



PILATES EMPOWERMENT SUMMIT

Breathe To Move

Zuzana Gemmel

PilatesdeRue.com



Scan the QR code to connect

Functions of Breathing

- Drives energy production in the body
- Essential for speech
- Modulates abdominal pressure
- ~20,000 breaths per day

👉 Improving how we breathe can enhance both daily life and exercise



PILATES EMPOWERMENT SUMMIT

Breathing and Energy Production

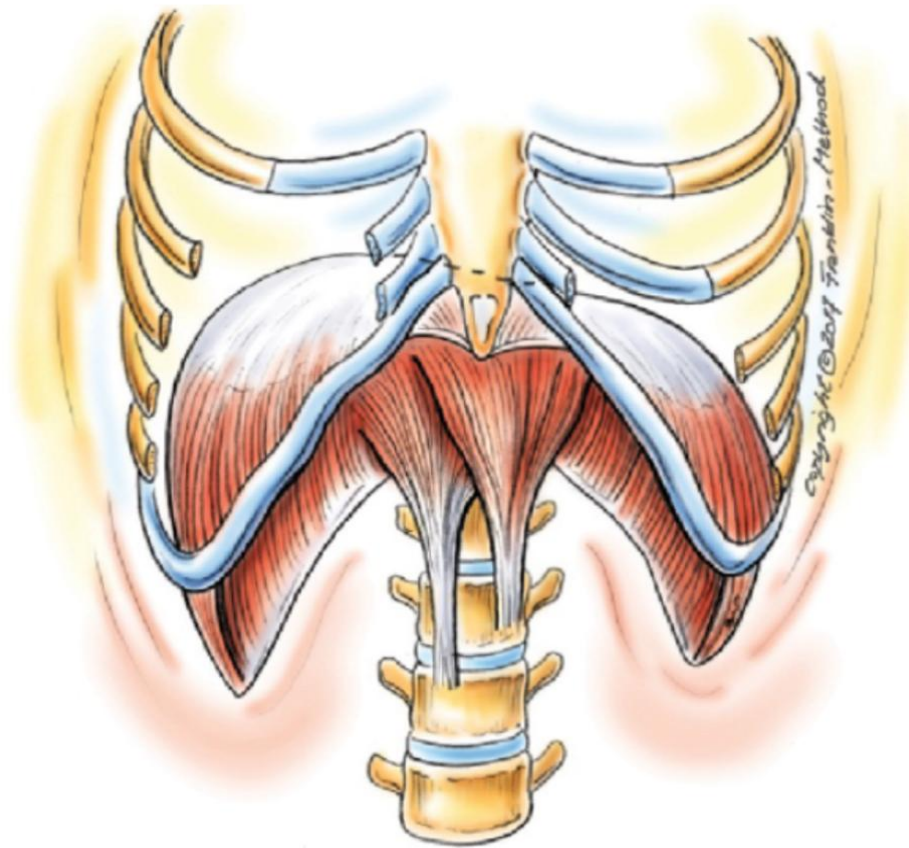
- ❑ Breathing supplies the oxygen needed for energy production in our cells
- ❑ How it works
 - Oxygen (O₂) is inhaled and transported via the bloodstream
 - Cells use oxygen to convert nutrients into energy (ATP)
 - Carbon dioxide (CO₂) is produced and exhaled
- ❑ Why it matters
 - Efficient breathing supports optimal energy production
 - CO₂ balance helps oxygen be released into tissues
 - Breathing quality impacts both performance and recovery

👉 Breathing is not just about air—it's about how efficiently your body produces and uses energy



