

RESPIRATORY SYSTEM INTRODUCTION

3/30/82, 4/21/98, 4/19/94, 4/18/95, 4/18/96, 4/22/97, 4/21/98, 19Apr04, 23Apr08, 22Apr09, 19Apr10, 20Apr11

S&M: 583- KE:70-77 KE 73
 Marieb, p. 724, Martini's 5th: 798-842, 6th: 827-867, 7th: 814-859, 8th: 826-871

Three levels of respiration: external: gas exchange in lungs
 internal: gas exchange in tissues
 cellular: glucose "burned" with O₂ to CO₂

EMBRYOLOGY:

4 wk old fetus: **laryngotracheal bud**. forms as a ventral diverticulum in digestive tract just below pharynx

Elongates into **trachea** which branches and rebranches:

bronchi, bronchioles, terminal bronchioles dilate to **alveoli**

Thus, entire respiratory tract epithelium is derived from **endoderm**

Connective tissue and smooth muscle components from **mesoderm**

Respiratory tree lining: **pseudostratified ciliated columnar epithelium**

Elasticity of lungs favor collapse, **integrity of pleural space** prevents

ANATOMY: (p. 830, KE 71, 72) **external nares** framed by cartilage plates:

alar, lateral nasal, nasal septum (forms vestibule of nose)

septum: septal cartilage joins vomer and perpendicular plate of ethmoid

Roof: ethmoid cribriform plate, houses olfactory epithelium

Lateral walls: **conchae** (2 on ethmoid) plus inferior concha (turbinate)

Floor: hard palate formed by palatine bone and palatine processes of maxilla, soft palate fleshy

Meatus: recess between conchae.

paranasal sinuses lighten skull, resonance chambers, produce mucous: (p 830)

frontal	drainage: middle meatus
sphenoid	drainage: above superior conchae
ethmoid	drainage:(many: 14) superior and middle dorsal meatus
maxillary	drainage: middle meatus
nasolacrimal duct	drainage: inferior meatus

Mucus membrane on conchae "**air conditions**" inspired air:

1) warms, 2) moistens, 3) cleanses (traps particulates)

Pharynx: communicates with mouth, nose, middle ear, larynx and esophagus

Nasopharynx receives **eustachian tubes** on post. wall (PSCE)

1) **pharyngeal tonsils** (if swollen, termed adenoids)

Oropharynx lined with stratified squamous (digestive tract).

2) **palatine tonsils** line side walls

3) **lingual tonsils** embedded in base of tongue

Laryngopharynx also stratified squamous

LARYNX: framework of cartilage (9 pieces), tied to hyoid bone (p. 832)

[cuneiform ("wedge shape") and corniculate ("horn little") not shown]

thyroid cart. largest, thyrohyoid membrane ties to hyoid

epiglottis guards glottis

cricoid cart below, mounted on top of trachea
 "ring like"

arytenoid cart: paired, vocal cords tied to them, control pitch.
 "ladle like"

ventricular folds, (vestibular folds)
 false vocal cords, subject to inflammation = laryngitis

