

SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr MGR Medical University, Chennai

DEPARTMENT OF CARDIOPULMONARY PERFUSION CARE TECHNOLOGY

COURSE NAME: Anatomy

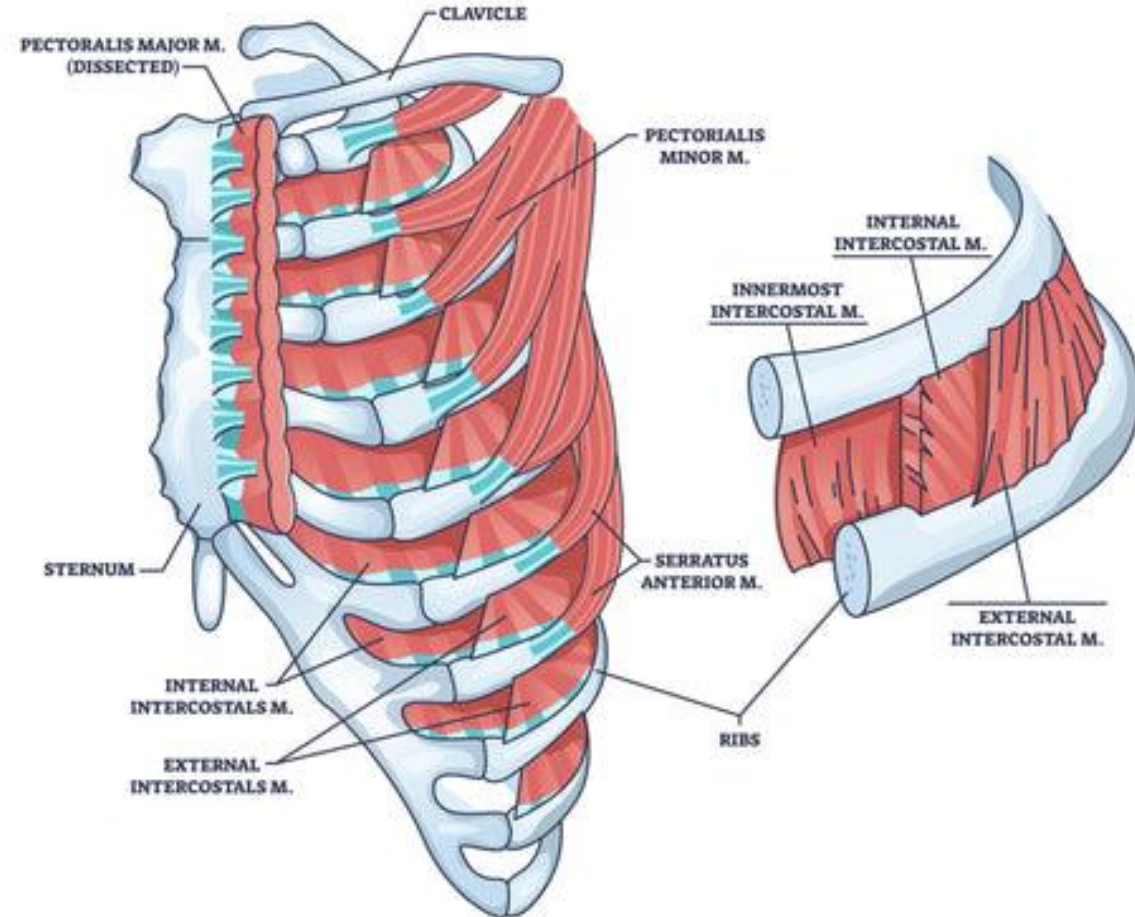
UNIT II – Thorax & Lungs

TOPIC: Intercostal Muscle

FACULTY NAME: Mrs. Saranyaa Prasath

