



عنوان المحاضرة

المحاضرة السابعة : الجهاز التنفسي

Respiratory System

ZUHEIR ALSHEHABI

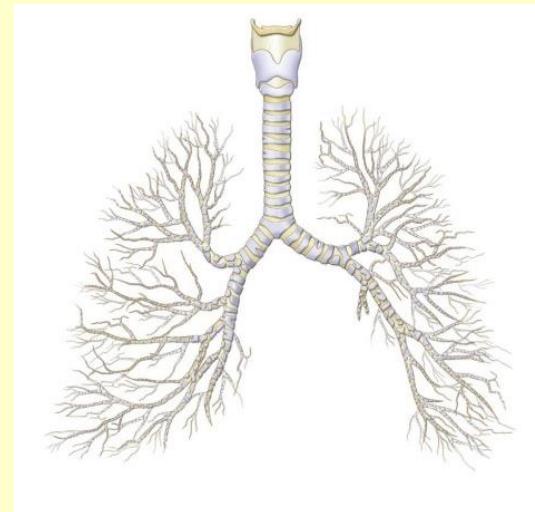
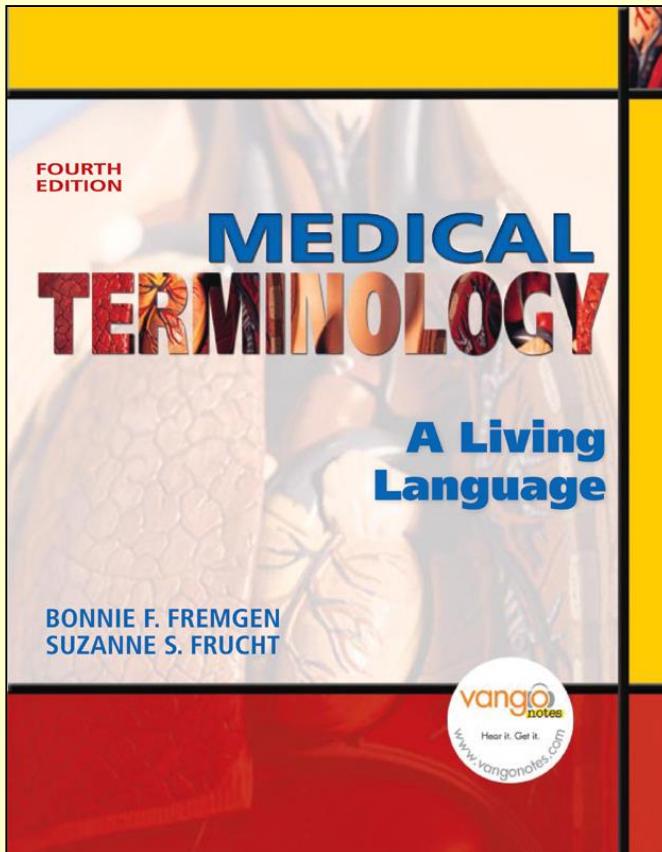
MD, PHD, FASCP

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Medical Terminology

A Living Language



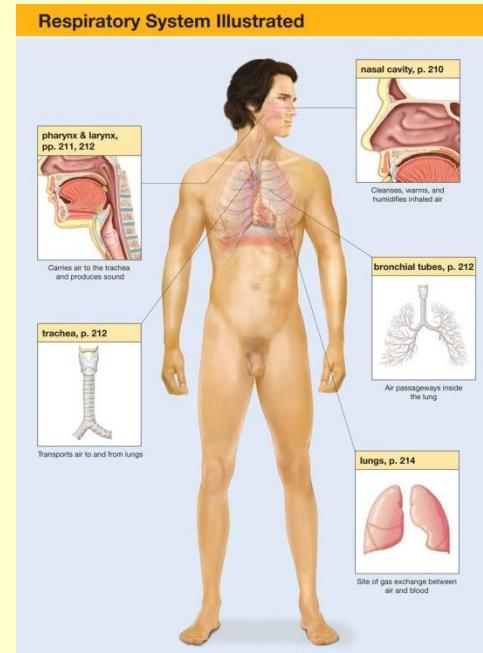
الجهاز التنفسى

Respiratory System

Respiratory System at a Glance

● Organs of the Respiratory System

- Nasal cavity جوف الأنف
- Pharynx البلعوم
- Larynx الحنجرة
- Trachea الرغامي
- Bronchial tubes القصبات
- Lungs الرئتين



Respiratory System

Combining Forms المؤلفة الاشكال

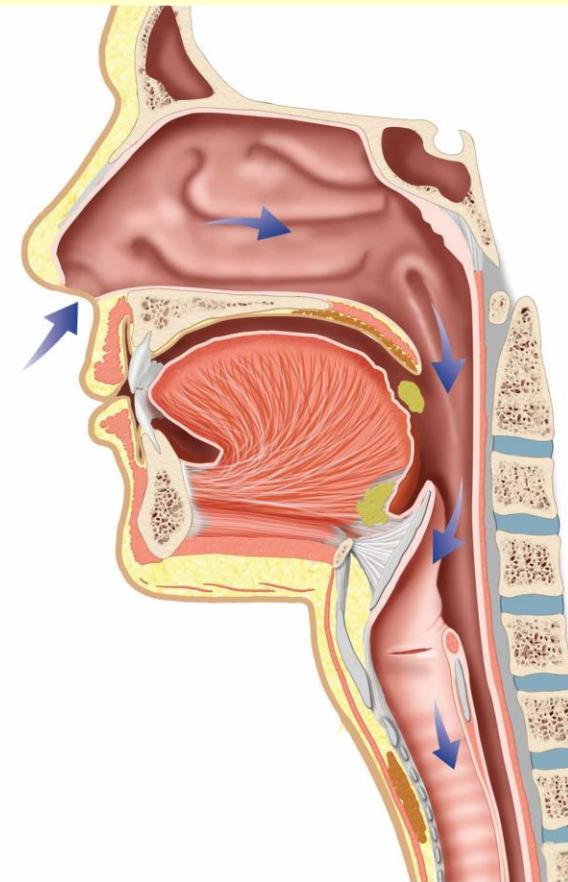
● alveol/o	alveolus; air sac	الأَسْنَاخ
● anthrac/o	coal	تفحم
● bronch/o	bronchus	قصبي
● bronchi/o	bronchus	قصبي
● bronchiol/o	bronchiole	قصيبي

Respiratory System Organs

- Nasal cavity جوف الأنف
- Pharynx البلعوم
- Larynx الحنجرة
- Trachea الرغامي
- Bronchial tubes القصبات
- Lungs الرئتين

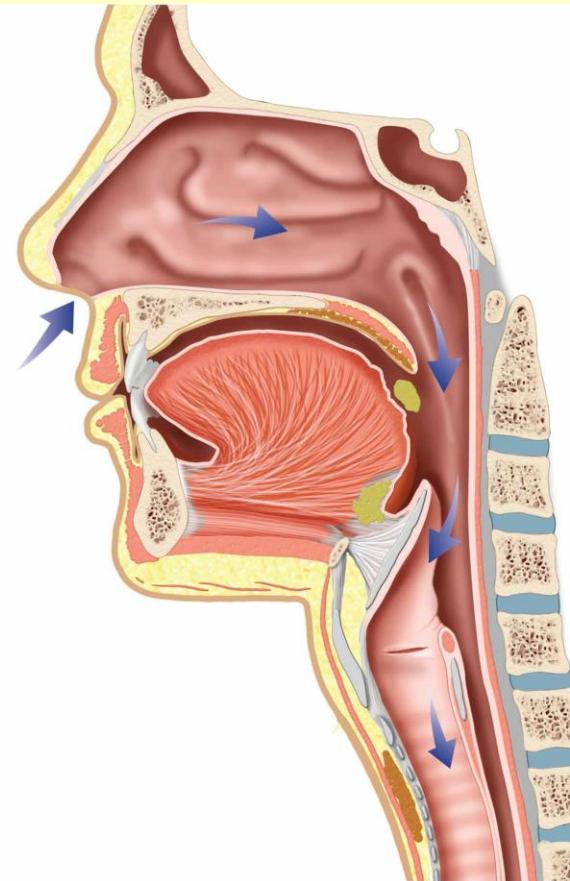
Nasal Cavity جوف الأنف

- Air enters through **nares**
- Nasal cavity divided by **nasal septum**
- **Palate** in roof of mouth separates nasal cavity above from mouth below