PILATES EMPOWERMENT SUMMIT

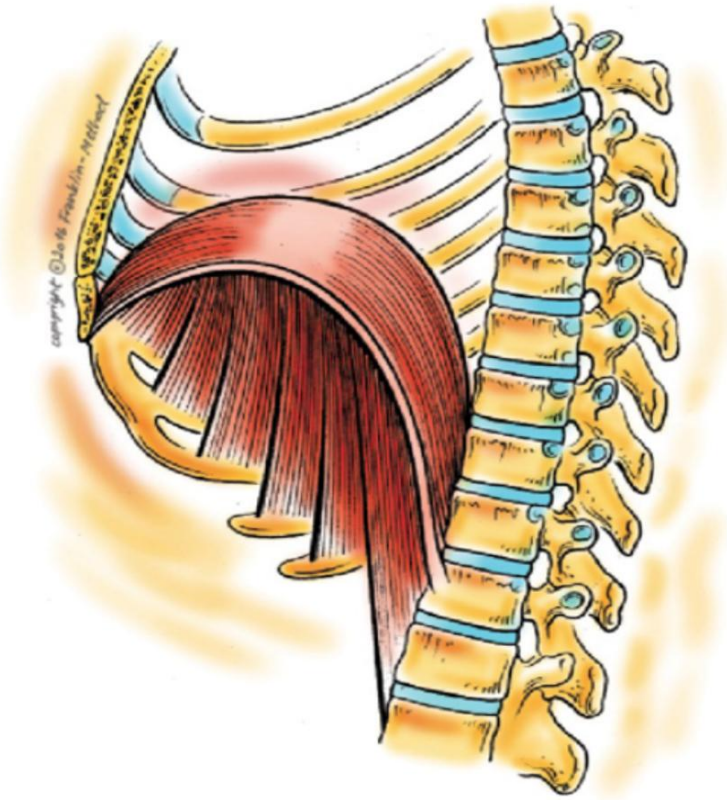
Diaphragm





PILATES EMPOWERMENT SUMMIT

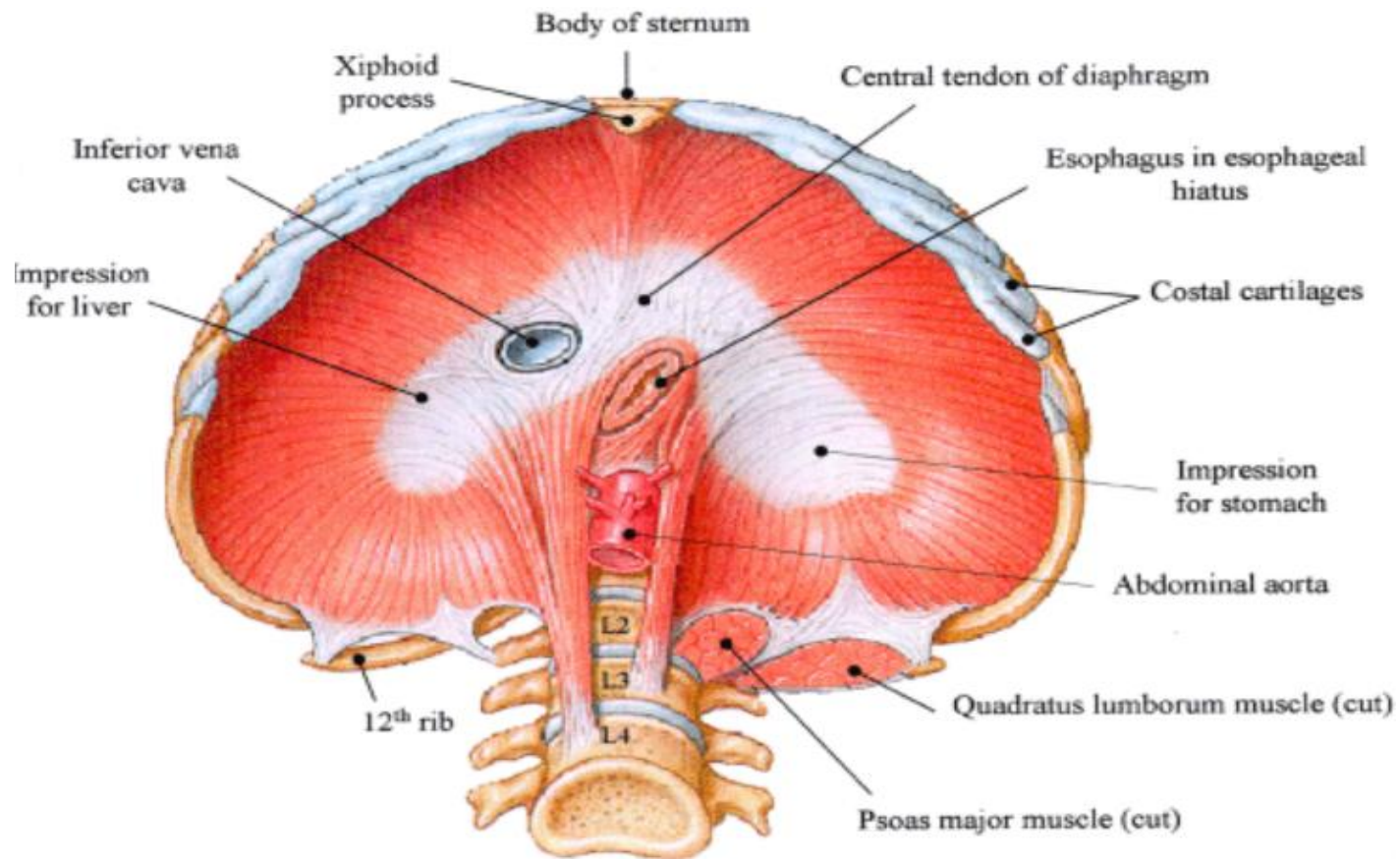
Diaphragm





PILATES EMPOWERMENT SUMMIT

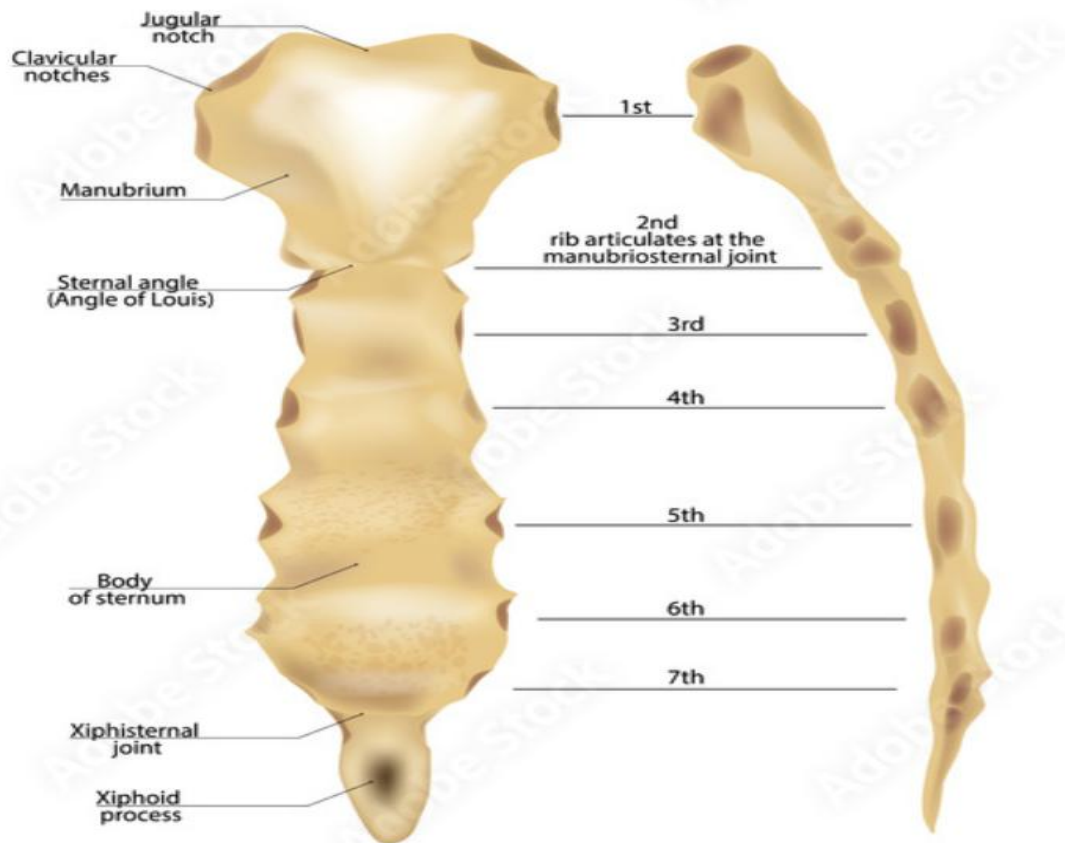
Diaphragm





PILATES EMPOWERMENT SUMMIT

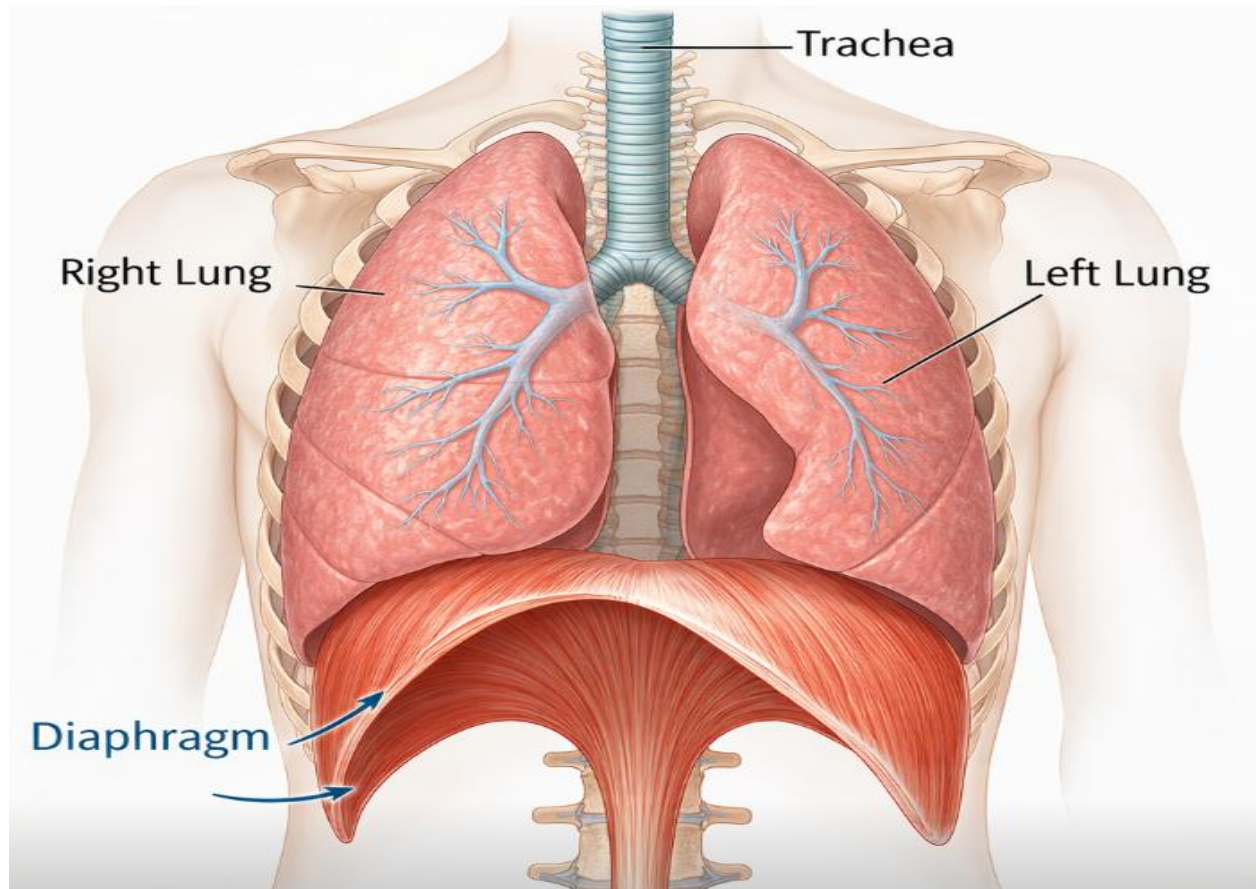
Sternum





PILATES EMPOWERMENT SUMMIT

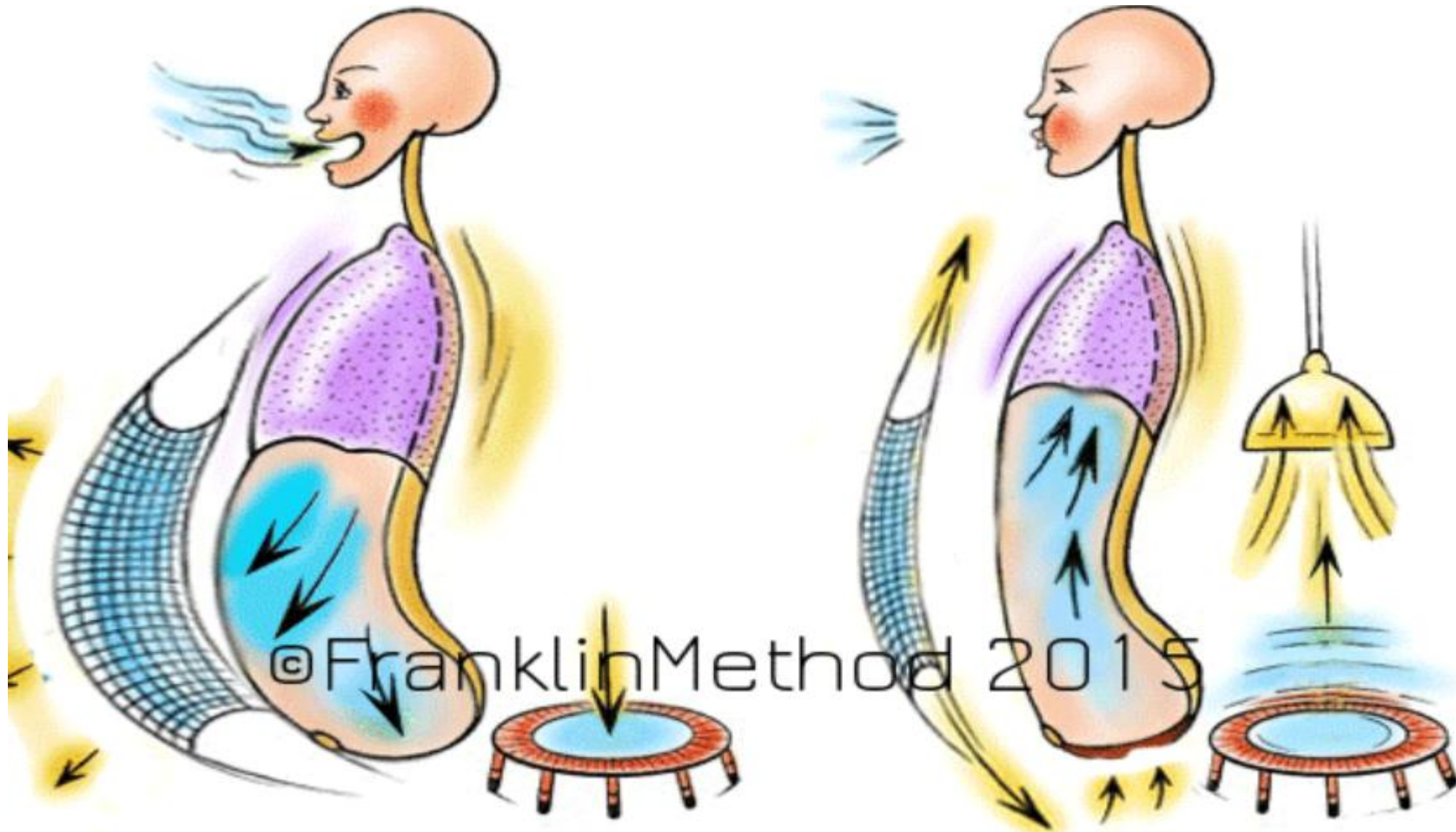
Lungs Diaphragm





