

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

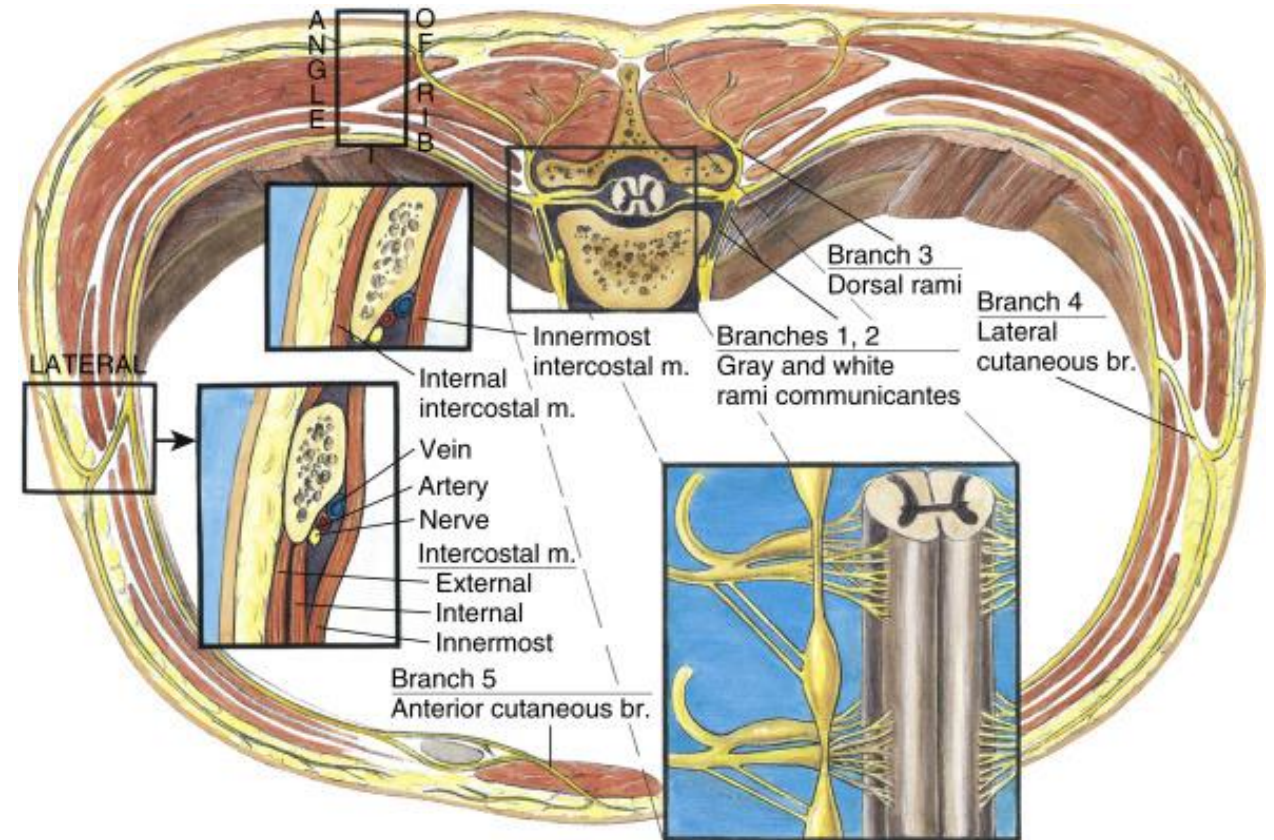
UNIT II – Thorax & Lungs

TOPIC: Intercostal Nerve

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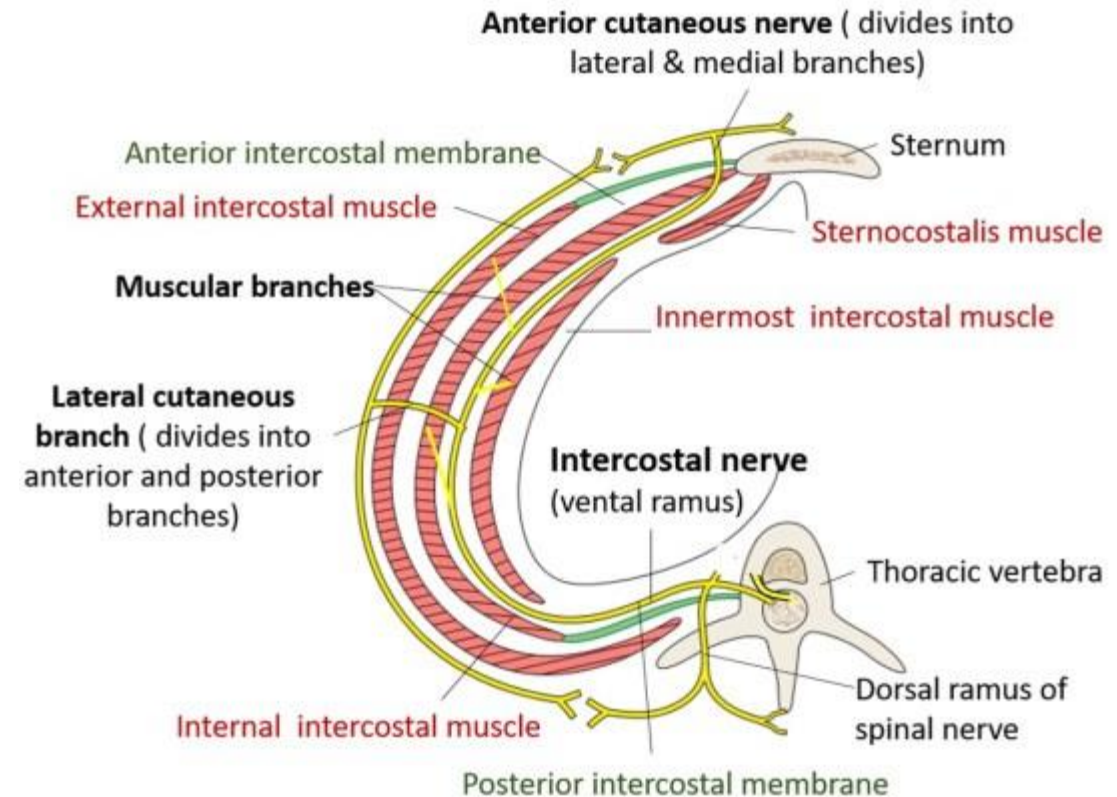
Introduction

- Intercostal nerves are mixed nerves arising from the anterior rami of thoracic spinal nerves T1–T11.
- They supply motor and sensory innervation to the thoracic and abdominal walls



