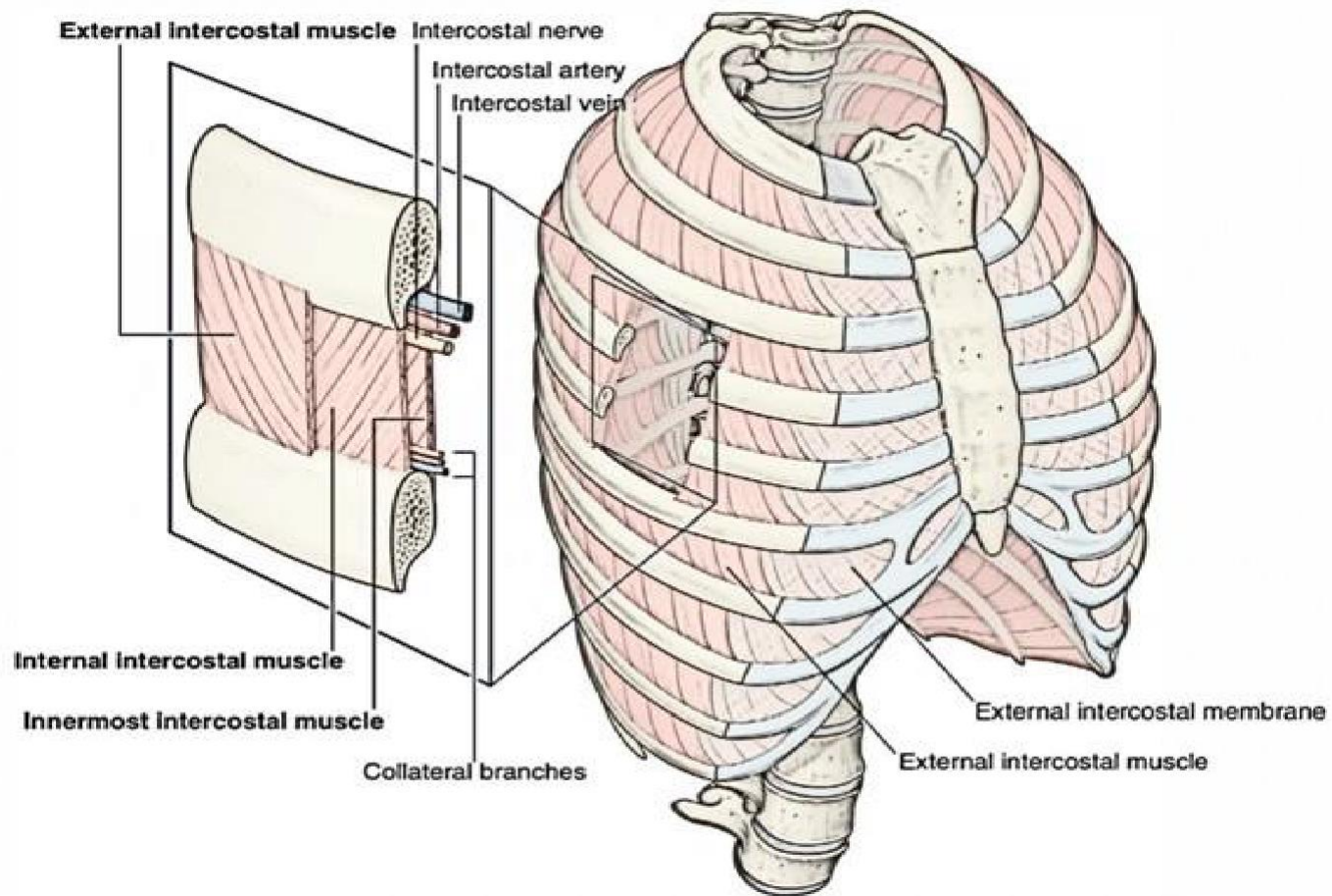


ANATOMY OF THORAX

{MUSCLES OF THORACIC WALL}

Intercostal muscle

- Are three flat muscles in each intercostal space that pass between adjacent ribs and named according to their positions:
 1. **External IC** muscles are the most superficial
 2. **Internal IC** muscles are sandwiched between external and innermost
 3. **Innermost IC** muscles are the deepest of the 3 muscles
- **Origin** ➡ all three muscles from inferior margin of rib
- **Insertion** ➡ all of them superior margin of the below rib
- **Innervation** ➡ all muscles by the related IN nerves
- **As a group** these muscles provide structural support during breathing , they can also move the ribs
- **The external IC** muscle is the most active in inspiration
- **Transversus thoracic muscles :-** found on the deep surface of the anterior thoracic wall and in same plane as the innermost muscles .