PILATES EMPOWERMENT SUMMIT

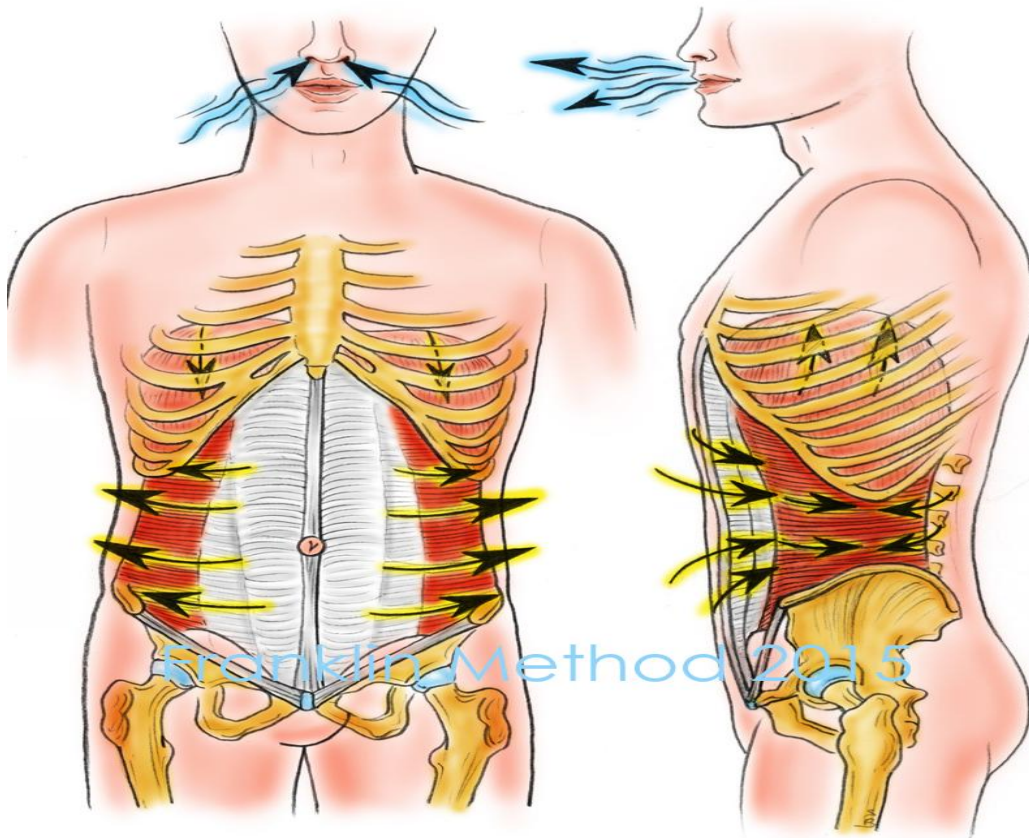
Movement of the Diaphragm





PILATES EMPOWERMENT SUMMIT

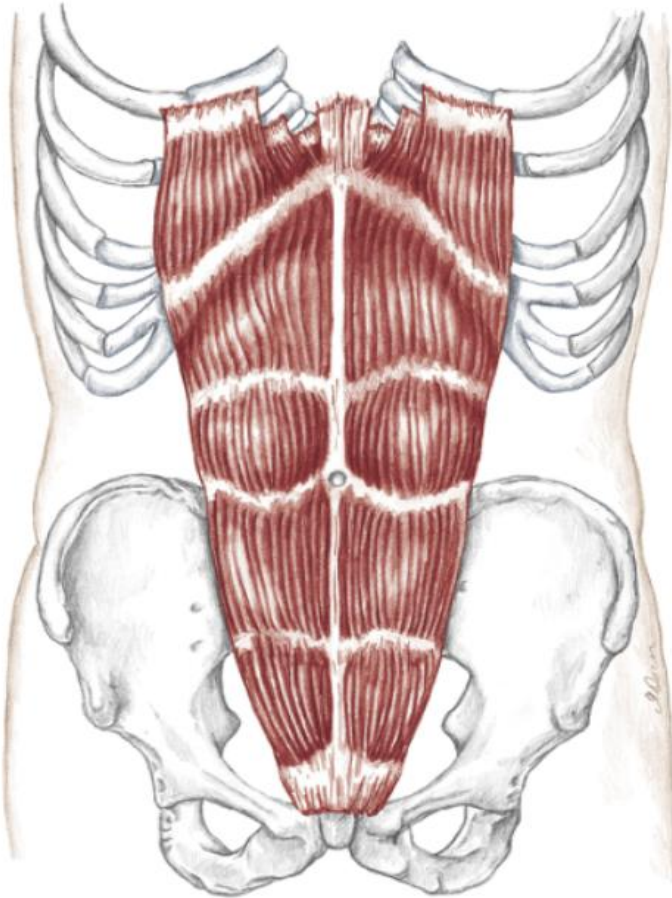
Abdominals in Breathing





PILATES EMPOWERMENT SUMMIT

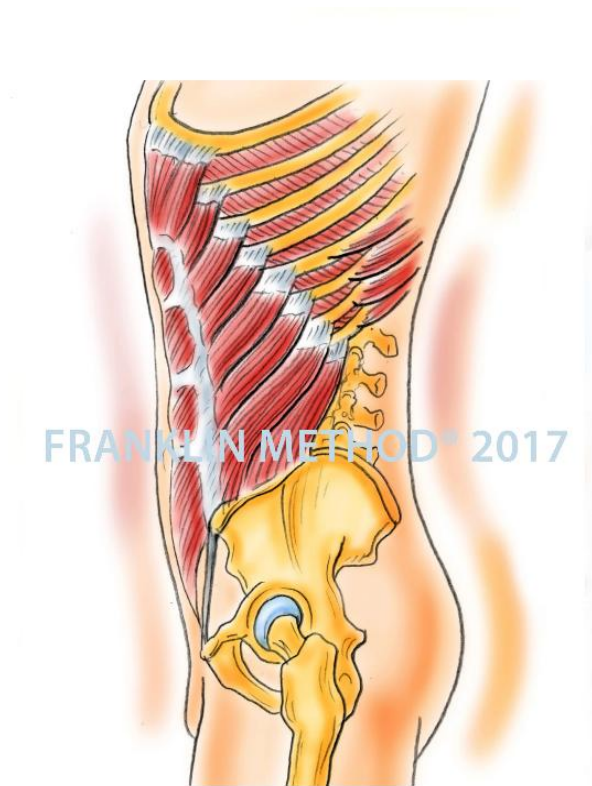
Abdominal wall – Rectus Abdominus





PILATES EMPOWERMENT SUMMIT

Abdominal wall – External Obliques





PILATES EMPOWERMENT SUMMIT

Abdominal wall – Internal Obliques