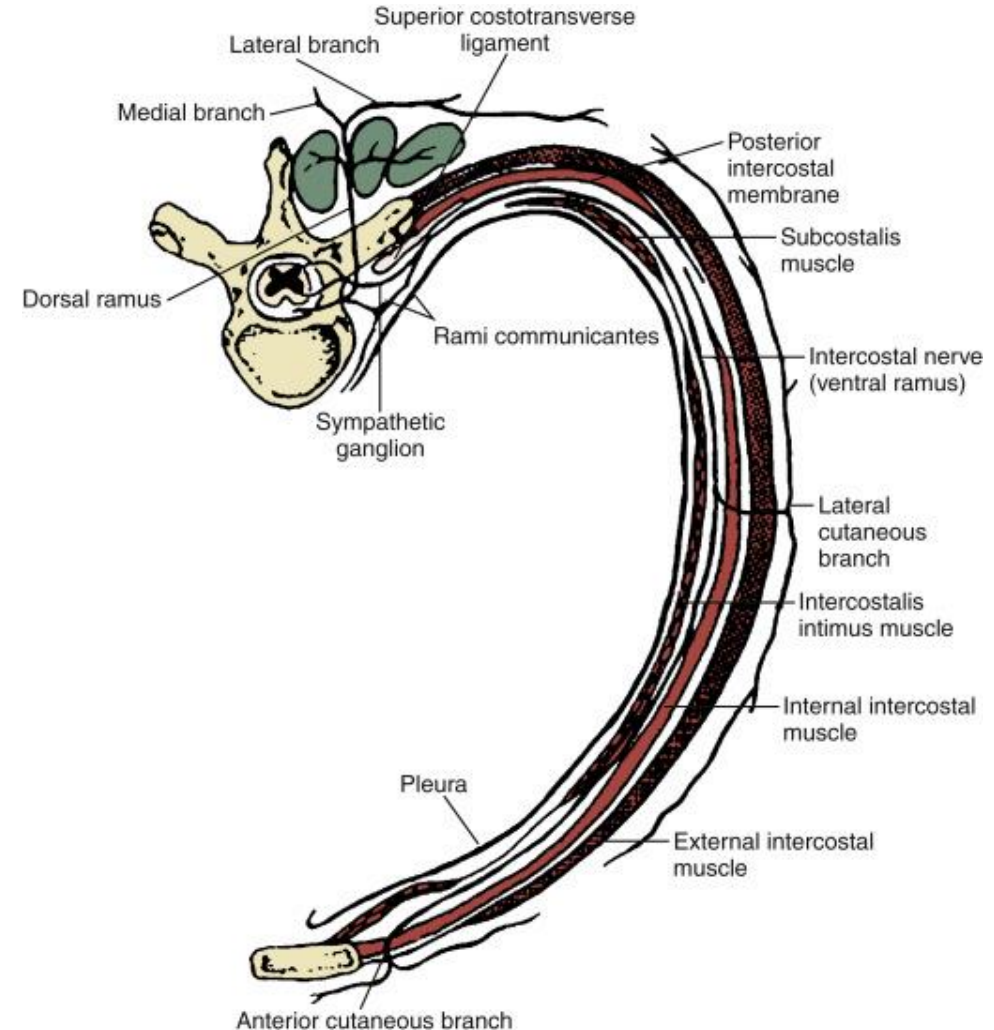
Origin & Course

- Originate from anterior rami of thoracic spinal nerves (T1–T11).
- Enter intercostal space between the internal intercostal membrane and parietal pleura.
- Run in the neurovascular bundle, beneath the rib in the subcostal groove.