Empathize –Intercostal Muscle

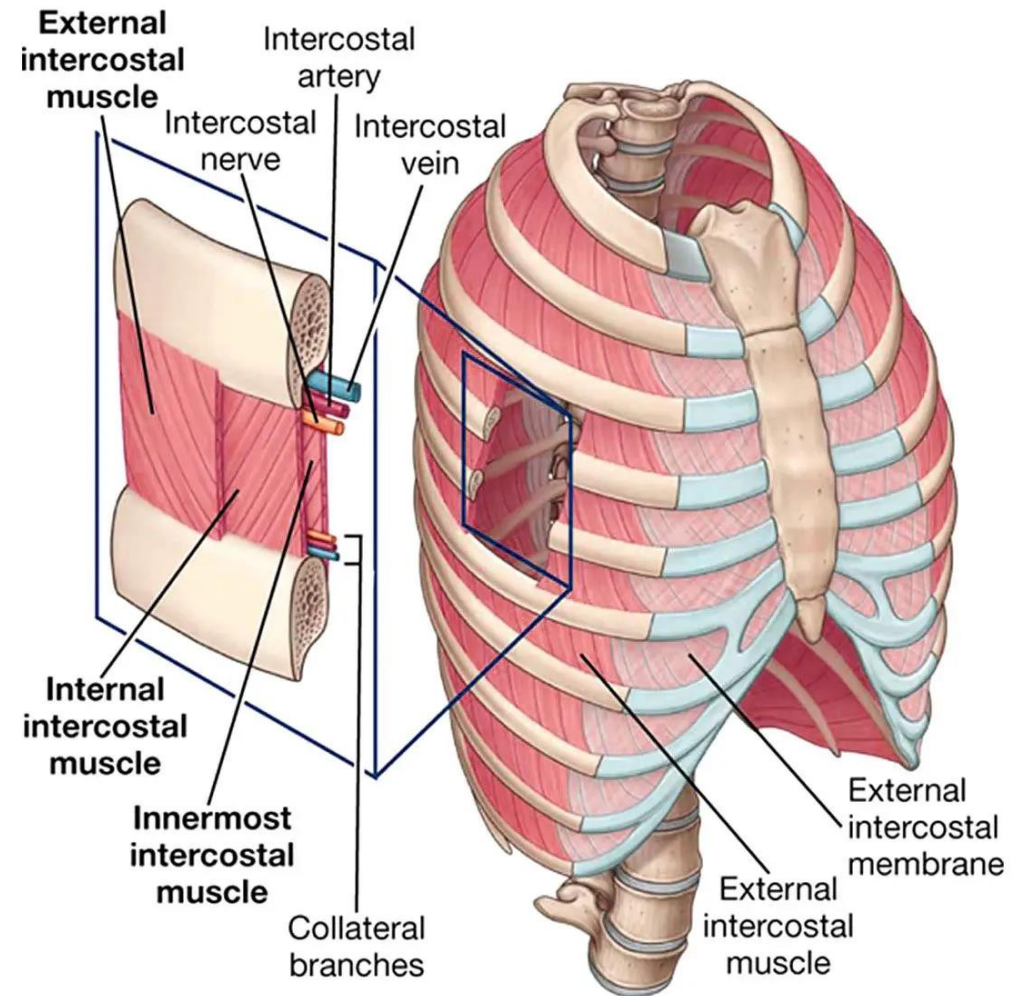
Intercostal muscles are located **between the ribs** and play a vital role in respiration by altering the thoracic cavity volume



Define - Types of Intercostal Muscles

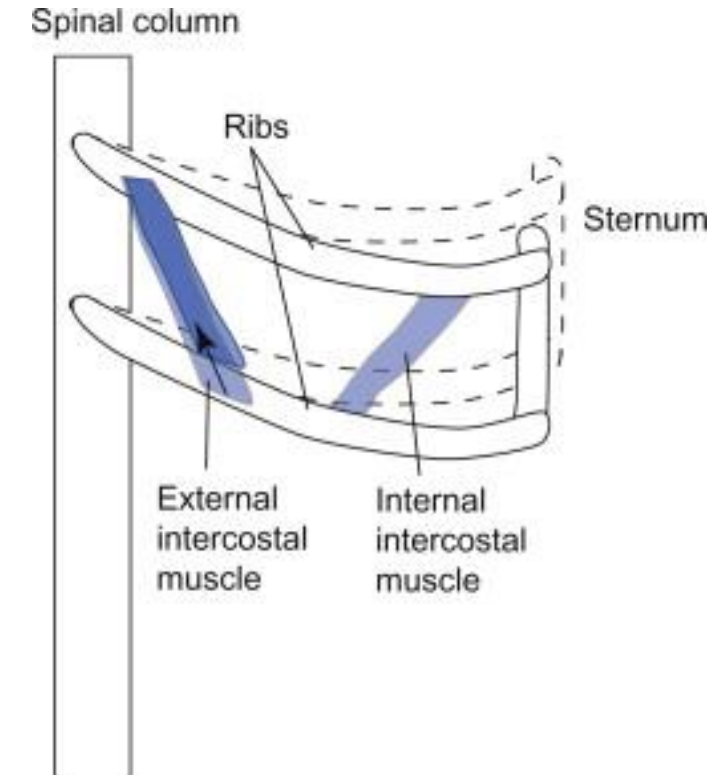
Three main groups:

