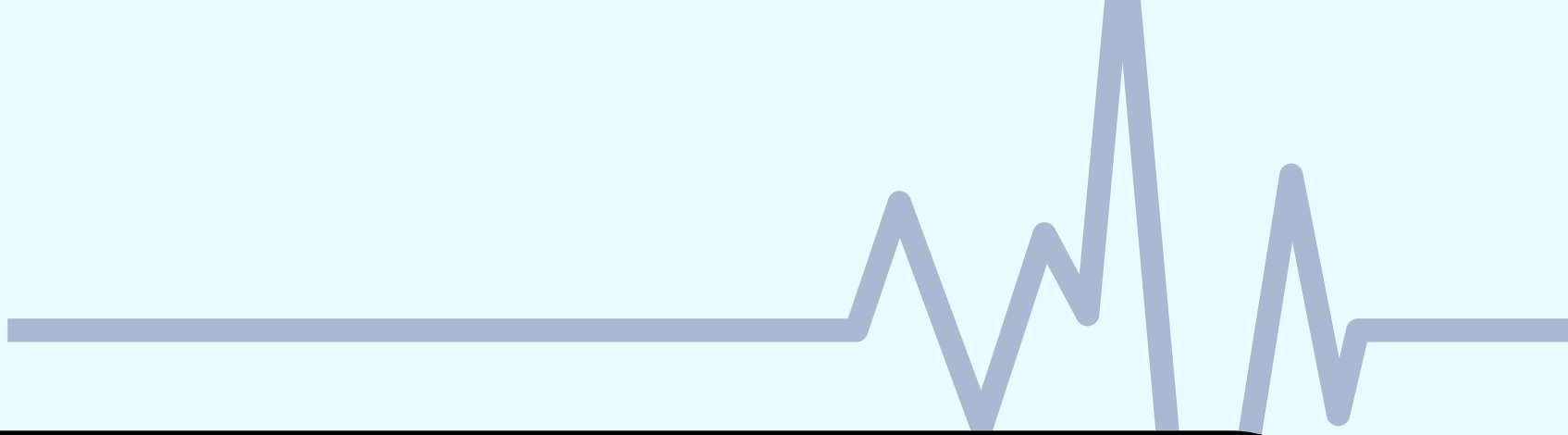




MUM
IM'S

APPROACH TO DYSPPNEA





It is
difficult
to
breathe...

How long has this been
going on?



ACUTE

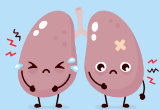
Minutes to 24 hours

1. Cardiovascular



- a. **Myocardial ischaemia**
- b. Pericardial Effusion
- c. Arrhythmia
- d. **Cardiac tamponade**

2. Respiratory



- a. **Acute Exacerbation of Asthma**
- b. **Aspiration**
- c. Pneumonia
- d. **Pulmonary embolism**
- e. **Pneumothorax**
- f. Pleural Effusion

3. Endocrine



- a. **DKA (Metabolic Acidosis)**
- b. **Thyrotoxicosis induced Heart Failure**

4. Others:

- a. Acute Pulmonary oedema
- b. Respiratory muscle weakness
- c. **Anaphylaxis**
- d. Anxiety



SUBACUTE

Days to weeks

- Pneumonia
- Exacerbation of COPD
- Angina
- Pain
- Pontine haemorrhage



CHRONIC

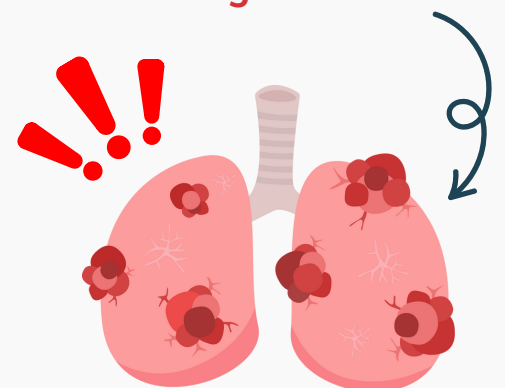
Persists >1 month

• More Common

- Chronic obstructive pulmonary disease (COPD)
- Asthma
- Bronchiectasis
- Pleural Effusion
- Interstitial lung disease
- **Congestive Heart failure**

• Less common

- Valvular heart disease
- Pericardial heart disease
- Panic disorder
- Cystic fibrosis (more common in Northern European countries)
- **Lung Cancer**





Anything that makes your condition better/ worse?

breathe

Aggravating factor

Alleviating factor

COPD

- Worse in mornings



- Sitting in a Tripod Position/ leaning forwards

Asthma



- Worse at nights
- Exercise
- Exposure to airway irritants
- Cold

- Inhaled bronchodilators
- Breathing Exercise



Heart failure



- Lying flat (orthopnea)
- Fluid overload (drinking too much water)

- Sitting upright, standing

ACS



- Exertion

- Not relieved by rest/ GTN

Neuromuscular weakness

- Increased respiratory load
 - Standing in the water higher than the chest
 - Supine position





Do you notice anything else?