PILATES EMPOWERMENT SUMMIT

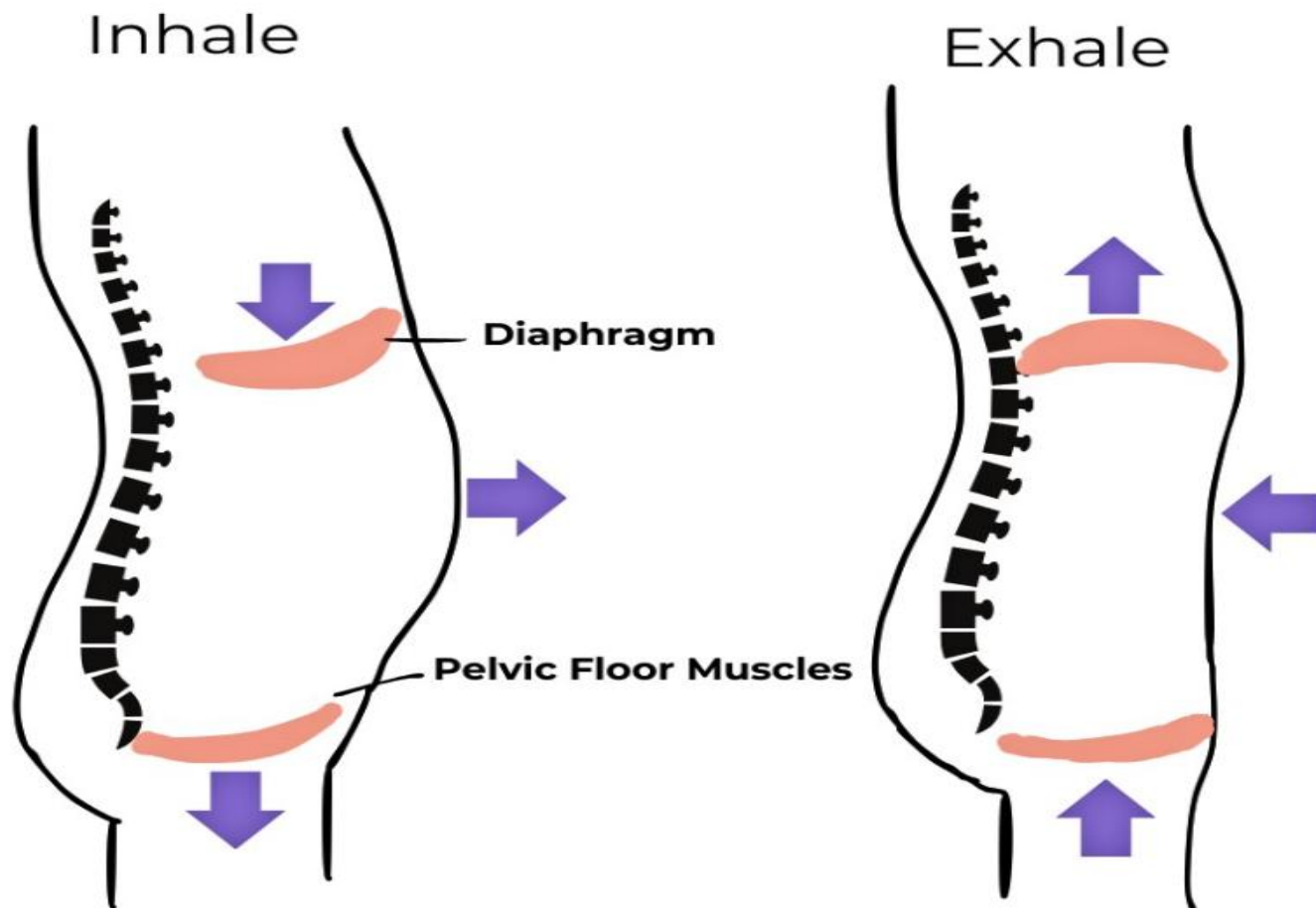
Abdominal wall – Transversus Abdominis





PILATES EMPOWERMENT SUMMIT

Pelvic Floor Diaphragm





PILATES EMPOWERMENT SUMMIT

Key Movements during Inhalation

- Diaphragm: contracts → moves downward
- Abdominal muscles: lengthen, increase tone → expand forward & sideways
- Ribs: lift and expand outward
- Pelvic floor: lengthens and lowers