DIAPHRAGM

- ❖ Is a thin musculotendinous structure that fills the inferior thoracic aperture and separates the thoracic cavity from abdominal cavity.
- ❖ It's attached peripherally to the:
 - I. *Xiphoid process*
 - II. *Costal margin of thoracic wall*
 - III. *Ends of ribs 6th and 7th*
 - IV. *Ligaments that span across structures of the posterior abdominal wall*
 - V. *Vertebrae of the lumbar region*

- The diaphragm has three opening :

Caval opening

Third large opening through which the inferior vena cava passes from the abdominal cavity to the thorax at vertebra TVIII .

Esophageal hiatus

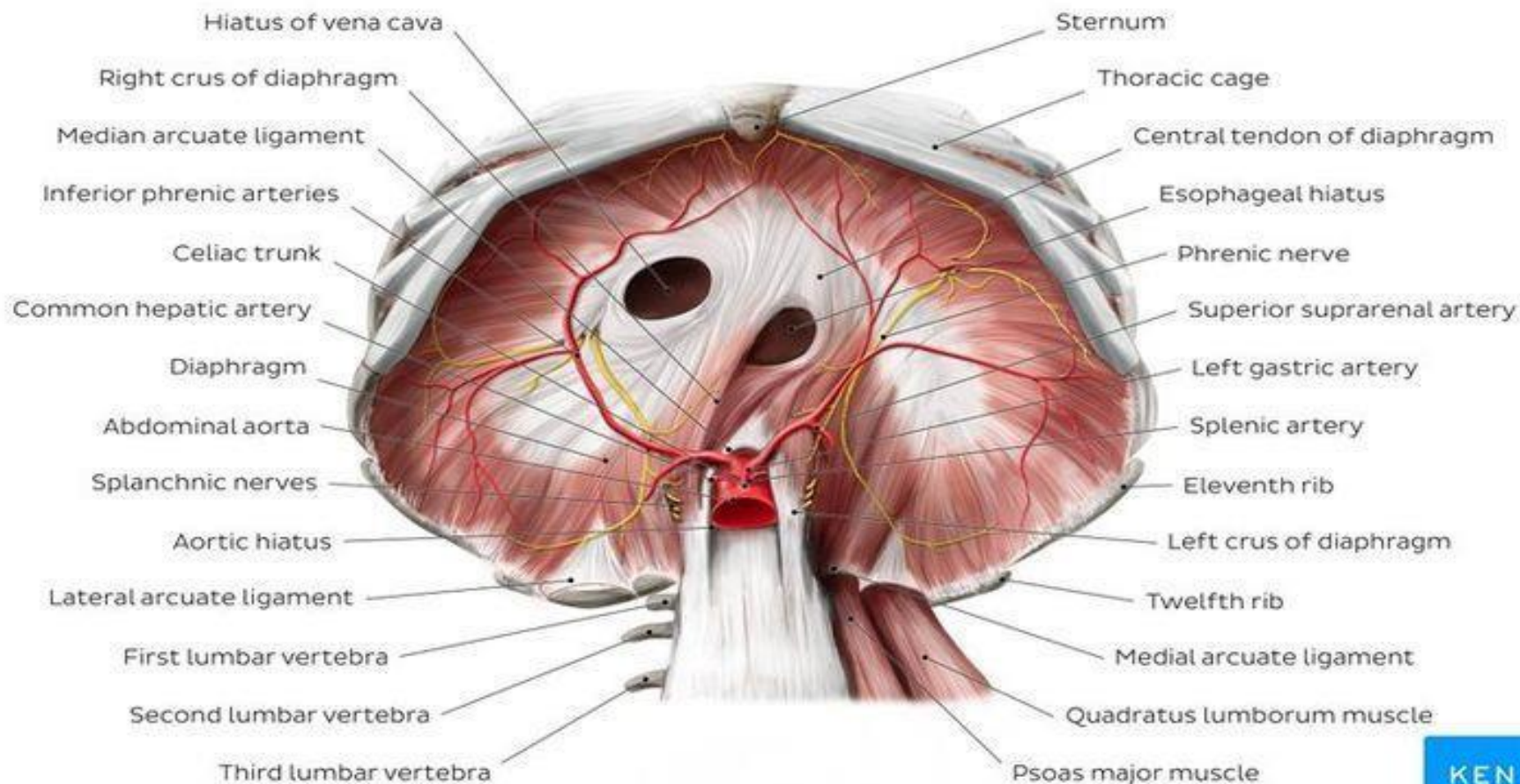
Esophagus pass through it just to the left of midline at level of vertebra TX

