

**CHEST**

**Upper airway**

# Chest technique

- **Kv(110-130)** to demonstrate many shades of gray in lungs (long-scale contrast), **mA and time** to minimize the motion and loss of sharpness.
- As a general rule, the use of **Kv (above 100)** requires the use of grid.
- Exposure is taken on **2<sup>nd</sup> full inspiration** (This allows for a deeper inspiration, as more air is inhaled during the 2<sup>nd</sup> breath- shows 10 posterior ribs).
- Gonads shield should be used on all pt. of reproductive age, it placed around the patient waist.

- Female patients with large breasts, It's superimposing the lower part of the lung fields and obscuring any pathology. The patient have to **pull the breasts upward and laterally**, then remove her hands as she leans against the cassette holder to keep them in position.
- all chest x-rays should be taken in **erect position**, WHY?
  - 1- allow diaphragm to move down
  - 2- show possible air and fluid level in chest
  - 3- prevent engorgement and hyperemia of pulmonary vessels
- **Basic** projections of chest radiograph are: PA and LATERAL. **Special** projections are AP supine or semi erect , LATERAL decubitus, AP Lordotic and AO – PO .

# PA

## EXP. Factors:

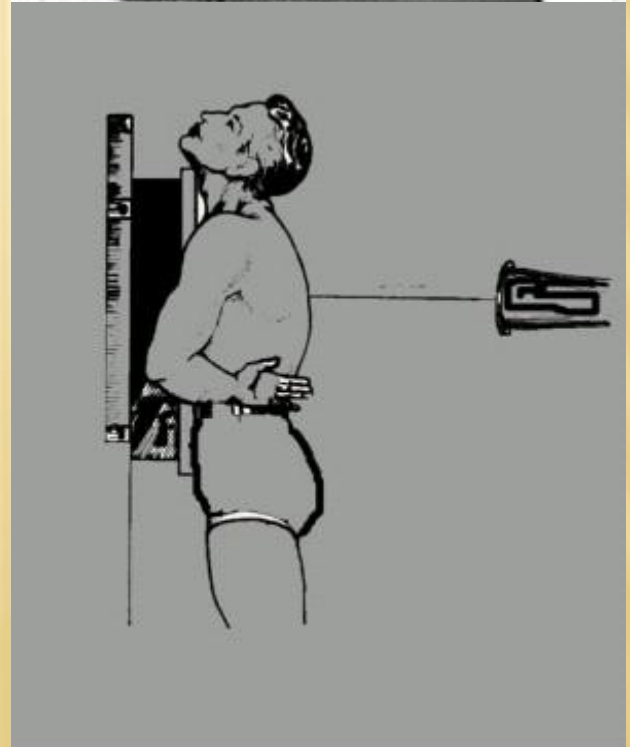
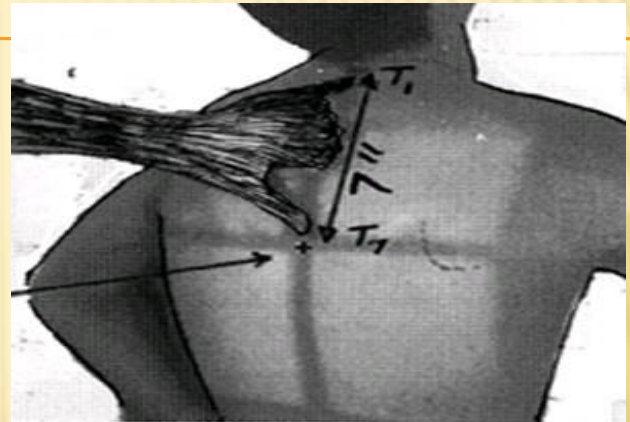
KV: 110 -125

mAs: 3

**Film size;** 35×43 cm lengthwise or crosswise (large pt.)

**CR:** perpendicular to IR , at level of T7 to inferior angle of scapula .

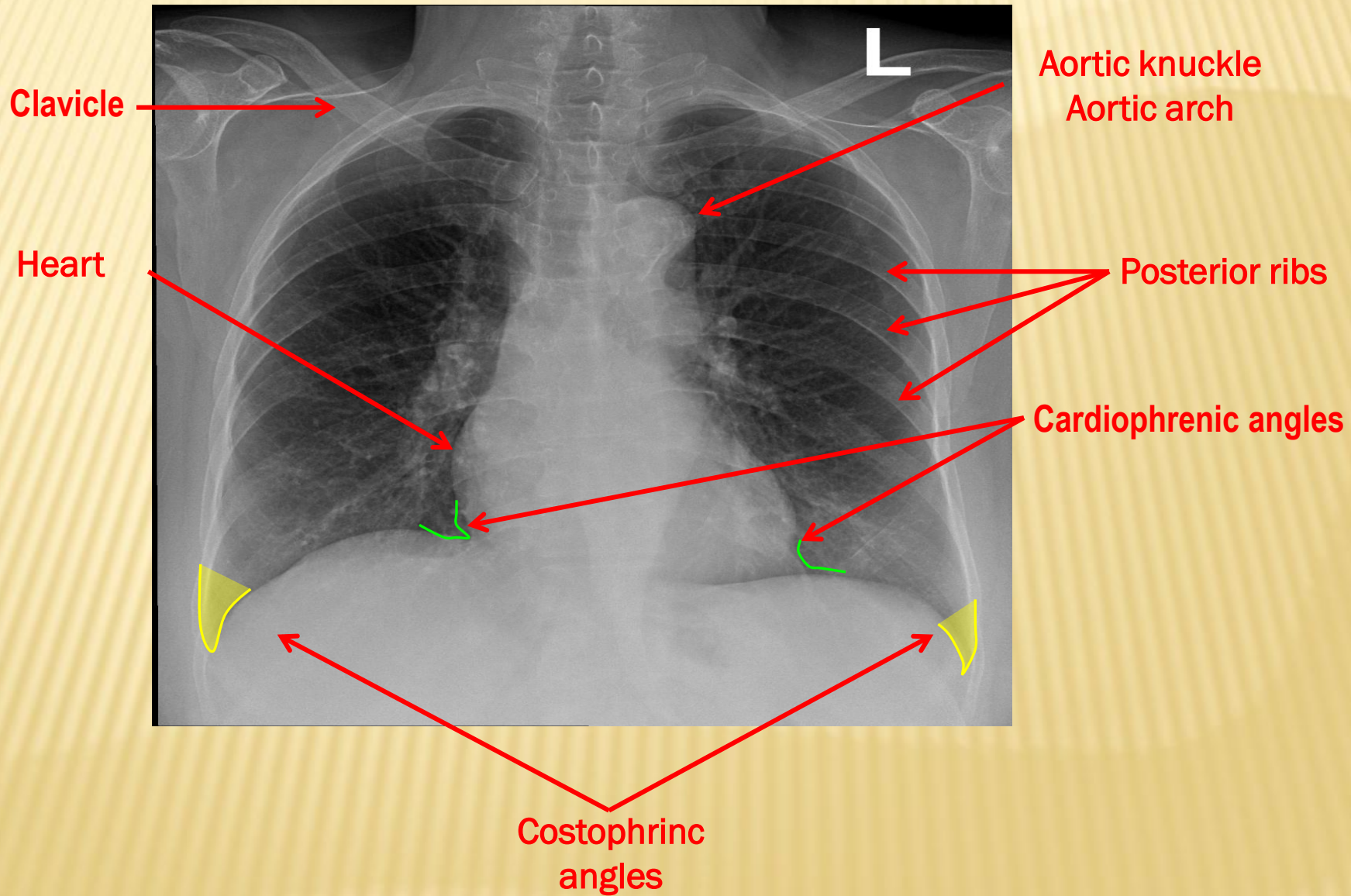
**SID:** 180 cm to minimize mag.