💡 Effect: Thoracic cavity volume increases → air flows into lungs

Key Movements during Exhalation

- **Diaphragm:** lengthens → moves **upward**
- **Abdominal muscles:** contract → push organs **upward and inward**
- **Ribs:** descend and move **inward**
- **Pelvic floor:** lifts and **shortens**

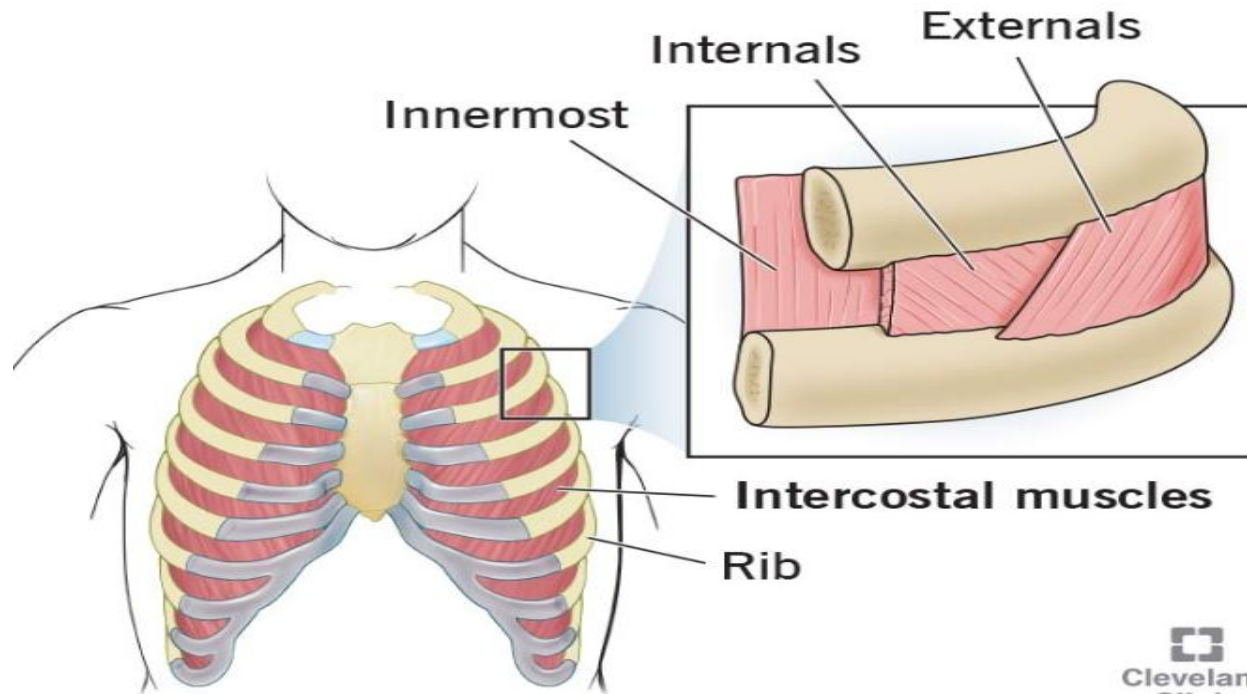
💡 **Effect:** Thoracic cavity volume **decreases** → air is pushed **out of the lungs**



