

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 **2nd** full inspiration (This allows for a deeper inspiration, as more air is inhaled during the 2nd breath).
- 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:

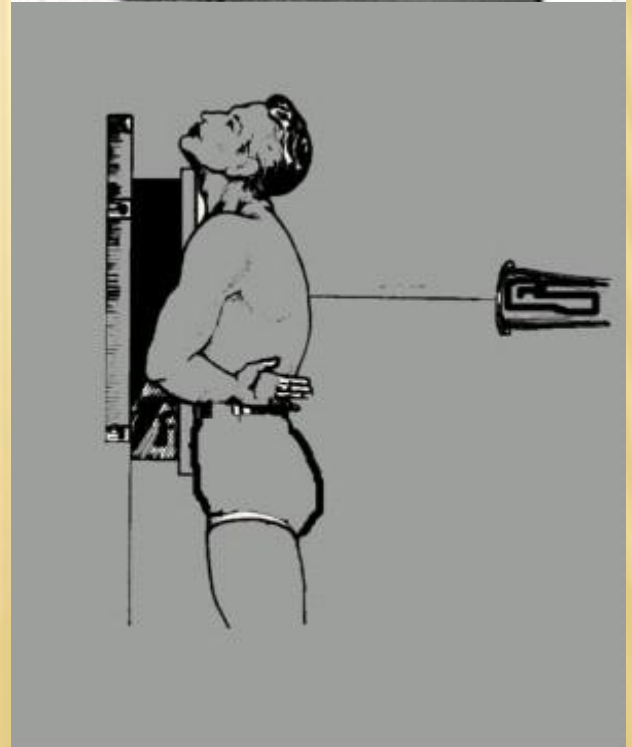
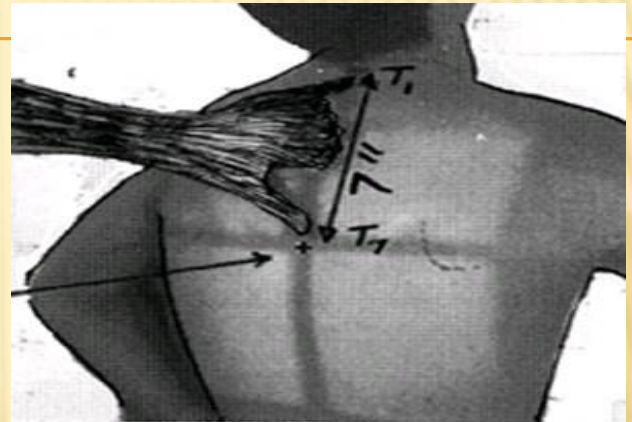
KV: 110 -125

mAs: 3

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

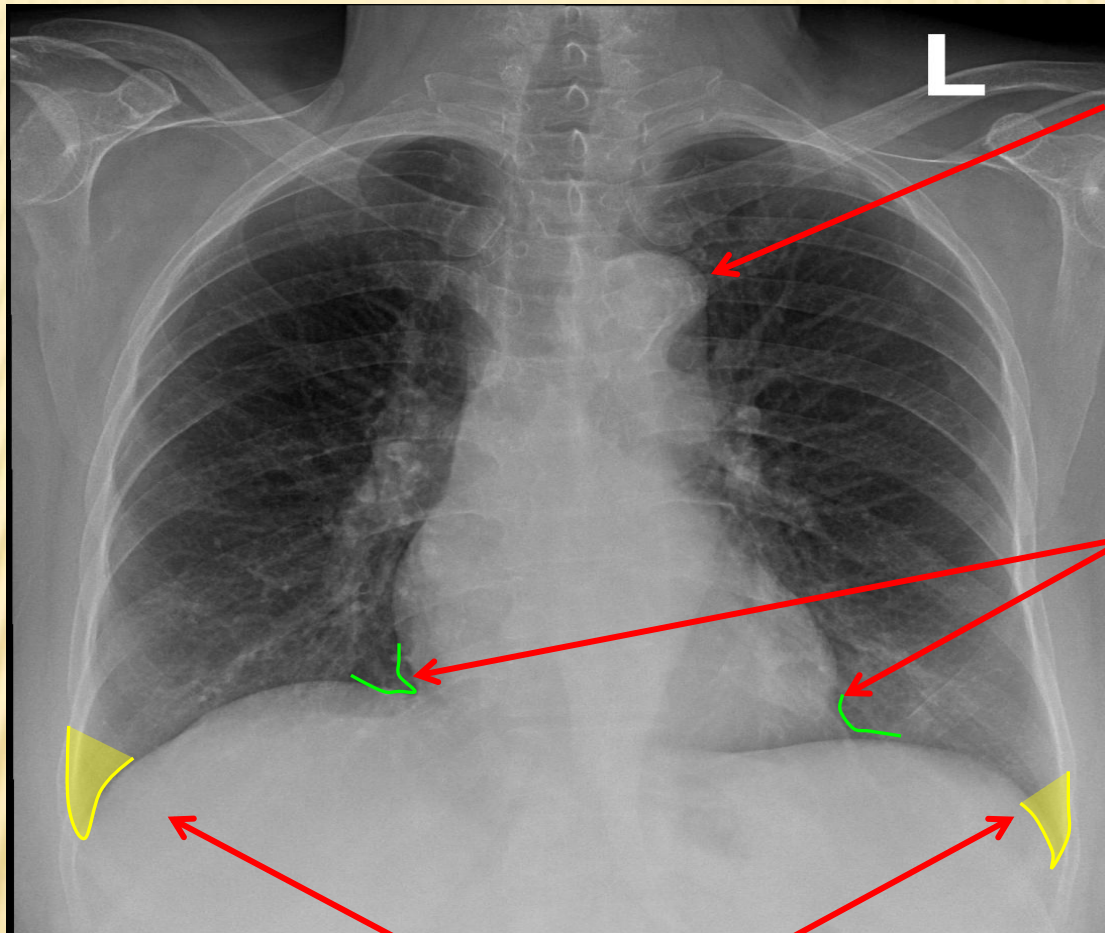
CR: perpendicular to IR , at level of T7 to inferior angle of scapula .

