebrae.
- The sacrum articulates with the pelvis at the ilium to create the Sacroiliac Joint (SI Joint).
- The coccyx or tailbone is the most inferior part of the vertebral column.
- It consists of 4 or more fused vertebrae.



# INTERVERTEBRAL DISK

- Intervertebral disks are between the vertebral bodies.
- Each fibrocartilaginous disk consists of an annulus fibrosus and the nucleus pulposus.
- The intervertebral disk acts as the “shock absorbers” for the spine.

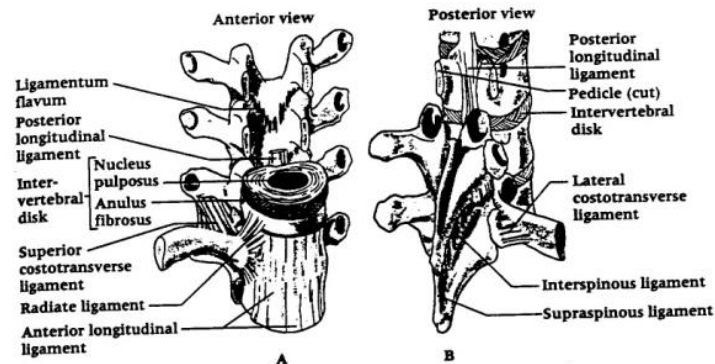
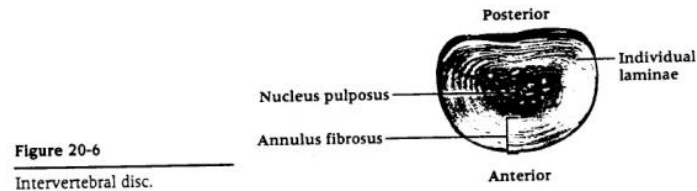


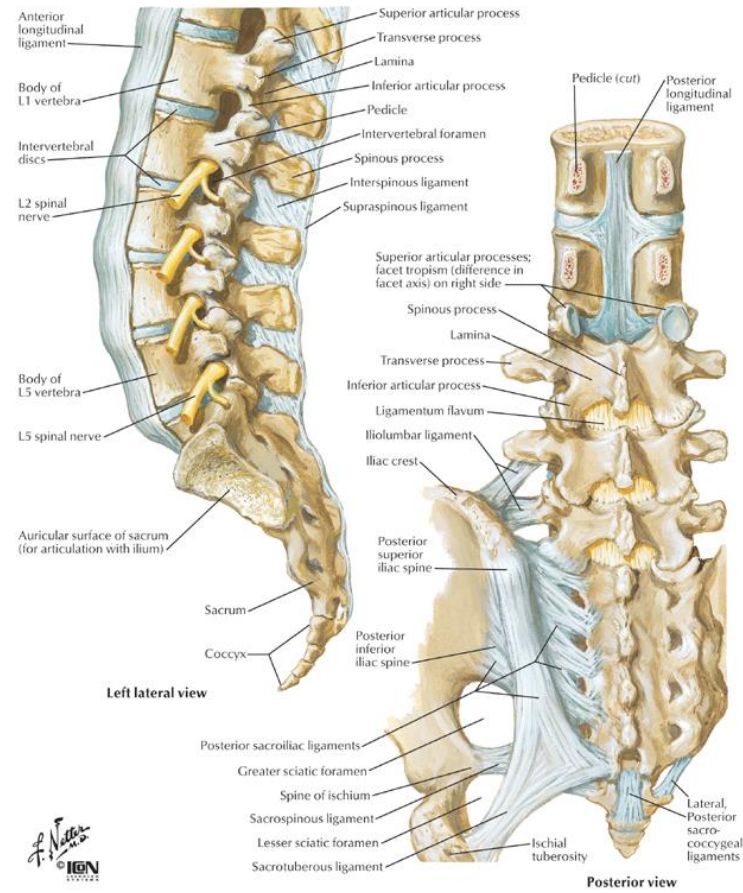
Figure 20-7

Ligaments of the vertebral column. A. Anterior view. B. Posterior view.