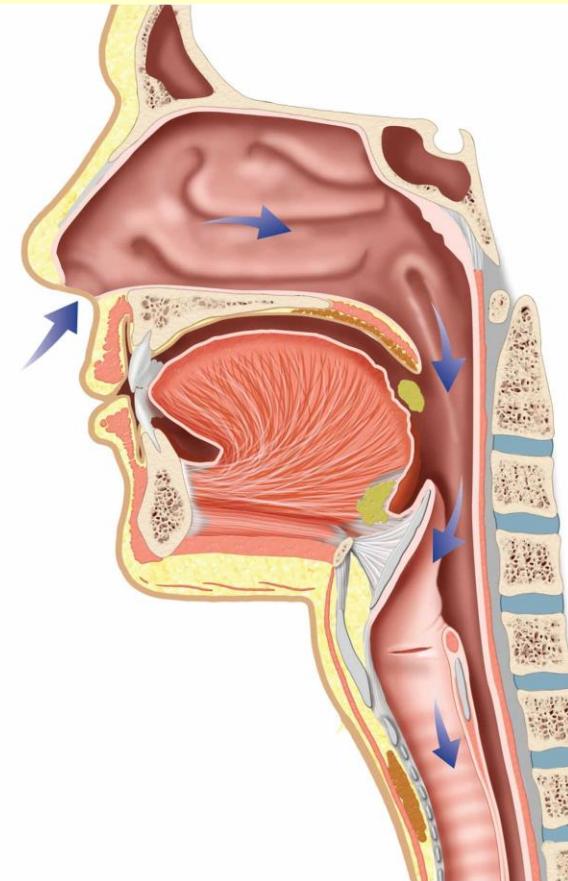
Pharynx البلعوم

- Commonly called **throat**
- Used by respiratory and digestive systems
- At end of pharynx
 - Air enters trachea
 - Food and liquids enter esophagus



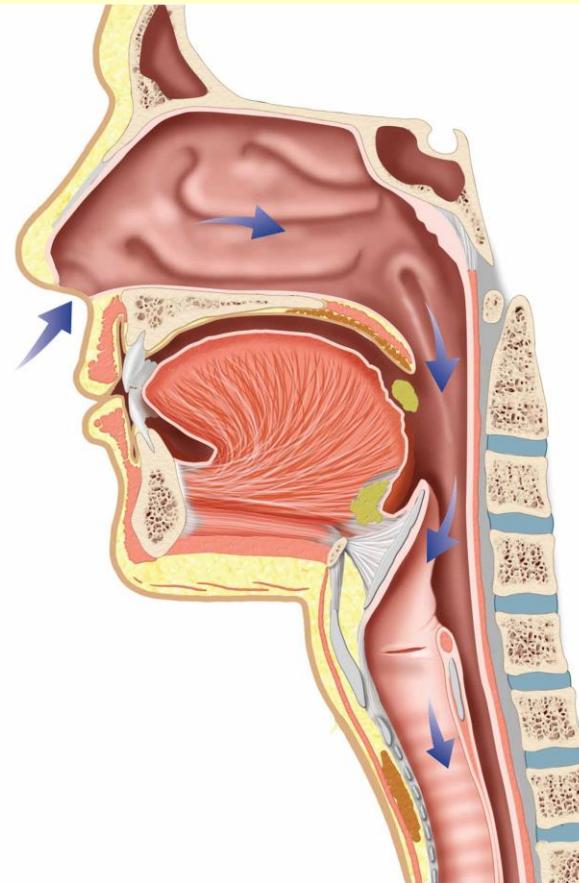
Three Subdivisions of Pharynx

- **Nasopharynx** الأنفي
 - Upper section by nasal cavity
- **Oropharynx** فموي
 - Middle section by oral cavity
- **Laryngopharynx** حنجري
 - Lower section by larynx



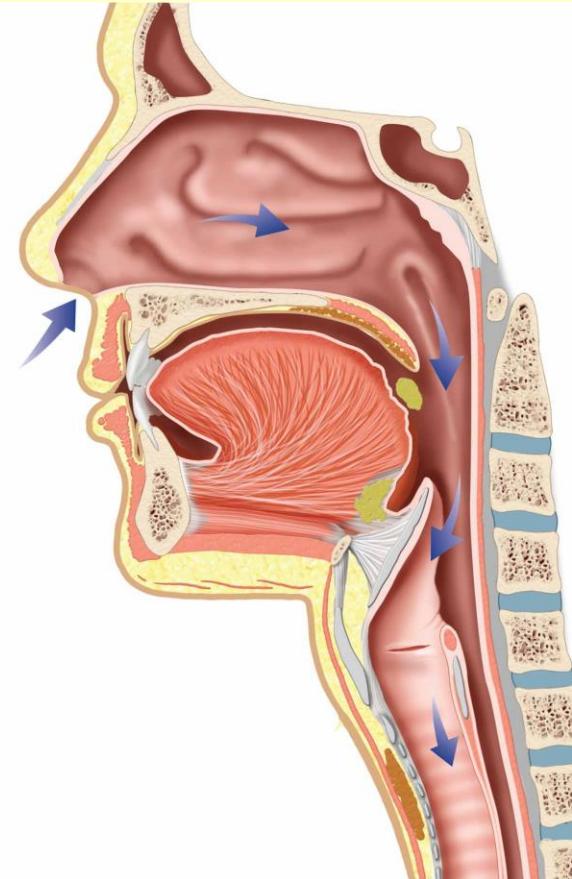
Tonsils اللوزتين

- Lymphatic tissue
 - Removes pathogens in air and food
- Three pairs
 - **Adenoids**
 - **Palatine**
 - **Lingual**



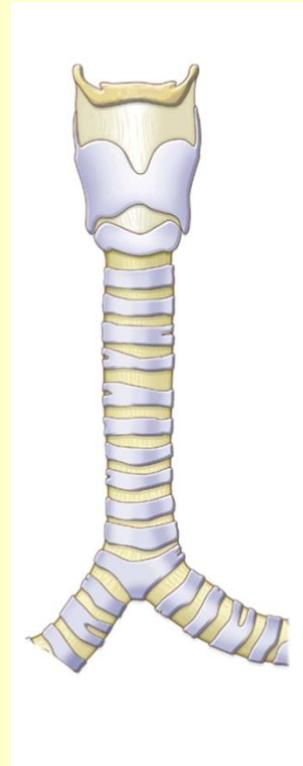
Larynx الحنجرة

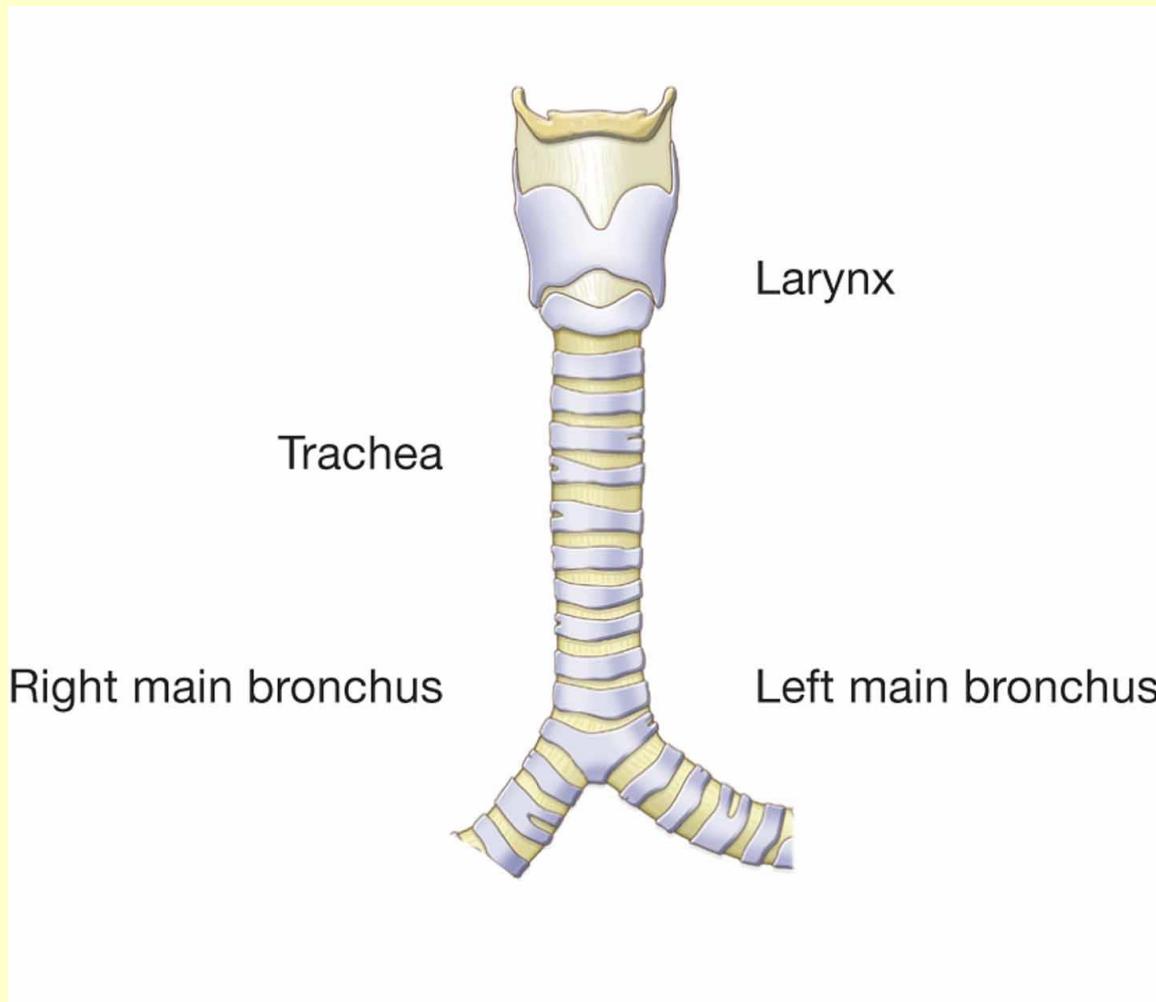
- Commonly called **voice box**
- Muscular tube between pharynx and trachea
- Contains **vocal cords**



