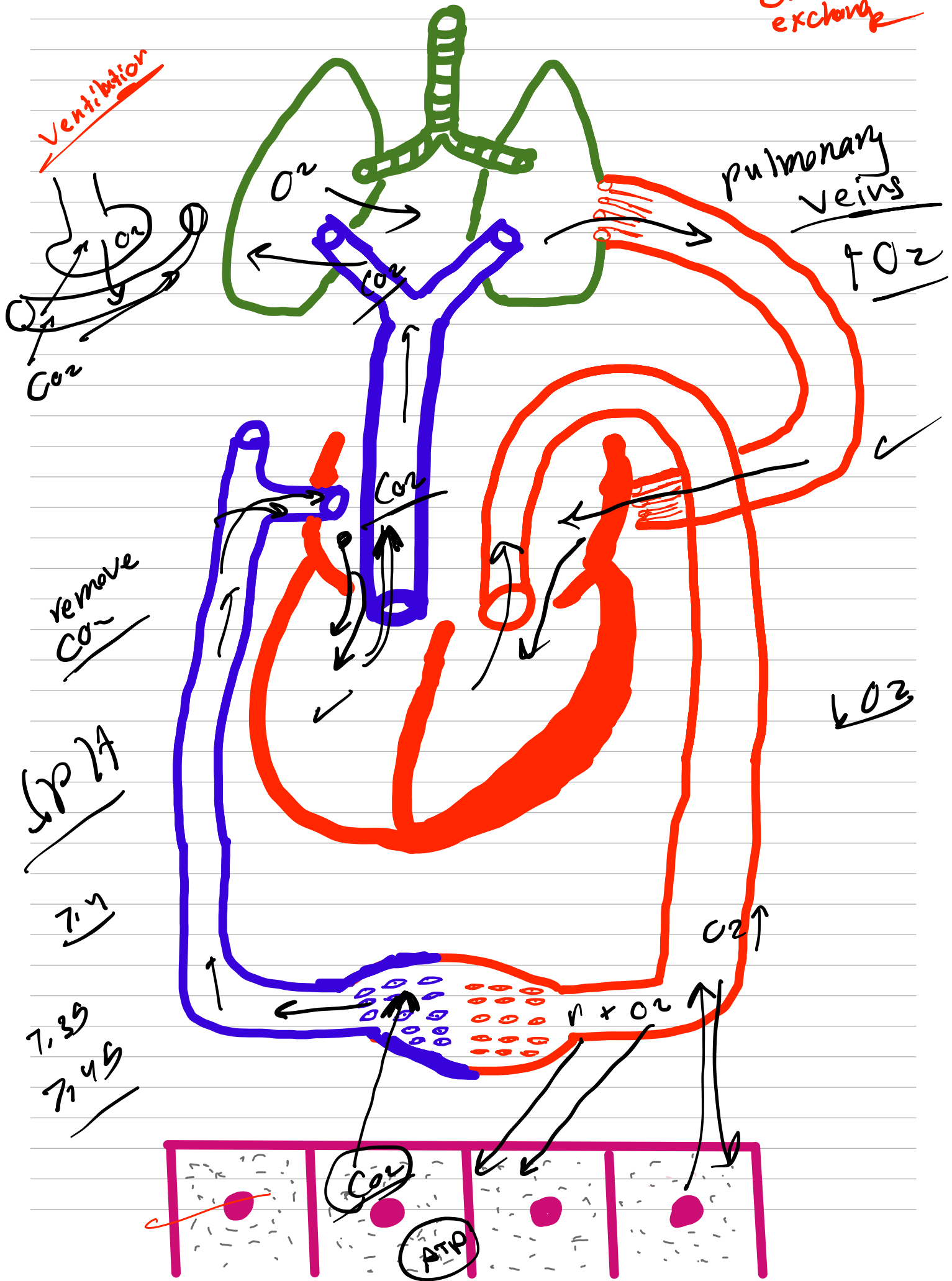


introduction

بسم الله الرحمن الرحيم

Gas exchange



Respiratory system :

Physiological

Conducting Portion

* Nose → Terminal Bronchiole

* Conduct at low R

→ Warm → كافي

→ moisten (humidity) → رطب

→ protect → nose

mucus & cilia & phagocyte

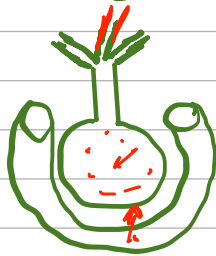
→ smell sensation (insp)

→ vocalization (exp)

Respiratory Portion

Respiratory bronchiole → alveoli

Gas exchange



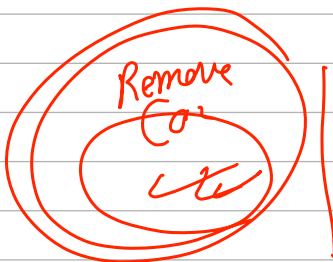
Alveolar-Capillary membrane

very Thin (0.5 μm)

Facilitate Gas exchange.

