

# Respiratory Assessment

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# Respiratory Assessment Objectives

By the end of this session, you will

- \* Understand the importance of a good respiratory assessment
- \* Appreciate some of the normal physiology of the respiratory system
- \* Have a systematic framework for undertaking a respiratory assessment, including history-taking and examination

## Symptom burden in different terminal illnesses

Symptom	Cancer	AIDS	CHF	COPD	RD
Pain	35-96%	63-80%	41-77%	34-77%	47-50%
Depression	3-77%	10-82%	9-36%	37-71%	5-61%
Delirium	6-93%	30-65%	30-65%	18-32%	18-33%
Fatigue	32-90%	54-85%	69-82%	68-80%	73-87%
<b>Dyspnoea</b>	<b>10-70%</b>	<b>11-62%</b>	<b>60-88%</b>	<b>90-95%</b>	<b>11-62%</b>
Anorexia	30-92%	57%	21-41%	35-67%	25-64%

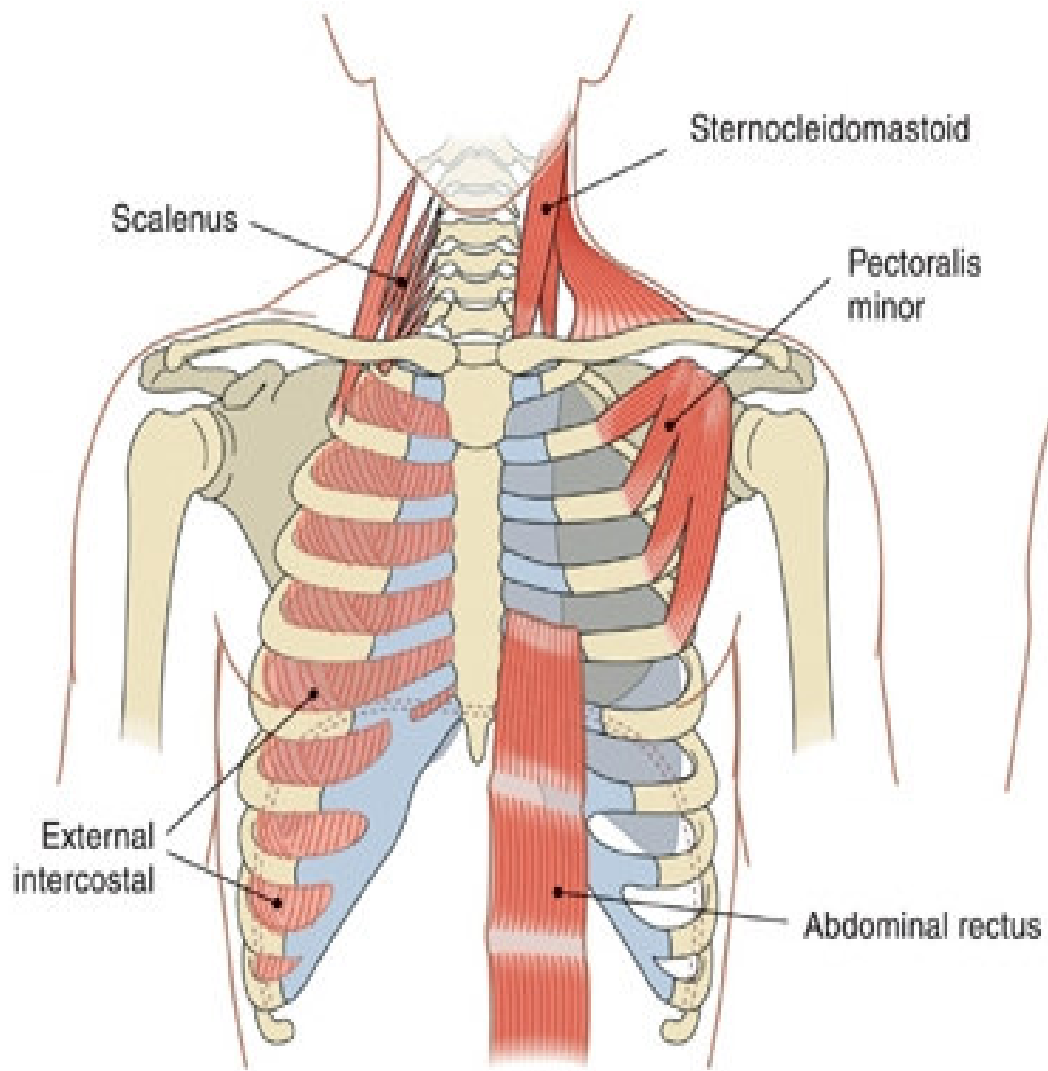
# Respiratory System Assessment

## Outline

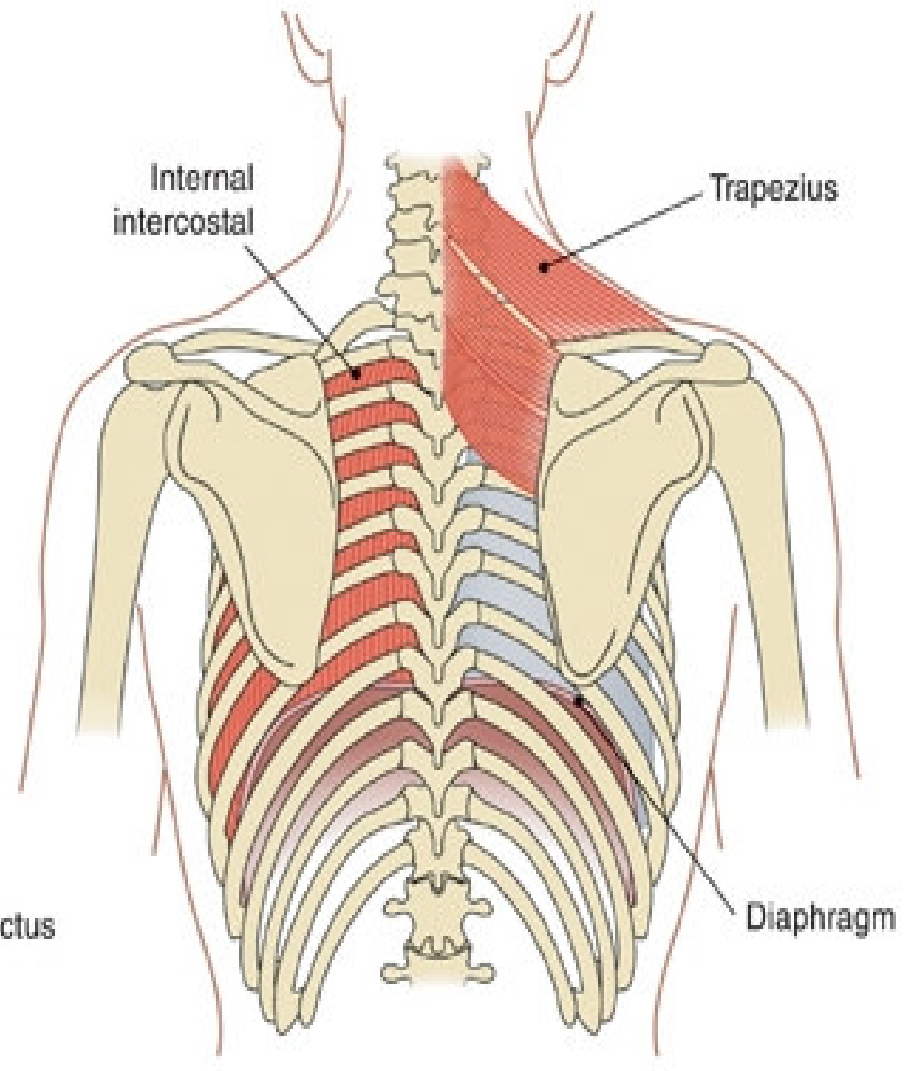
- \* Respiratory Muscles
- \* Respiratory History
- \* Respiratory Symptoms
- \* Physical assessment

