

Ch 9 Respiratory System

- major structures

nasal cavities

- pharynx (throat)

- larynx (voice box)

- trachea (wind pipe)

- lungs (branchi / bronchioles / alveoli (airsacs))

What are the Functions of the Respiratory System?

- exchange of respiratory gases between the blood & the air (external environment)
 - oxygen - carbon dioxide = Ventilation
- participates in
 - pH balance of body - blood pressure regulation

What constitutes the upper respiratory tract?

- nose
- pharynx
- larynx

The Nose

- opens @ nostrils/nares & leads into nasal cavities
- hairs & mucus in nose filter air
- nasal cavity has a lot of capillaries that warm & moisten the air
- specialized cells act as odor receptors
- tears from eye drain into nasal cavity that can lead to runny nose

The Pharynx

- funnel shaped cavity commonly called "throat"
- 3 portions based on locations: nasopharynx, oropharynx & laryngopharynx
- tonsils are part of immune system

The Larynx

- composed of pieces of cartilage
- passes air between pharynx & trachea
- called the voice box & houses vocal cords
- The epiglottis is a flap of cartilage that closes off trachea when you swallow

What constitutes the lower respiratory tract?

- trachea
- bronchi & bronchioles
- lungs

The Trachea

- a tube, "windpipe", that connects the larynx w/ main bronchi
- made of connective tissue, smooth muscle & cartilaginous rings.
- lined by cilia & mucus that help to keep lungs clean.

The Bronchial Tree

- Starts w/ 2 main bronchi that lead from the trachea into lungs.
- The bronchi continue to branch until they are small bronchioles about 1 mm in diameter ^{thinner walls}.
- Bronchioles eventually lead to elongated sacs called alveoli.

The Lungs

- contain most of bronchi, plus all bronchioles & alveoli
- contain connective tissue w/ elastic fibers
- you have a right & left ~~side~~ set of lungs each divided into lobes
- each lung is enclosed by membranes called pleura

The Alveoli

- 300 million in the lungs
- enveloped by blood capillaries
- alveoli & capillaries are one layer of epithelium ^{to allow exchange}
- lined by surfactant that act as a film to keep it open.

Two Phases of breathing/ventilation

1. Inspiration - an active process of inhalation that brings air into lungs

2. Expiration - usually passive process of exhalation that ^{expels air} from lungs