SID: 180 cm to minimize mag.



Posteroanterior (PA) chest projection position,

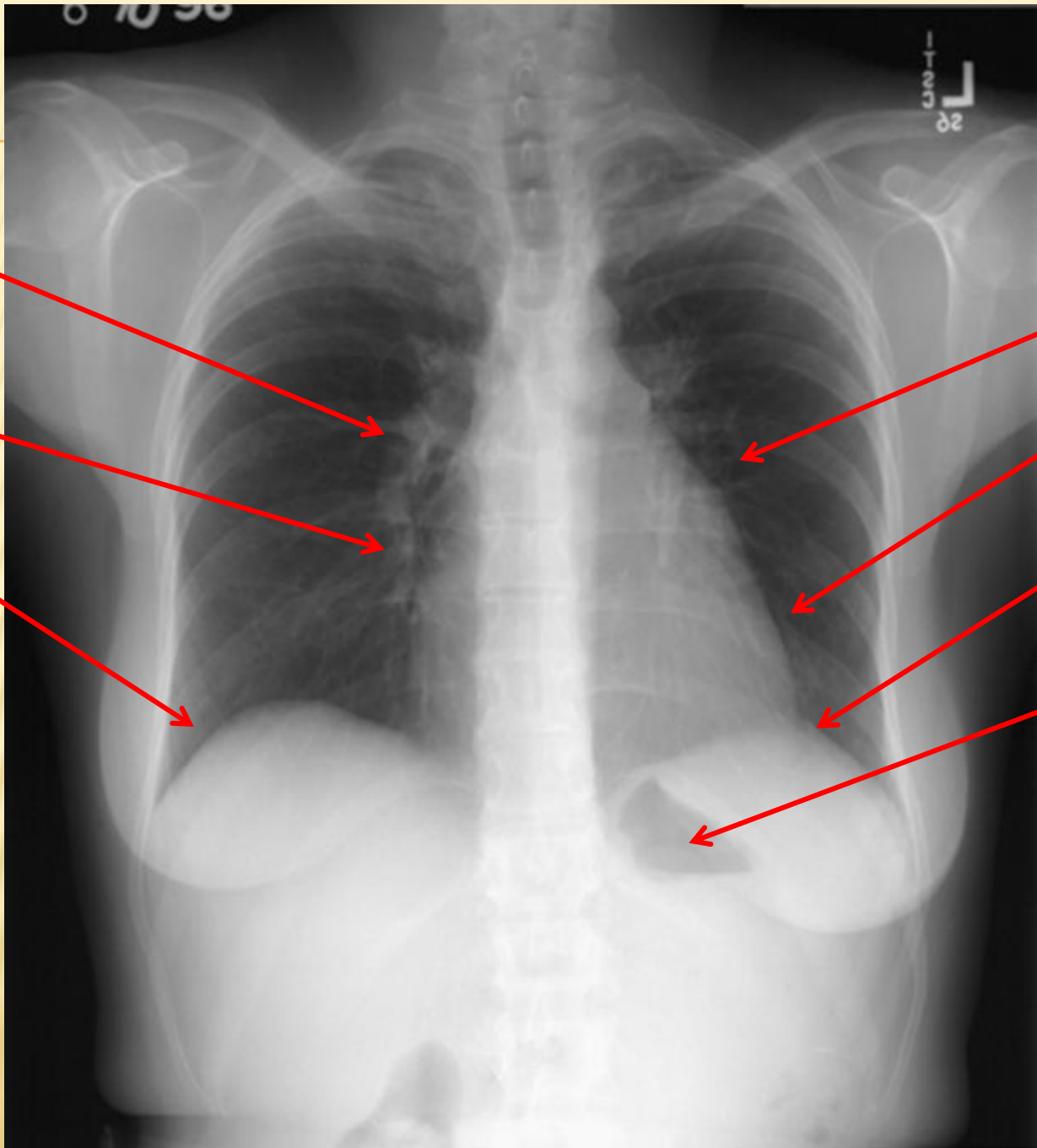
PA



Aortic knuckle
Aortic arch

Cardiophrenic angles

Costophrenic
angles



hilum

RT atrium
border