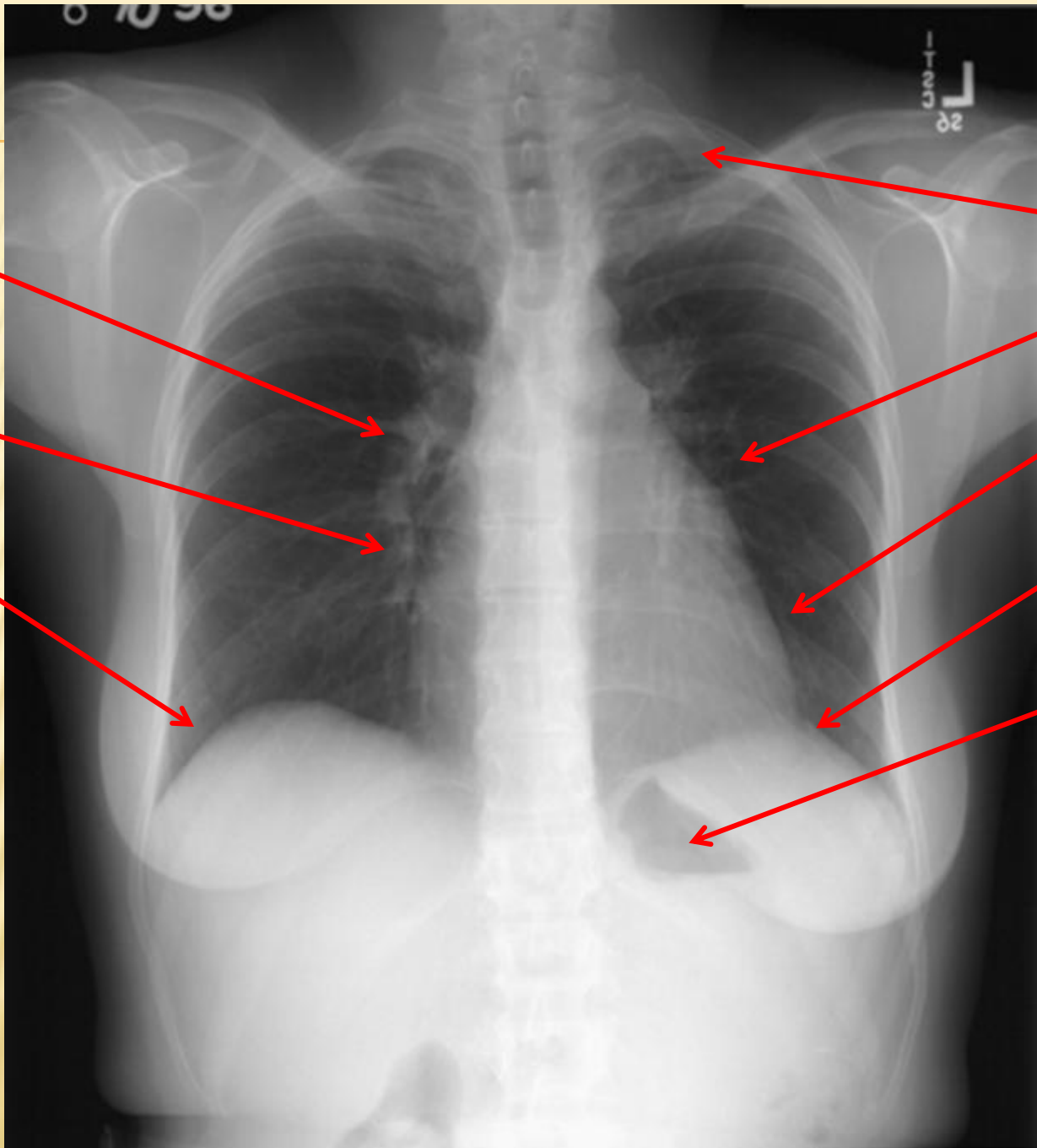


*Posteroanterior (PA) chest projection position,*



# PA





hilum

RT atrium  
border

RT hemi-  
diaphragm

1<sup>st</sup> rib anterior

LT atrium  
border

LT ventricle

LT hemi-  
diaphragm

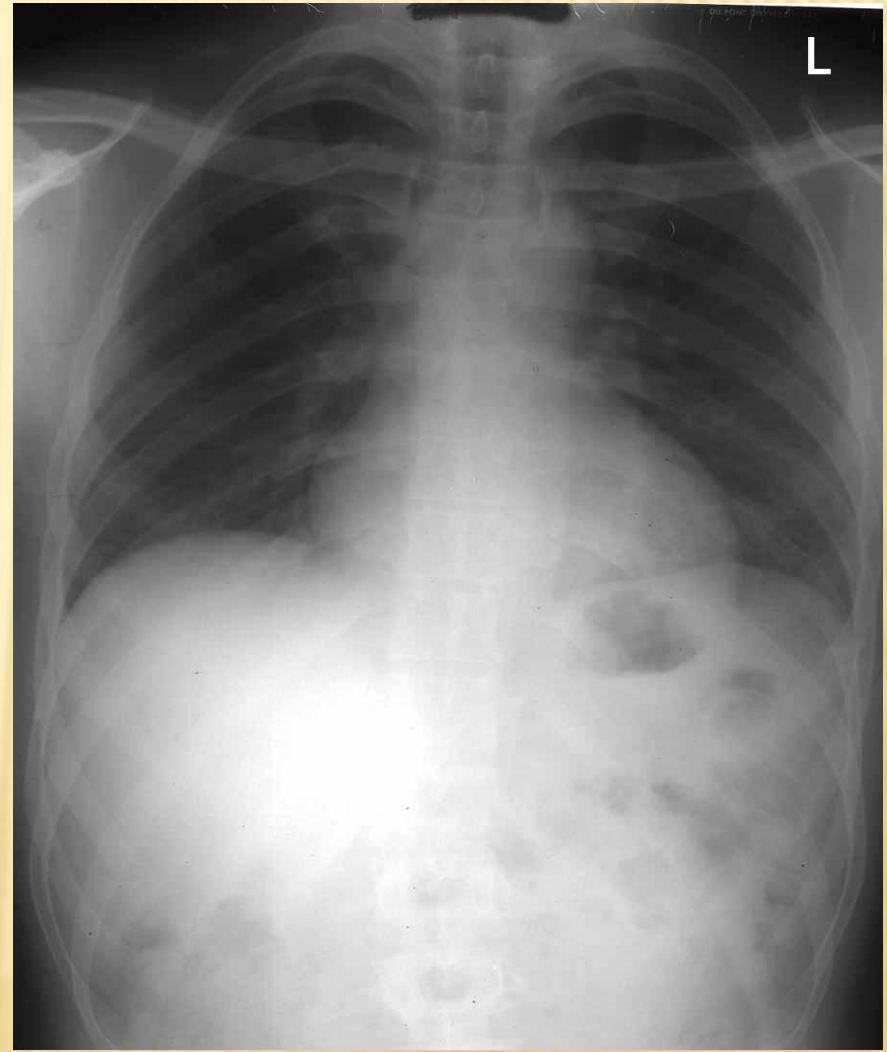
gas in stomach

# INSPIRATION



Good inspiration shows 10 posterior ribs

# EXPIRATION



NOTE CHANGE IN HEART SIZE AND VASCULARITY DUE TO EXPIRATION.