- External intercostal muscles
- Internal intercostal muscles
- Innermost intercostal muscles



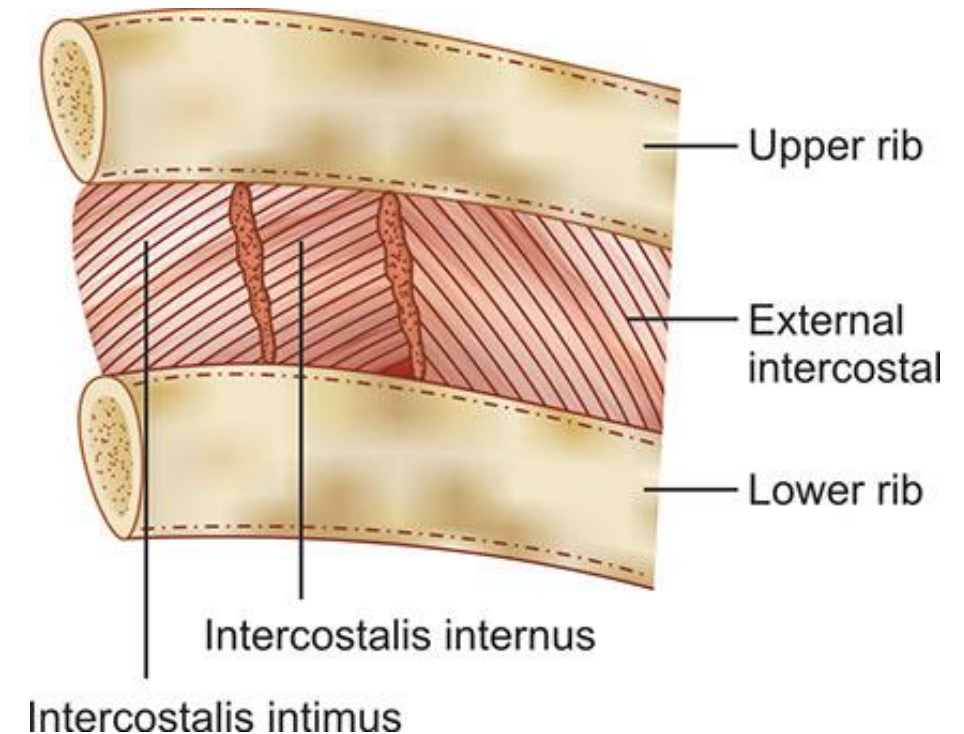
External Intercostal Muscles – Origin & Insertion

- **Origin:** Inferior border of the 1st to 11th ribs.
- **Insertion:** Superior border of the corresponding rib below (2nd to 12th ribs).
- **Fibers:** Run inferomedially from rib to rib.



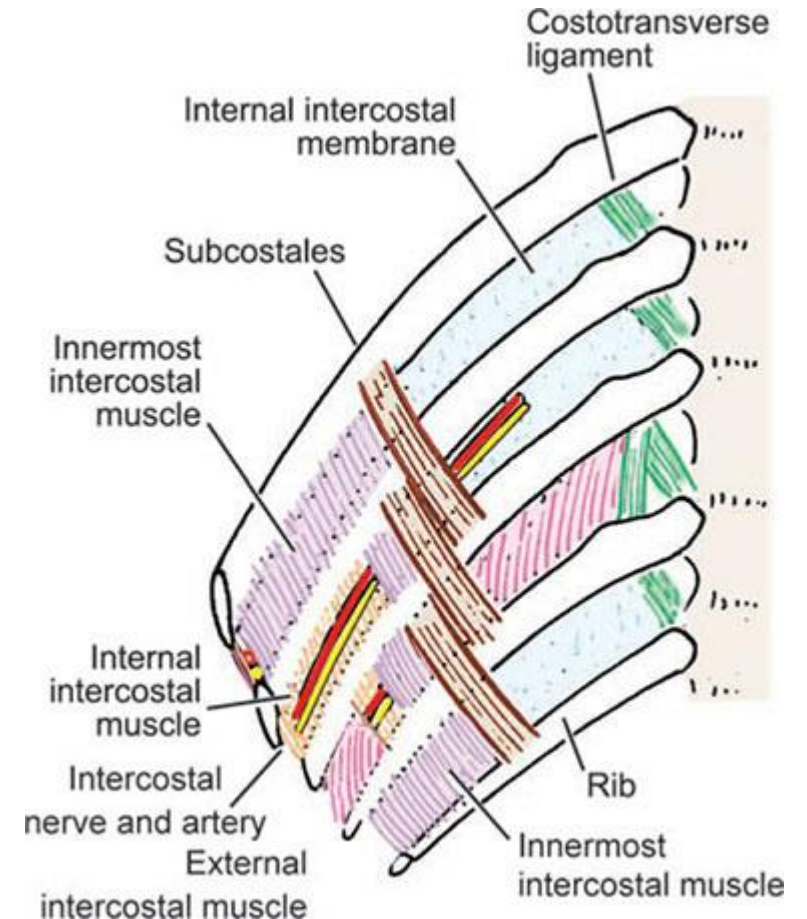
Ideate - External Intercostal Muscles – Function & Innervation