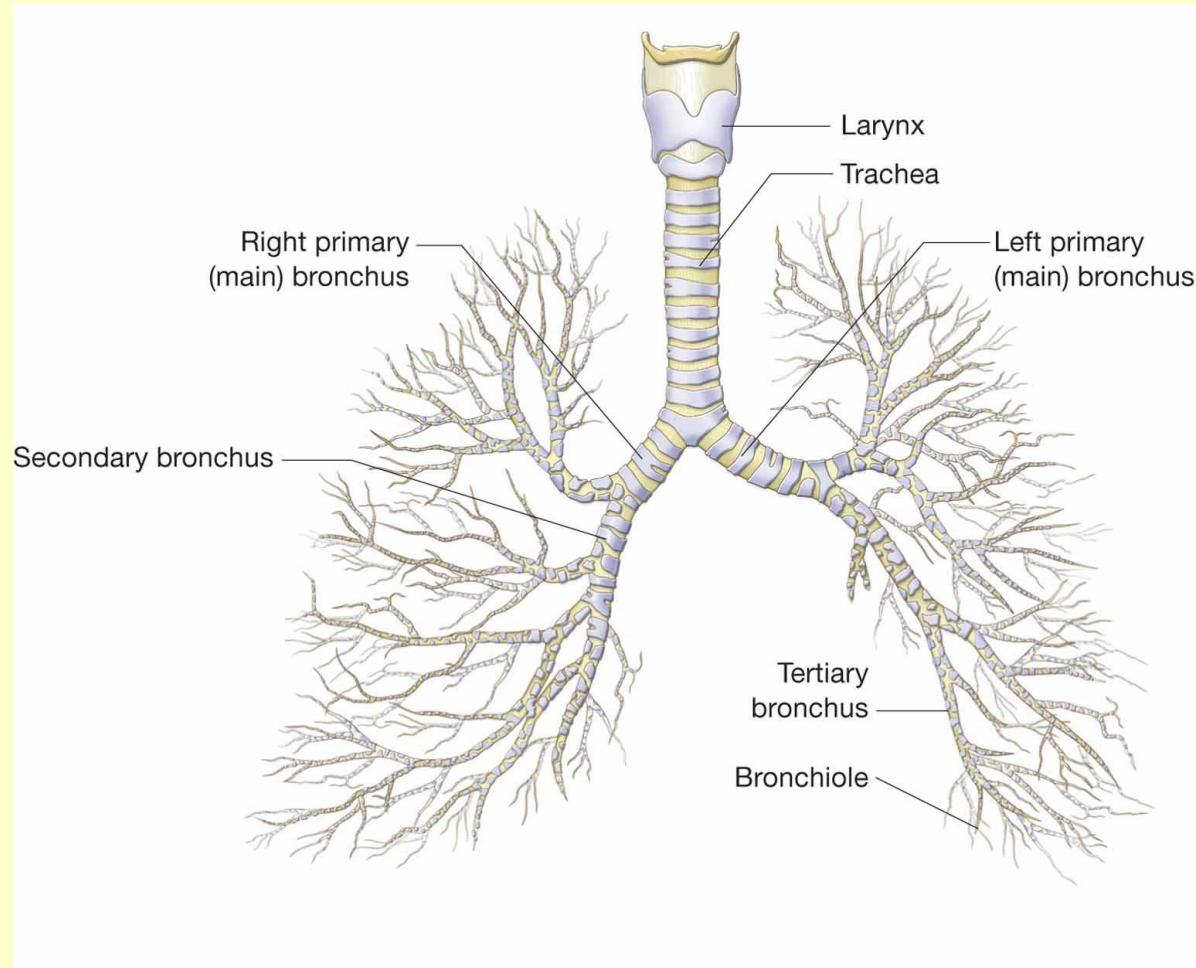
Trachea الرغامى

- Commonly called **windpipe**
- Carries air from larynx to main bronchi
- Approximately four inches in length



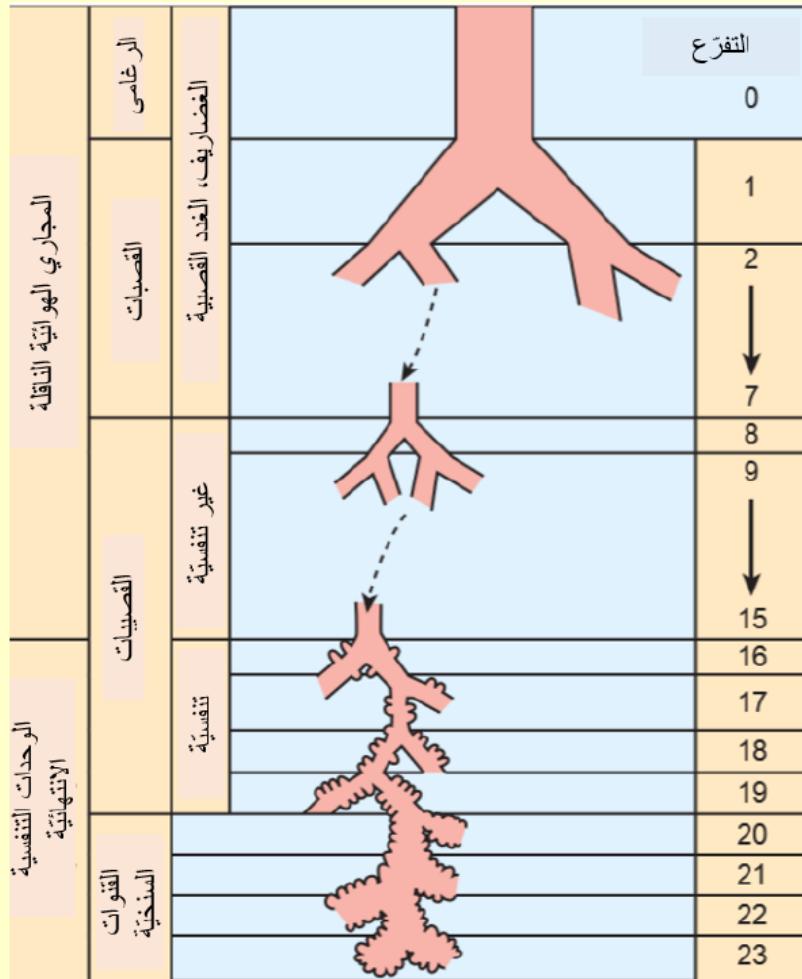


Structure of the trachea which extends from the larynx above to the main bronchi below.



The bronchial tree, note how each main bronchus enters a lung and then branches into smaller and smaller primary bronchi, secondary bronchi, and bronchioles.