# LT LATERAL

**EXP. Factor :**

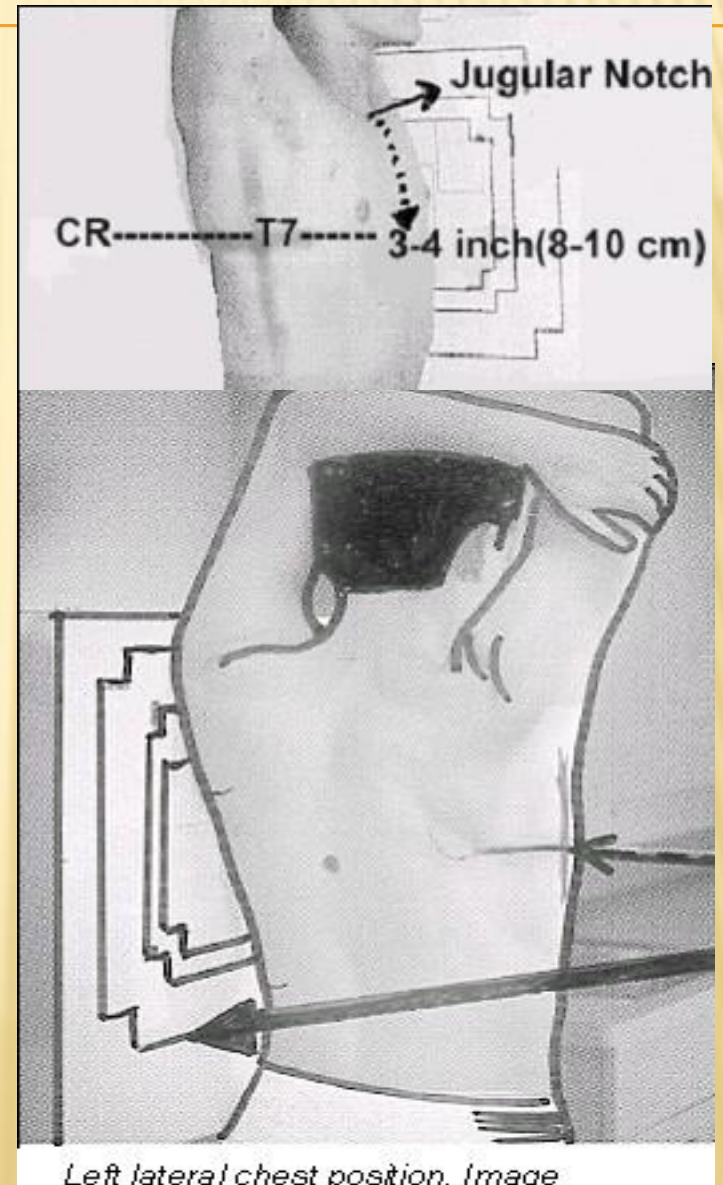
**KV:** 110 -125

**MAS :** 6

**Film size:** 35×43 cm lengthwise

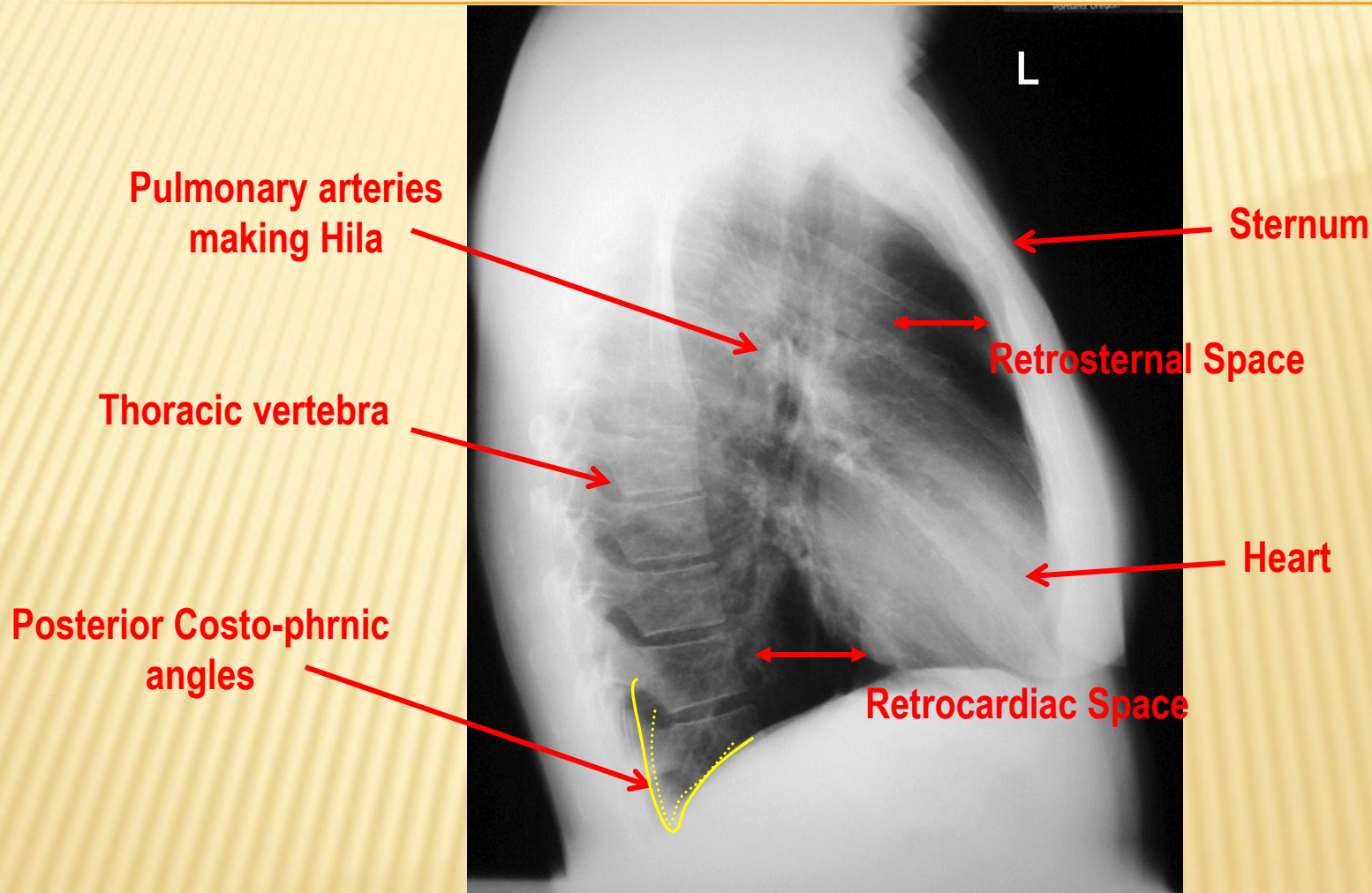
**CR :** perpendicular to IR , at level of T7  
, to inferior angle of scapula (8-10  
cm below level of jugular notch).

