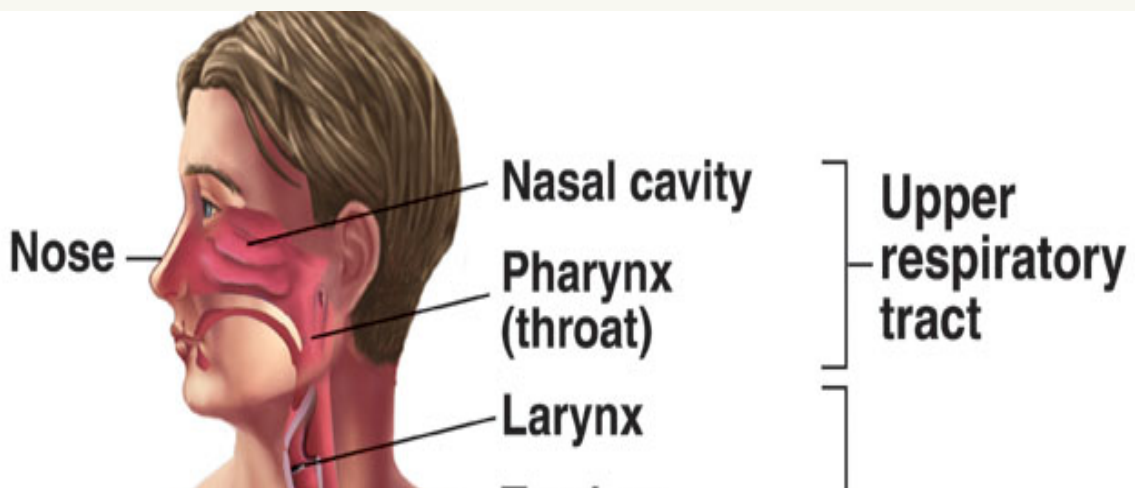




# 1- Nasal Cavity, Pharynx and Larynx

## Lecture 1 – Upper Respiratory Tract



### Objectives

By the end of this lecture the student should be able to describe the microscopic structures of:

- ✓ **Vestibule** of the nasal cavity.
- ✓ **Respiratory mucosa** of the nasal cavity.
- ✓ **Nasal septum**.
- ✓ **Olfactory mucosa** of the nasal cavity.
- ✓ **Mucosa of the paranasal sinuses**.
- ✓ **Larynx**.