# LIGAMENTS-FYI!!!!DO NOT WRITE OR MEMORIZE!

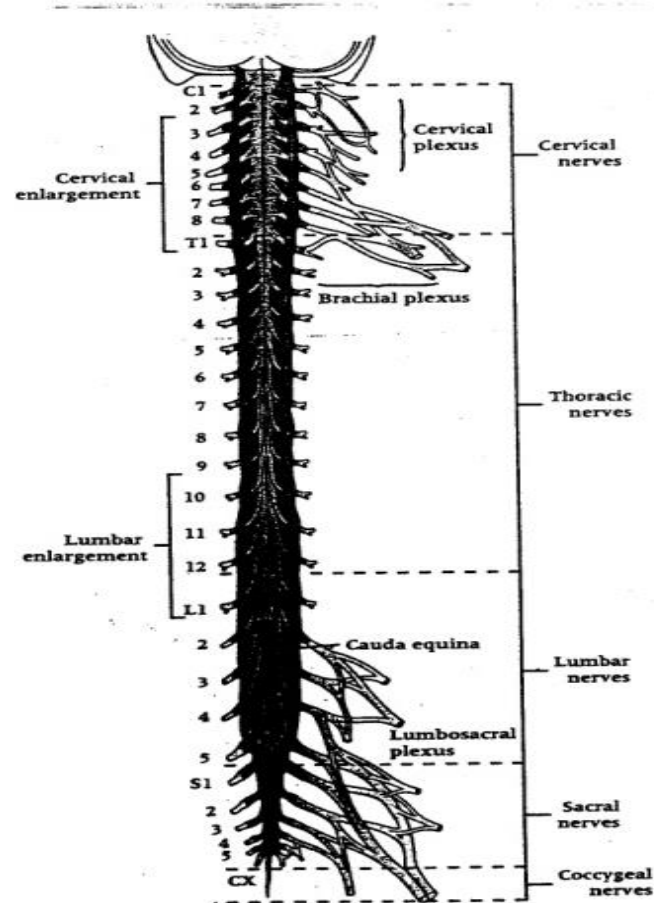
- **Ligaments hold bones together at the spine.**
- **Ligaments are very strong.**
- The ligaments include the anterior longitudinal ligament, the posterior longitudinal ligament, the supraspinous ligament, the interspinous ligament, intertransverse ligament, the superior costotransverse ligament, the lateral costotransverse ligament, the dorsal sacral ligament, the sacrotuberous ligament, and the sacrospinous ligament.



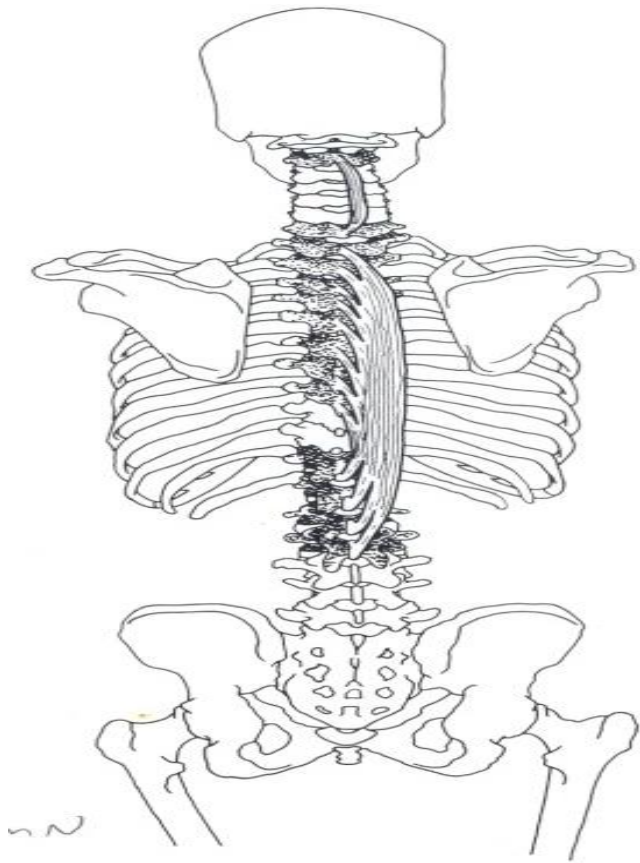


# SPINAL CORD AND NERVES-FYI!!! DO NOT WRITE OR MEMORIZE!!!

- The spinal cord is a portion of the central nervous system that is contained within the vertebral canal of the spinal column.
- It extends from the head to the first two lumbar vertebrae (L1-L2).
- The lumbar and sacral nerves form a horse like tail called the cauda equina.
- 31 pairs of spinal nerves extend out from the spinal cord: 8 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 1 coccygeal.



