

Intrapleural Pressure

- **Pressure inside pleural sac**
 - Always negative under normal conditions
 - Always less than P_{alv}
- **Varies with phase of respiration**
 - At rest, -4 mm Hg

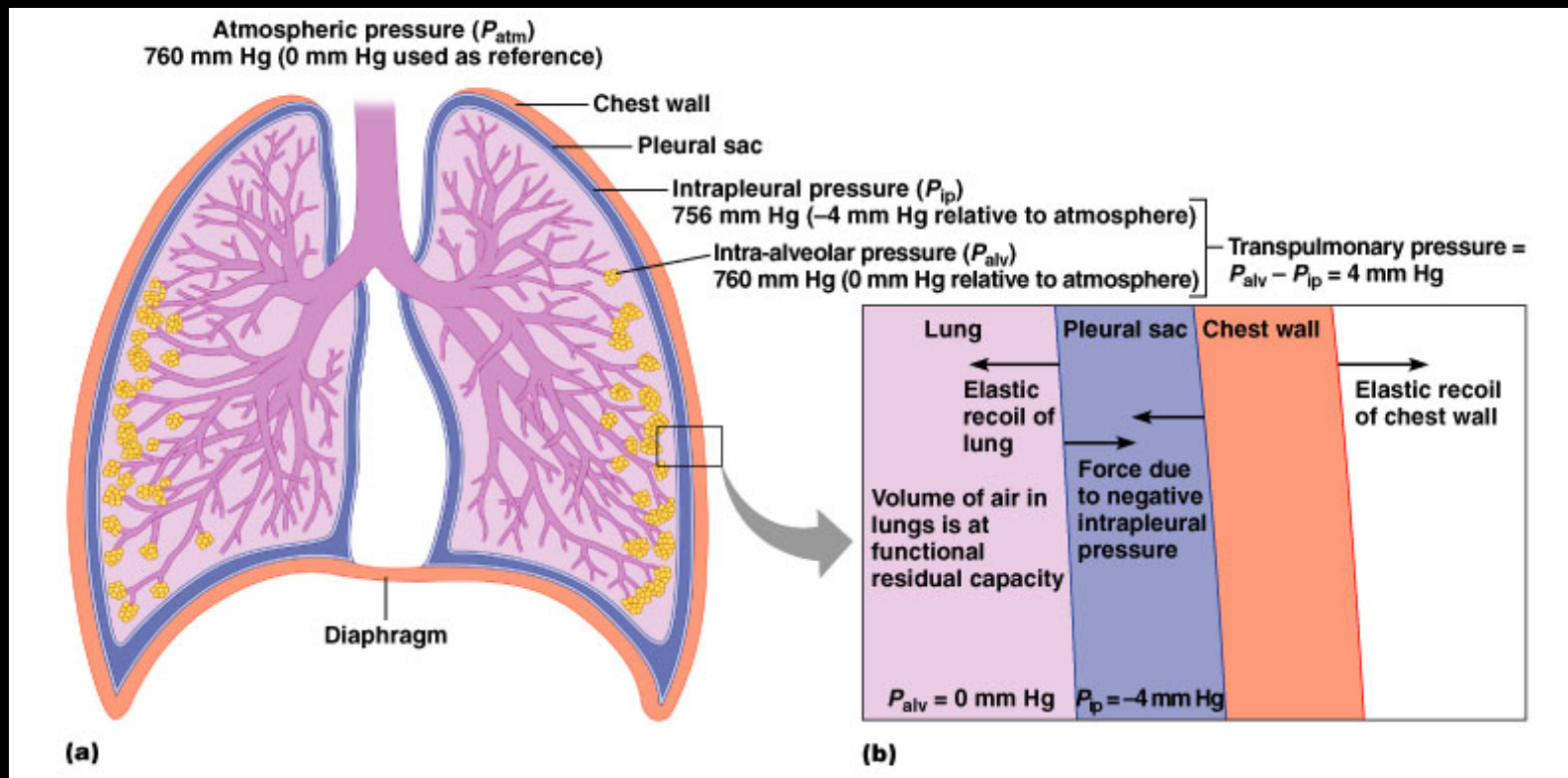
Intrapleural Pressure

- **Negative pressure due to elasticity in lungs and chest wall**
 - **Lungs recoil inward**
 - **Chest wall recoils outward**
 - **Opposing pulls on intrapleural space**
 - **Surface tension of intrapleural fluid hold wall and lungs together**