**SID :** 180 cm

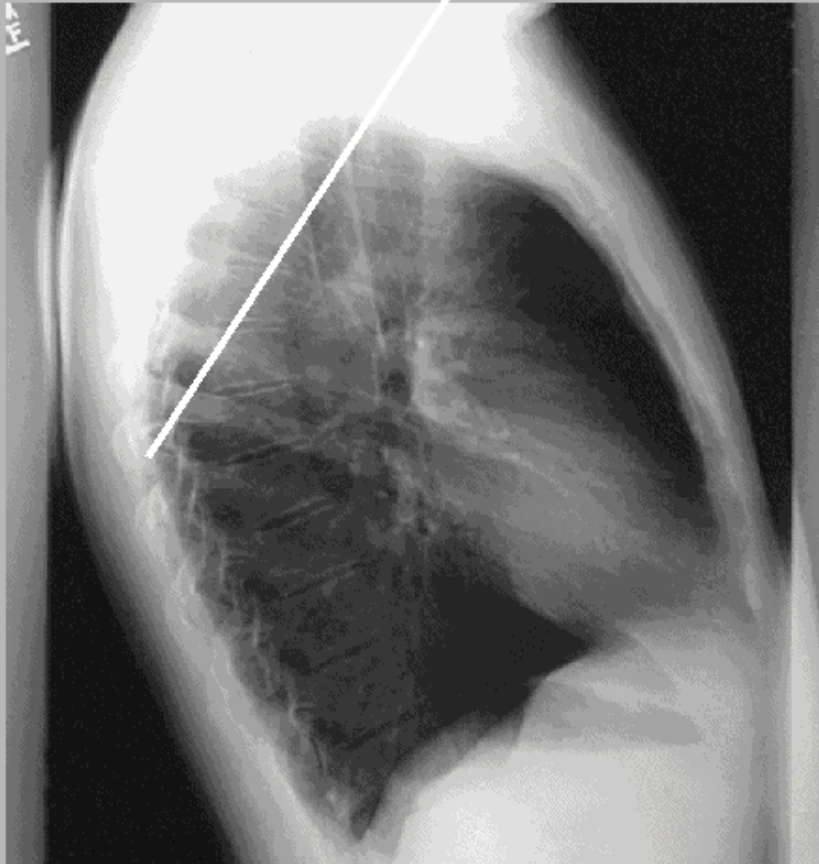




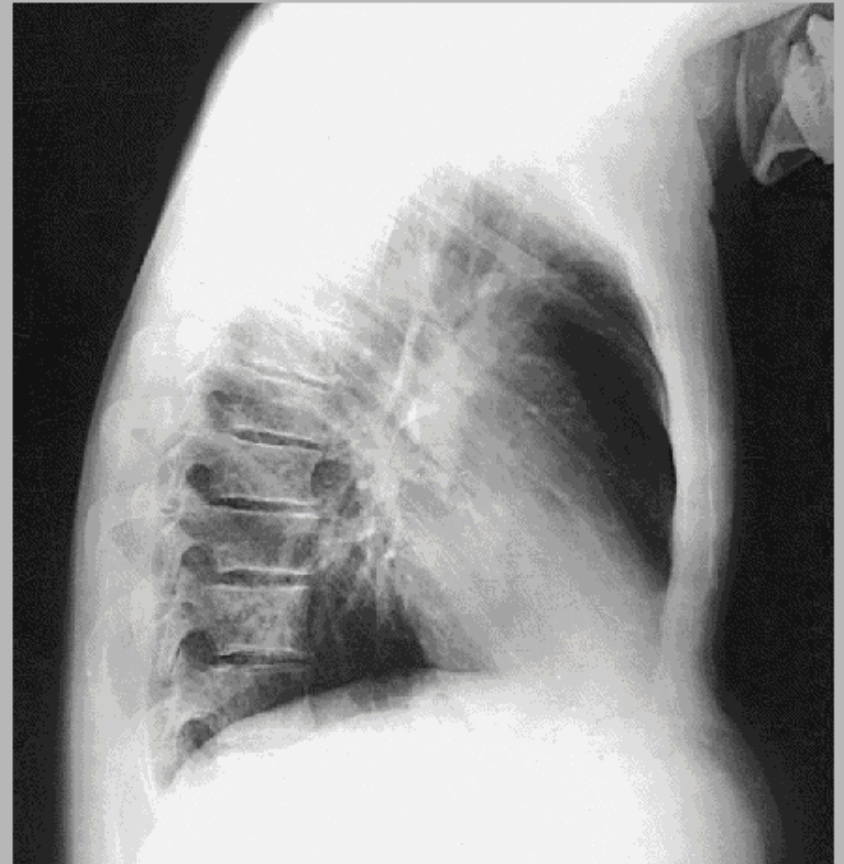
# LT LATERAL



Posterior ribs (superimposed)