# Nasal Cavity

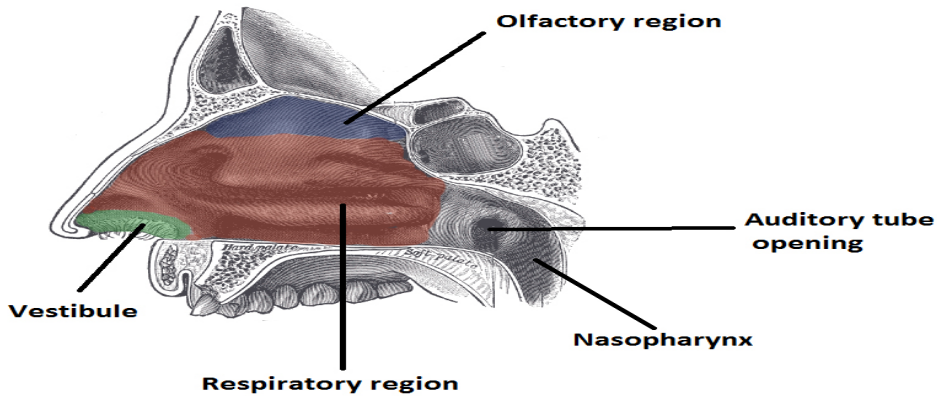
Anterior Portion

Posterior Portion

1- Vestibule

2- Respiratory Region

3- Olfactory Region



© teachmeanatomy

## Para-nasal Sinuses

Lining

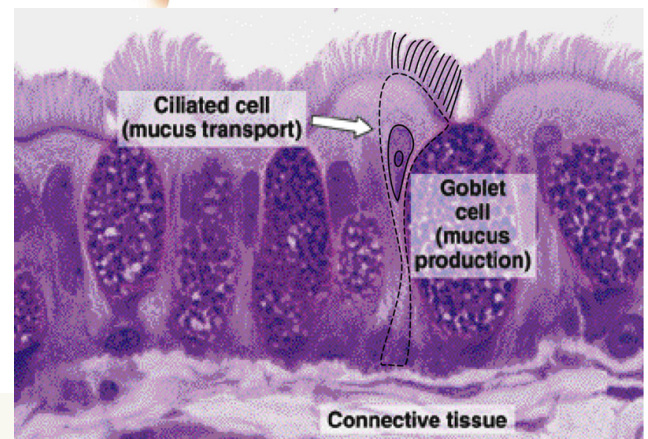
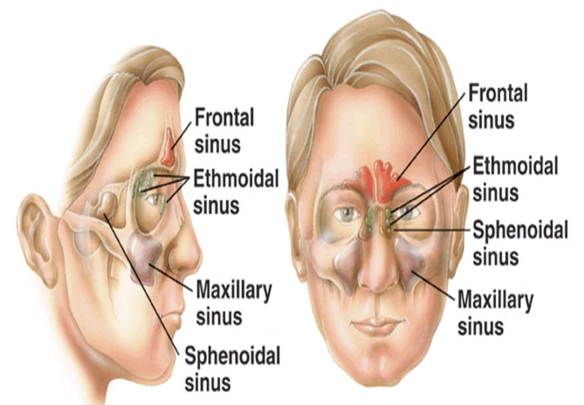
Respiratory Epithelium

Lamina Propria

Clinical Application

Sinusitis

## SINUSES



# 1- Vestibule

Lining

1- Epidermis:  
Keratinized  
Stratified  
Squamous  
Epthelium

2- Dermis

Contents

1- Vibrissae:  
stiff hairs

2- Sebaceous  
Glands

3- Sweat  
Glands

Wall

1- Hyaline  
Cartilage

2- Spongy  
Bone  
"cancellous"

# 2- Respiratory Region

**Mucosa "Mucous Membrane"**

## A) Epithelium "respiratory"

Pseudo-stratified ciliated columnar with goblet cells

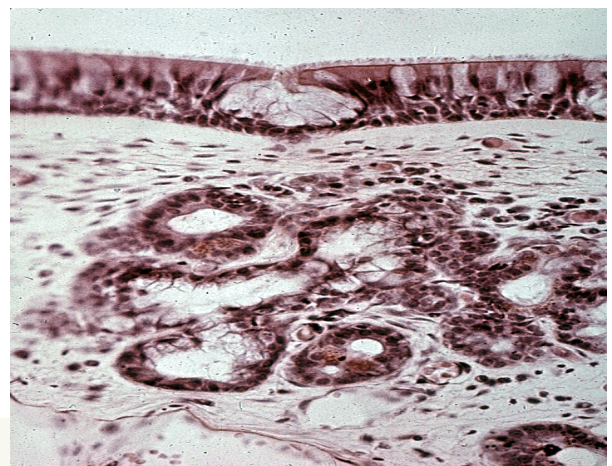
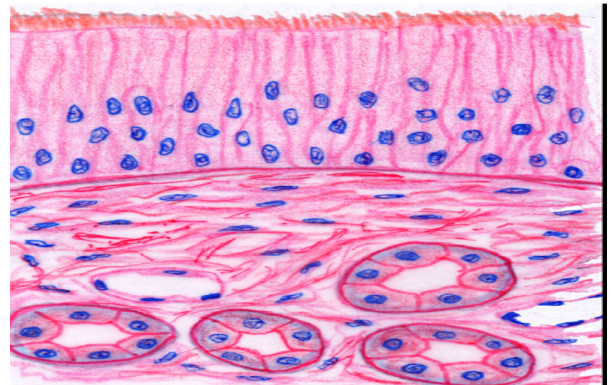
## B) Lamina Propria

1- Large arterial plexuse & Venous sinuses "Vascular"

