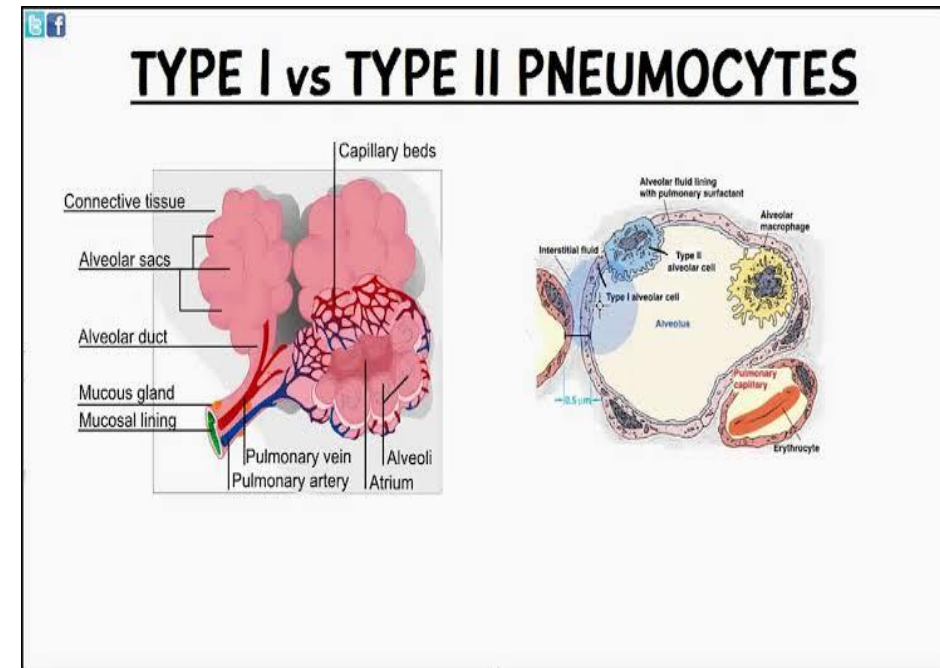
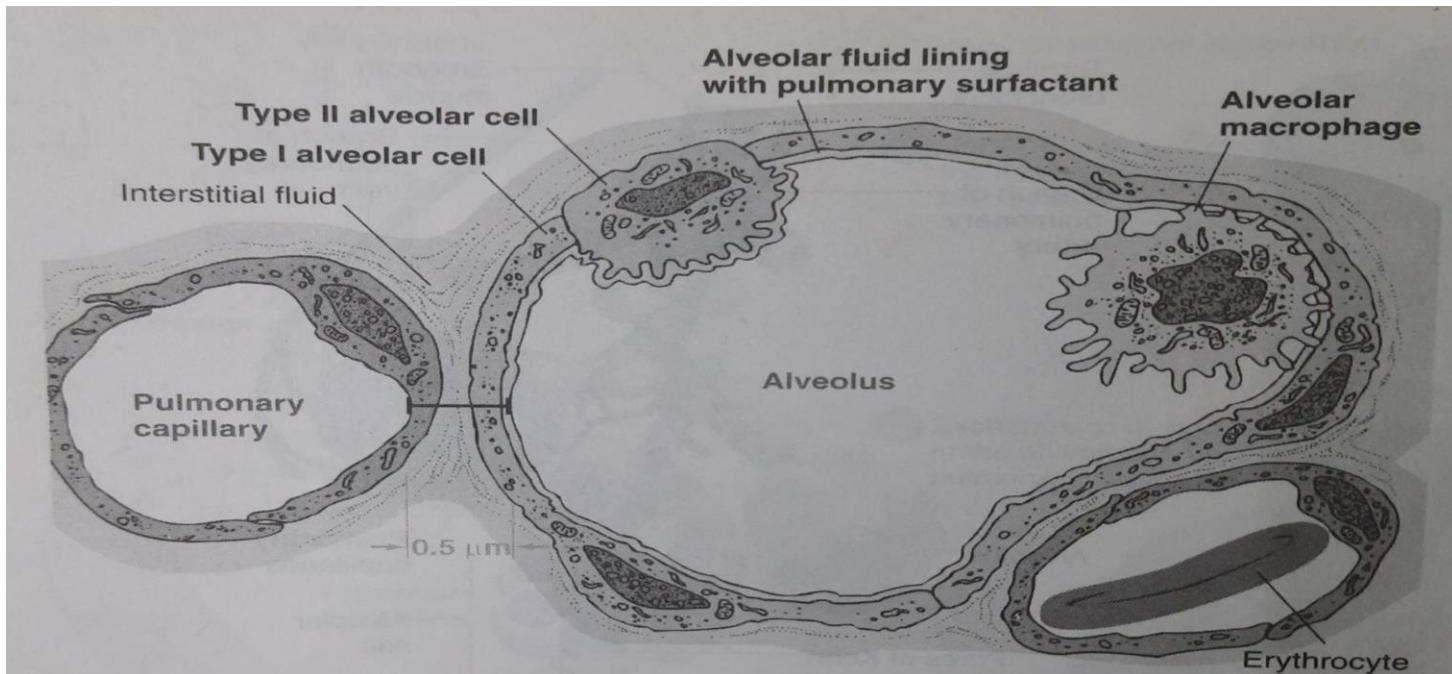