RT hemi-
diaphragm

LT atrium
border

LT ventricle

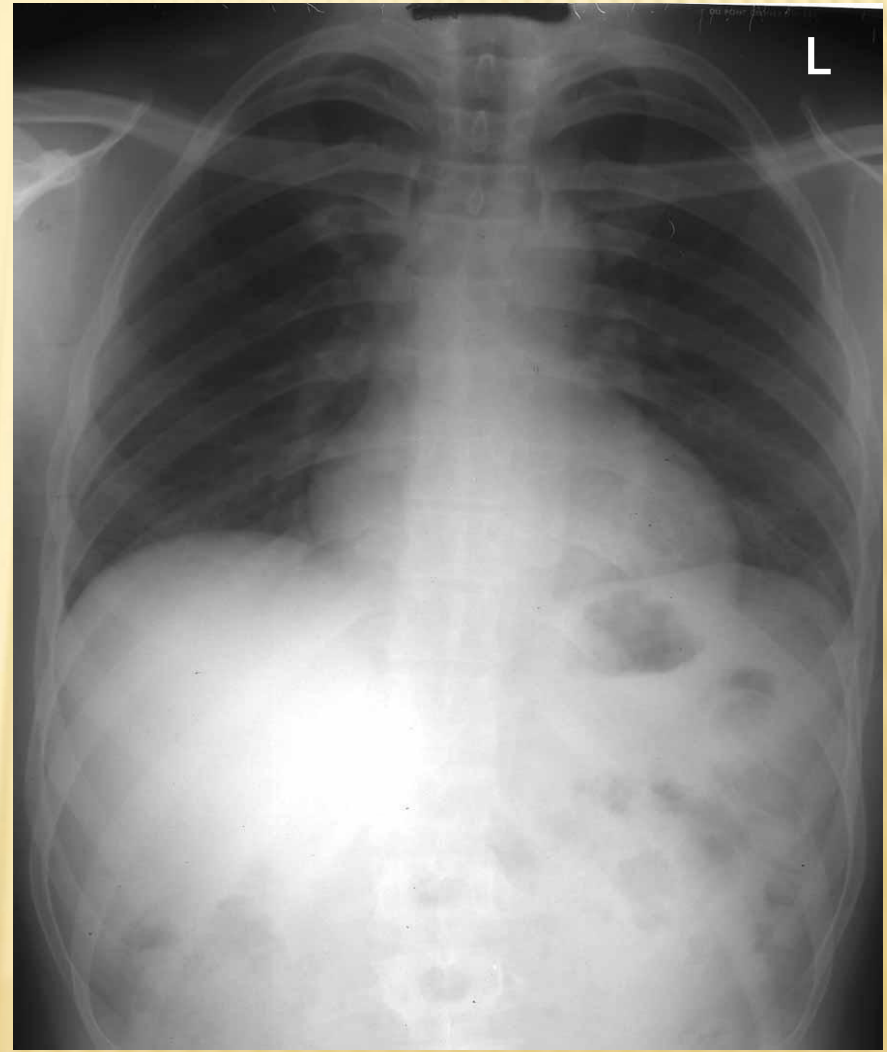
LT hemi-
diaphragm

gas in stomach

INSPIRATION



EXPIRATION



NOTE CHANGE IN HEART SIZE AND
VASCULARITY DUE TO EXPIRATION.