2- Many Seroumucous glands "Acini"

3- Abundant Lymphoid elements

**RESPIRATORY**





# 3- Olfactory Region

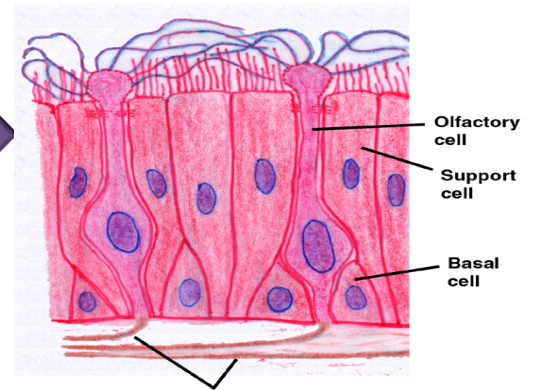
## Site

1- Roof of Nasal Cavity

2- Upper part of Nasal Septum

3- Over Superior Conchae

## OLFACTORY



## Structure

A- Olfactory Epithelium > Pseudo-stratified Columnar

### Olfactory Cells

Bipolar Neurons "olfactory nerve cells"

### Sustentacula Supporting Cells

Columnar cells. Function > Physical support and nourishment for Olfactory Cells

### Basal Cells

Pyramidal in shape, basal in position and act as stem cells.

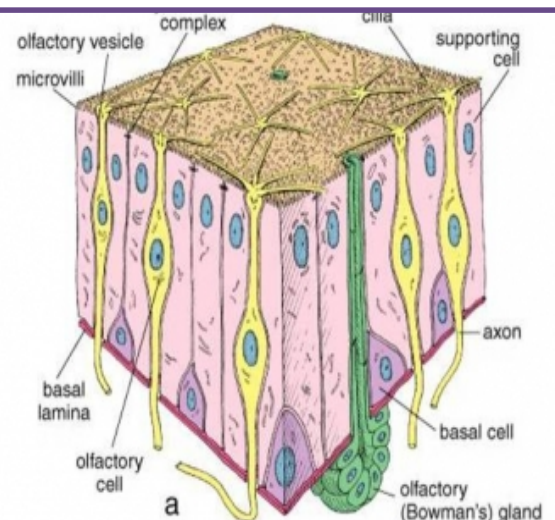
B- Lamina Propria > Highly Vascular CT

1- Bowmans's "Olfactory" Glands > Serous Acini

2- Bundles of Unmyelinated Nerve Fibers > Axons + Schwann like cells "Glial"

3- Rich Vascular Plexuse

4- Numerous Lymphoid Elemnts



# Larynx

A) Mucosa

2- Lamina Propria

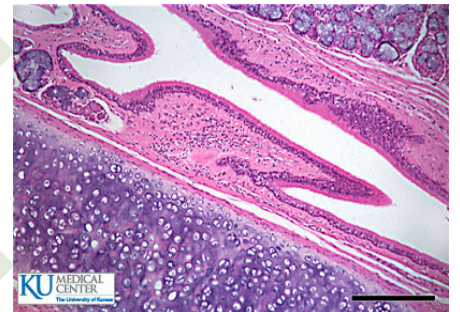
1- Epithelium

Respiratory Epithelium

- Pseudo-stratified Columnar Epithelium With Goblet Cells

Non-keratinized Stratified Squamous Epithelium

- Location:
- 1- Vocal Folds
- 2- Super Surface of Epiglottis



There are 2 pairs of Shelf-like Mucosal Folds

Vestibular Folds

Vocal Folds

Respiratory Epithelium

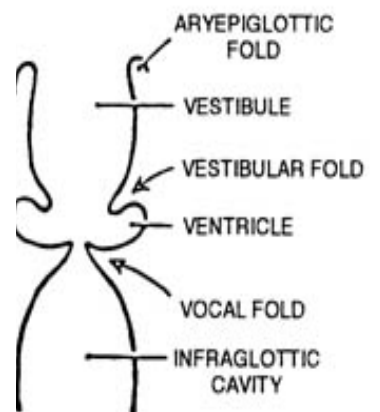
Epithelium: Non keratinized Stratified Squamous

