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Lecture title: Digestive system

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Components of the Respiratory System

Respiratory System according to function (listed in order from exterior to interior)can be divided in to Conducting Portion and Respiratory Portion.

The conducting airways also serve a protective function by conditioning incoming (inspired) air. This conditioning includes heating the air to body temperature, saturating it to 100% relative humidity, and filtering out noxious gases and particulates. The conducting airways also conserve body heat and water by extracting them from the air during expiration. The mucociliary blanket, which covers the mucosal surface of conducting airways, serves to trap inhaled particles and conveys them and cellular debris out of the system.

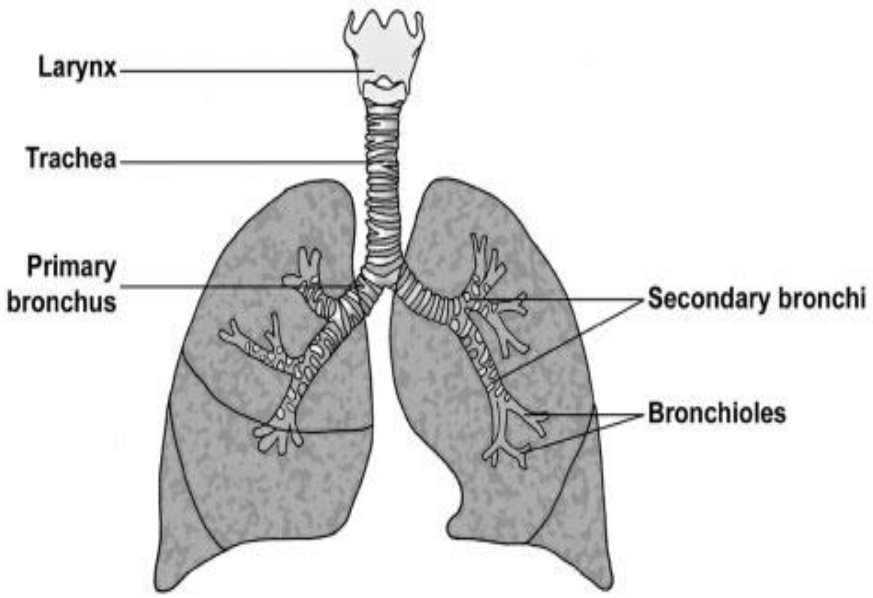
➢ In relation ship to lungs (listed in order from exterior to interior, i.e. the path of inspired air),

Extrapulmonary	Intrapulmonary
1. Nasal cavity	1. Secondary bronchi
2. Pharynx	2. Bronchioles
3. Larynx	3. Terminal bronchioles
4. Trachea	4. Respiratory bronchioles
5. Primary bronchi	5. Alveolar ducts
	6. Alveoli

➢ According to function (listed in order from exterior to interior)

Conducting Portion (Transports air from exterior)	Respiratory Portion (Involved with gas exchange)
1. Nasal cavity	1. Respiratory bronchioles
2. Pharynx	2. Alveolar ducts
3. Larynx	3. Alveoli
4. Trachea	
5. Primary bronchi	
6. Secondary bronchi	
7. Bronchioles	
8. Terminal bronchioles	

Parts of Respiratory System



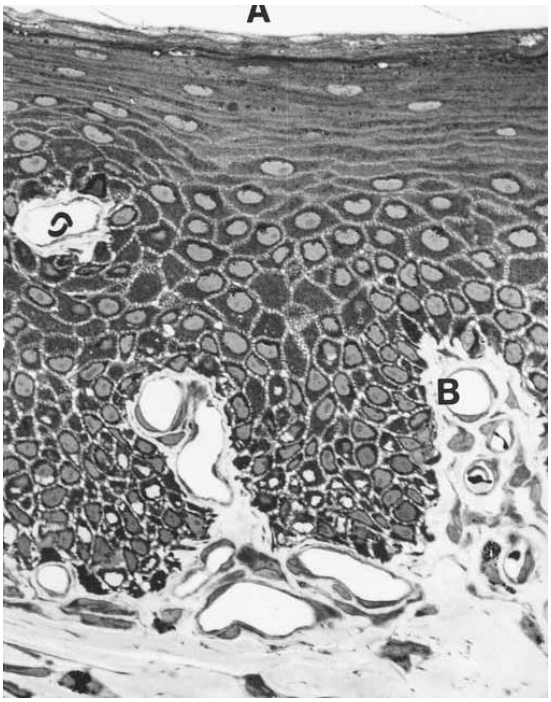
Nasal Cavity

Each **nasal cavity** is divided into a cutaneous region,a respiratory region, and an olfactory region. The skin of the nasal apex is continuous through a tissue gradient with the mucous membrane of the caudal nasal cavity proper.

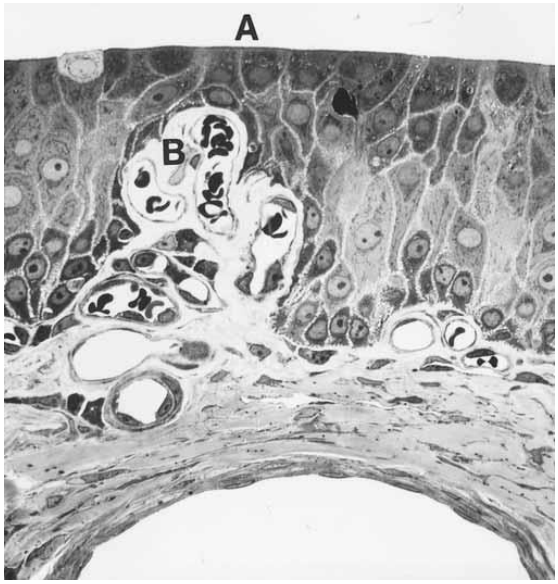
Cutaneous Region

Rostrally, the **cutaneous region** (nasal vestibule) is lined by a relatively

thick keratinized stratified squamous epithelium .



At midvestibule, the epithelium is thinner and nonkeratinized. Superficial cells have microridges on their free surface. the **transitional zone** between nostrils and nasal cavity lined by an epithelium that varies from stratified cuboidal to nonciliated pseudostratified columnar. Surface epithelial cells in the transitional zone contain multi lobated nuclei, have microvilli on their free surface, and are frequently spherical .



◙The propria-submucosa of the cutaneous region interdigitates via papillae with the epithelium. The papillae contain small vessels, nerves, and numerous migratory cells, including mast cells, plasma cells, lymphocytes, macrophages, and granulocytes. Bundles of collagen fibers, larger blood vessels and nerves, and serous glands are located deep in the propria-submucosa.

Respiratory Region

Epithelium lining the caudal two thirds of the nasal cavity proper, with the exception of the olfactory region, is classified as **respiratory epithelium** (i.e., ciliated pseudostratified columnar); that lining the middle nasal meatus is thinner and contains fewer ciliated and goblet cells. The ciliated pseudostratified epithelium of the nasal cavity contains several cell types, including ciliated, secretory, brush, and basal cells .

Individual **ciliated cells** are columnar and have 200 to 300 motile cilia and numerous microvilli projecting into the nasal lumen.