# ERECTOR SPINAE SPINALIS (SHADES OF BLUE)



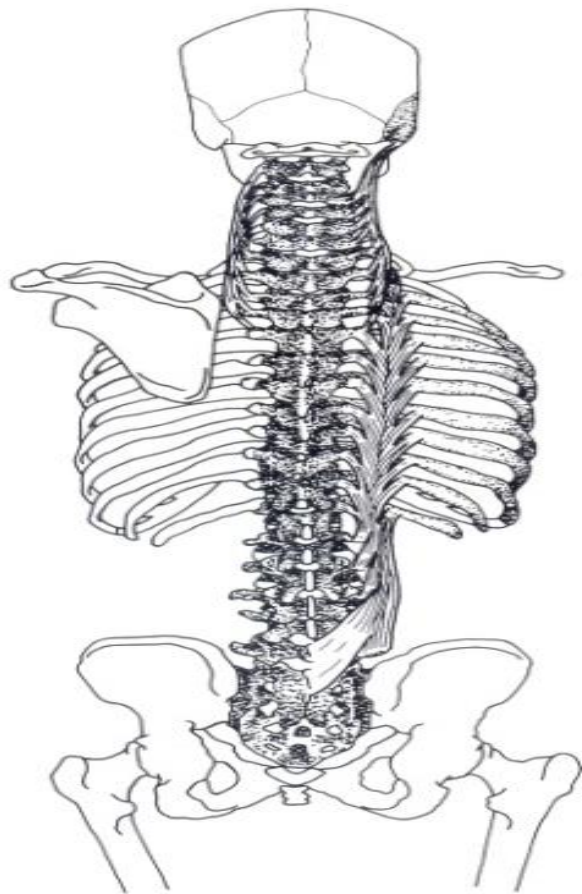
**Trunk—dorsal view**

- ERECTOR SPINAE SPINALIS
- ACTION: EXTENSION AND LATERAL FLEXION
- RUNNING FROM SPINE TO SCAPULA

SPINALIS>  
LONGISSIMUS>  
ILIOCOSTALIS



# ERECTOR SPINAE LONGISSIMUS (SHADES OF BLUE)

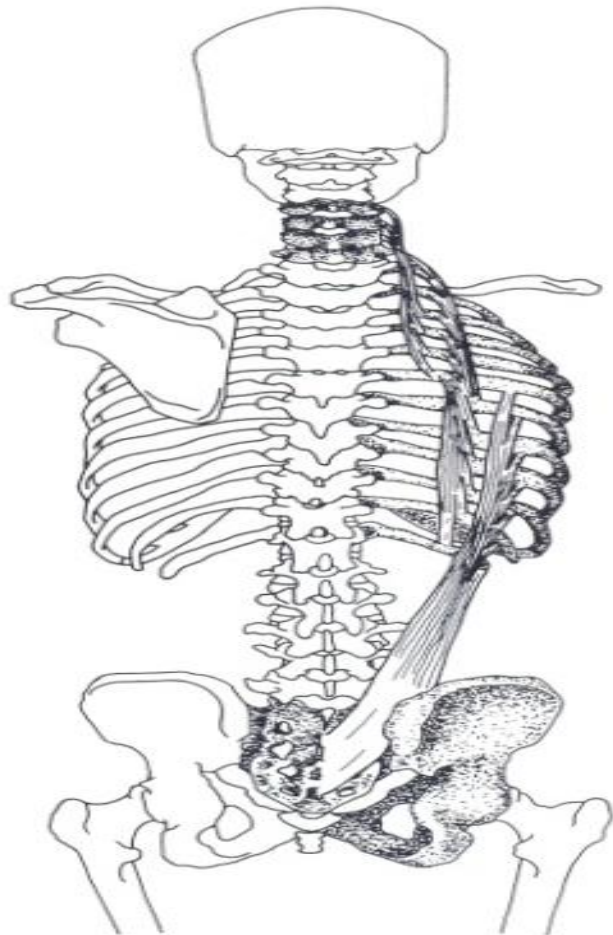


**Trunk—dorsal view**

- ERECTOR SPINAE LONGISSIMUS
- ACTION: EXTENSION AND LATERAL FLEXION
- RUNNING FROM SPINE TO SCAPULA
- (SPINALIS> LONGISSIMUS> ILIOCOSTALIS)