LT LATERAL

EXP. Factor :

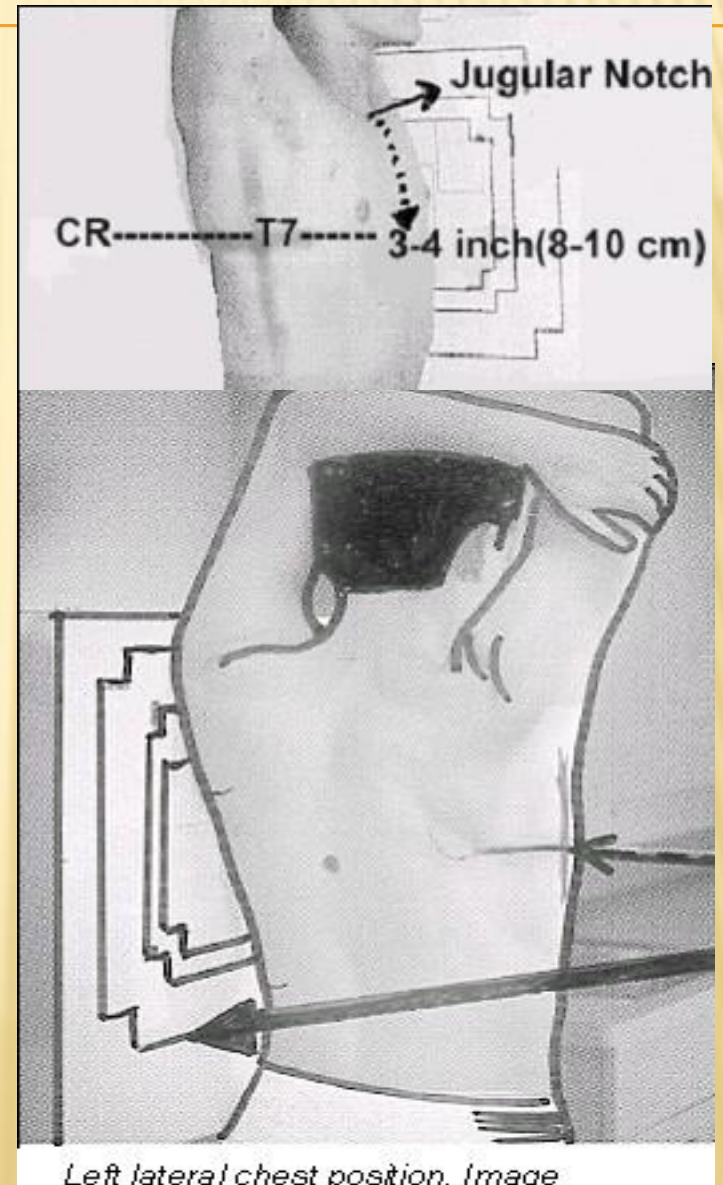
KV: 110 -125

MAS : 6

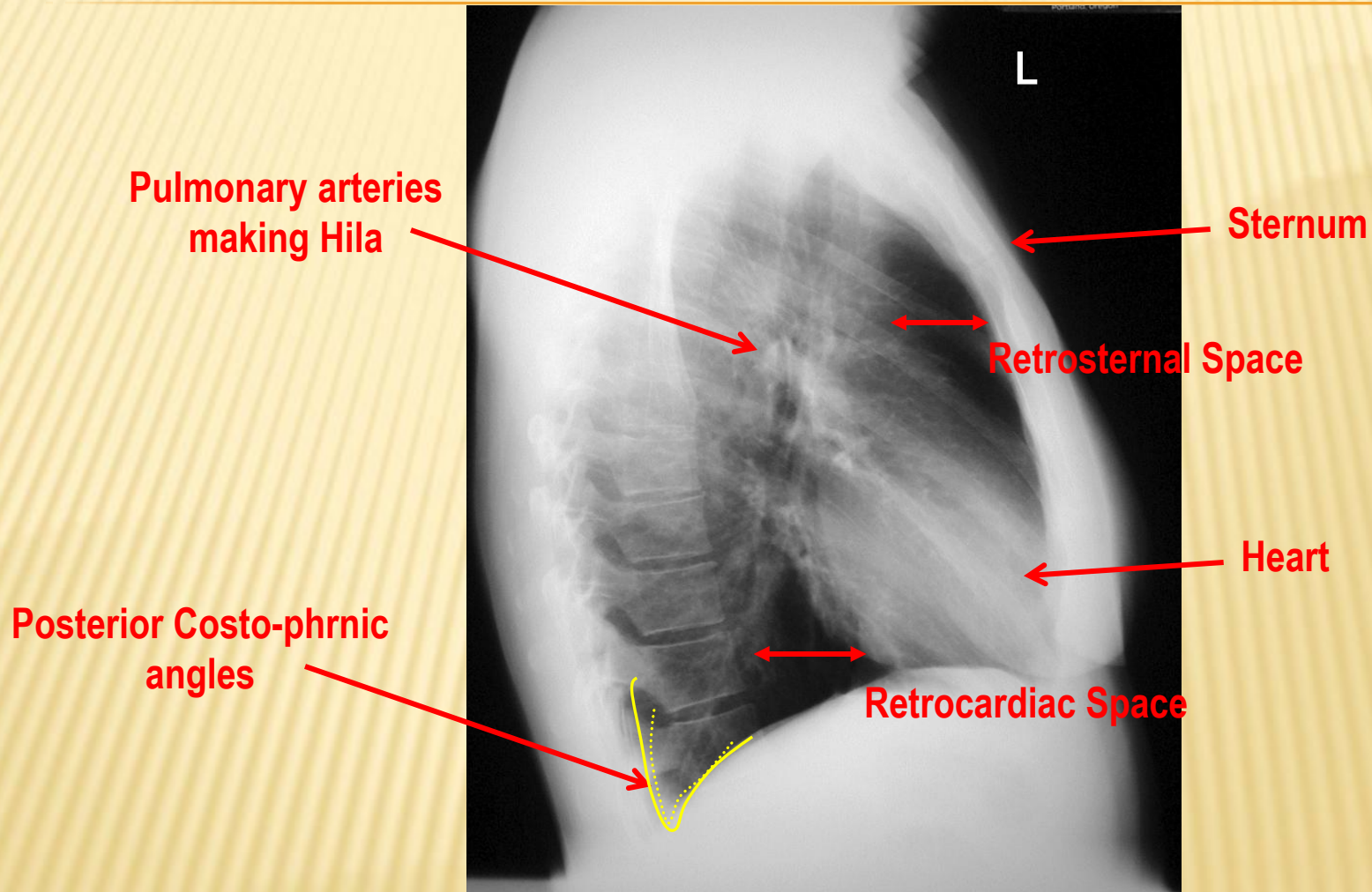