# Respiratory Muscles

- \* Several groups
  - Neck, Intercostals, Abdominal, Diaphragm
- \* Carry out act of breathing
  - Tidal volume, Respiratory rate
- \* Speech, swallowing
- \* Cough, sneeze
- \* Defaecation, vomiting, childbirth



**Anterior**



**Posterior**

# Respiratory muscle weakness

- \* Multiple aetiologies:
  - \* Respiratory disease: COPD, ILD, Infection
  - \* Pulmonary vascular: PE Embolism, Pulm Hypertension
  - \* Deconditioning: Malnourished, malignancy
  - \* Advanced dementia
  - \* Obesity
  - \* Restrictive: Kyphosis, Surgery,
  - \* Neurological: MND

## **Impaired Gas Exchange:**

- \* Air flow, CO<sub>2</sub> retention, hypoxia

# Respiratory Symptoms

- \* Cough
- \* Sputum
- \* Haemoptysis
- \* Chest pain
- \* Dyspnoea
- \* Wheeze
- \* Morning headaches



# Carbon Dioxide Retention

- \* Sleepy, confused
- \* Morning headache
  - \* Initially, clears after waking
- \* Bounding pulse
- \* Pupillary constriction
- \* Asterixis
- \* ???Cyanosed: Not necessarily

# Respiratory system examination

Can be remembered with the mnemonic

\***PIPPA**:

\*(Permission)

\*Inspection

\*Palpation

\*Percussion

\*Auscultation

# The end-of-bed-o-gram

- \* Respiratory rate, depth
- \* Breathing pattern
- \* Work of breathing/ use of accessory muscles/  
pursed lip breathing
- \* Ability to speak – normally/short  
sentences/words/not able to speak (?hoarse voice)
- \* Presence of cough, character of cough
- \* Use of oxygen/flow rate/delivery device
- \* Vital observations

# Inspection (2)

- \* Hands

- \* Tremor/ CO<sub>2</sub> retention flap/ peripheral cyanosis/ clubbing/ nicotine stains/ wasting of small muscles

- \* Pulse

- \* Rate/ rhythm/ character

- \* Face

- \* Conjunctival pallor/ central cyanosis of lips or tongue/ facial plethora/ congestion of neck veins/ Horner's syndrome

- \* Skin

- \* Cyanosis/ fragile skin/ purpura

# Clubbing



# SVCO



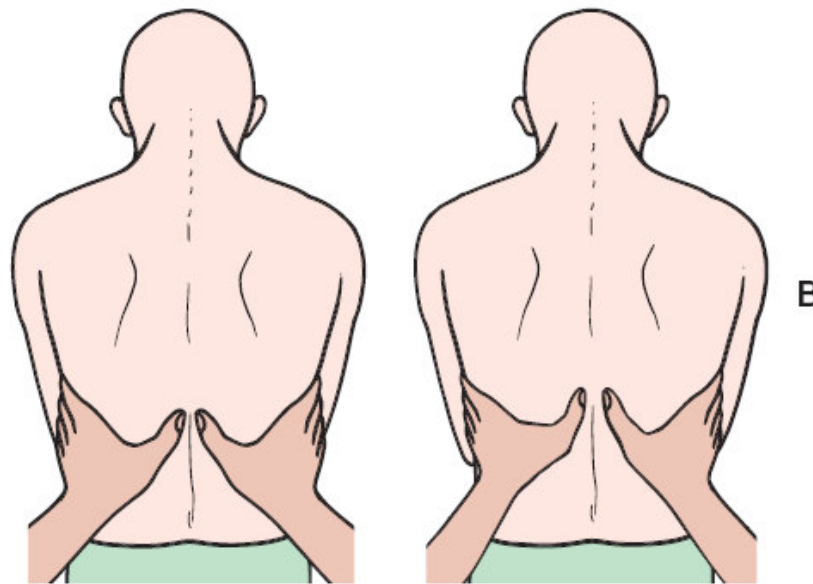
Left Horner's syndrome

# Palpation

- \* Tracheal position
- \* Surgical emphysema - air in subcutaneous tissue due to pneumomediastinum
- \* Chest tenderness
- \* Chest expansion (usually 3-6cm, symmetrical)
- \* Tactile fremitus
- \* Ask permission and explain what you're doing!