# ERECTOR SPINAE ILIOCOSTALIS (SHADES OF BLUE)

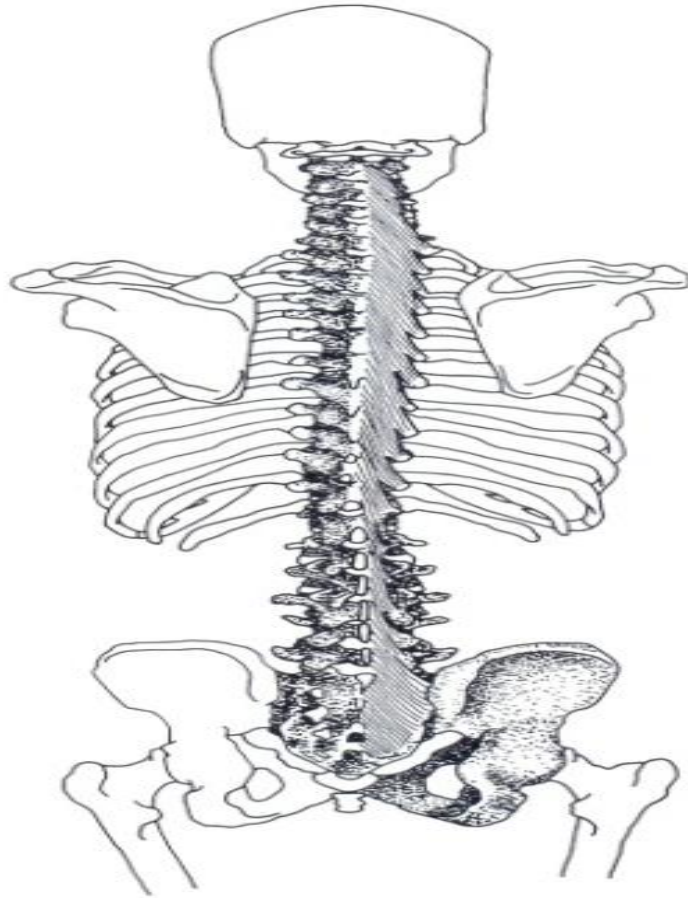


**Trunk—dorsal view**

- ERECTOR SPINAE ILIOCOSTALIS
- ACTION:  
EXTENSION AND  
LATERAL FLEXION
- RUNNING FROM  
SPINE TO SCAPULA
- (SPINALIS>  
LONGISSIMUS  
>ILIOCOSTALIS)