Film size: 35×43 cm lengthwise

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

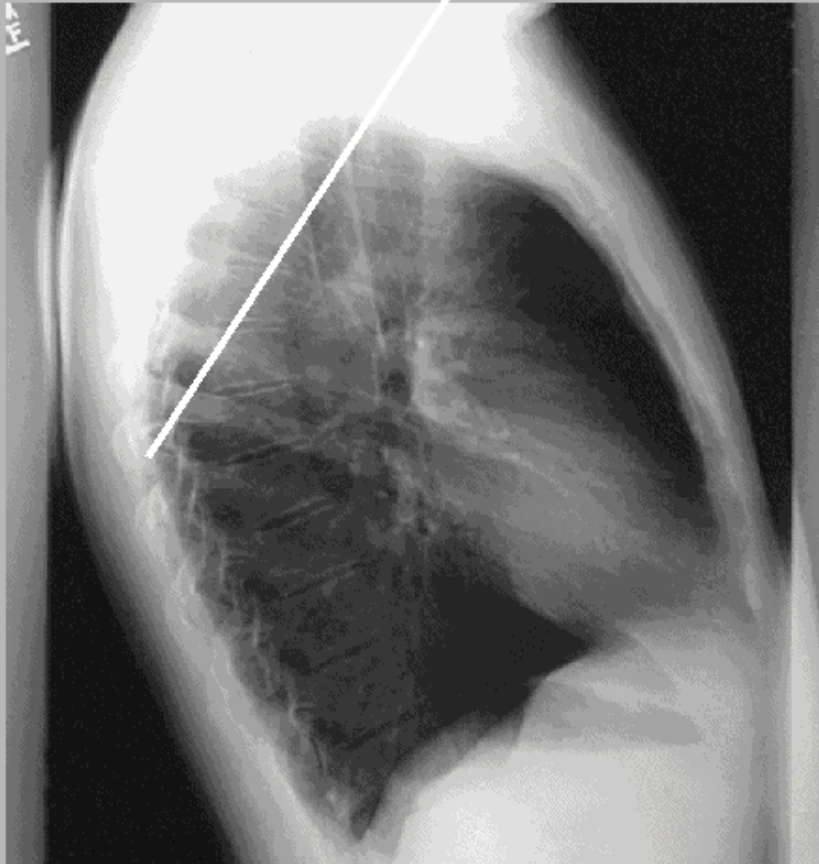