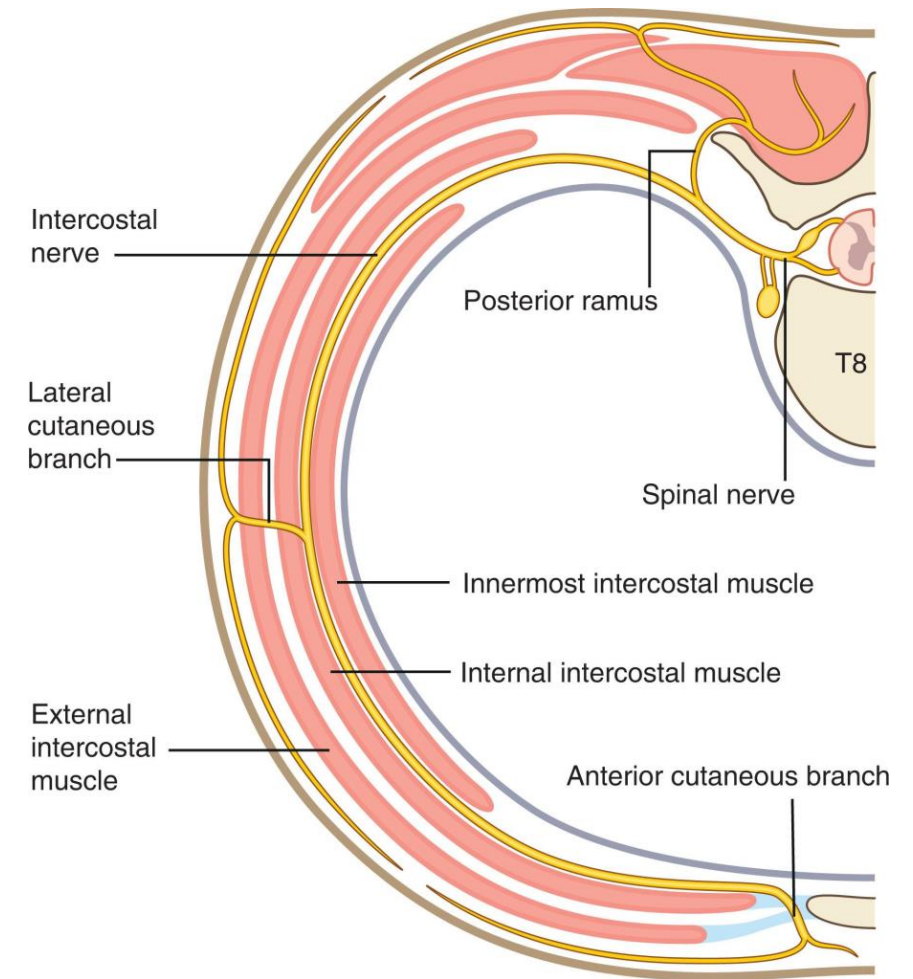
Branches of Intercostal Nerves

- **Rami communicants:** Connect to sympathetic trunk.
- **Muscular branches:** Innervate intercostal muscles.
- **Collateral branch:** Supplies intercostal muscles, parietal pleura, and periosteum.
- **Lateral cutaneous branch:** Innervates skin of lateral thoracic wall.
- **Anterior cutaneous branch:** Supplies skin of anterior thoracic wall.



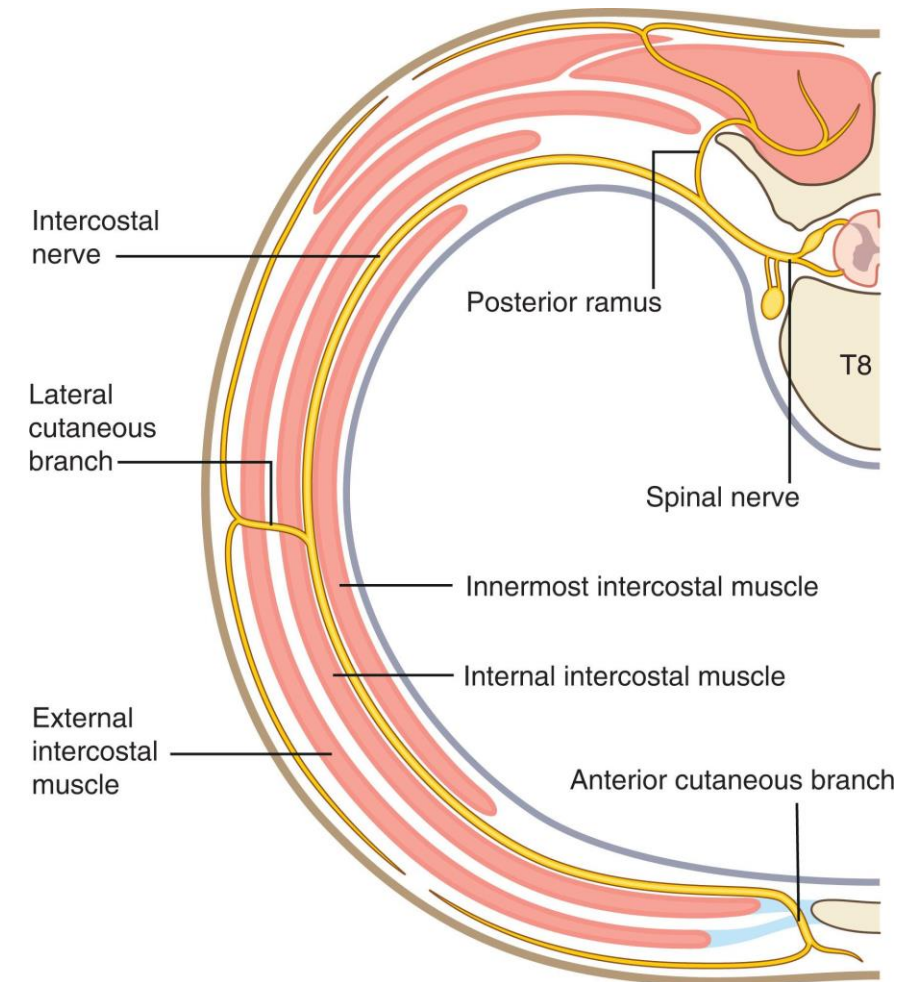
Innervation of External Intercostal Muscles