- **Functions:** External intercostal muscles are crucial for inspiration (breathing in); they contract to elevate the ribs and sternum, expanding the chest cavity (thoracic cage), which decreases pressure inside the lungs, allowing air to rush in.
- **Innervation:** Intercostal nerves (T1–T11).
- **Blood supply:** Intercostal arteries.



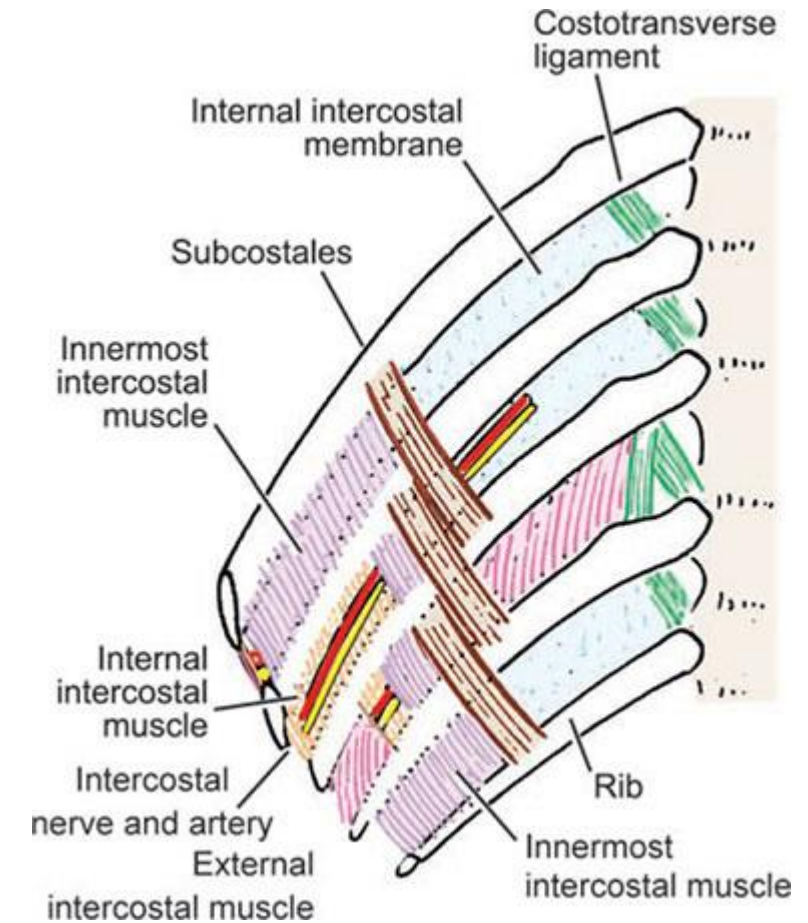
Internal Intercostal Muscles – Origin & Insertion

- **Origin:** Costal groove (inferior margin) of ribs and adjacent costal cartilages.
- **Insertion:** Superior border of the rib immediately below.
- **Fibers:** Course inferolaterally and medially.