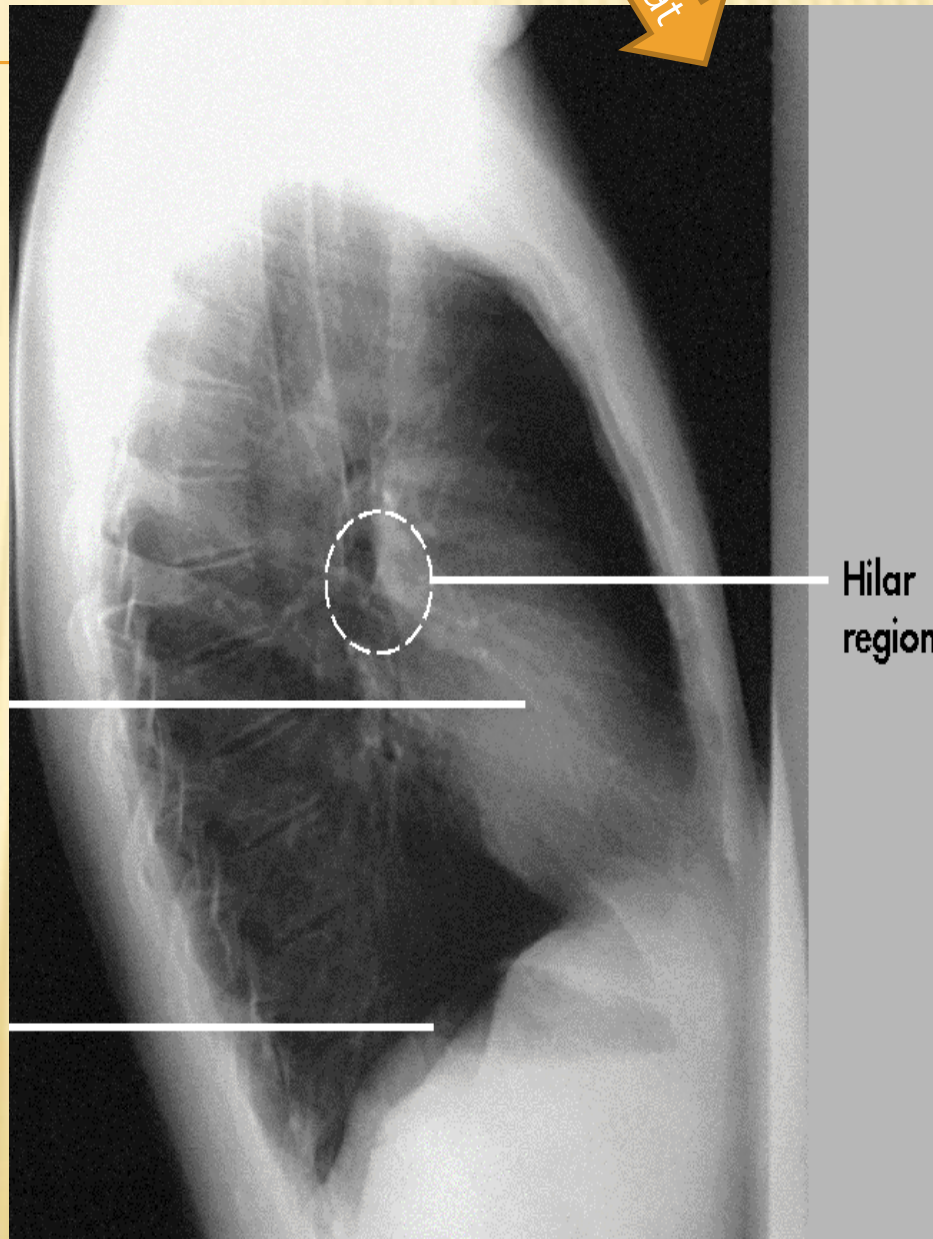
**NO ROTATION**



**FORWARD BENDING**

# WHICH IS TRUE LAT ? WHY ?

true lat





# LAO & RAO – LPO & RPO

## EXP. Factors:

KV: 110 -125

MAS : 3

Film size; 35×43 cm lengthwise

CR: perpendicular to IR , at level of T7 to inferior angle of scapula .

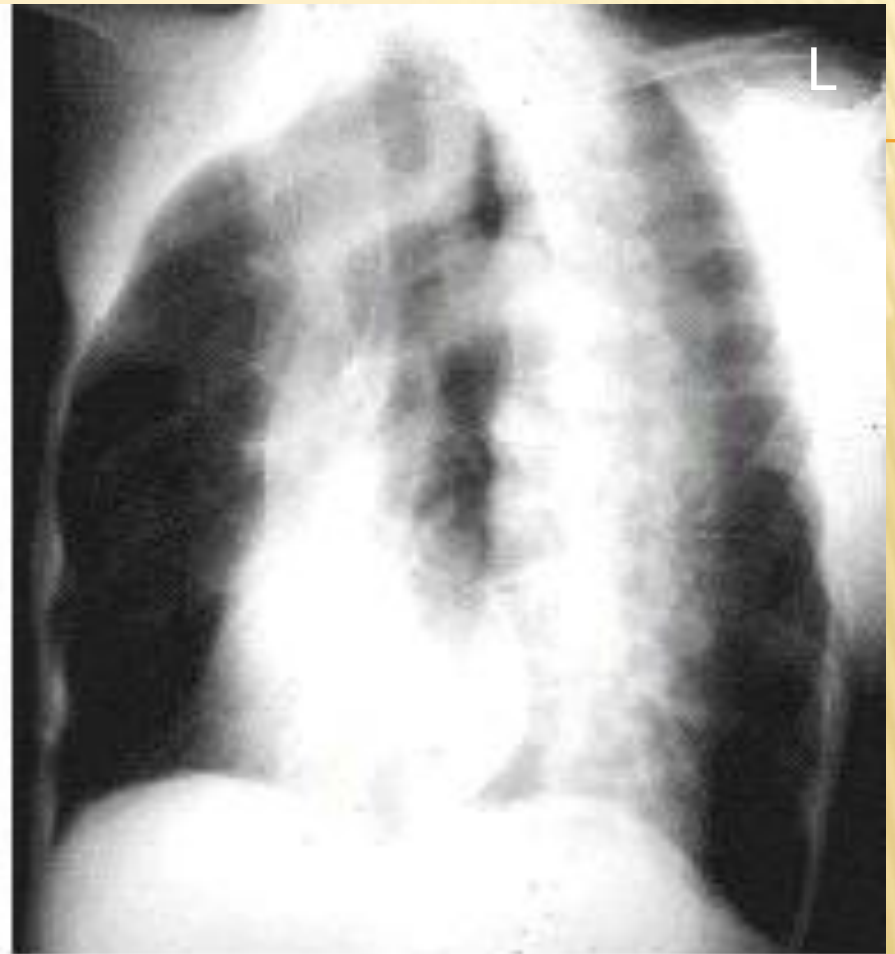
SID: 180 cm to minimize mag.



RAO



LAO POSITION



*A right anterior oblique (right image) and left anterior oblique (left image) view demonstrate maximum area of the lung field. Image courtesy of Dr. Naveed Ahmad.*



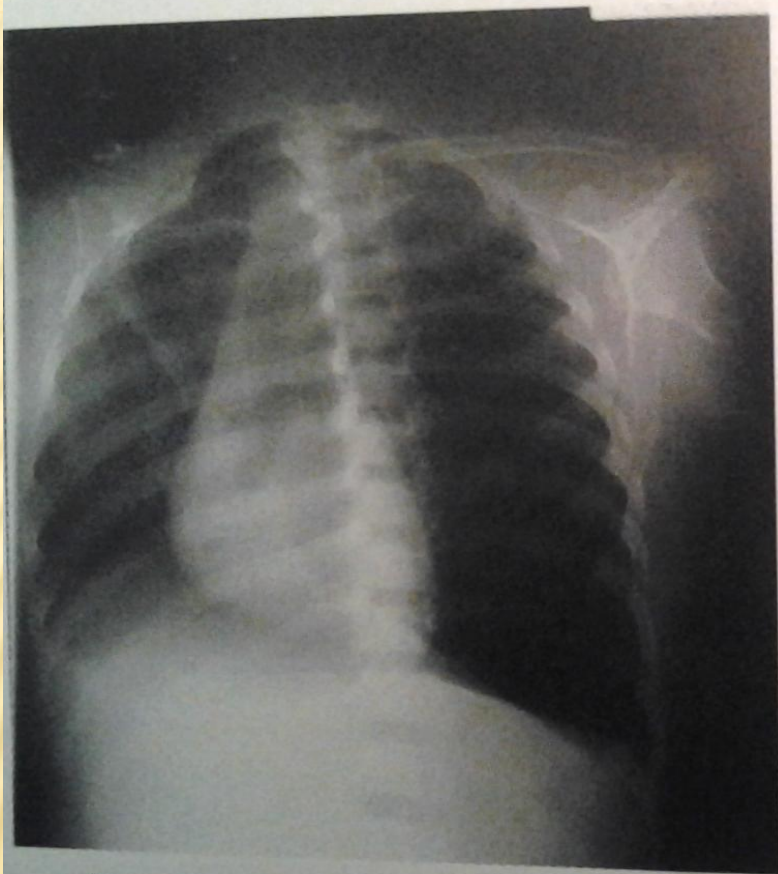


**Fig. 3-79.** 45° RPO position.



**Fig. 3-80.** 45° LPO position.





**Fig. 2-85.** 45° RPO position.



**Fig. 2-86.** 45° LPO position.

# LORDATIC VIEW

- Why ? inactive disease like( TB )seen primarily in apex of one or both lunges .