SID : 180 cm



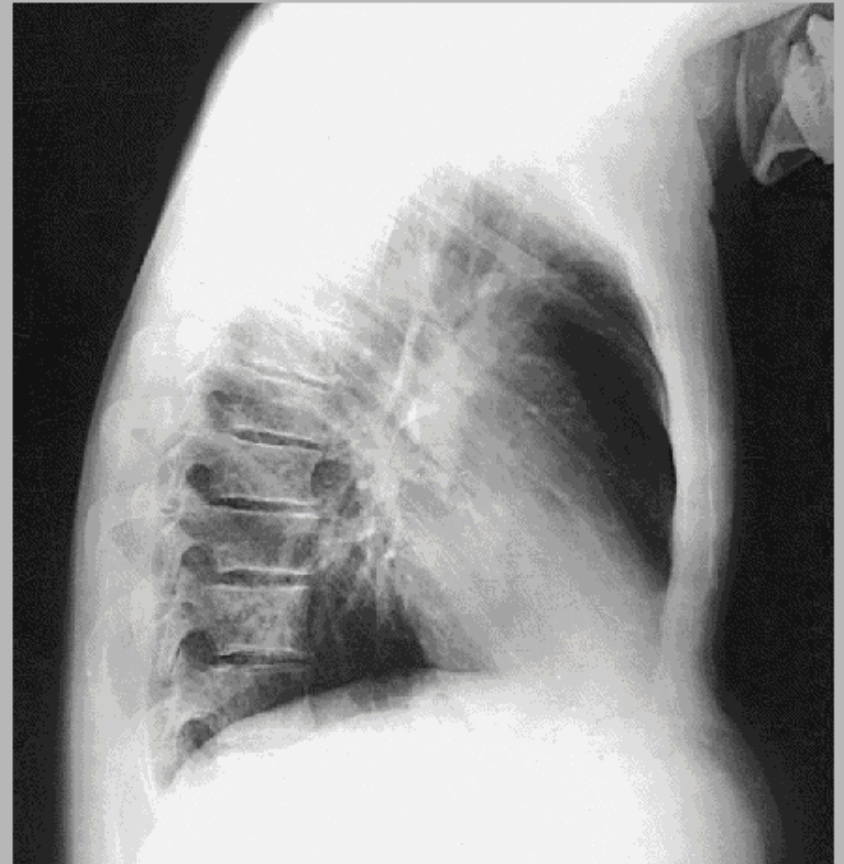
LT LATERAL



Posterior ribs (superimposed)