PILATES EMPOWERMENT SUMMIT

Intercostal Muscles

Intercostal muscles





PILATES EMPOWERMENT SUMMIT

Function of Intercostal Muscles

- Muscles located between the ribs
- Main role: assist with breathing

External Intercostal Muscles

- Run downward and forward between ribs
- Function: Elevate ribs during inhalation → expands chest cavity

Internal Intercostal Muscles

- Run downward and backward - deeper layer
- Function: Depress ribs during forced exhalation → pushes air out

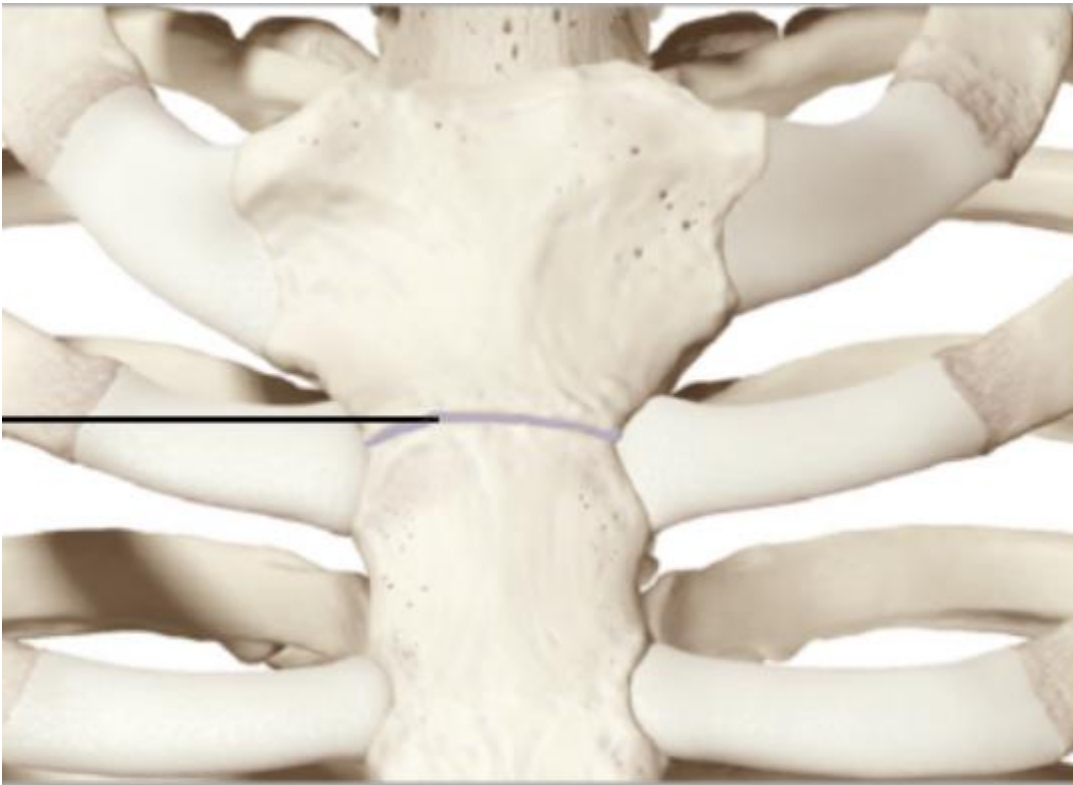
Innermost Intercostal Muscles

- Deepest layer, similar to internal intercostals
- Function: Assist with forced exhalation



PILATES EMPOWERMENT SUMMIT

Manubriosternal joint (sternal angle)



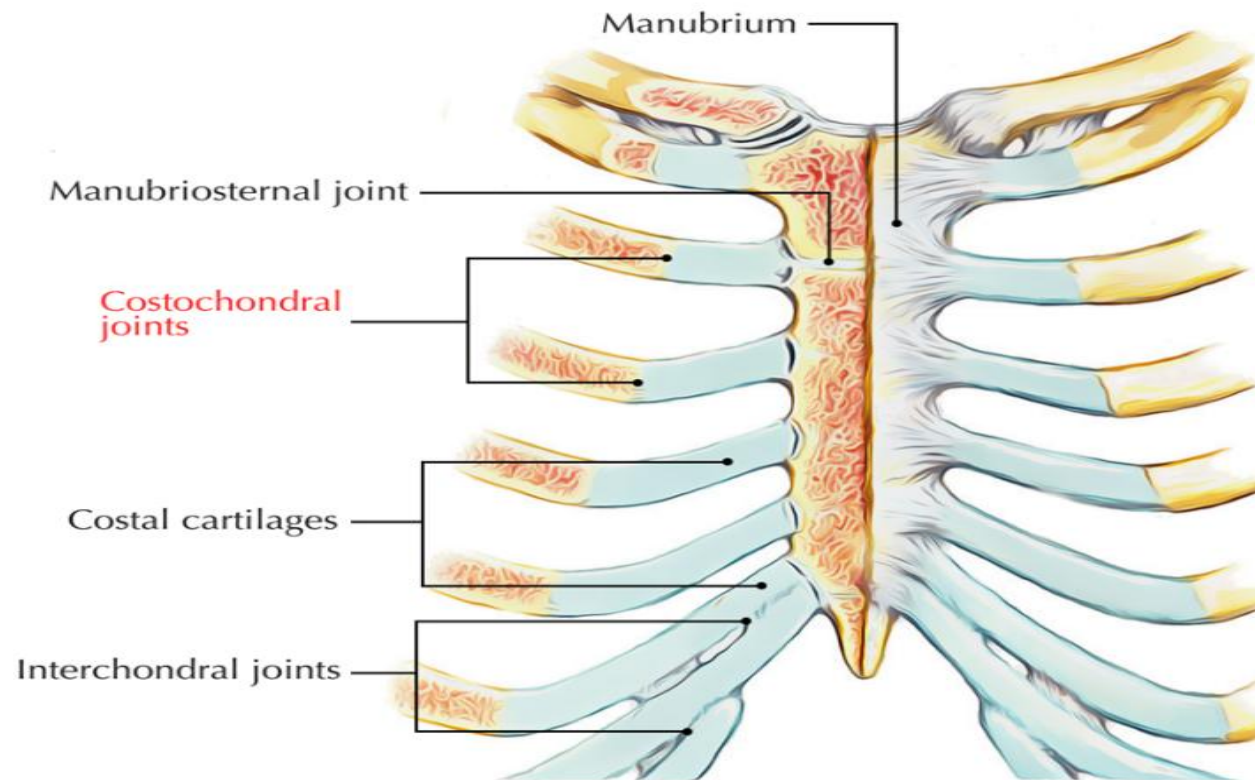
During breathing, it allows a small amount of movement as the rib cage expands and contracts.