Transpulmonary Pressure

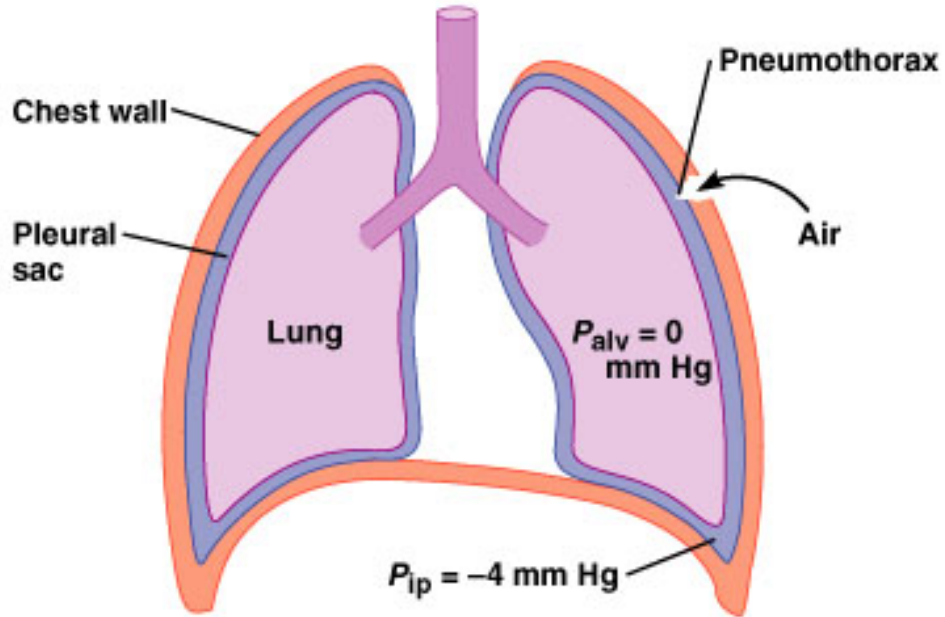
- **Transpulmonary pressure = $P_{\text{alv}} - P_{\text{ip}}$**
- **Distending pressure across the lung wall**
- **Increase in transpulmonary pressure:**
 - **Increase distending pressure across lungs**
 - **Lungs (alveoli) expand, increasing volume**

Pulmonary Pressures at Rest

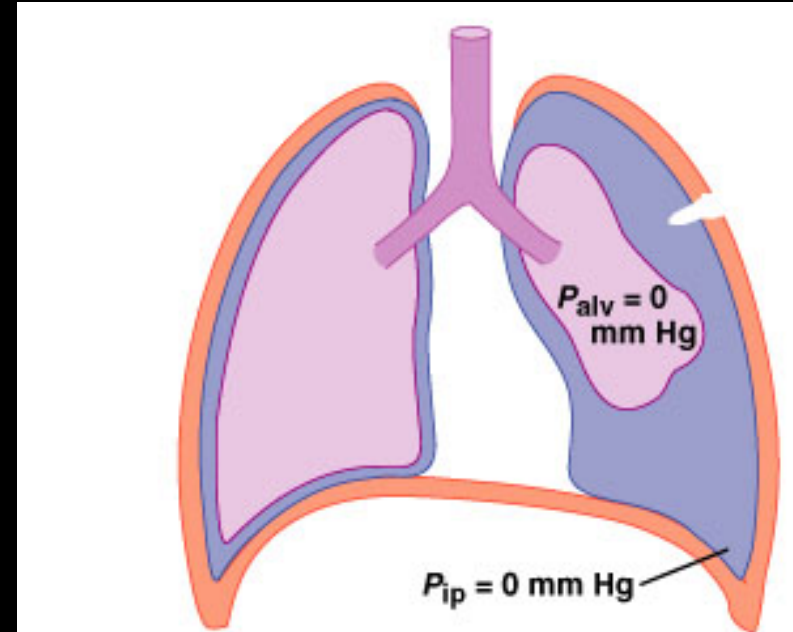


FRC = Functional Residual Capacity = volume of air in lungs between breaths (defined as rest); $P_{alv} = P_{atm}$

Pneumothorax



(a)



(b)