# Assessing chest expansion

Posterior



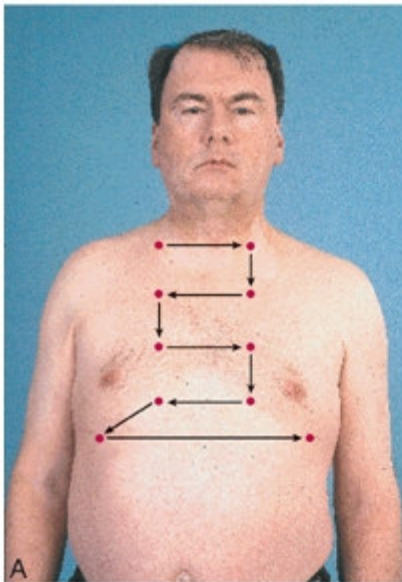
**FIG. 25-10** Estimation of thoracic expansion. A, Exhalation. B, Maximal inhalation.

Expiration

Full inspiratory effort

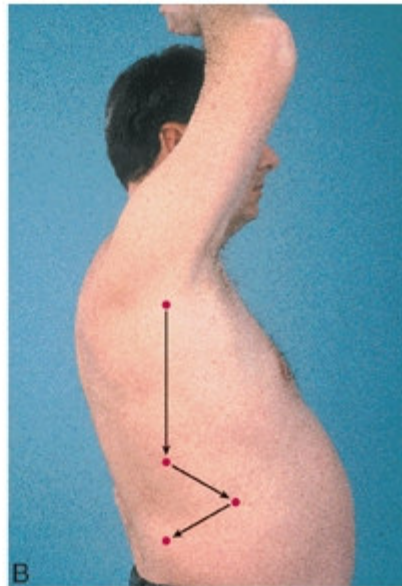


# Always compare side to side

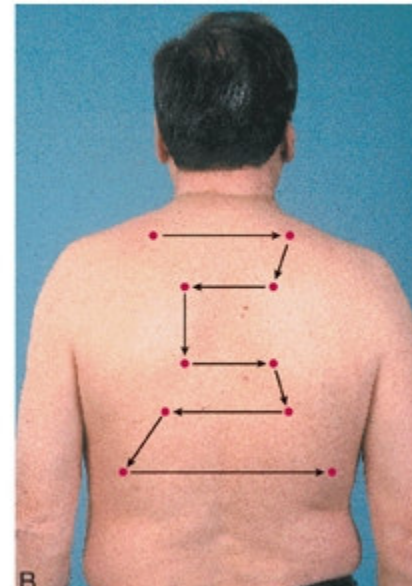


A

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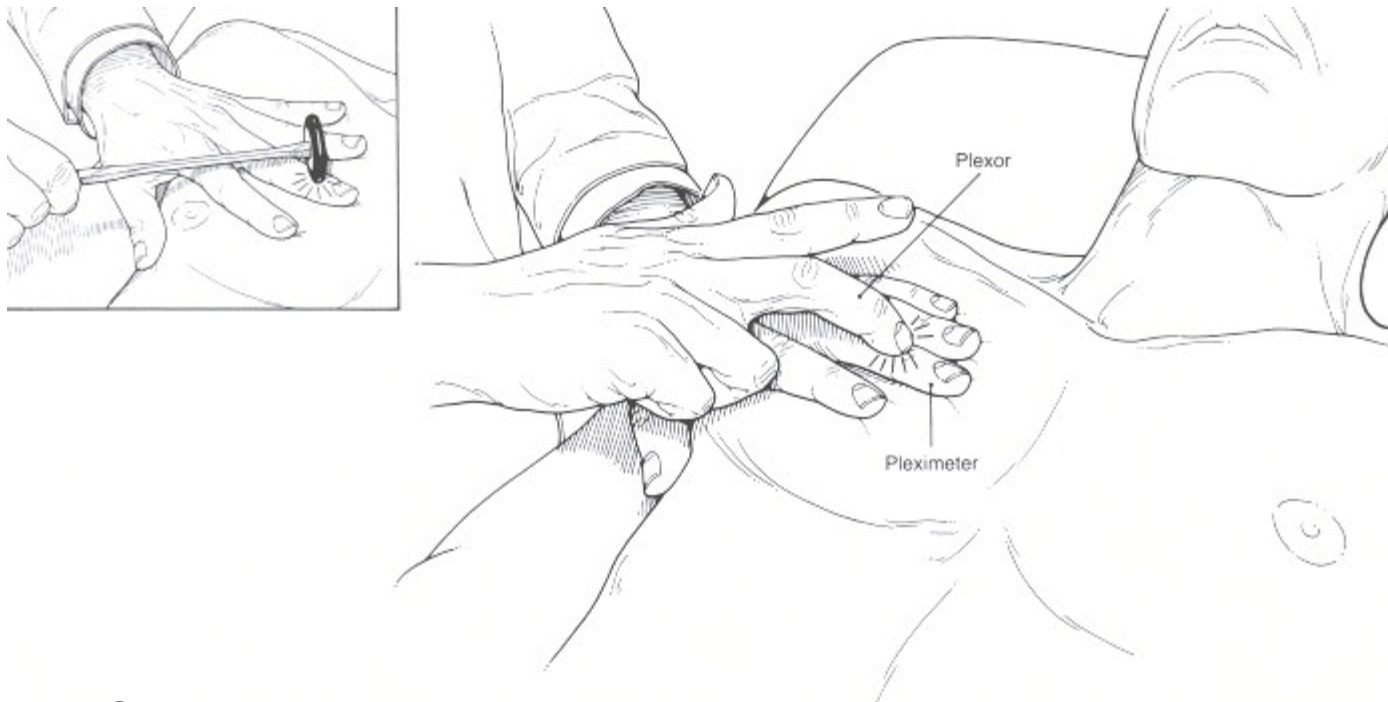