Lamine propria

Lamina Propria

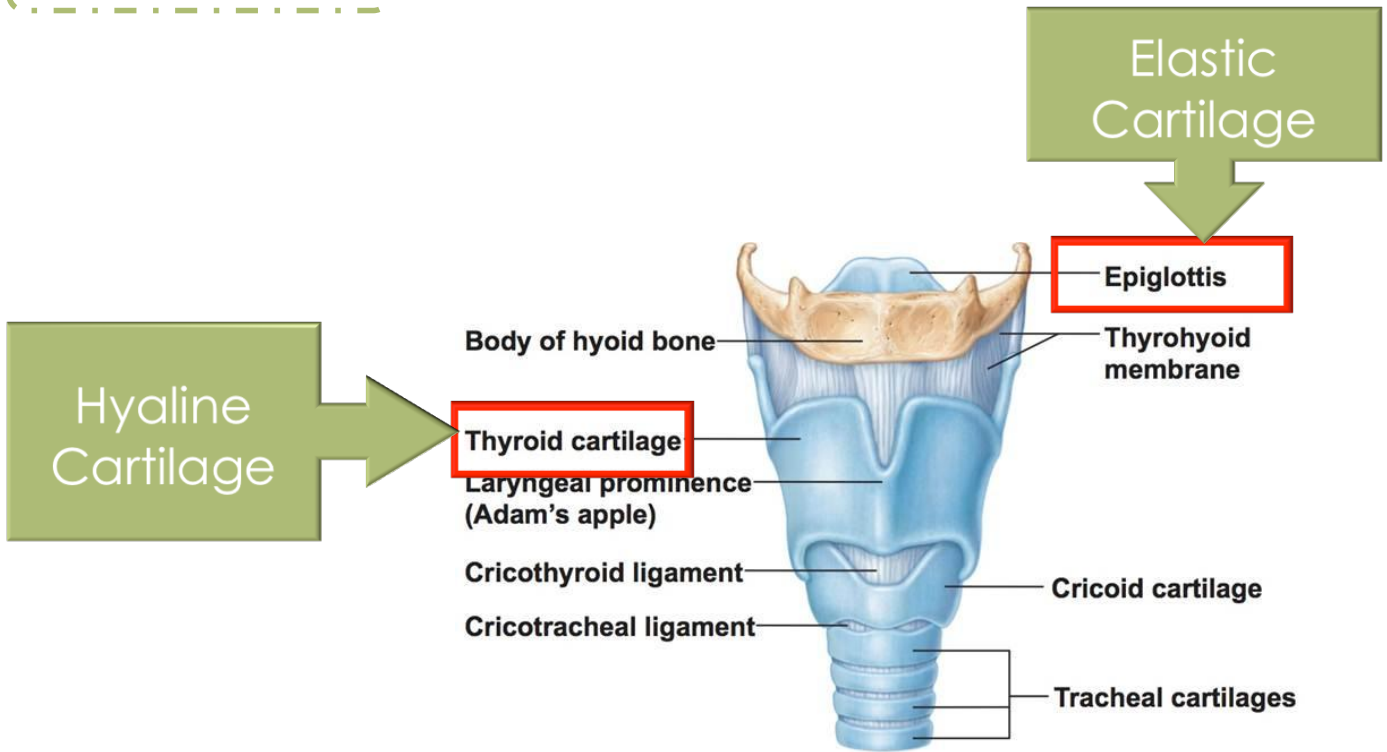
Loose C.T. with seromucous glands lymphoid elements & adipose cells