It helps the sternum act like a slightly flexible unit, rather than a completely rigid bone.



PILATES EMPOWERMENT SUMMIT

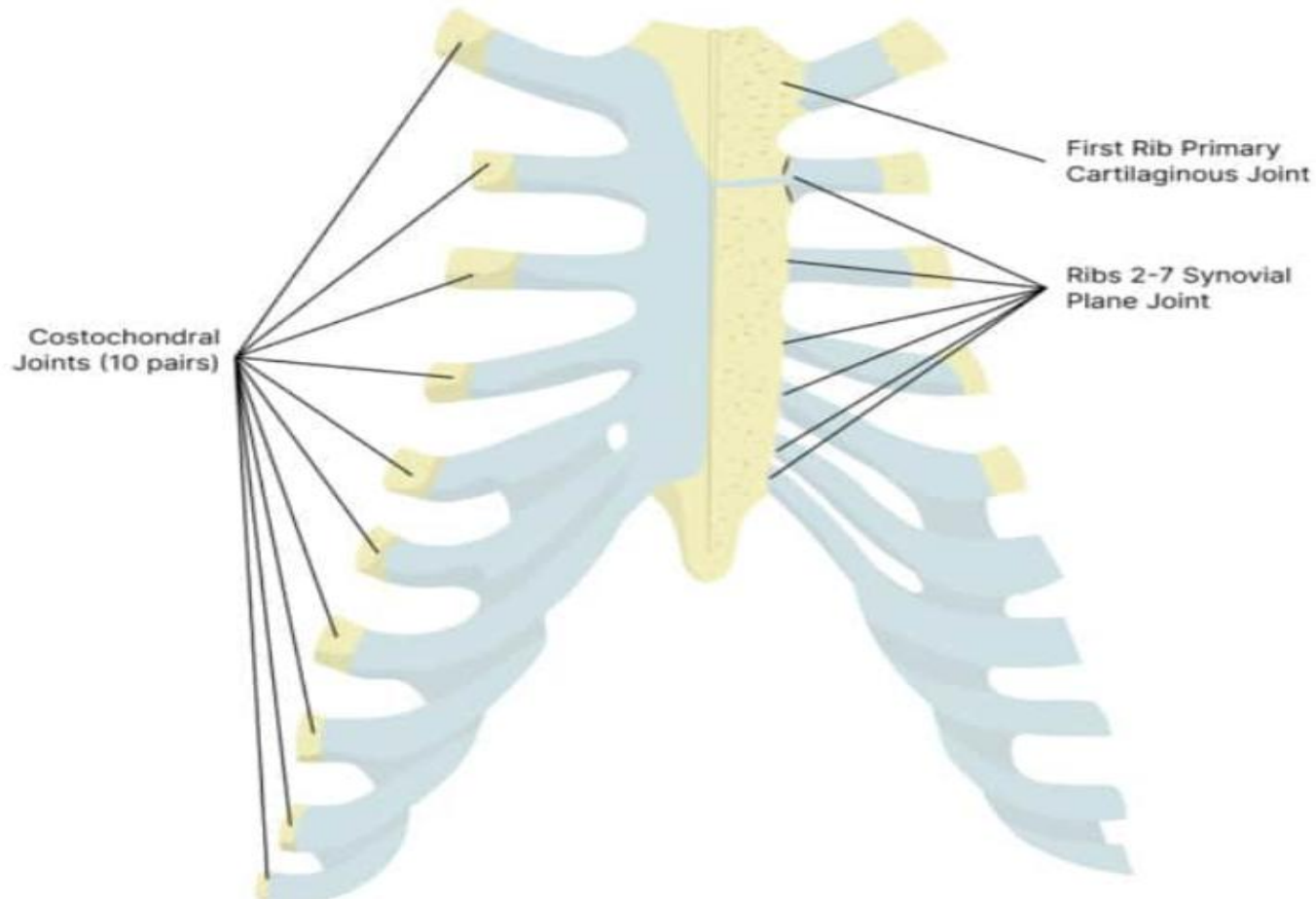
Costochondral Joints





PILATES EMPOWERMENT SUMMIT

Sternal Costal (Synovial Plane) Joints

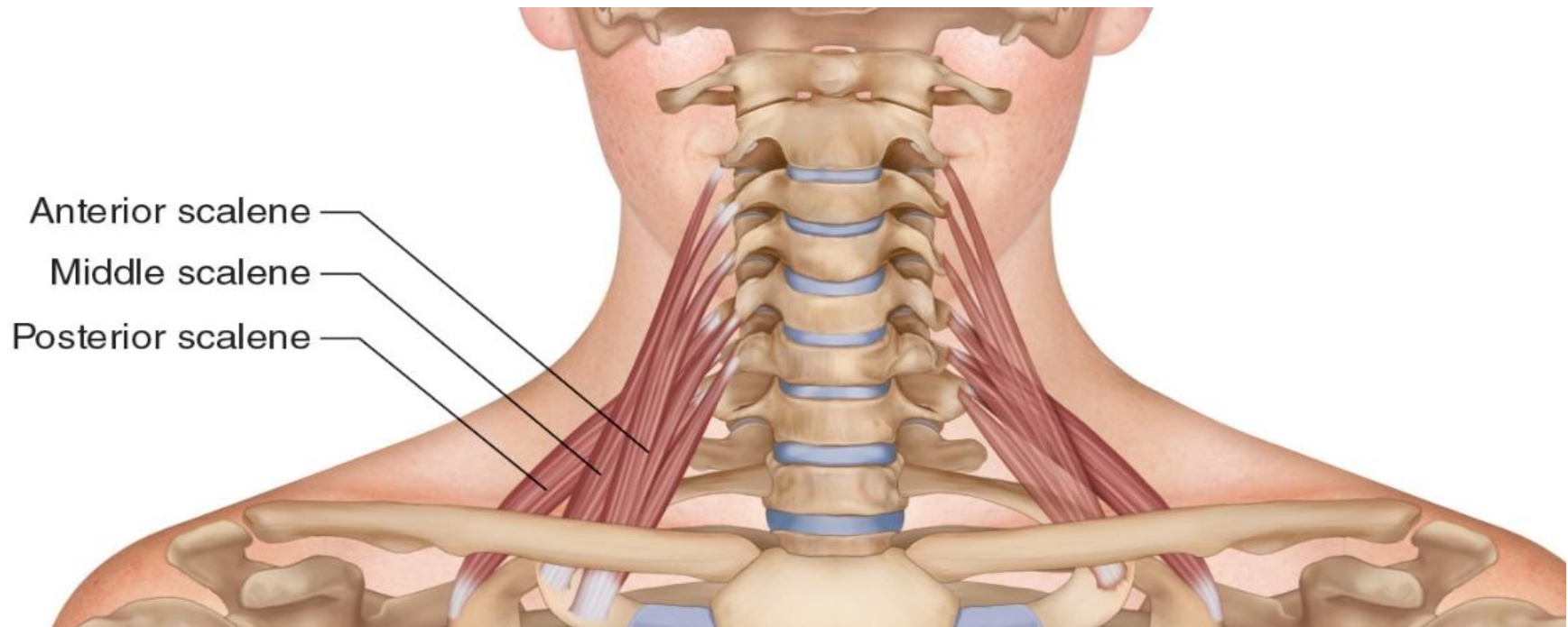




PILATES EMPOWERMENT SUMMIT

Scalene muscles and 1st rib

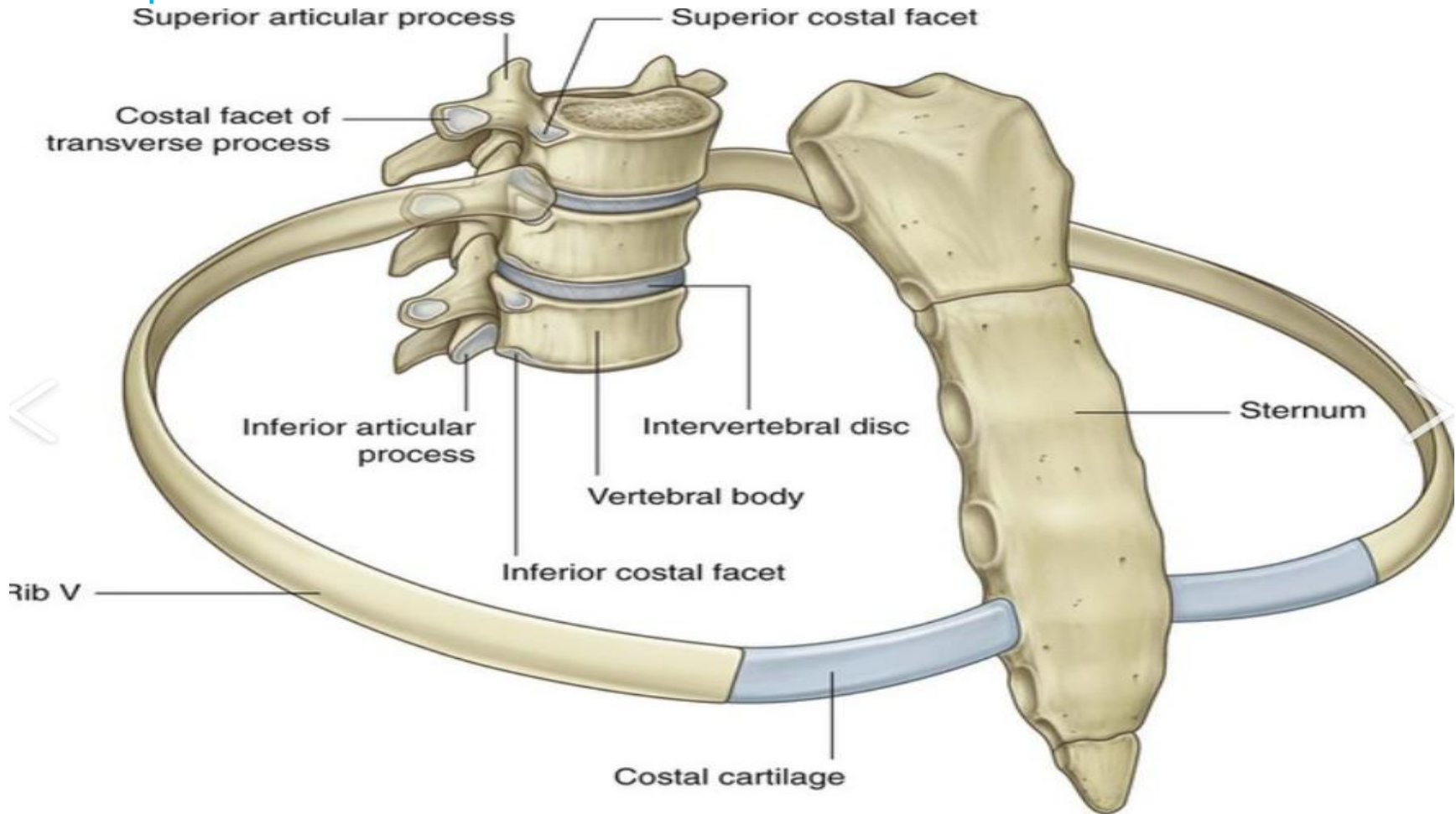
Scalene muscles lift the 1st and 2nd ribs up during inhalation