B



B

# Percussion technique

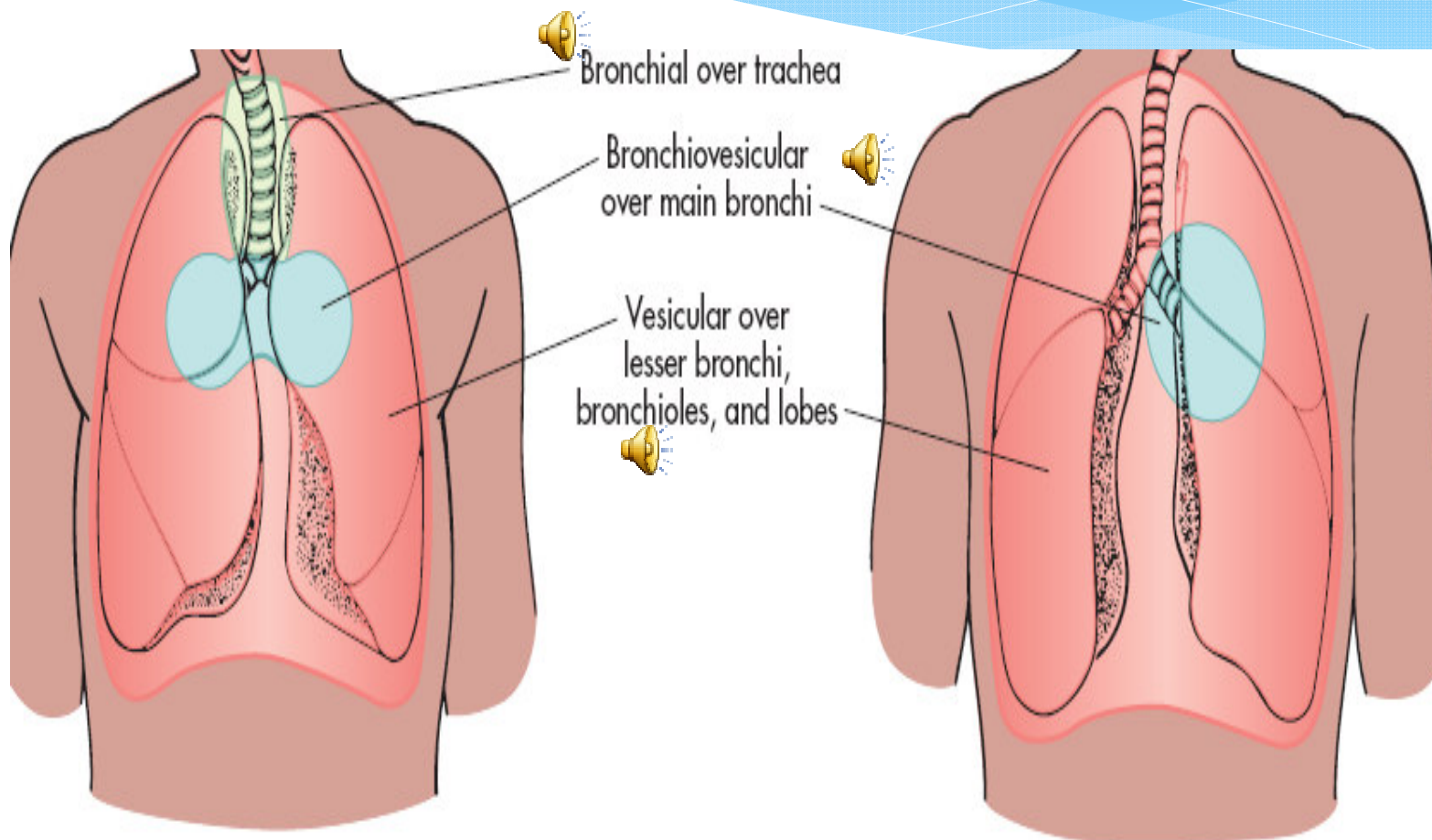


Compare side to side!

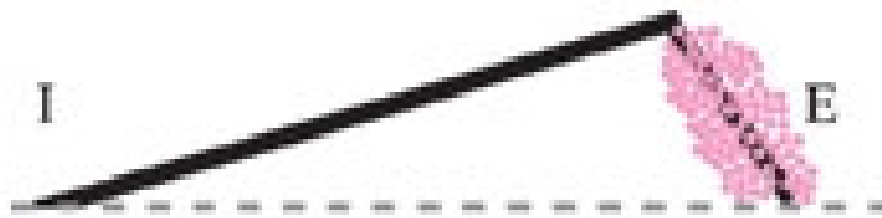
# Percussion

Sound	What is heard and possible representation
Resonant	Low-pitched, hollow, heard over normal lung
Hyper-resonant  (Tympanic)	Loud, “booming”, lower pitched than normal, heard over hyper-inflated lung eg in COPD/acute asthma  (Drum-like, loud, empty quality heard eg over pneumothorax)
Dull	Medium-intensity pitch and duration, dull and thudding, heard eg over partially consolidated lung (pneumonia) or pleural effusion
Flat	Very dull, soft, high-pitched sound of short duration heard in areas where air is not present

# Auscultation – Normal breath sounds



# Added sounds (1)



Snore-like, may be heard continuously during insp or exp, coughing may clear sound

Rhonchi



Rhonchi

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# Added sounds (2)

Wheezes are musical noises, high pitched and shrill sounding  
Louder in expiration



Leathery rubbing or grating sound, usually caused by inflammation of pleural surfaces

# Putting it all together

- \* Normal physiology
- \* History
  - \* Including important negatives
- \* Normal and abnormal physical findings
- \* Previous and current radiological findings
- Treating reversible pathology if appropriate
- Optimising medications for chronic conditions
- Symptom management