CT Containing bundles of elastic fiber and skeletal muscles



# Larynx

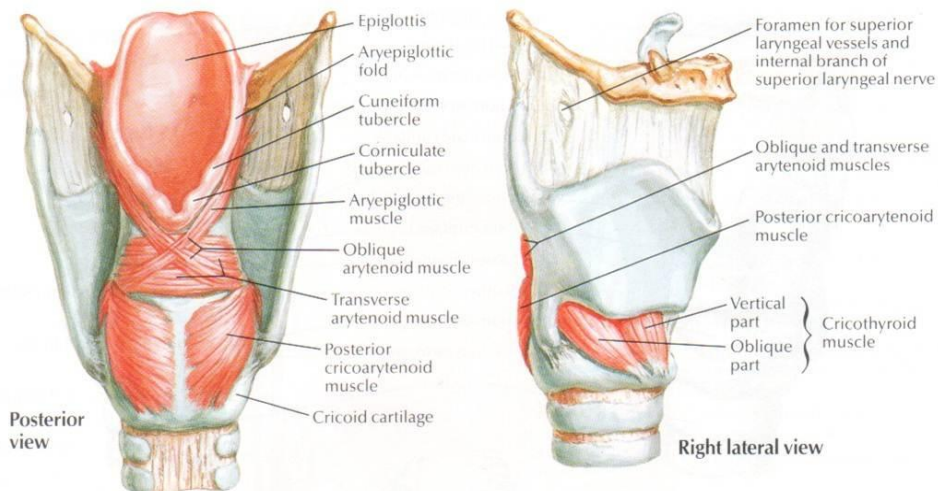
## B) Cartilages



## C) Muscles

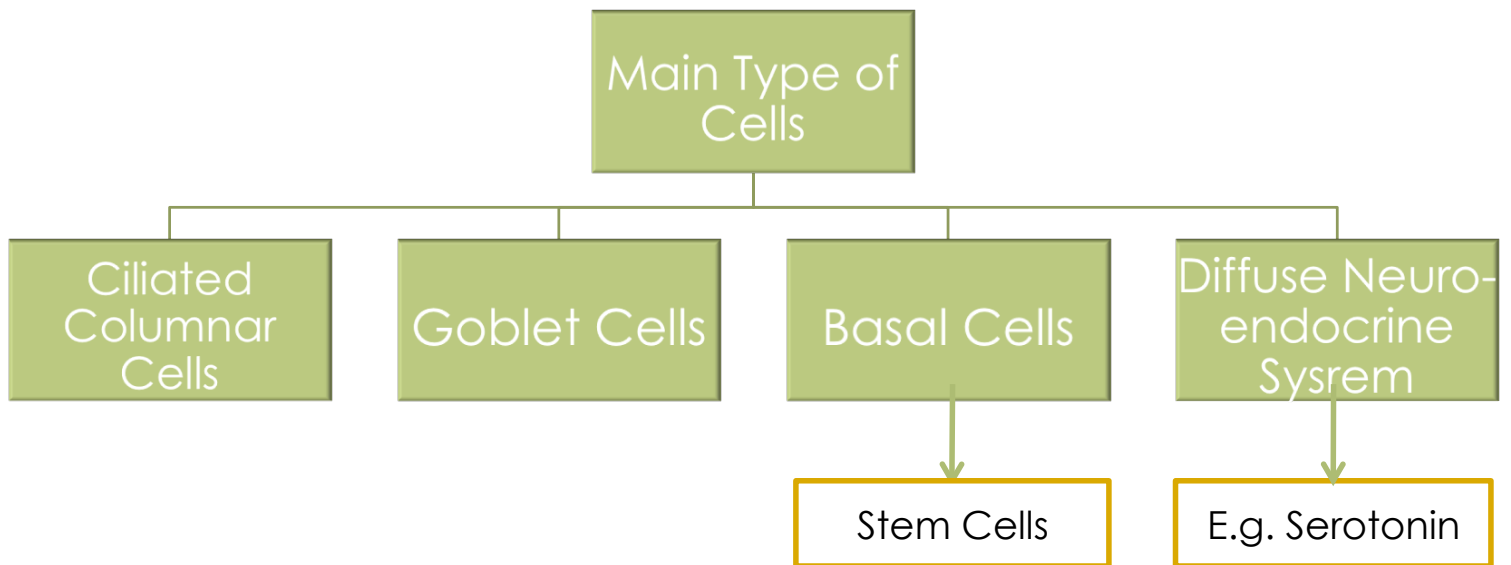
All Skeletal

## Ligaments



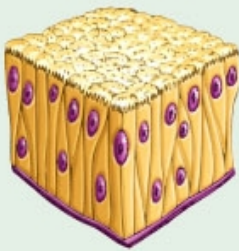
# Respiratory Epithelium

Pseudo-stratified Ciliated Columnar Epithelium + Goblet Cells



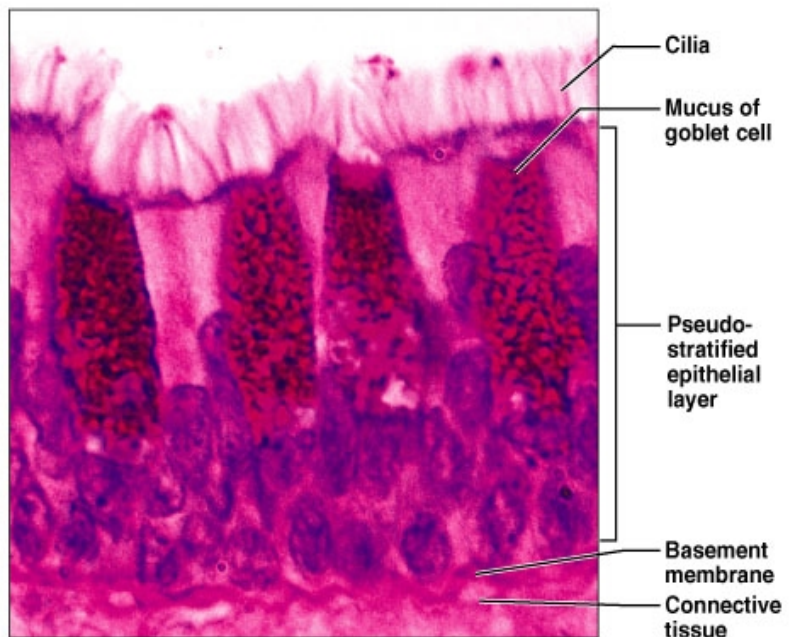
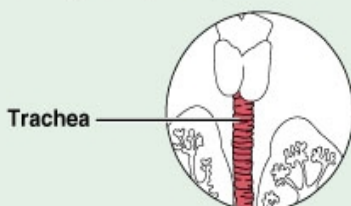
## (d) Pseudostratified columnar epithelium

**Description:** Single layer of cells of differing heights, some not reaching the free surface; nuclei seen at different levels; may contain goblet cells and bear cilia.



**Function:** Secretion, particularly of mucus; propulsion of mucus by ciliary action.

**Location:** Nonciliated type in male's sperm-carrying ducts and ducts of large glands; ciliated variety lines the trachea, most of the upper respiratory tract.



**Photomicrograph:** Pseudostratified ciliated columnar epithelium lining the human trachea (400x).

# MCQ's

1) All of the following are from the conducting portion of the respiratory system except ?!

- A-larynx.
- B-Terminal Bronchioles.
- C-Respiratory Bronchioles.
- D-Primary bronchi.

2) Vestibule wall is formed by?

- A-Elastic cartilage.
- B-Compact Bone.
- C-Hyaline cartilage.
- D-Fibrocartilage.

3) which type of cell is responsible for the physical support and nourishment for olfactory cells?

- A-Goblet cell.
- B-Sustentacular cell
- C-Basel cell.
- D-Glial cell.