# MULTIFIDIS (PURPLE)



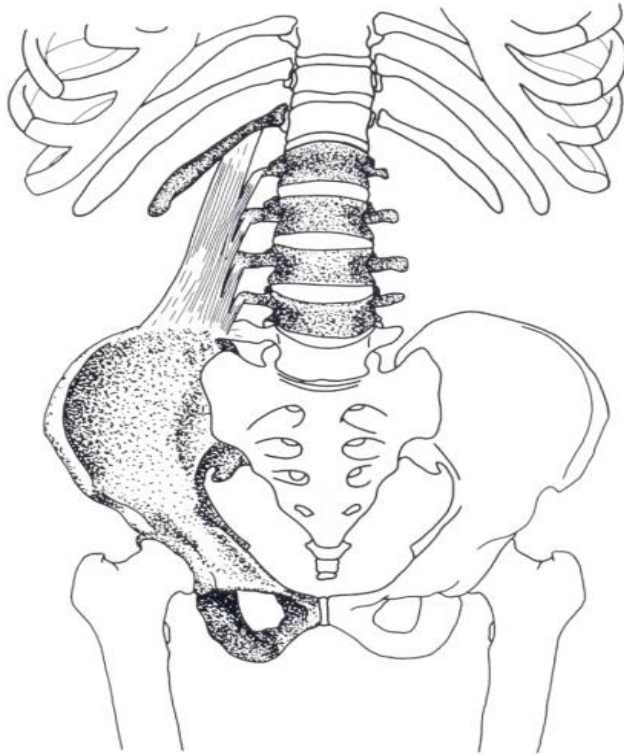
**Trunk—dorsal view**

- Multifidus
- Action:
- Extension and Rotation



# QUADRATUS LUMBORUM (GREEN)

**QUADRATUS LUMBORUM**



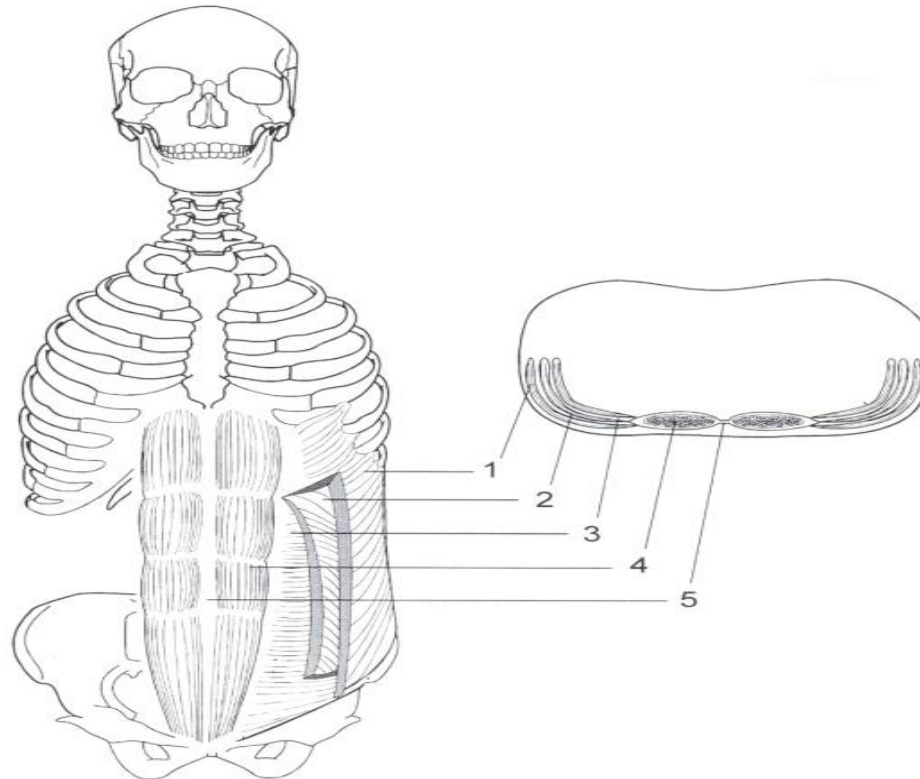
**Lower trunk—anterior view**

- Quadratus Lumborum
- Action: Lateral Flexion
- Runs from Spine to Pelvis Posteriorly



# ABDOMINAL MUSCLES-COLORS NEEDED: BLACK, RED, AND YELLOW

## ABDOMINAL MUSCLES



### Trunk—anterior and cross-sectional views

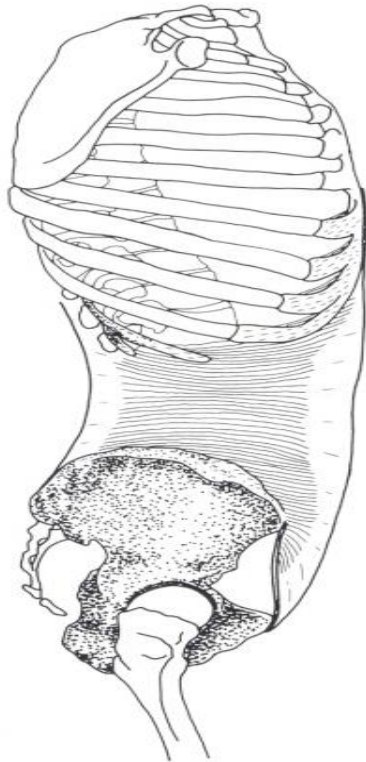
1. Obliquus externus abdominis
2. Obliquus internus abdominis
3. Transversus abdominis

4. Rectus abdominis
5. Linea alba



# TRANSVERSE ABDOMINIS

## TRANSVERSUS ABDOMINIS



Trunk—lateral view

- Transverse Abdominus
- Action: Compression
- Deepest of all of the Abdominal Muscles





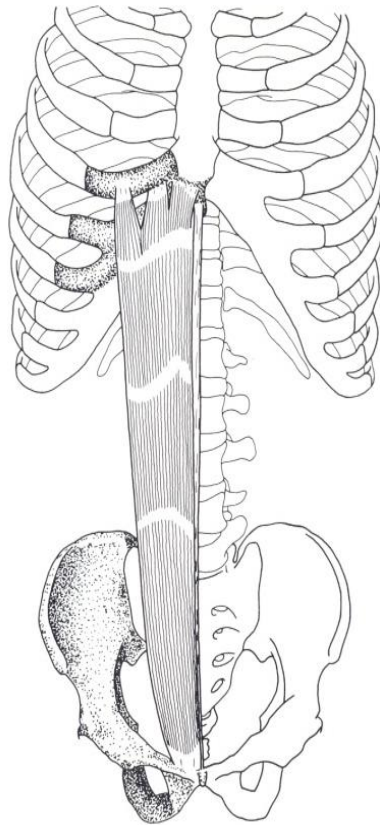
# RECTUS ABDOMINUS (YELLOW)

## RECTUS ABDOMINIS\*

<b>Origin</b>	Crest of pubis, pubic symphysis
<b>Insertion</b>	Cartilage of fifth, sixth, and seventh ribs, xiphoid process
<b>Action</b>	Flexes vertebral column, compresses abdomen
<b>Nerve</b>	Seventh through twelfth intercostal nerves

\*Tendinous bands divide each rectus into three or four bellies. Each rectus is sheathed in aponeurotic fibers from the lateral abdominal muscles. These fibers meet centrally to form the linea alba.

