Key

Pulmonary Anatomy

1) Cells continually use O_2 and release CO_2. The respiratory system is in charge of gas exchange. Gasses are transported in the blood which is part of the cardiovascular system. Failure of either system leads to rapid cell death from O2 starvation.
2) What are the two sections of the respiratory system and what are the structures in each part?

Upper Respiratory Tract: (Above Vocal Cords)
- Nostrils → Pharynx → Larynx

Lower Respiratory Tract: (Below Vocal Cords)
- Larynx → Trachea → Bronchi → Lungs

3) What are the external nasal structures?
- Skin
- Nasal bones
- Cartilage lined with mucos membrane
- Nares (Nostrils)

4) What are the internal nasal structures?
- Roof = Made of Ethmoid
- Floor = Hard Palate
- Internal nares (choanae) = Opening to the pharynx
- Nasal Septum

5) What are the functions of the nasal structures (olfactory epithelium, pseudostratified ciliated columnar with goblet cells, and paranasal sinuses)?
- Smell
- Warms air (highly vascular)
- Mucous moistens air & traps dust
- Cilia Mores mucous towards pharynx
- Found in the maxilla
- Lightens the skull
- Resonates the voice

6) What are the three regions of the pharynx?

Nasopharynx
↳ Near the nose

Oropharynx
↳ near the mouth

Laryngopharynx
↳ near the larynx

7) What are the functions of the pharynx?
- Passage way for both food and air
- Resonating chamber for sound production
- Tonsils in the walls protect the entryway to the body

8) What tissue types make up the pharynx?

Skeletal tissue & Mucous Membrane

9) What are the 5 cartilages found in the larynx?

① Thyroid Cartilage

② Epiglottis

③ Cricoid Cartilage

4&5 Pair (2) Arytenoid Cartilages

10) What is the function of the epiglottis?

- Moves upward when swallowing to prevent food/water from entering the lungs
- Bends to cover the glottis

11) What do the vocal cords attach to?

Arytenoid Cartilage

12) What are the 3 layers of the trachea? What cells/tissues are associated with each one?

Mucosa

- Pseudostratified columnar with cilia & goblet cells

Submucosa

- Loose connective tissue & seromucous glands

Hyaline Cartilage

- Incomplete Rings
- Allows for flexibility while staying open

13) What is the bronchial tree in order?

Trachea → Primary Bronchi → Secondary Bronchi → Tertiary Bronchi → Bronchioles → Terminal Bronchioles

14) What type of tissue is the bronchial tree made of?

Cartilage

15) Epithelium changes from pseudostratified ciliated columnar cells to non-ciliated simple cuboidal cells as pass deeper into lungs.

16) The trachea has incomplete rings of cartilage that are replaced by rings of smooth muscle and connective tissue as we follow the bronchial tree deeper into the lungs. The sympathetic NS and adrenal glands release epinephrine that relaxes the smooth muscle, resulting in dilation of the airways.

17) What are the pleural cavity, visceral pleura, and parietal pleura?

- pleural cavity: Space between ribs & lungs
- visceral pleura: Covers the lungs (membrane)
- parietal pleura: Lines ribcage & covers upper surface of diaphragm (membrane)

18) How many lobes does each lung have? Why?

Right: 3
Left: 2 ← One less because of the heart

19) Why do capillaries wrap around the alveolar sacs?

Gasses are exchanged between the blood supply and the air in the alveolar sacs

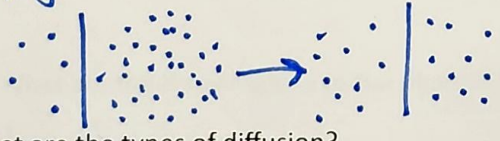
20) The alveolar membrane is very thin, this allows for gas exchange.
Inside the alveoli there are monocytes and macrophages.

Review

How do concentration gradients work?

High Concentration → Low Concentration

High Partial Pressure → Low Partial Pressure



What are the types of diffusion?

simple & facilitated [Active Transport]

Looking Ahead

Respiration is gas exchange.