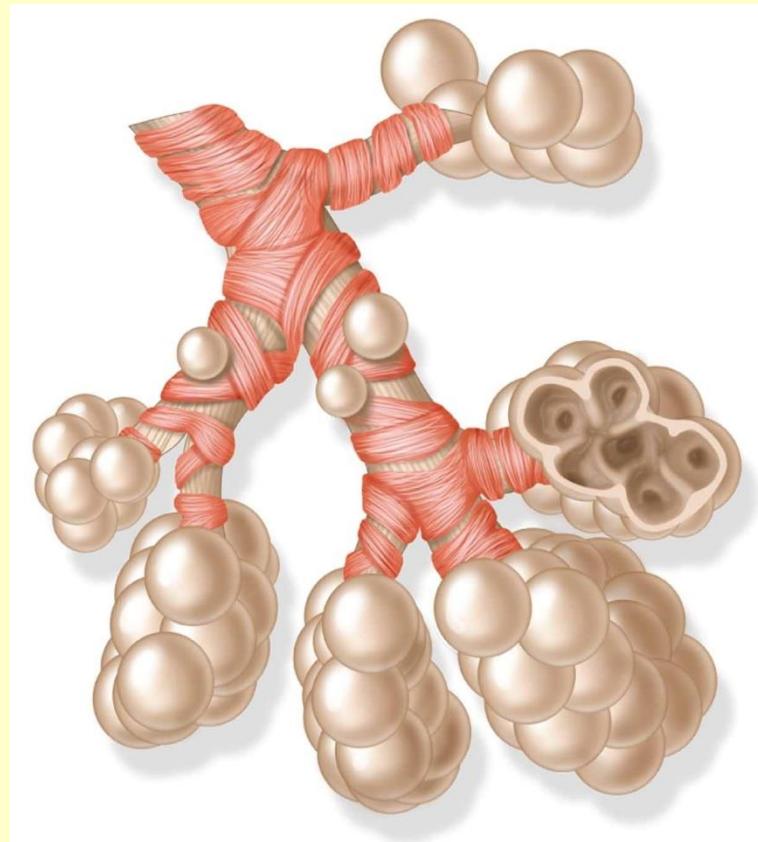
الشجرة القصبية The bronchial tree



- الانقسامات الثانوية للطرق الهوائية الناقلة وصولاً إلى الوحدات التنفسية الانتهائية

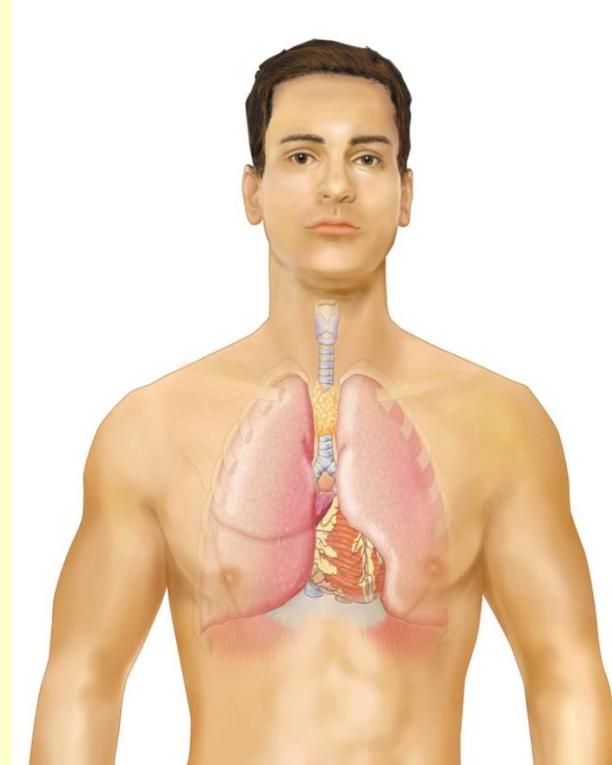
الأنساق الرئوية Alveoli

- Bronchi continue to branch to form narrow **bronchioles**
- Bronchiole terminates in **alveoli**
- Approximately 150 million alveoli in each lung



Lungs الرئتين

- Each is total collection of bronchi, bronchioles, and alveoli
- Two lungs
 - Right lung has 3 lobes
 - Left lung has 2 lobes
- Spongy because they contain air