- Muscular branches from intercostal nerves (T1–T11) innervate external intercostal muscles.
- Provides motor control for rib elevation during inspiration.



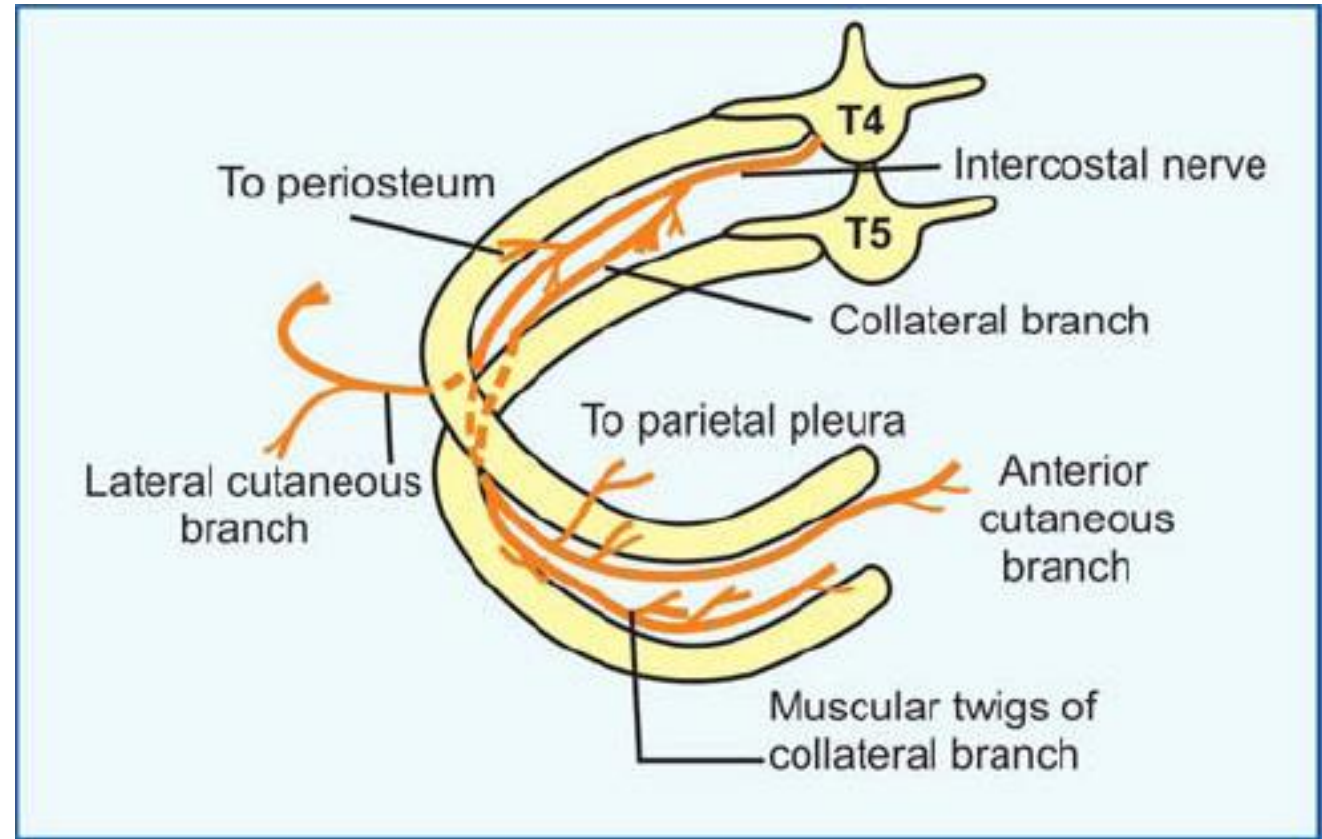
Innervation of Internal Intercostal Muscles