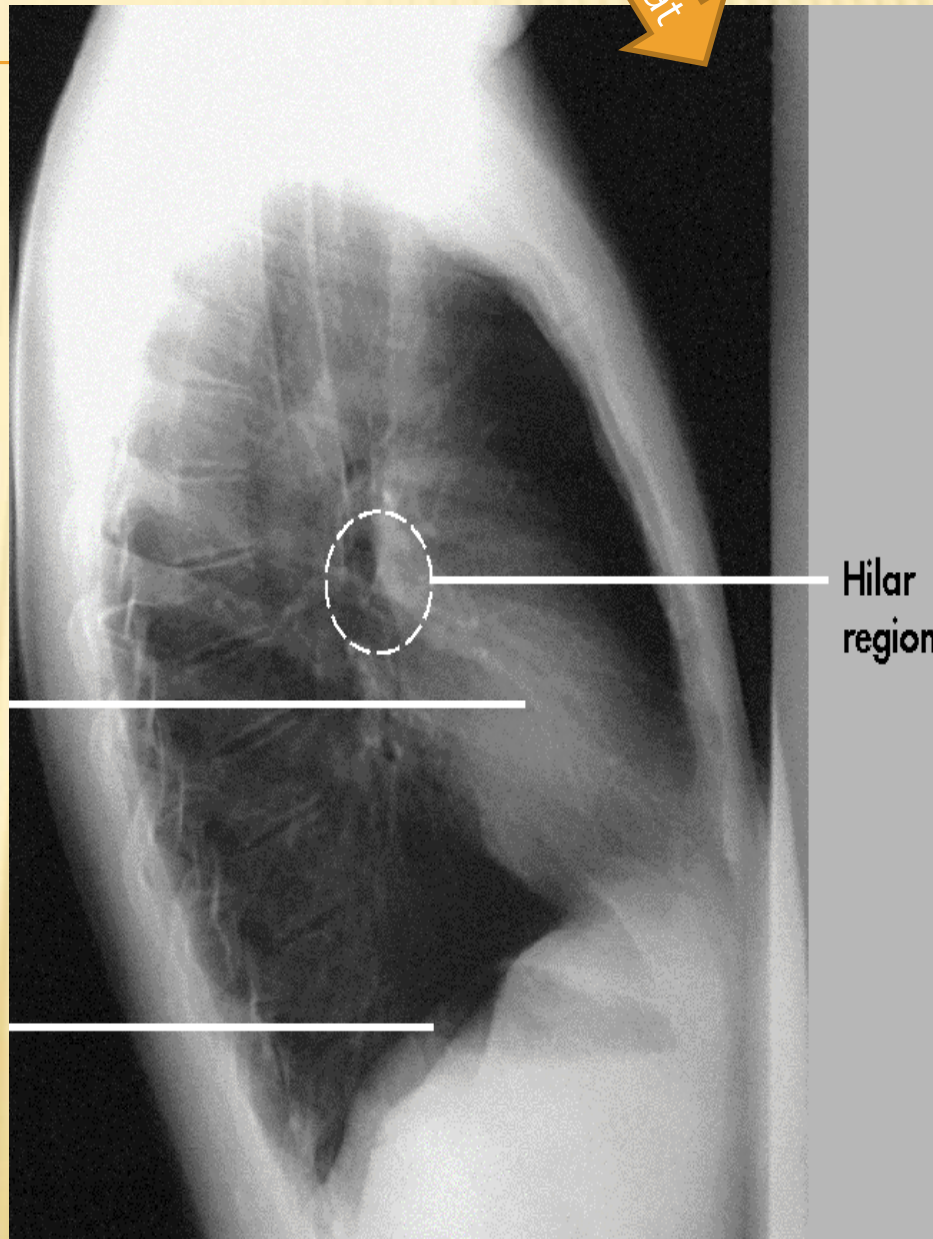
NO ROTATION



FORWARD BENDING

WHICH IS TRUE LAT ? WHY ?

true lat



Hilar
region

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 .

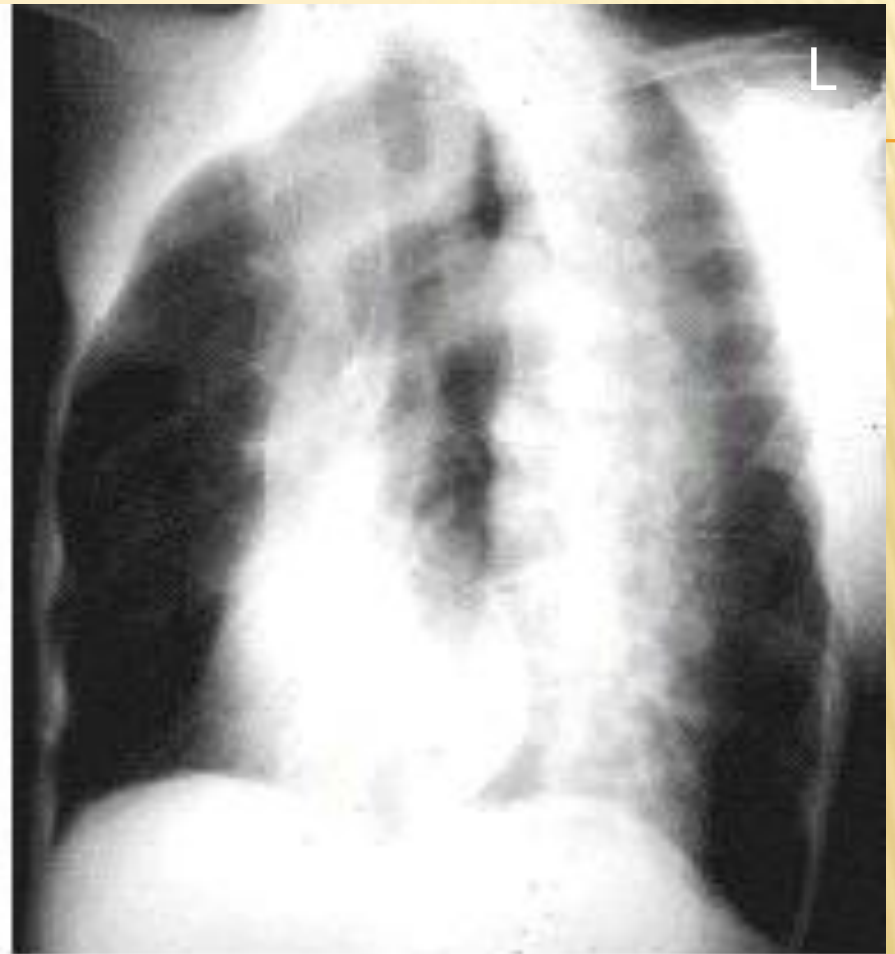
SID: 180 cm to minimize mag.



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.