Lungs

- **Apex**

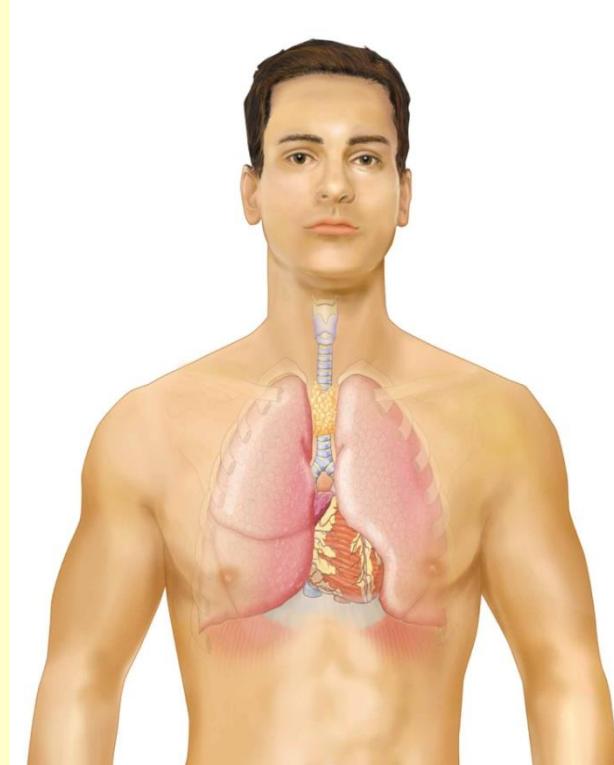
- Pointed superior portion

- **Base**

- Broad lower area

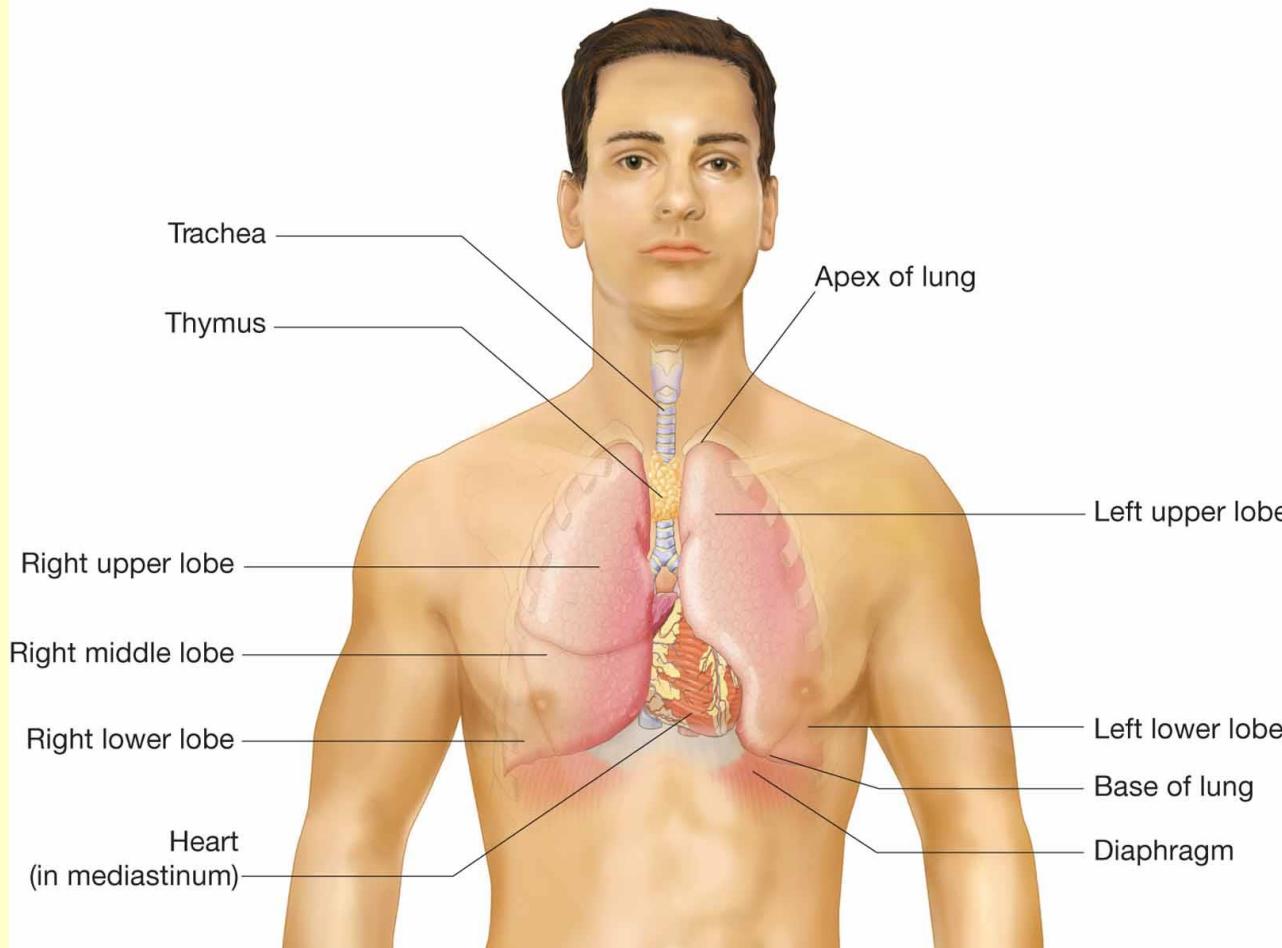
- **Hilum**

- Entry and exit point
- Bronchi, blood vessels, nerves



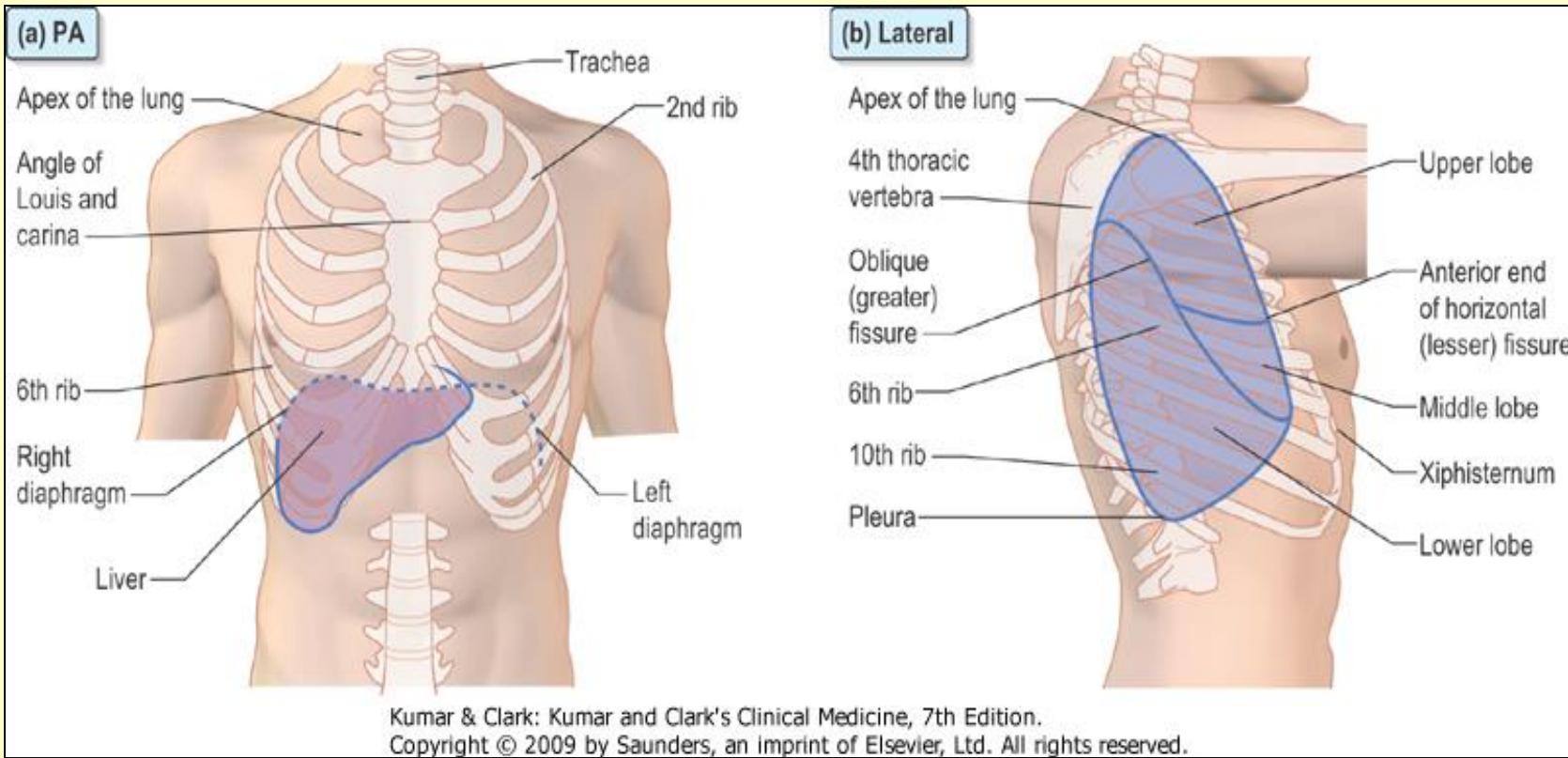
Pleura غشاء الجنب

- **Parietal pleura**
 - Outer membrane that lines wall of chest cavity
- **Visceral pleura**
 - Inner membrane that adheres to surface of lungs
- Pleura is folded to form a sac around each lung called **pleural cavity**
- **Serous fluid** between two pleural layers reduces friction when two layers rub together during ventilation



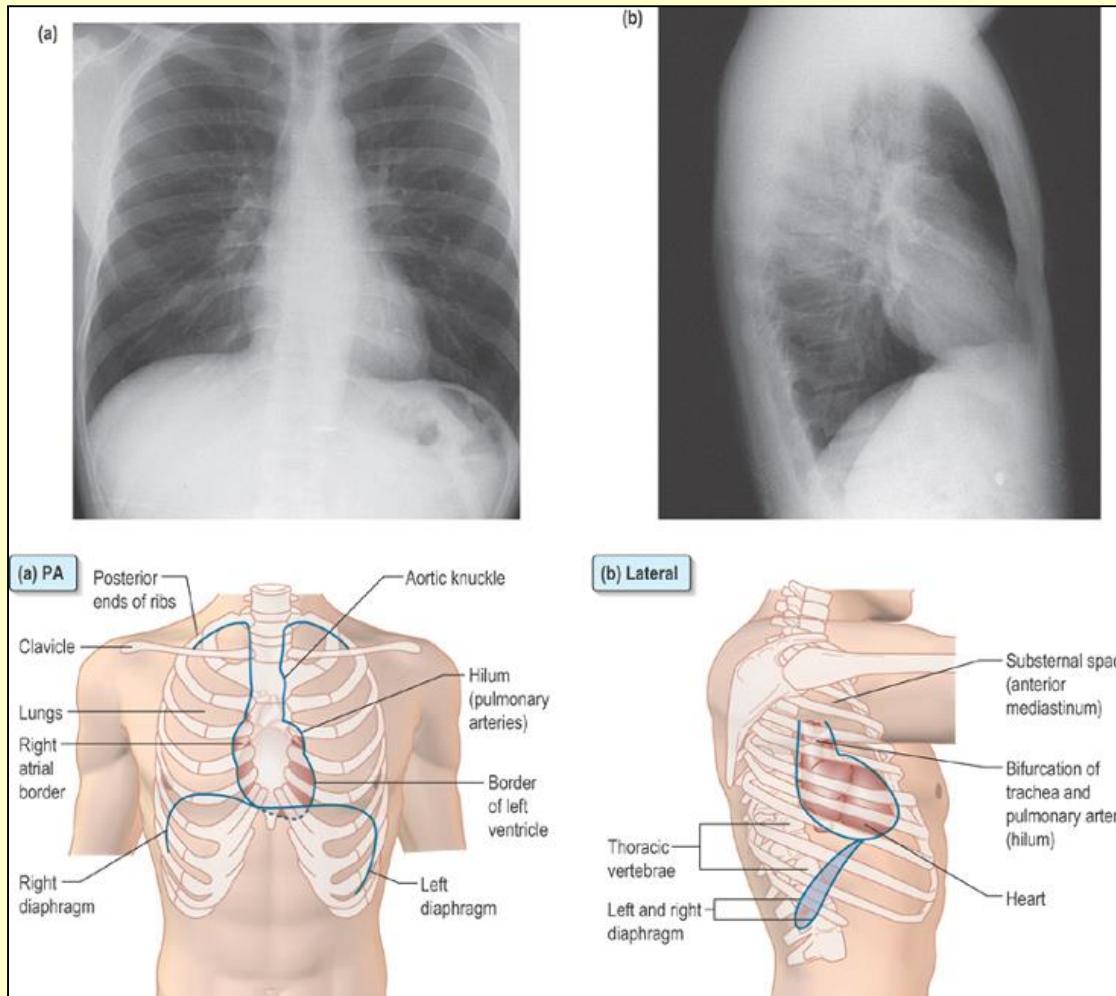
Position of the lungs within the thoracic cavity, anterior view illustrating lung structure and their relationship to other thoracic organs.

التثريج السطحي للصدر



Surface anatomy of the chest. (a) PA. (b) Lateral.