- Muscular branches from intercostal nerves (T1–T11) supply internal intercostal muscles.
- Controls rib depression during forced expiration



Innervation of Innermost Intercostal Muscles

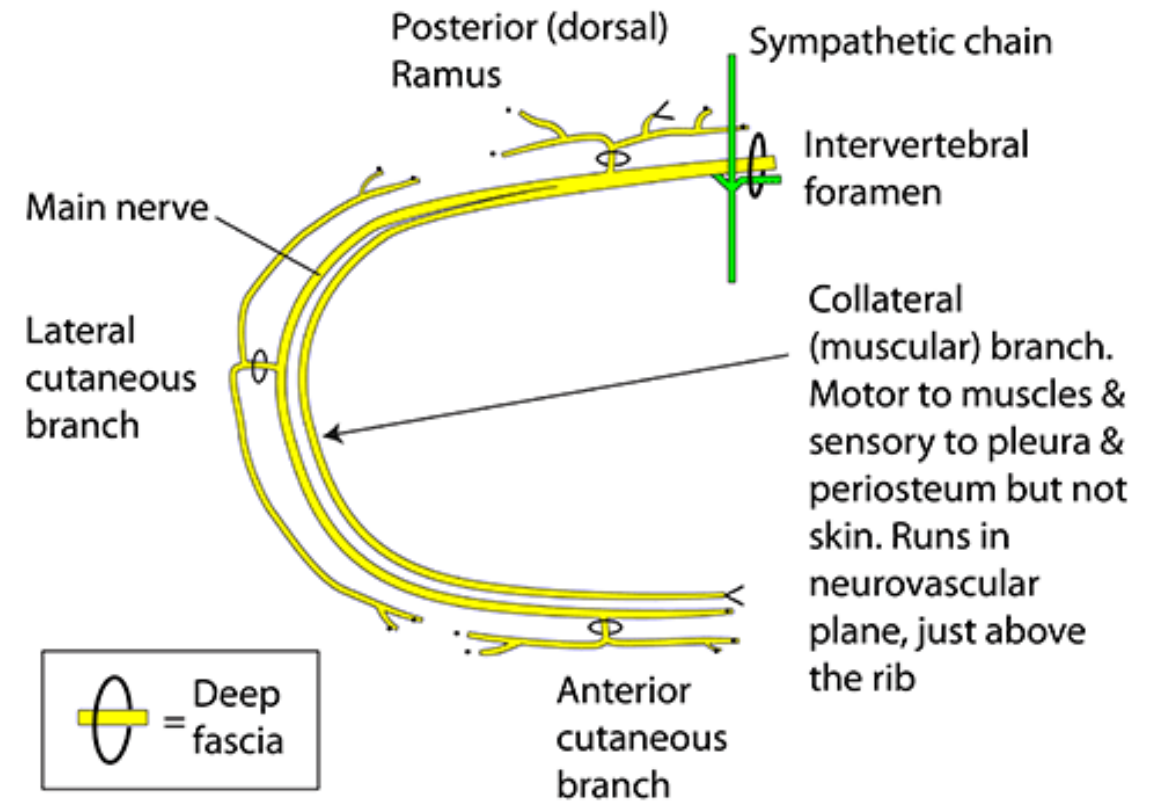
- Muscular branches from intercostal nerves (T1–T11) innervate innermost intercostal muscles.
- Assists in forced expiration and stabilization of intercostal spaces.