PILATES EMPOWERMENT SUMMIT

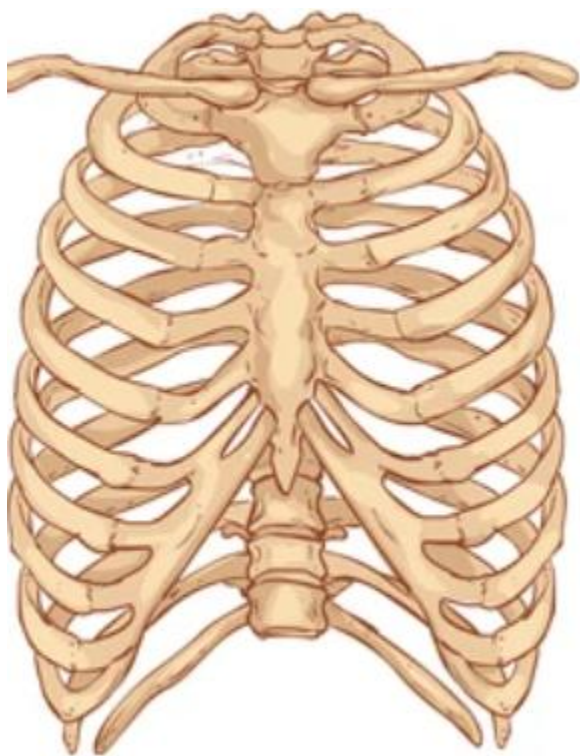
Ribs and Spine





PILATES EMPOWERMENT SUMMIT

Orientation of Ribs



Top ribs – pump handle movement

Lower ribs – bucket handle movement

Floating ribs – open back

When front of the rib lifts, back of the rib drops down



PILATES EMPOWERMENT SUMMIT

Thank you for being a part of PES 2026.

Please remember to submit a session evaluation.

Your feedback is important to us!