Note: The pyramidalis is a small, unimportant muscle that extends from the ventral surface of the pubis to the lower part of the linea alba. It is frequently absent.



Trunk—anterior view

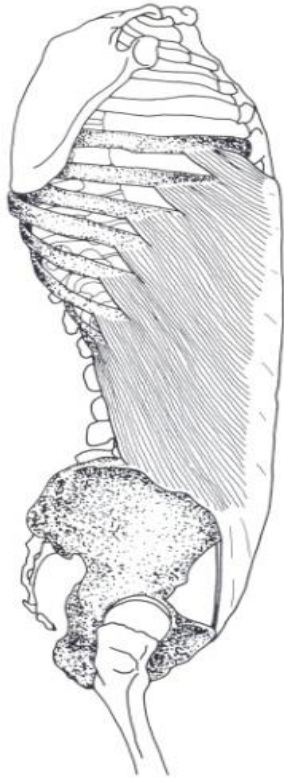
○ Rectus Abdominus

○ Action: Flexion



# OBLIQUUS EXTERNUS (BLACK)

## OBLIQUUS EXTERNUS ABDOMINIS



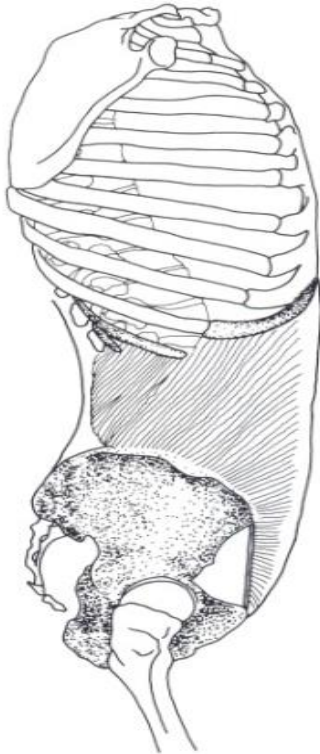
Trunk—lateral view

- Obliquus Externus
- Action: Rotation and Lateral Flexion
- Most superficial of the abdominal muscles.



# OBLIQUUS INTERNUS (BLACK)

## OBLIQUUS INTERNUS ABDOMINIS



Trunk—lateral view

- Obliquus Internus
- Action: Rotation and Lateral Flexion
- Sits deep to the Obliquus Externus



# FLASH CARD TIME

MUSCLES OF THE SPINE	MUSCLES OF THE ABDOMEN
<b>ERECTOR SPINAE SPINALIS ERECTOR SPINAE ILIOCOSTALIS ERECTOR SPINAE LONGISSIMUS (BLUE)</b>	<b>OBLIQUUS INTERNUS OBLIQUUS EXTERNUS (BLACK)</b>
<b>MULTIFIDIS (PURPLE)</b>	<b>RECTUS ABDOMINUS (YELLOW)</b>
<b>QUADRATUS LUMBORUM(GREEN)</b>	<b>TRANSVERSE ABDOMINUS (RED)</b>



# FLASH CARD TIME

<b>MUSCLES OF THE SPINE</b>	<b>MUSCLES OF THE ABDOMEN</b>
<b>EXTENSION AND LATERAL FLEXION(BLUE)</b>	<b>ROTATION AND LATERAL FLEXION(BLACK)</b>
<b>EXTENSION AND ROTATION (PURPLE)</b>	<b>FLEXION(YELLOW)</b>
<b>LATERAL FLEXION (GREEN)</b>	<b>COMPRESSION (RED)</b>



# FLASH CARD TIME

1	2
<b>COMPRESSION (RED)</b>	<b>ROTATION AND LATERAL FLEXION(BLACK)</b>
<b>FLEXION(YELLOW)</b>	<b>EXTENSION AND ROTATION (PURPLE)</b>
<b>LATERAL FLEXION (GREEN)</b>	<b>EXTENSION AND LATERAL FLEXION(BLUE)</b>