Symptoms

- Stridor



- Wheezing

- Chest tightness
- Coughing

- Pleuritic chest pain

- Fever
- Productive cough
- Malaise, Headache
- Sick contacts

- Sore throat (preceded with coryzal symptoms)

Diagnosis

- Location of obstruction:
 - Inspiratory: from epiglottis to voicebox
 - Expiratory: tracheobronchial tree
 - Inspiration and expiration: vocal cords

- Intermittent: asthma
- With allergen/urticaria: anaphylaxis

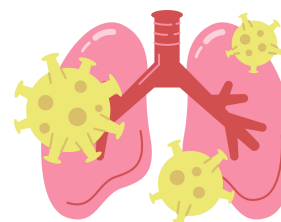
- Asthma



- Pneumothorax
- Pulmonary embolism
- Pleural effusion



- Pneumonia



- Infection of the upper airway



Symptoms

- Syncope on exertion
- Angina
- Dyspnea

- Diaphoresis
- Nausea & Vomiting



- Muscle weakness worst at the end of the day (fatigability)
- Ptosis, Blurry Vision, Diplopia
- Other focal neurological symptoms



- Proximal muscle weakness & paralysis
- Involuntary muscle contractions
- Other focal neurological symptoms

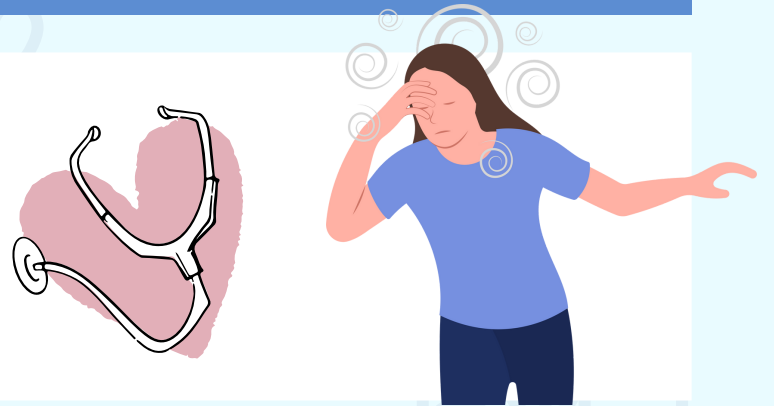


- Skin lesions
- Eye lesions
- Cardiac involvement
- Central nervous system involvement

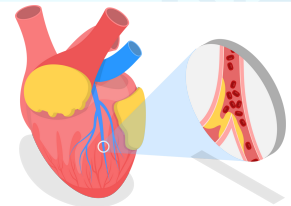


Diagnosis

- Aortic stenosis



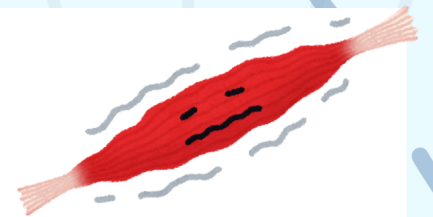
- Acute coronary syndrome



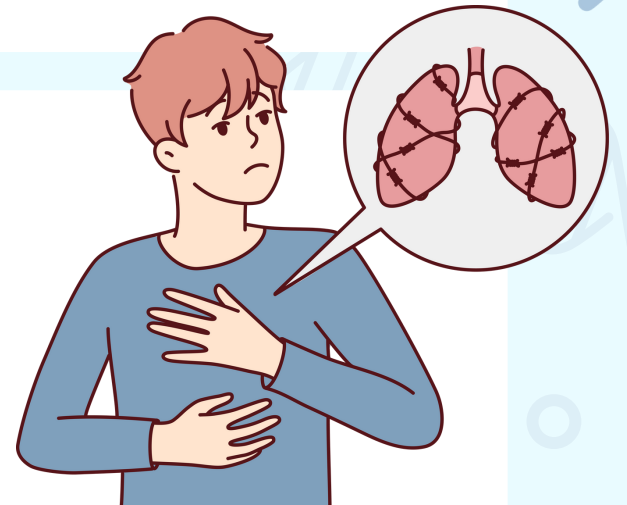
- Neuromuscular disease
 - Myasthenia gravis