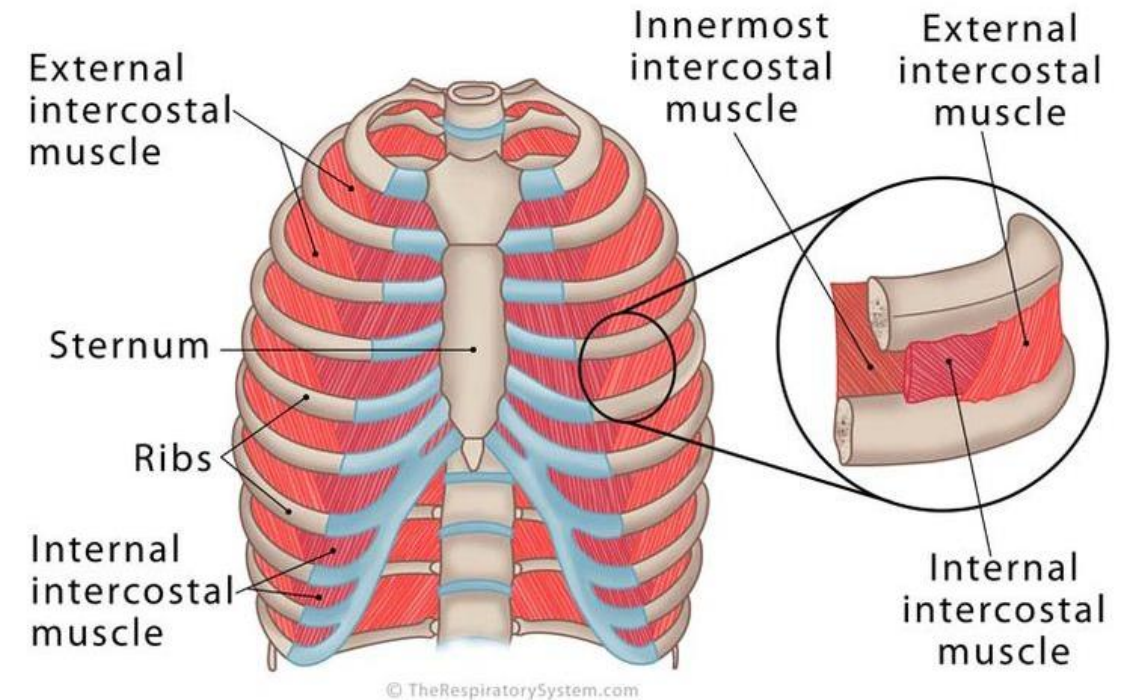
Ideate - Internal Intercostal Muscles – Function & Innervation

- **Functions:** Internal intercostal muscles primarily function to depress the ribs and aid in forced exhalation, pulling the rib cage inward and downward to decrease thoracic volume, working opposite to external intercostals which help with inhalation.
- **Innervation:** Intercostal nerves.
- **Blood supply:** Anterior and posterior intercostal arteries, internal thoracic and musculophrenic arteries.



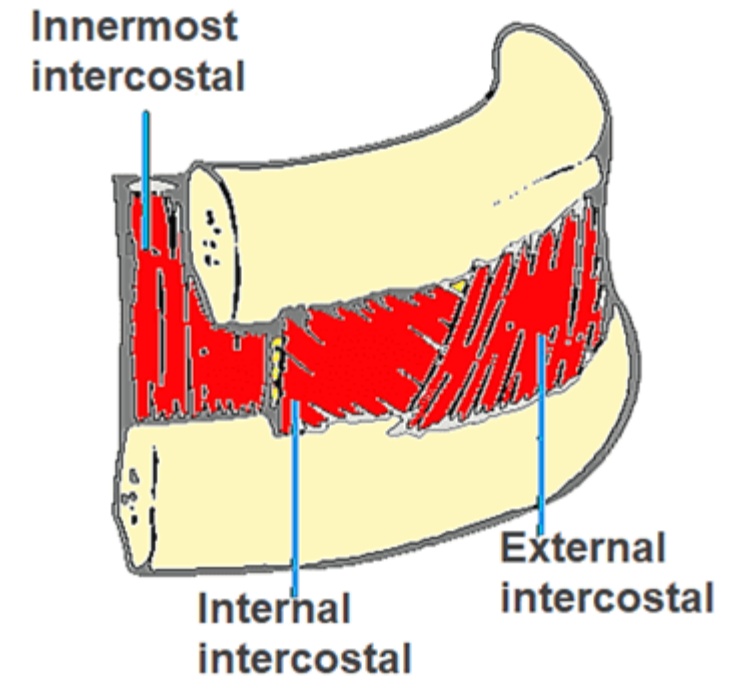
Innermost Intercostal Muscles – Origin & Insertion

- **Origin:** Costal groove of one rib, posterior to the origin of internal intercostals.
- **Insertion:** Superior border of the rib immediately below.
- **Fibers:** Run inferomedially, similar to internal intercostals.