## EXP. Factors :

KV : 110-125

MAS : 3

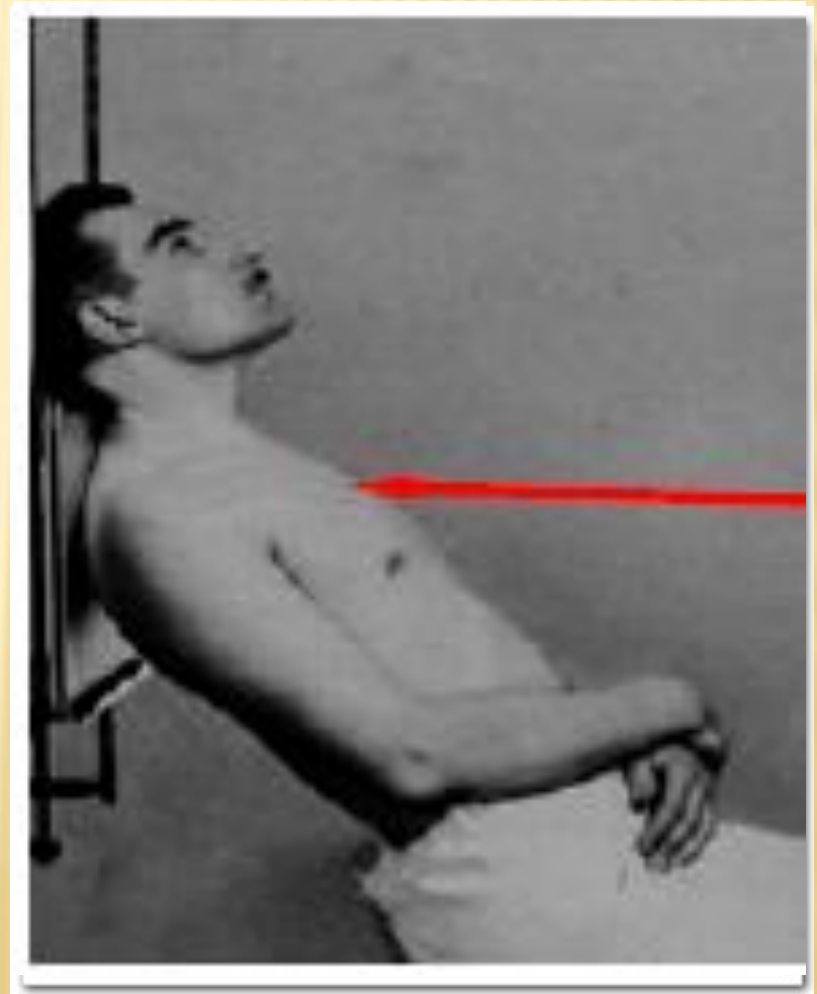
**Film size;** 35×43 cm lengthwise

**CR :** Mid of midsternum , 3-4 inch (9cm ) below jugular notch .

**CR :** perpendicular

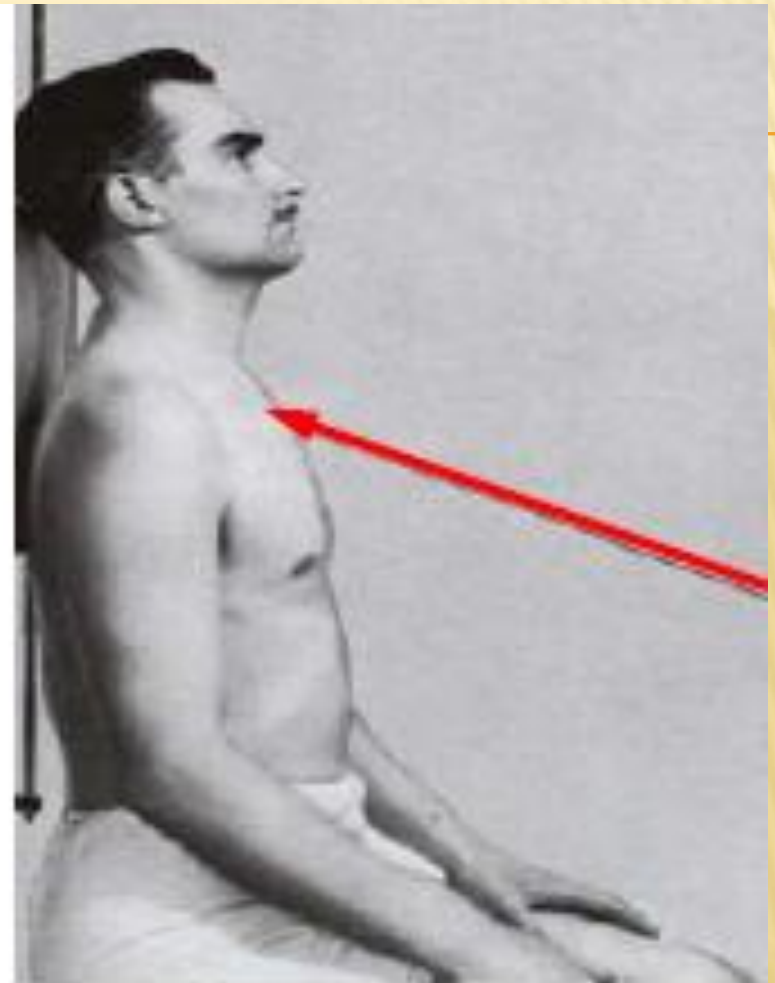
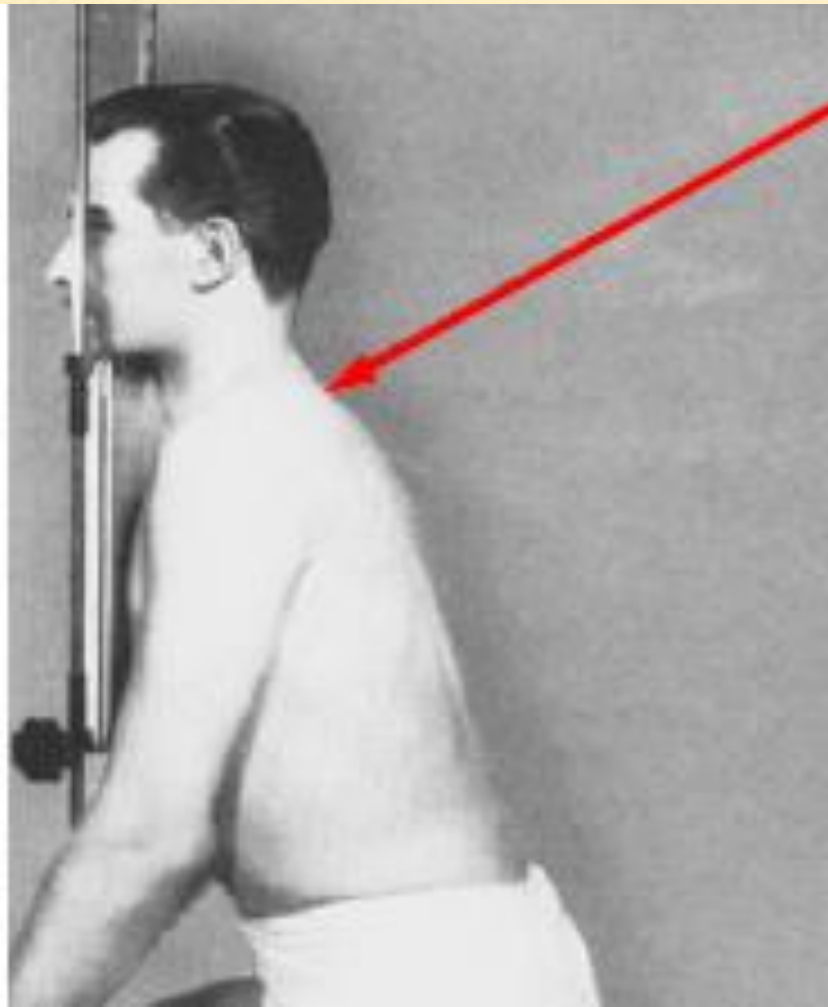
**SID :** 180 cm