- Neuromuscular disease
 - Amyotrophic lateral sclerosis



- Interstitial lung disease





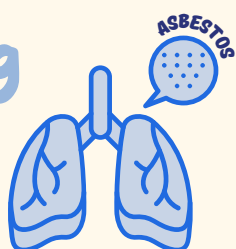
Asthma

- Personal or family history of atopic diseases



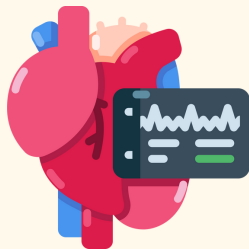
Interstitial Lung Disease

- Occupational or environmental exposure



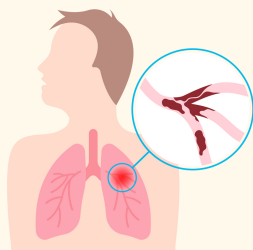
Cardiac Tamponade

- Beck's triad:
 - Hypotension
 - Jugular venous distension
 - Muffled heart sounds
- Pulsus paradoxus
- Abnormal ECG -> electrical alternans, low QRS voltage, tachycardia



Pulmonary embolism

- Sudden onset
- Pleuritic pain
- Syncope
- Hypotension
- Unilateral lower limb pain & oedema indicating concomitant DVT
- Jugular venous distension
- ECG evidence of right heart strain with large, central pulmonary emboli



**IMPORTANT
INFO!**

COPD

- Smoking >40 years
- Age ≥ 45 years
- Known history of COPD



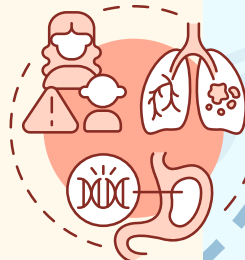
Heart Failure

- History of heart failure
- Paroxysmal nocturnal dyspnea
- Orthopnea
- Peripheral oedema



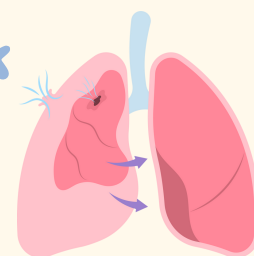
Cystic Fibrosis

- Voluminous and thick sputum production
- Absence of smoking
- Signs & Symptoms of pancreatic insufficiency (eg. steatorrhea)
- Recurrent chest infections
- Failure to thrive (children)



Pneumothorax

- Sudden onset
- Pleuritic pain
- Trauma



Psychogenic

- Evidence of anxiety

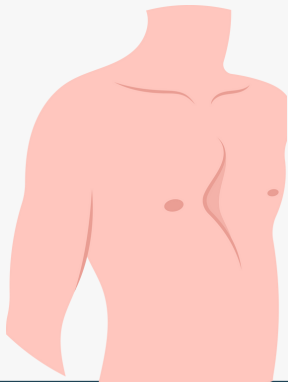


I would like to examine your lungs.



SHAPE OF THE CHEST WALL

- Barrel chest
 - Asthma
 - COPD



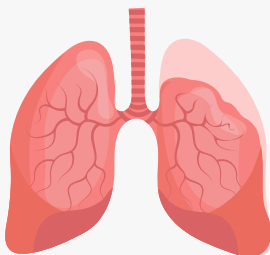
REDUCED CHEST WALL MOVEMENT

- Affected side
 - Pneumonia
 - Lung collapse
 - Pleural effusion
 - Pneumothorax
- Symmetrical
 - Asthma
 - Interstitial lung disease



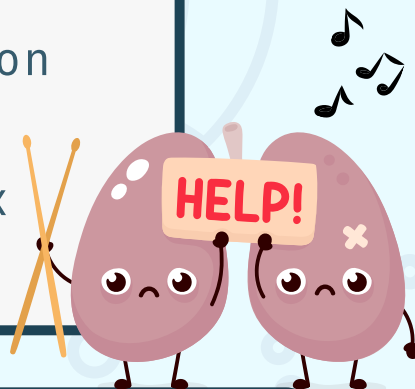
MEDIASTINAL DISPLACEMENT

- Ipsilateral shift
 - Lung collapse/ Atelectasis
- Contralateral shift
 - Massive pleural effusion
 - Pneumothorax



PERCUSSION NOTE

- Dull
 - Pneumonia
 - Lung collapse
- Stony dull
 - Pleural effusion
- Hyperresonant
 - Pneumothorax
 - COPD



BREATH SOUNDS

- Bronchial
 - Pneumonia
- Reduced
 - Lung collapse
 - Pleural effusion
 - Pneumothorax
- Prolonged expiration
 - Asthma
 - COPD

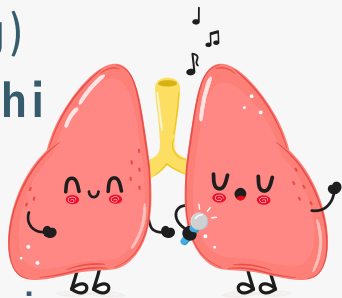
???