Aortic hiatus

The aorta passes just behind the posterior attachment of diaphragm at vertebra TXII

BLOOD SUPPLY AND INNERVATION:

- Superior surface by **musculophrenic** and **pericardiophrenic** and **superior phrenic** arteries
- Inferior surface by **inferior phrenic** arteries
- Nerve supply by **phrenic nerves** C3-C5
- **Important note** **MP & PCP** arteries branches from *internal thoracic* artery and **SP** artery from *thoracic aorta* and **IP** artery from *abdominal aorta*



Muscles of posterior thoracic wall

- Respectively from external to internal :

1. First layer

Trapizus muscle is situated along the vertebral column (muscle origin) and the apex pointed toward the tip of the shoulder (muscle insertion) innervated by [accessory nerve](#)

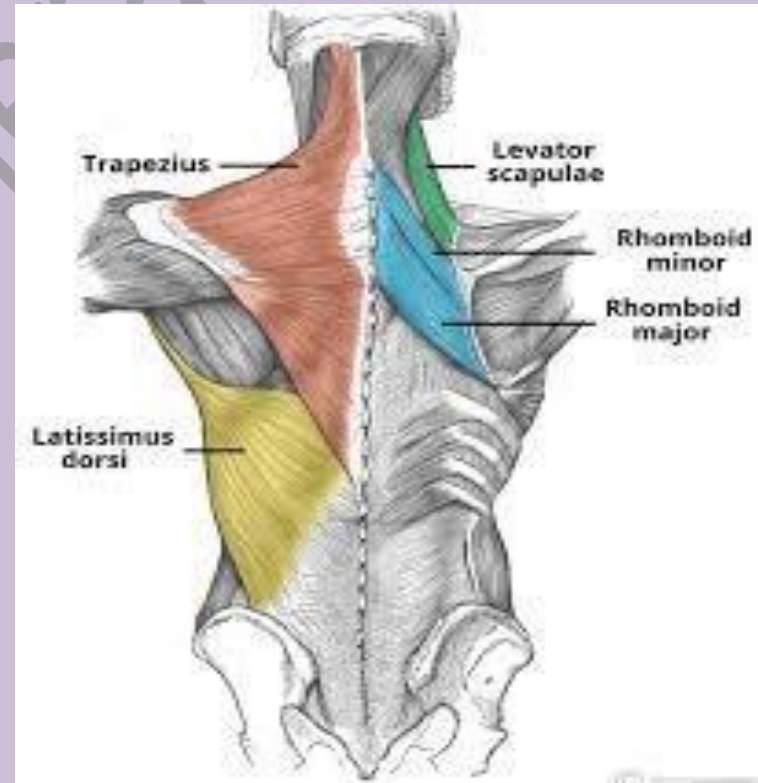
Latissimus dorsi muscle large muscle that begins in the lower portion of the back and tapers as it ascends to a narrow tendon attach to humerus

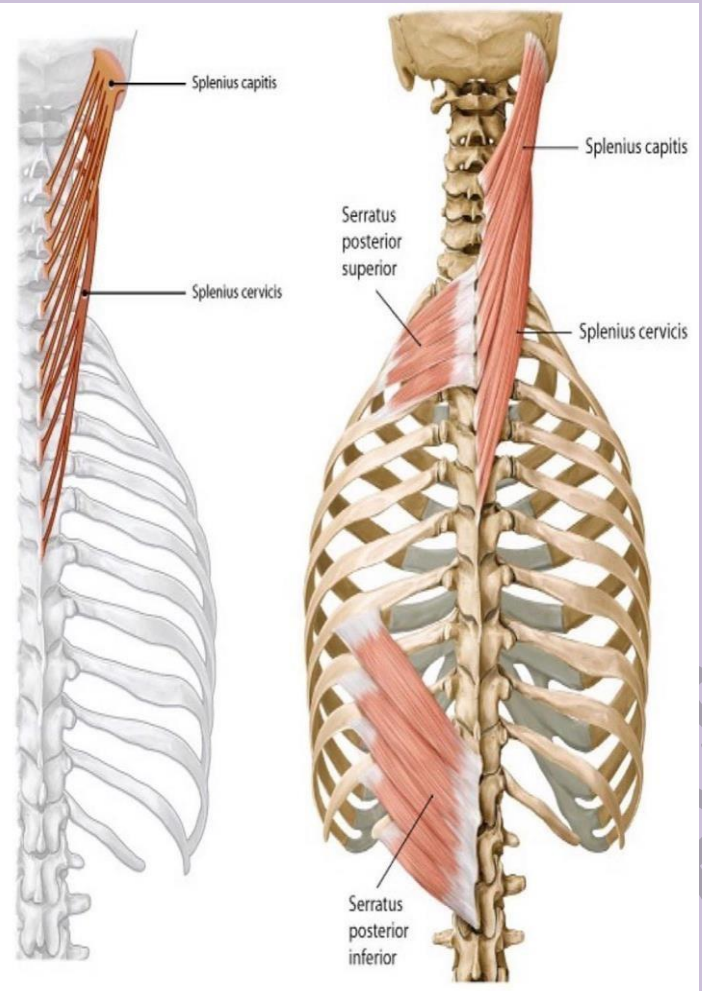
Innervated by [thoracodorsal nerve](#)