Chest X-rays. (a) PA. (b) Lateral.



Pulmonary Function Tests

اختبارات وظائف الرئة

اختبارات وظائف الرئة : هي اختبارات تستخدم لقياس وظيفة الرئتين، حيث يمكن تحديد كمية(حجم) وسرعة(انسياب) الهواء الذي يمكن استنشاقه وزفيره، وبالتالي يساعد في الكشف عن المشاكل التنفسية التي تسبب ضيق التنفس وبعض أمراض الرئة، مثل الربو والتهاب القصبات المزمن والانتفاخ الرئوي ، والتليف الرئوي، كما يستخدم قبل إجراء أي عملية جراحية رئيسية في الرئة للتأكد من أن الشخص لن يعاني من قصور رئوي خلالها أو بعدها

Pulmonary Function Tests

● اختبارات وظائف الرئة :

1. جهاز قياس التنفس Spirometry
2. اختبار نسبة الأوكسجين في الدم Oximetry
3. غازات الدم الشرياني Arterial blood gases
4. قياس الحجوم الرئوية Measurement of lung volumes

Pulmonary Function Tests

• مقياس التنفس Spirometer



جهاز القدرة القصوى لنفخ الهواء

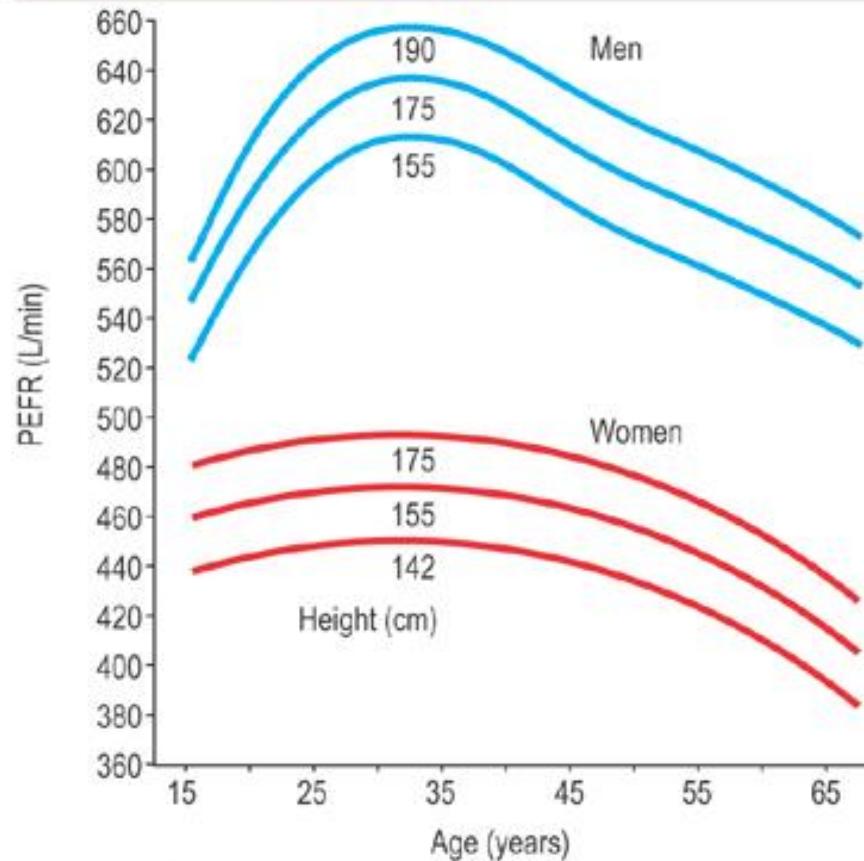


Peak flow meter

(a) Peak flow meter



(b) Graph of normal readings



Kumar & Clark: Kumar and Clark's Clinical Medicine, 7th Edition.
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Peak flow measurements. (a) Peak flow meter: the lips should be tight around the mouthpiece. (b) Graph of normal readings for men and women.

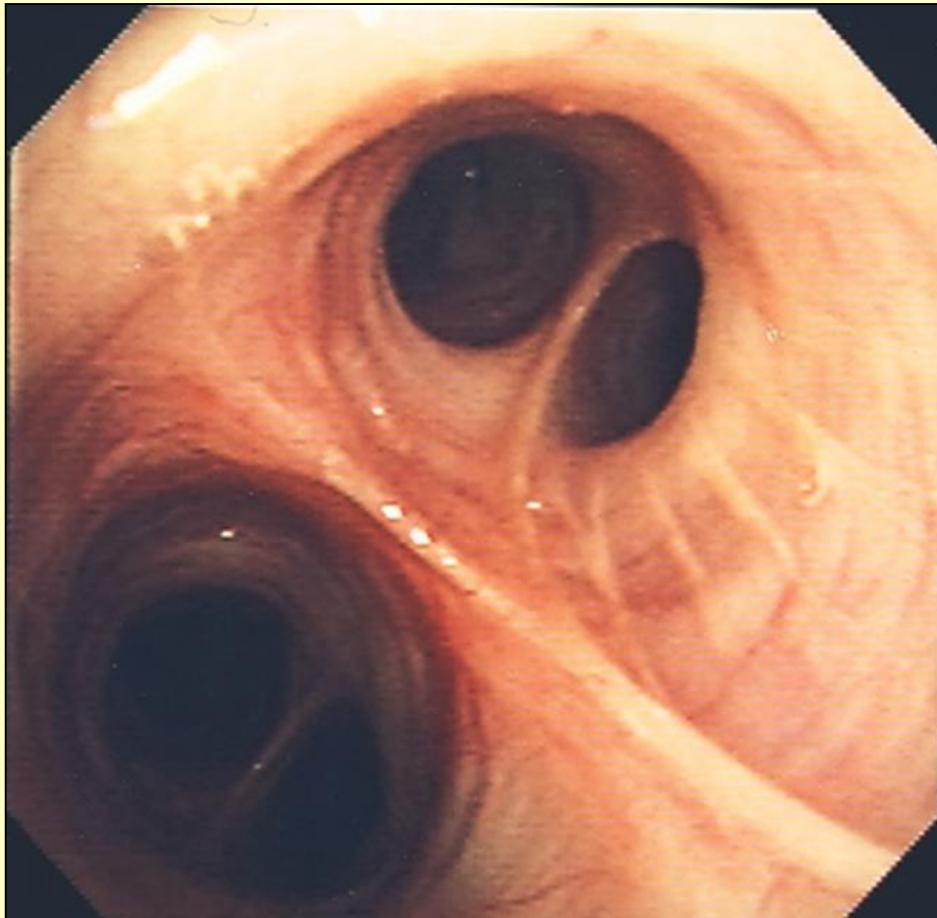
Word Building with bronch/o قصبي

–itis	Bronchitis التهاب	inflammation of bronchus
–genic	Bronchogenic قصبي	produced by bronchus
–scope	Bronchoscope تنظير	instrument to view bronchus
–spasm	Bronchospasm تشنج	involuntary muscle contraction of bronchus
–ial	Bronchial قصبي	pertaining to bronchus