Alveolar Epi
Alveolar fluid
basement membrane
interstitial fluid
capillary endothelium

Gas exchange



uptake O₂

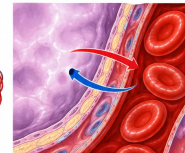
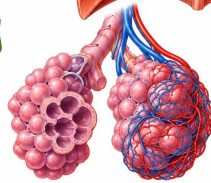
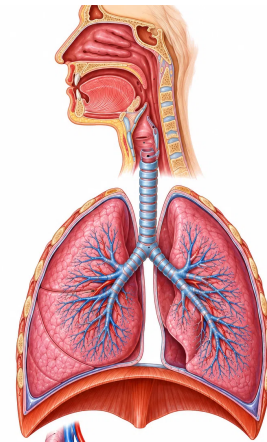


O₂ no level

Anatomical

upper

nose
pharynx
larynx



Lower

Trachea

RT Bronchus

Bronchiole

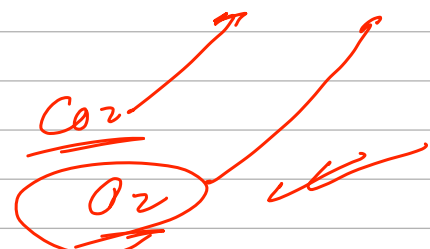
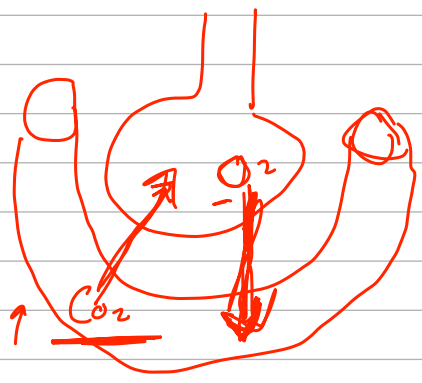
1st

2nd

Terminal

Respiratory Bronchiole

Alveoli



Function of Respiratory system

Respiratory Function

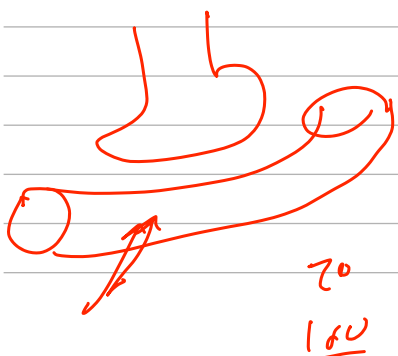
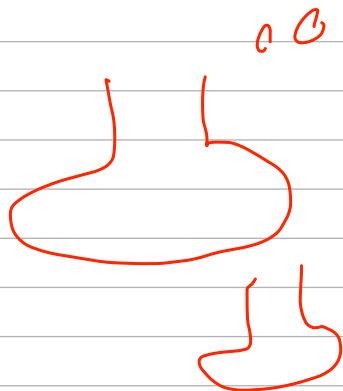
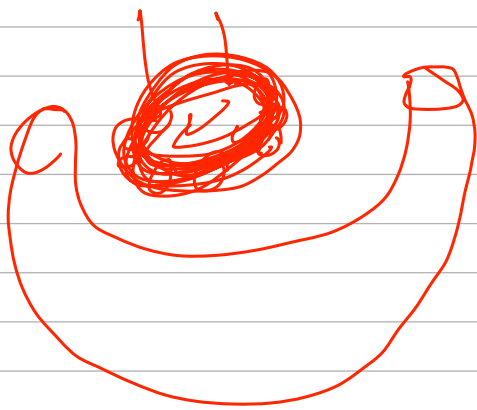


Gas exchange



→ obtain O_2

→ Remove CO_2



non-Respiratory Function

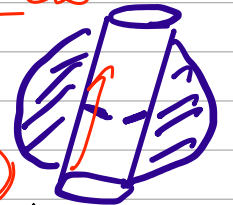


* 2 loss → Water

Heat

* Acid-Base Balance

* Venous Return



* Metabolic and endocrine:

① surfactant

② ACE

③ PGI₂ / Histamine

④ Tissue plasminogen activator

* Defense → mucus, cilia, MAC

* Air Conditioning → heat, humidify

* smell

* Vocalization

* Vascular Reservoir

500
1000

recruitment

Respiration

internal
Respiration

external Respiration

Respiratory
system

Circulatory
system

① Ventilation ✓

② exchange ✓

③ Transport

④ exchange