ADVENTITIOUS SOUNDS

- Crackles
 - Coarse
 - Pneumonia
 - Bronchiectasis (with Finger Clubbing)
 - Fine
 - Pulmonary Oedema
 - Interstitial lung disease (with Finger Clubbing)
- Wheeze/ Rhonchi
 - Asthma
 - COPD
 - Cystic Fibrosis



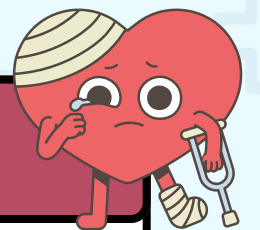
VOCAL FREMITUS

- Increased Vocal Fremitus
 - Pneumonia
 - Lung Abscess
- Decreased Vocal Fremitus
 - Pleural Effusion
 - Pneumothorax
 - Emphysema



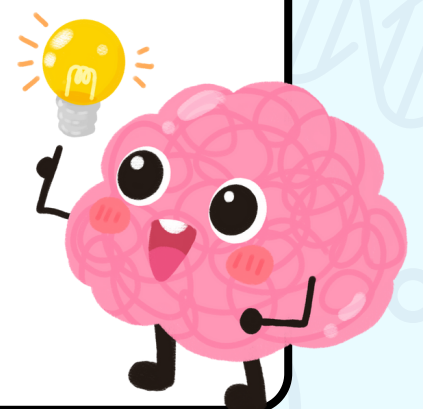
HEART FAILURE

- S3
- Elevated jugular venous pressure
- Basilar crackle



THINK OF THESE DIAGNOSIS WHEN OXYGEN SATURATION IS LOW

- Asthma or acute exacerbation of COPD
- Acute respiratory distress syndrome
- Heart failure
- Pulmonary fibrosis
- Pulmonary vascular disease





I would like to order
some test...



Bedside Test

Electrocardiogram (ECG)

- Atrial fibrillation
- Arrhythmias
- Heart failure



Laboratory Test

Serum B-type natriuretic peptide (BNP)

- Heart failure

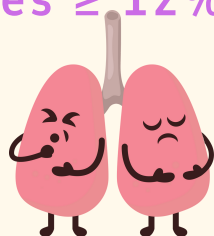


Bedside Test

Pulmonary function testing

Obstruction ($FEV_1/FVC \leq 0.75$)

- Asthma (improves $\geq 12\%$ or 200mL following bronchodilator)
- COPD
- Bronchiectasis
- Cystic fibrosis



Restriction ($FEV_1/FVC \geq 0.8$) and Decreased DLCO

- Interstitial Lung Disease

Restriction ($FEV_1/FVC \geq 0.8$) and Increased DLCO

- Chest wall or neuromuscular disorder



Imaging

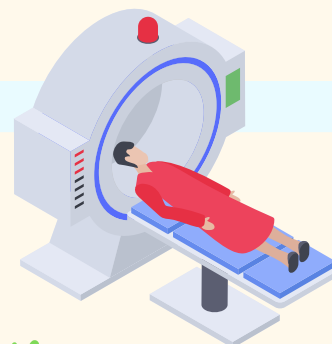
Chest x-ray

- Pneumonia
- Atelectasis
- Heart Failure
- Emphysema
- Pneumothorax



Bronchoscopy

- Foreign body aspiration
- Airway obstruction
- Pneumonia
- TRO Lung Malignancy



CTPA/ Ventilation-perfusion scan

- Pulmonary embolism



REFERENCES

1. Internal Medicine Essentials for Clerkship Students 2
2. Kumar & Clark's Clinical Medicine (10th edition)
3. Talley and O'Connor's Clinical Examination (8th edition)
4. Davidson's Principles & Practice of Medicine (23rd Edition)
5. Pavletic AJ, Hnatiuk O. Puzzling dyspnea caused by respiratory muscle weakness. The Journal of the American Board of Family Medicine. 2012 May 1;25(3):396-7.
6. <https://litfl.com/ecg-findings-in-massive-pericardial-effusion/>