bronchoscope



Normal endobronchial appearances as seen at fibreoptic bronchoscopy



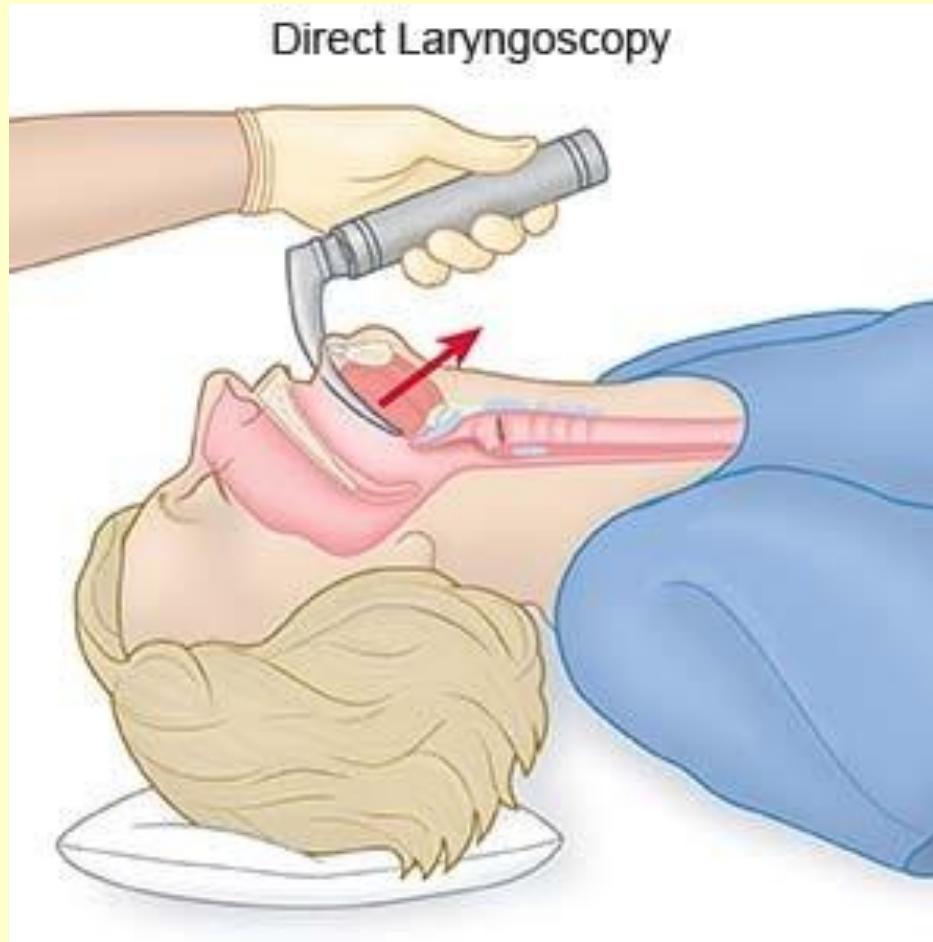
Word Building with laryng/o حنجري

–ectomy	Laryngectomy استئصال	surgical removal of larynx
–itis	Laryngitis التهاب	inflammation of larynx
–scope	Laryngoscope تنظير	instrument to view larynx
–eal	Laryngeal حنجري	pertaining to larynx

استئصال الحنجرة Laryngectomy



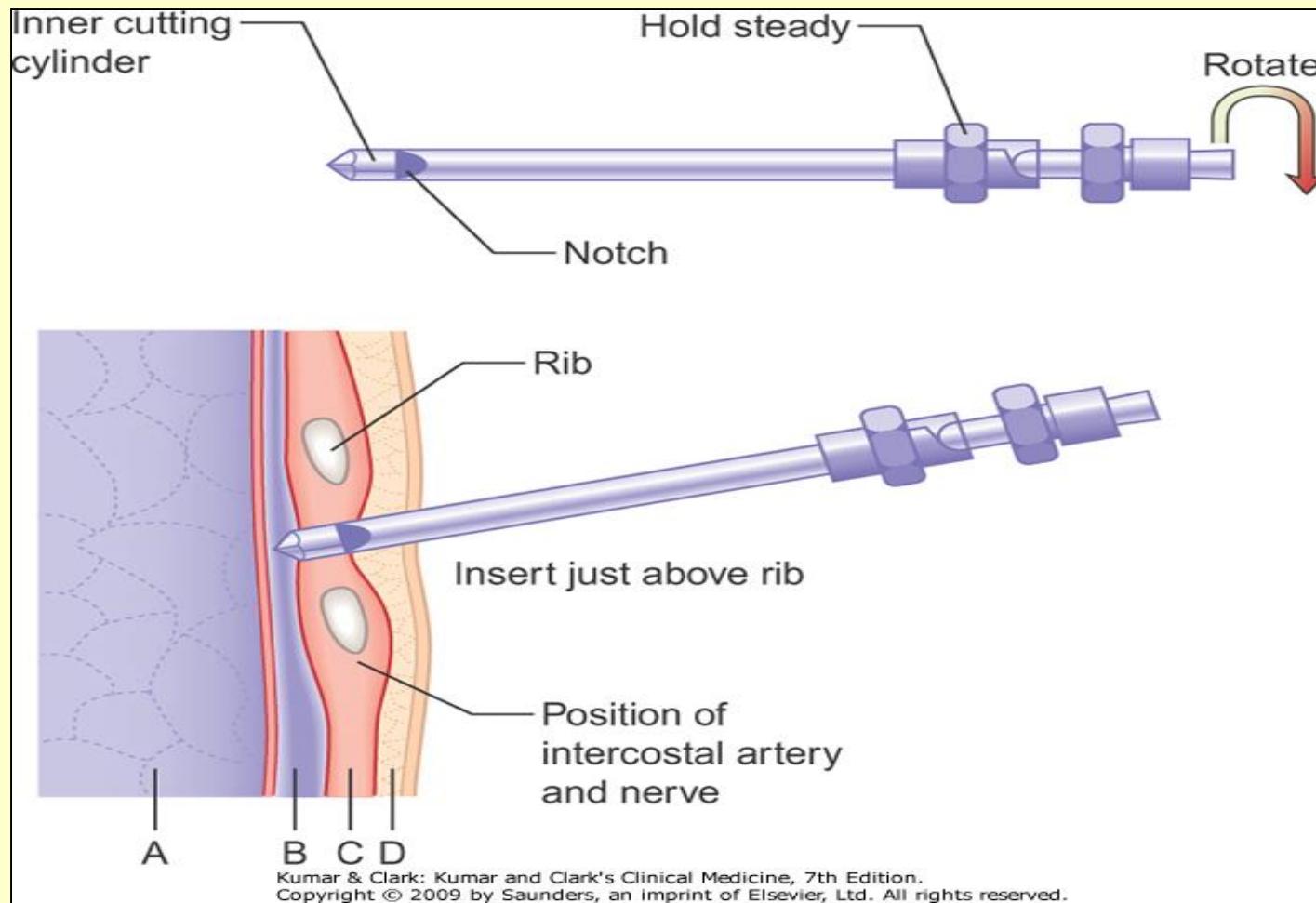
Laryngoscopy



بزل سائل الجنب Pleurocentesis



Pleural Biopsy خزعة الجنب



Word Building with ox/o and ox/i

-meter	Oximeter مقياس الأكسجة	instrument to measure oxygen
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an- -ia	Anoxia اللاكستجة	condition of no oxygen
hypo- -emia	Hypoxemia نقص أكسجة الدم	blood condition of insufficient oxygen
hypo- -ia	Hypoxia نقص الأكسجة	condition of insufficient oxygen

جهاز قياس الأكسجة Oximeter



Word Building with pharyng/o and pulmon/o

بلعوم رئوي

–itis	pharyngitis	inflammation of pharynx
–eal	pharyngeal	pertaining to pharynx
nas/o –itis	nasopharyngitis	inflammation of nose and pharynx

–logist	pulmonologist	lung specialist
–ary	pulmonary	pertaining to lungs

Word Building with rhin/o أنفي

–itis	Rhinitis التهاب	inflammation of nose
–plasty	Rhinoplasty تصنیع	surgical repair of nose



Rhinoplasty



Respiratory System Vocabulary

Cyanosis ازرقاق	blue skin caused by low oxygen in blood
Epistaxis رعاف	a nosebleed
Hemoptysis نفث الدم	cough up blood or blood-stained sputum
Hyperventilation فرط تهوية	breathing too fast and too deep
Hypoventilation نقص تهوية	breathing too slow and too shallow