**Collimate:** to area of interest (apices of the lungs









If the patient unable to perform the Lordotic position, angle the CR **20° cephalic** for AP Lordotic or **20° caudad** for PA Lordotic.

# LATERAL DECUBITUS AP Projection

- Why ? To show air-fluid level

## EXP. Factors:

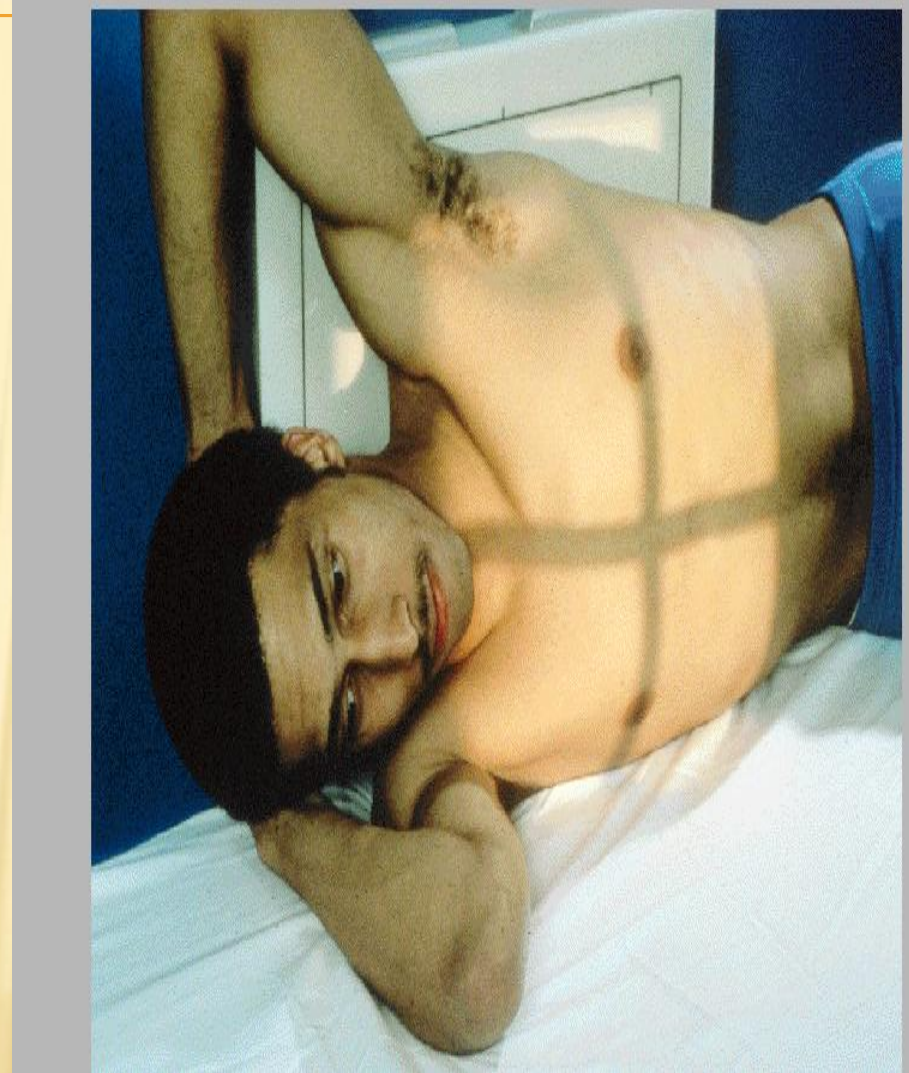
KV: 110 -125

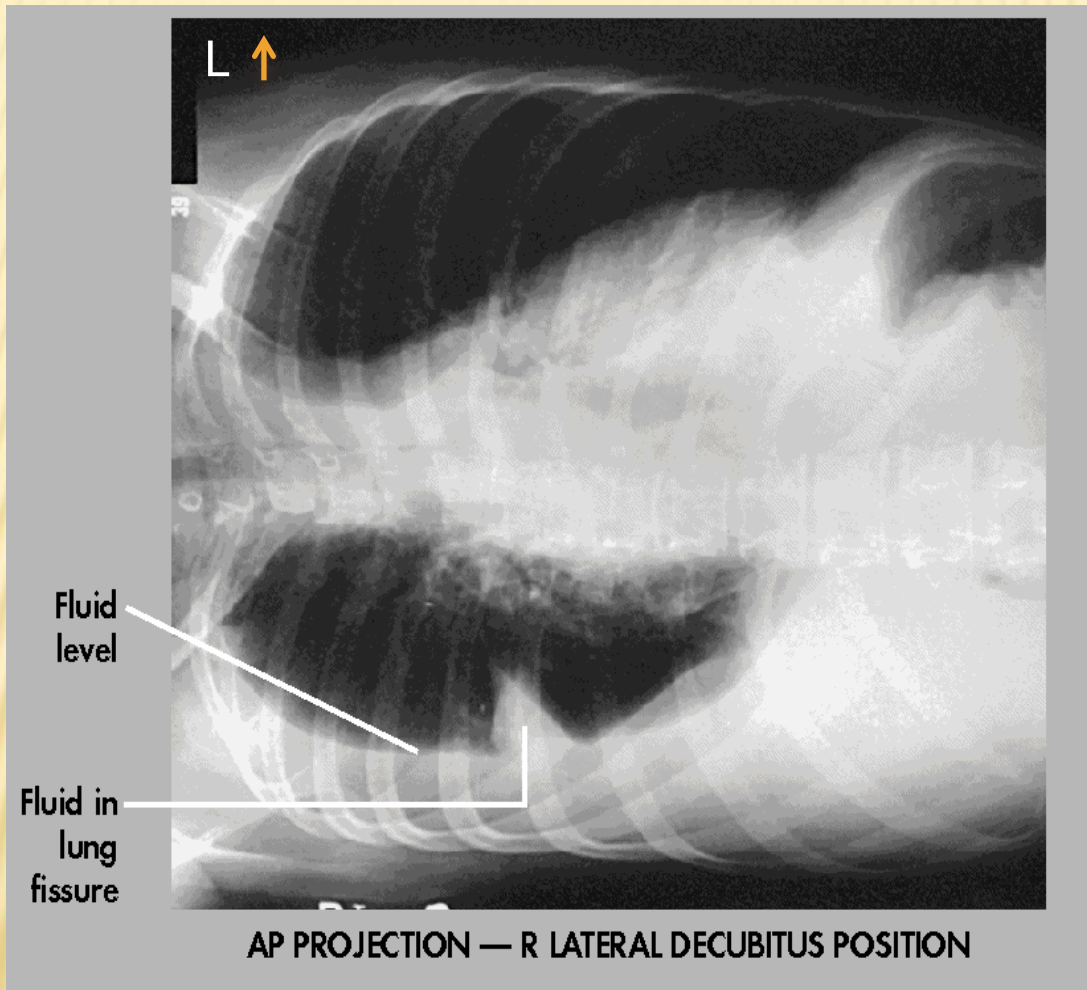
MAS : 3

Film size; 35×43 cm crosswise

**CR:** Horizontal to IR , at level of T7  
3-4 inches (8-10cm) inferior to  
level of jugular notch .

**SID:** 180 cm to minimize mag.

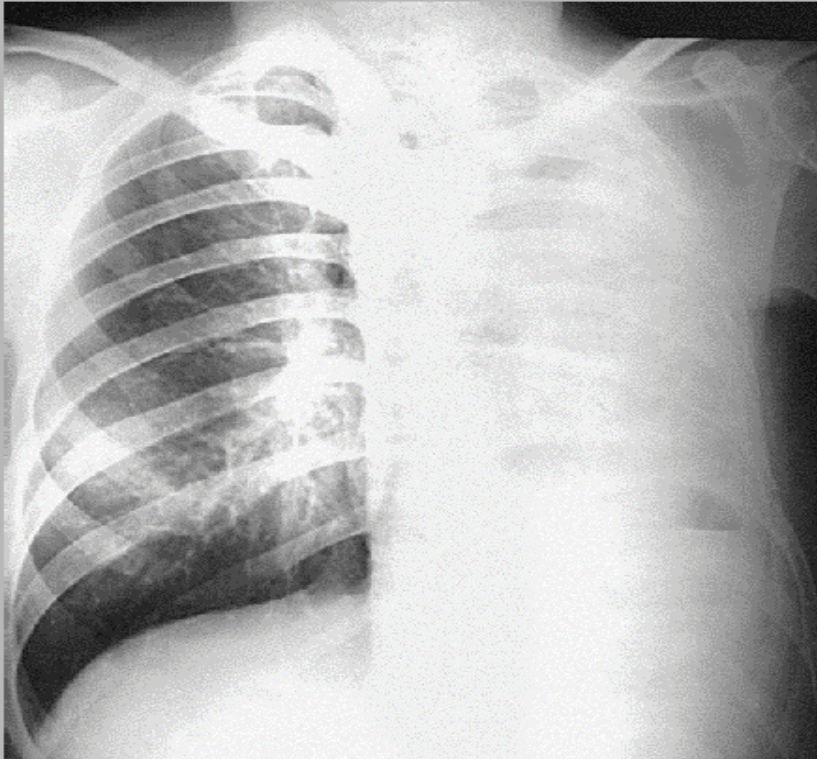