Physiology of Respiration

- Intracellular respiration; RQ
- External respiration
- Other functions of respiratory system
 - * water & heat eliminations
 - * acid base balances
 - * speech, singing, vocalization
 - * smell
 - * enhance venous returns
 - * defense against foreign inhaled matters

- Respiratory air ways; Trachea; Bronchi; Bronchioles
- Pharynx & Larynx
- Alveoli; Type 1 & Type 2 alveolar cells; alveolar macrophages; wall of alveoli
- Non muscular vs muscular structure
- Collateral ventilation; Pores of Kohn

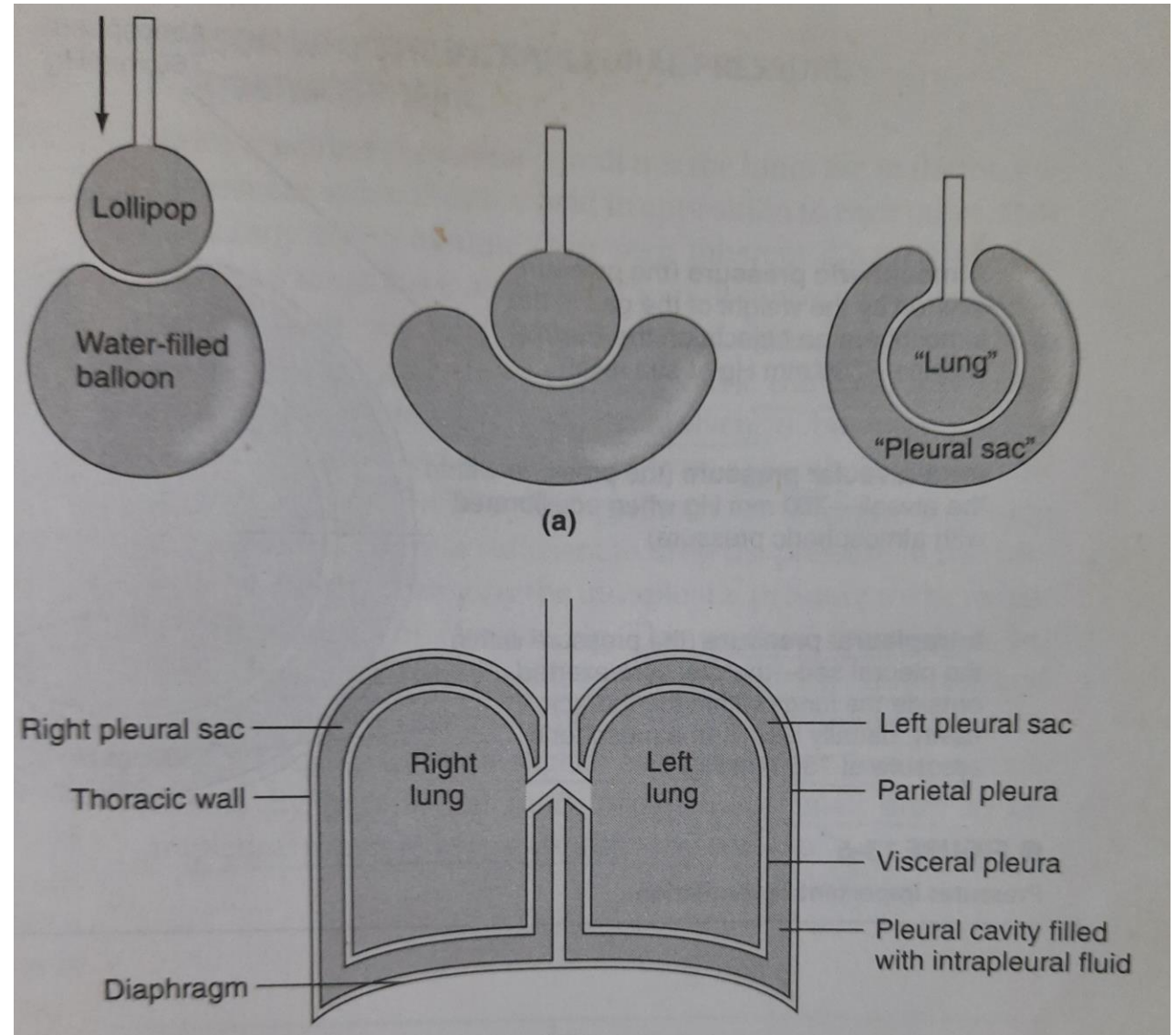


What happens if lung is consisted with single chamber, instead of inflatable air sacs?

- Thin barrier for gaseous exchanges (0.5 μm)
- 300 million alveoli
- Each with 300 μm diameter
- 75 square meter tennis court!!!

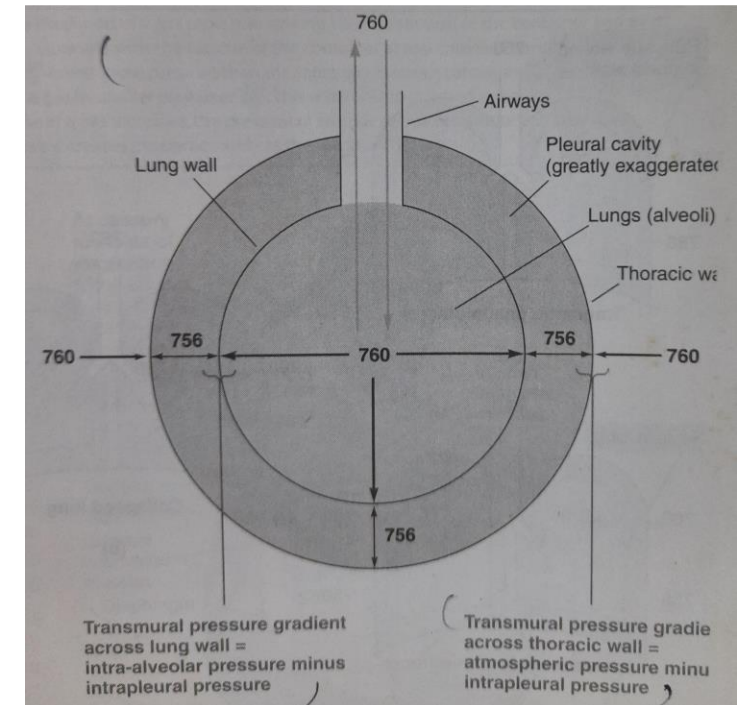
Pleural sac isolate each lung from thoracic wall