Epistaxis

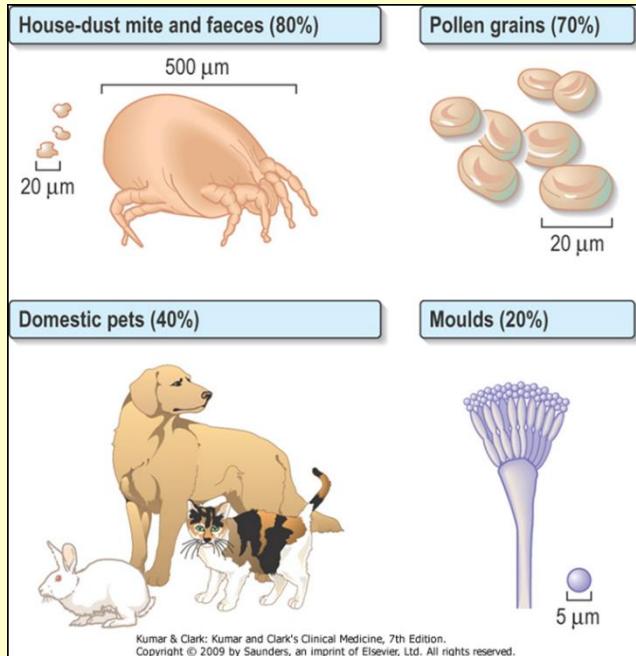


Bronchial Tube Pathology

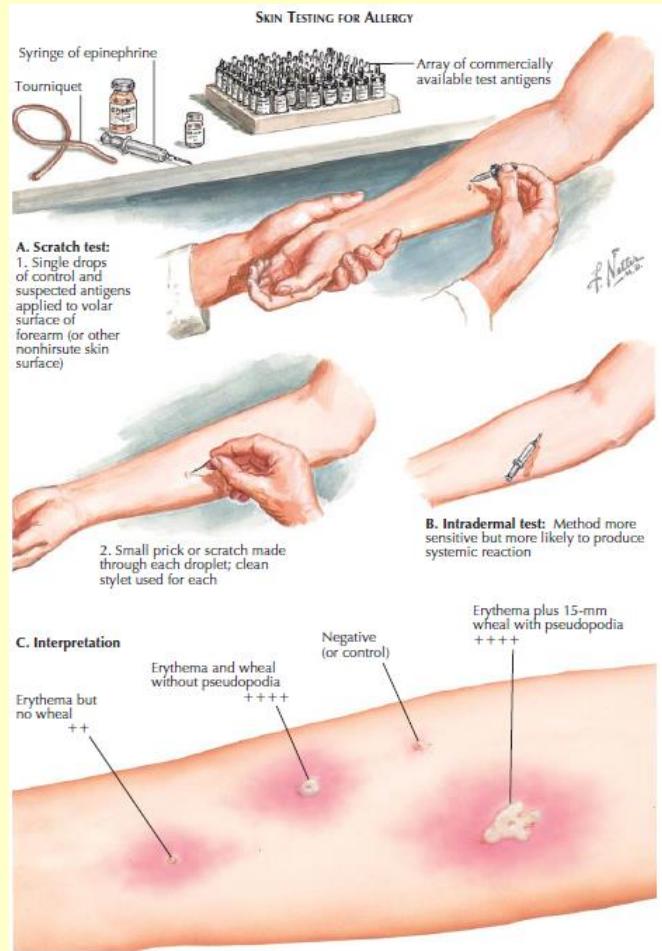
أمراض القصبات

Asthma الربو القصبي	difficulty breathing caused by bronchospasms, dyspnea, coughing, and wheezing
bronchogenic carcinoma السرطانة القصبية	cancerous tumor originating in bronchi

Asthma



Patch Test





سرطان الرئة malignant tumor in right lung

Lung Pathology أمراض الرئة

Pneumonia ذات الرئة

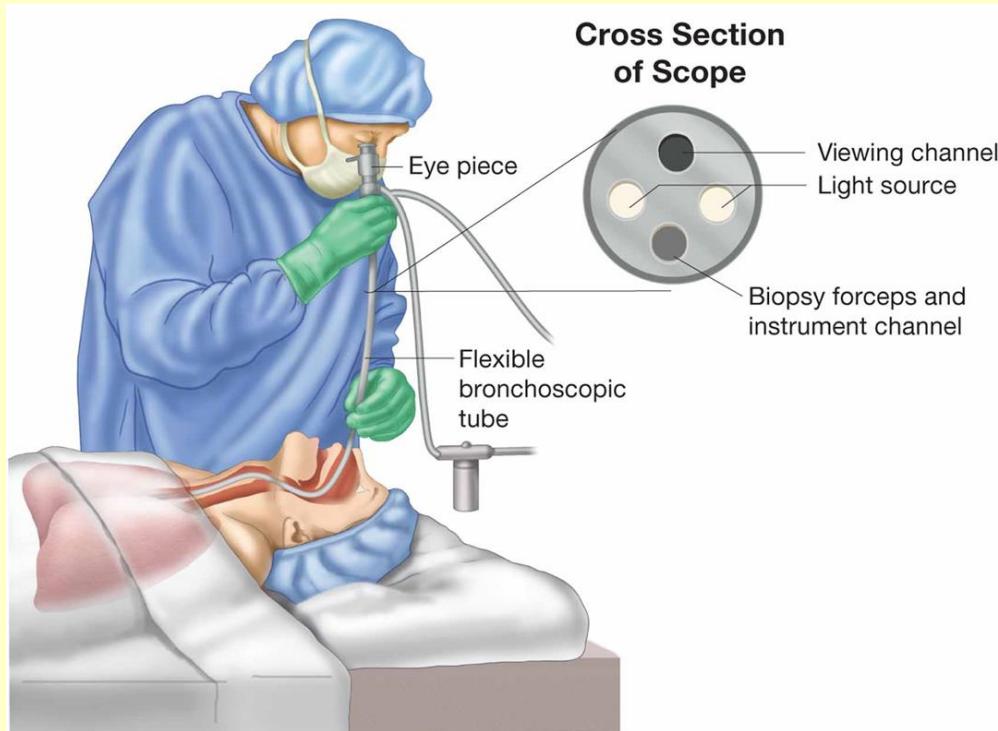
inflammatory condition of lungs;
results in alveoli filling with fluid



تنظير القصبات Endoscopic Procedures

bronchoscopy
(Bronch)

visual examination of bronchial tubes
using a bronchoscope



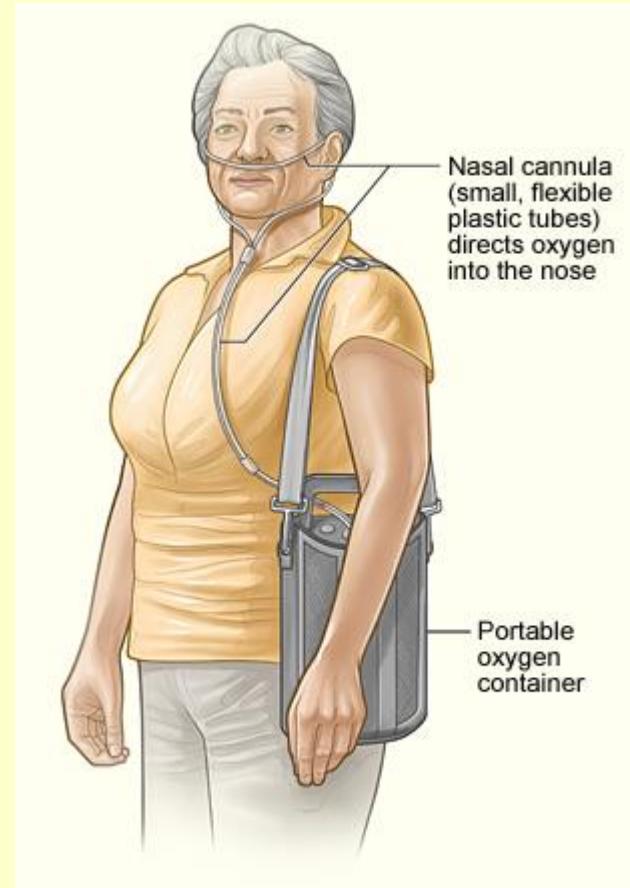
العلاجات التنفسية Respiratory Therapy

postural drainage تصريف المفرزات الوعسي	drainage of bronchial secretions by placing patient in positions using gravity to promote drainage; cystic fibrosis treatment
supplement oxygen therapy العلاج بالأكسجين التمكيلي	providing additional oxygen concentration to improve oxygen levels in bloodstream
Ventilator التهوية الآلية	machine that provides artificial ventilation for a patient unable to breathe alone

postural drainage



supplement oxygen therapy



Remote-controlled Ventilators



Additional Procedures

cardiopulmonary
resuscitation
(CPR) الإنعاش القلبي التنفسي

emergency treatment given to persons when respiration and heart stop

Heimlich maneuver
مناورة هيلمixin

technique for removing foreign body obstructing trachea or pharynx

Cardiopulmonary resuscitation (CPR)

الإنعاش القلبي التنفسى



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مناورة هيمليخ Heimlich maneuver



Self Heimlich maneuver



Respiratory System Pharmacology

Antibiotic صاد حيوى	kills bacteria	Amoxil, Cipro
Antihistamine مضاد هيستامين	blocks histamine released during allergy attack	Allegra, Claritan, Benadryl
Antitussive مضاد سعال	relieves urge to cough	Hycodan, Vicks Formula 44

Respiratory System Pharmacology

Bronchodilator موسع قصبي	relaxes bronchospasms; treats asthma	Proventil, Ventolin, Theo-Dur
corticosteroids ستيروئيد قشرى	reduces inflammation of respiratory tract	Flonase, Nasonex, Azmacort
Decongestant مضاد احتقان	reduces congestion in respiratory system	Afrin, Drixoral, Sudafed

Respiratory System Pharmacology

Expectorant مقطّع	improves ability to cough up mucus	Robitussin, Mucinex
Mucolytic حال للمخاط	liquefies mucus so it is easier to cough up	Mucomyst

Respiratory System Abbreviations

CXR	chest X-ray
DPT	diphtheria, pertussis, tetanus
ENT	ear, nose, and throat



DPT Vaccine

Thank You