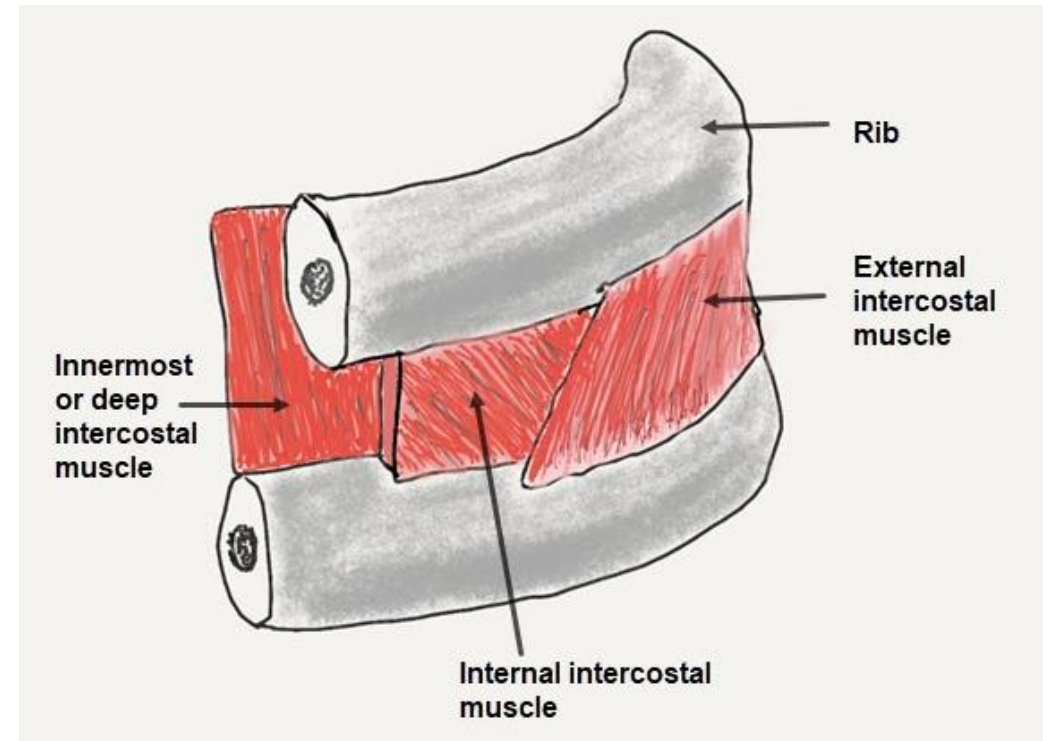
Innermost Intercostal Muscles – Function & Innervation

- **Function:** Assist internal intercostals in forced expiration, stabilize intercostal spaces.
- **Innervation:** Intercostal nerves.
- **Blood supply:** Anterior and posterior intercostal arteries.



Prototype - Clinical Relevance

- Intercostal muscles are crucial in respiration and can be affected by trauma, surgery, or respiratory diseases.
- Intercostal nerve blocks are used for pain management in thoracic procedures.



Summary

Muscle Group	Origin	Insertion	Function	Innervation
External Intercostal	Inferior border of ribs 1-11	Superior border of rib below	Elevate ribs (inspiration)	Intercostal nerves
Internal Intercostal	Costal groove of ribs	Superior border of rib below	Depress ribs (expiration)	Intercostal nerves
Innermost Intercostal	Costal groove (posterior)	Superior border of rib below	Assist expiration	Intercostal nerves

References

- <https://study.com/academy/lesson/intercostal-muscles-definition-function-location.html>
- <https://www.elsevier.com/resources/anatomy/muscular-system/muscles-of-thorax/internal-intercostal-muscles/20787>
- <https://www.kenhub.com/en/library/anatomy/internal-intercostal-muscles>
- <https://themuscularsystem.com/torso/chest/intercostal-muscles.html>

THANK YOU