- Visceral & Parietal pleura
- Intrapleural fluids
- Pleurisy



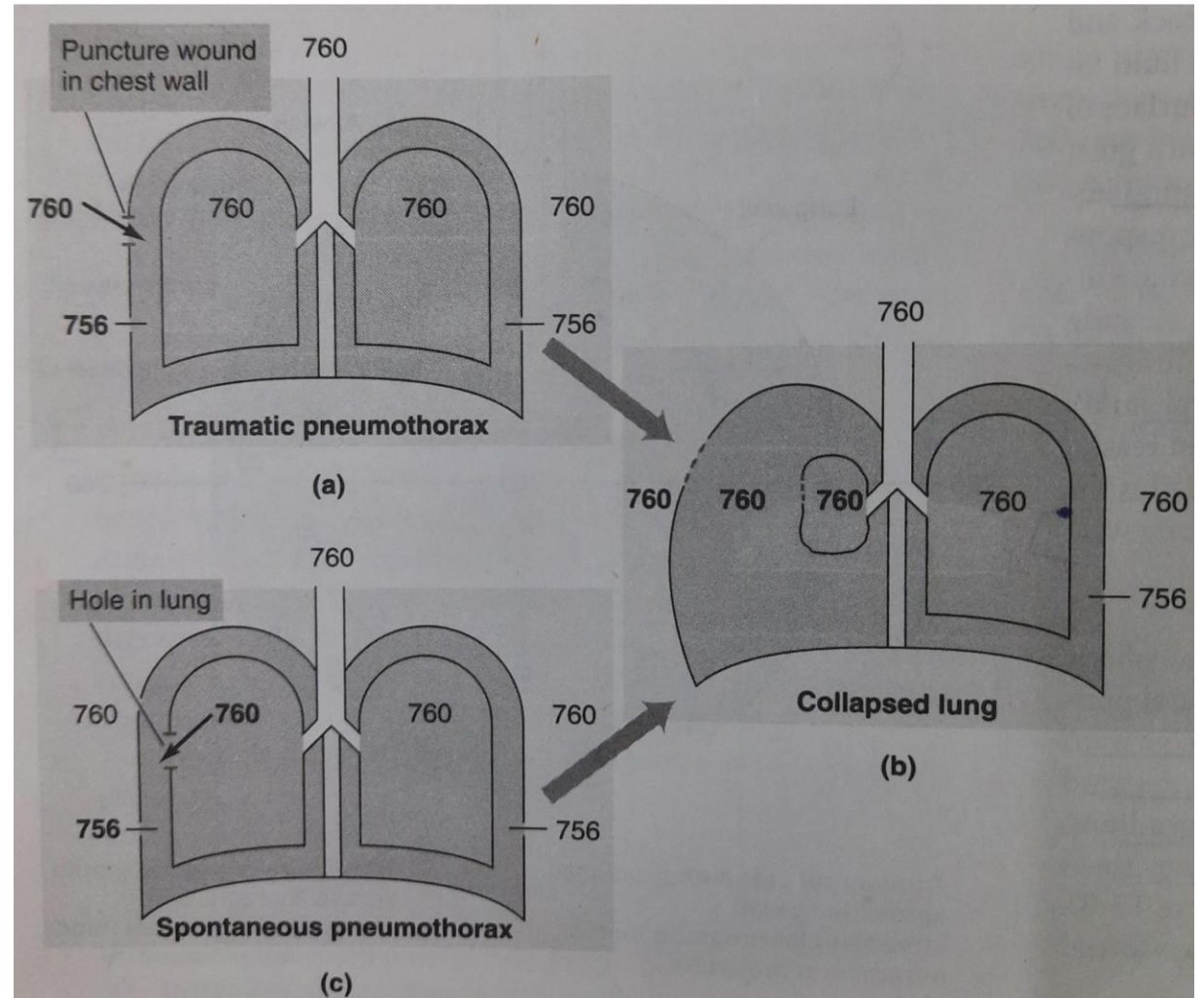
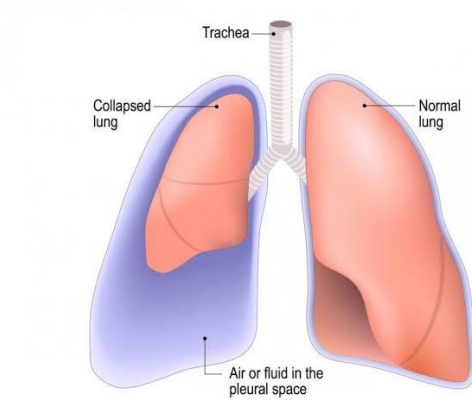
Mechanics behind respiration