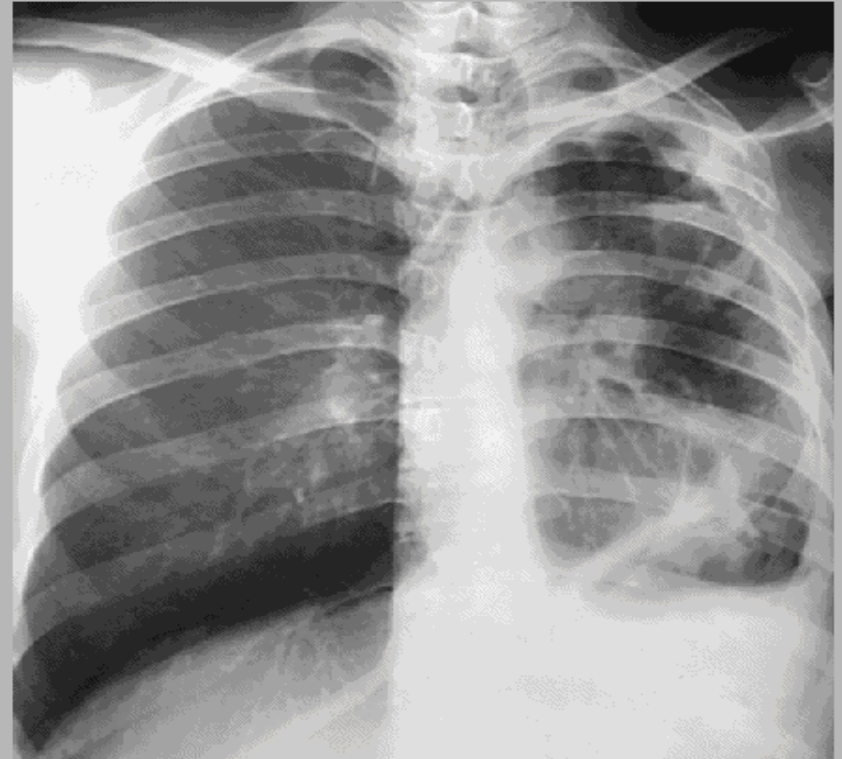


## Non-grid

Weak radiations will absorb by bones and other tissues then Appears brighter



**NON-GRID**



**GRID**

# UPPER AIRWAY

**AP: B**

**Film:** 24×30 cm

**Exposure factor:**

80 Kvp

10 mAs

**CP:** : perpendicular at level  
of T1-T2 ( 2.5cm above  
jugular notch.

**SID:** 100cm (40 inches)



# Lateral: B

**Film:** 24×30 cm

**Exposure factor:**

80 Kvp

3 mAs

**CP:** perpendicular at level of C6-C7 (midway between laryngeal prominence and jugular notch)

**SID:** 180 cm (72 inches) to minimize magnification