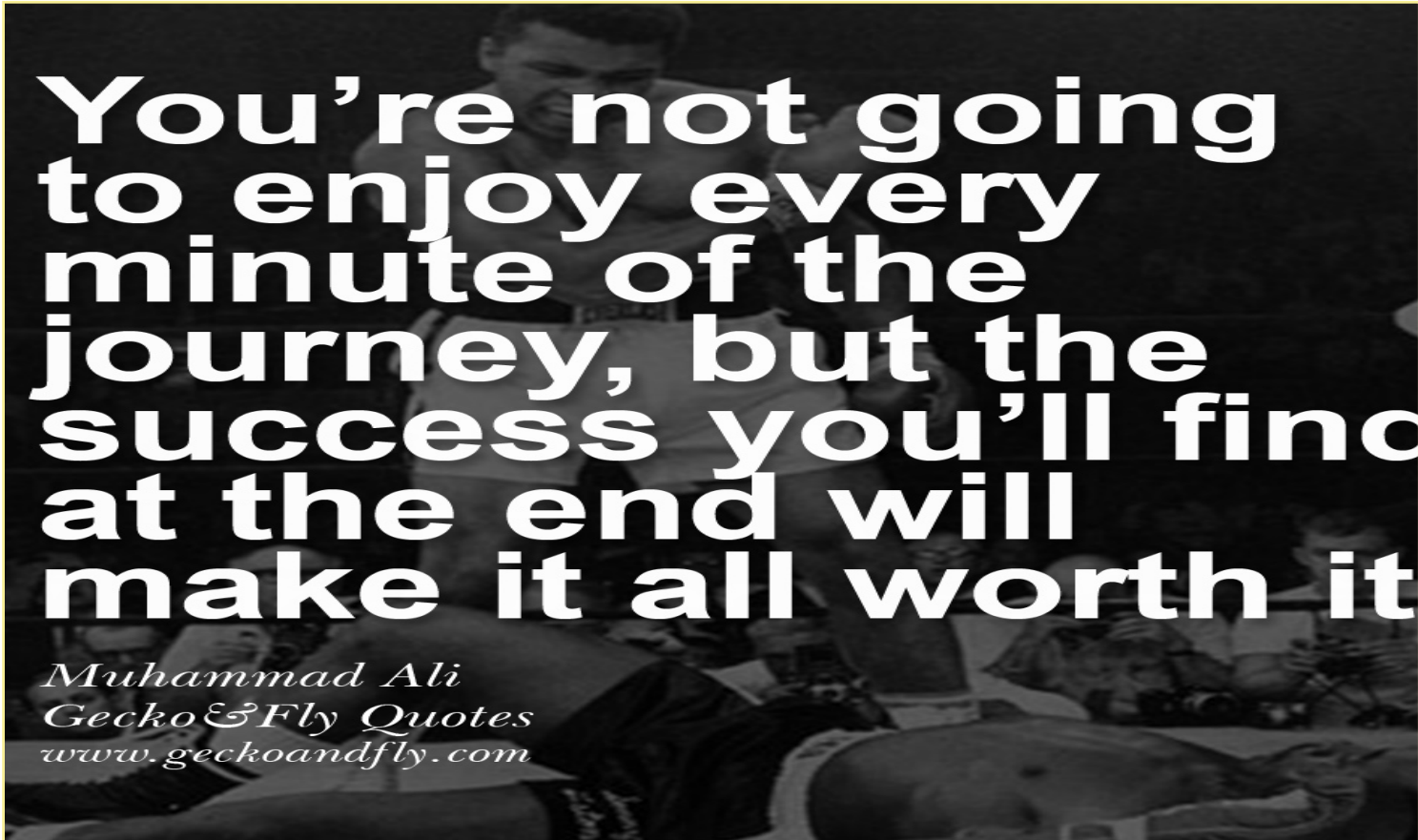
4) From which type of cartilage the epiglottis is made of?

- A-Elastic cartilage.
- B-Hyaline cartilage.
- C-Fibrocartilage.

Q5) Which of the following structures does the lamina of the vocal cords of the larynx Lacks?

- A-Elastic fibers.
- B-Skeletal muscles.
- C-Lymphoid nodules.





**You're not going  
to enjoy every  
minute of the  
journey, but the  
success you'll find  
at the end will  
make it all worth it**

*Muhammad Ali*  
*Gecko & Fly Quotes*  
*www.geckoandfly.com*

**Done By:**

Amal Afrah  
Najd Al Omran

Thank you for  
Checking our Work

For any correction, suggestion or any useful  
information do not hesitate to contact us:

**[Histology434@gmail.com](mailto:Histology434@gmail.com)**