2. Second layer

Levator scapula that descends from the transverse process and elevates the scapula

Rhomboid major and minor originate from spinous process of thoracic vertebrae and attach to the medial scapula , both innervated by [dorsalscapular nerve](#)





3. third layer

Serratus posterior superior and inferior muscles

- Deep to the second layer muscles
- Plays role in respiratory function
- Originated from vertebral column and ascend (serratus inferior) or descend (serratus superior) to attach to the ribs
- Both innervated by anterior rami of intercostal nerves

Splenius capitis and cervicis muscles

- Both originated from ligamentum nuchae and spinous process and insertion to transverse processes of C1-C3

- Both innervated by posterior rami of cervical nerves

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4. Fourth layer

Erector muscles

Divided into 3 muscles

- External muscle is **iliocostalis**
- Intermediate muscle is **longissimus**
- Internal muscle is **spinalis**

Transversospinales muscles

Run obliquely upward and medially from transverse processes to spinous processes and consist of three major subgroups **semispinalis**, **multifidus** and **rotatores** muscles, they are rotators the thoracic and

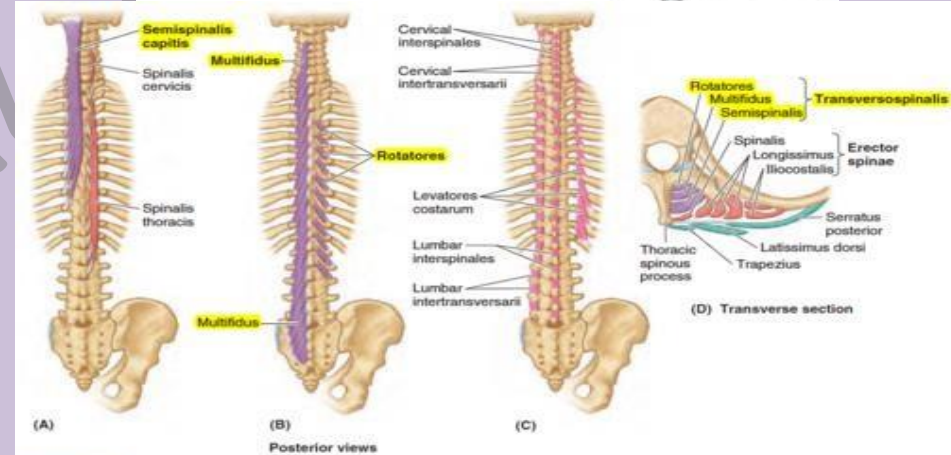
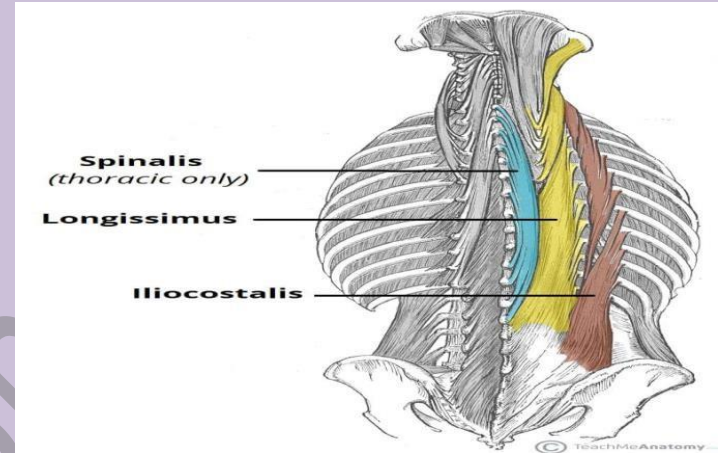


FIGURE 4.33. Muscles of deep layer of intrinsic back muscles. A. The transversospinales muscle group is deep to the erector spinae (see D). The short

lumber

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Thank YOU

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