- Atmospheric, Intra alveolar & Intra pleural pressures
- Intra pleural fluids cohesiveness
- Intra pleural pressure always be sub Atmospheric
- Transmural pressure gradient



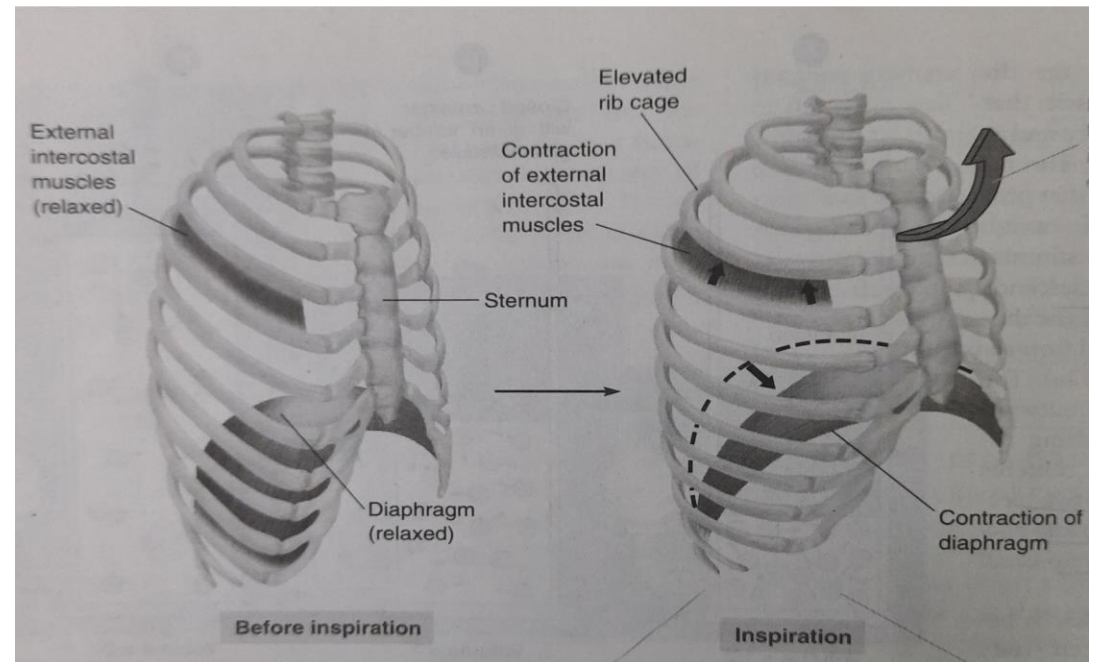
Pneumothorax

- Traumatic & Spontaneous



Inspiration

- Boyle's law & intra alveolar pressure
- Onset of inspiration
- Diaphragm, External inter costal muscles
- Phrenic & inter costal nerves
- Accessory inspiratory muscle



Expiration

- Onset of expiration
- Diaphragm, internal inter costal muscles, abdominal muscles