Typical vs. Atypical Intercostal Nerves

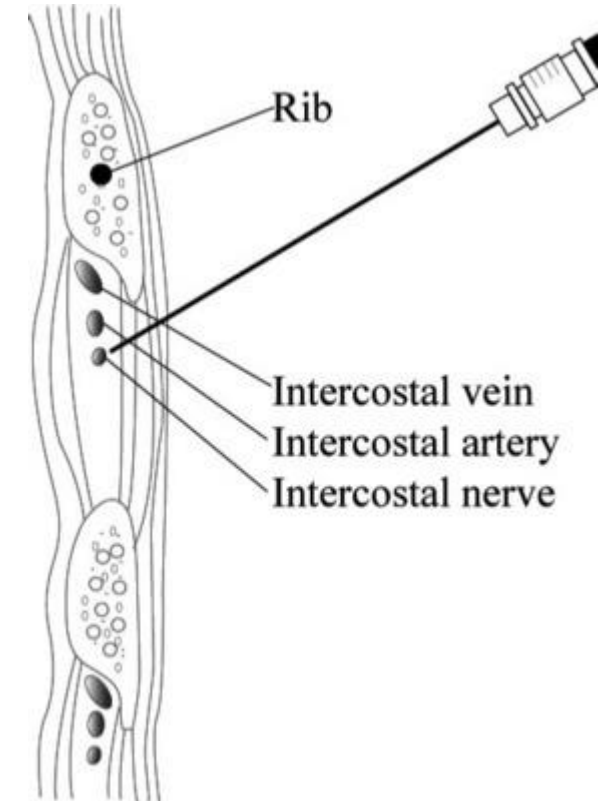
- Typical nerves (T3–T6): Remain within their intercostal space.
- Atypical nerves (T1–T2, T7–T11): Extend beyond thoracic wall; T7–T11 innervate abdominal muscles (thoracoabdominal nerves).

TYPICAL INTERCOSTAL NERVE



Clinical Relevance

- Intercostal nerve blocks used for pain management in thoracic surgeries.
- Injury to intercostal nerves may result in neuralgia, causing pain, numbness, or hypersensitivity in the chest wall.



Summary

Nerve Type	Muscles Innervated	Function	Branches Involved
Typical (T3–T6)	External, Internal, Innermost	Motor & sensory to thoracic wall	Muscular, collateral, cutaneous
Atypical (T1–T2)	Thoracic wall, brachial plexus	Motor & sensory to upper limb	Muscular, collateral, cutaneous
Thoracoabdominal (T7–T11)	Thoracic & abdominal muscles	Motor & sensory to abdominal wall	Muscular, collateral, cutaneous

References

- <https://www.kenhub.com/en/library/anatomy/intercostal-nerves>
- <https://www.ncbi.nlm.nih.gov/books/NBK538238/>
- https://en.wikipedia.org/wiki/Intercostal_nerves
- [https://med.libretexts.org/Courses/Okanagan_College/HKIN_110: Human Anatomy I for Kinesiology/03: The Nervous System/3.03: Spinal Nerves/3.3D: Intercostal Nerves](https://med.libretexts.org/Courses/Okanagan_College/HKIN_110:_Human_Anatomy_I_for_Kinesiology/03:_The_Nervous_System/3.03:_Spinal_Nerves/3.3D:_Intercostal_Nerves)

THANK YOU