LORDATIC VIEW

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

EXP. Factors :

KV : 110-125

MAS : 3

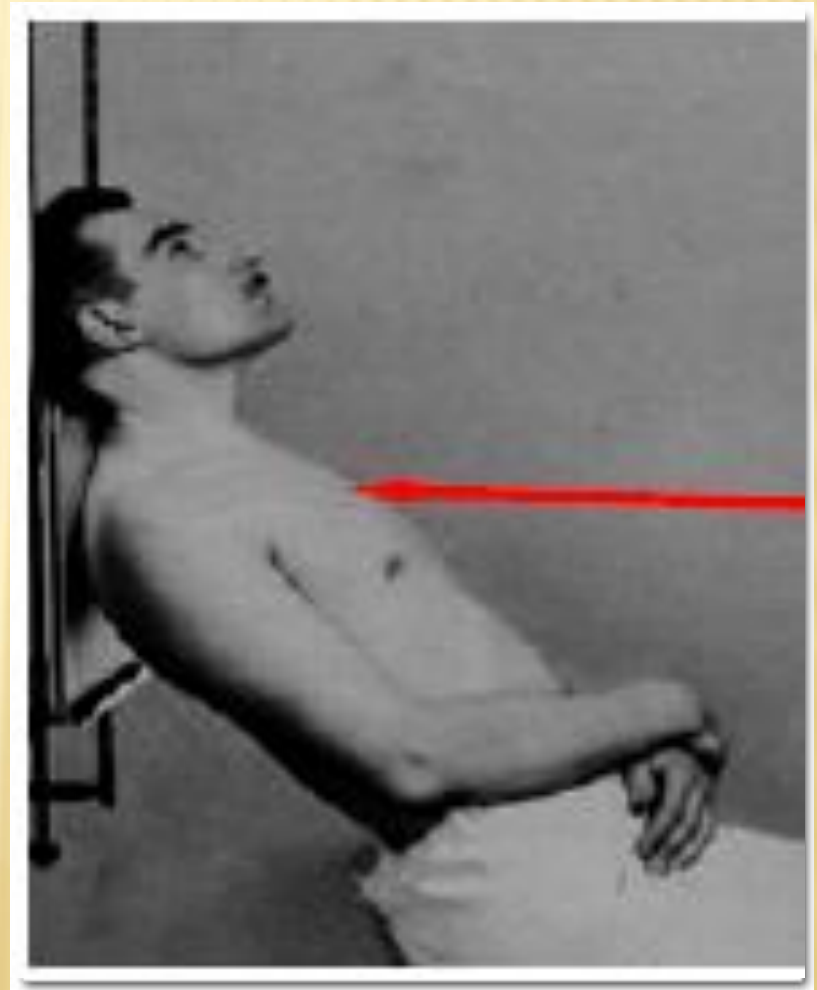
Film size; 35×43 cm lengthwise

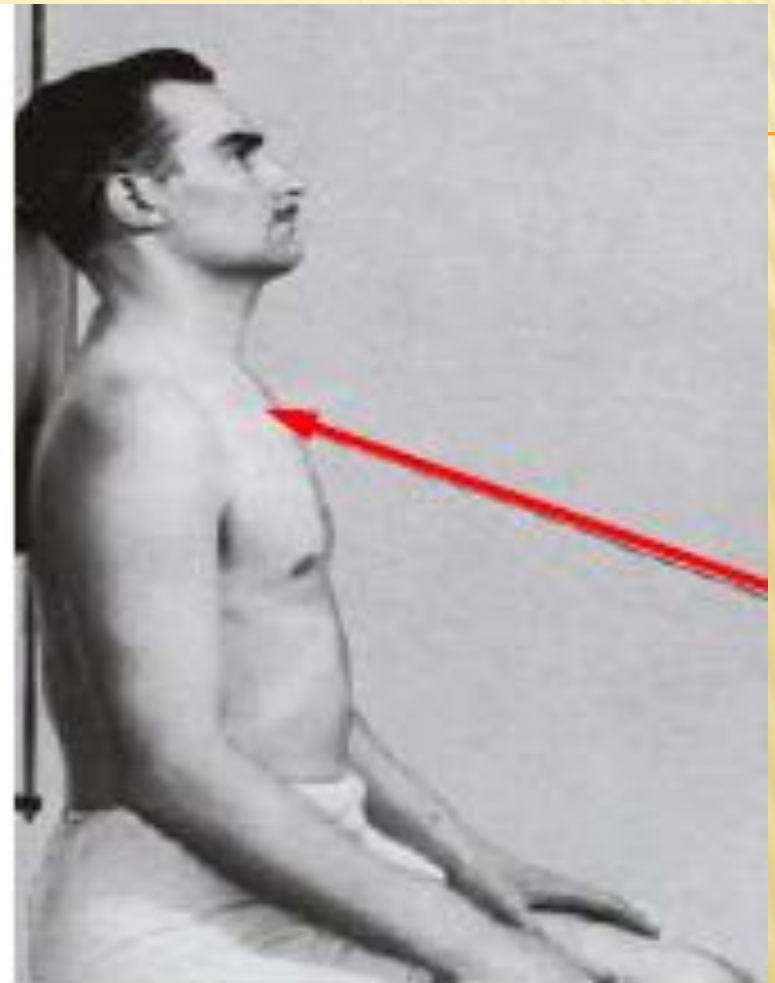
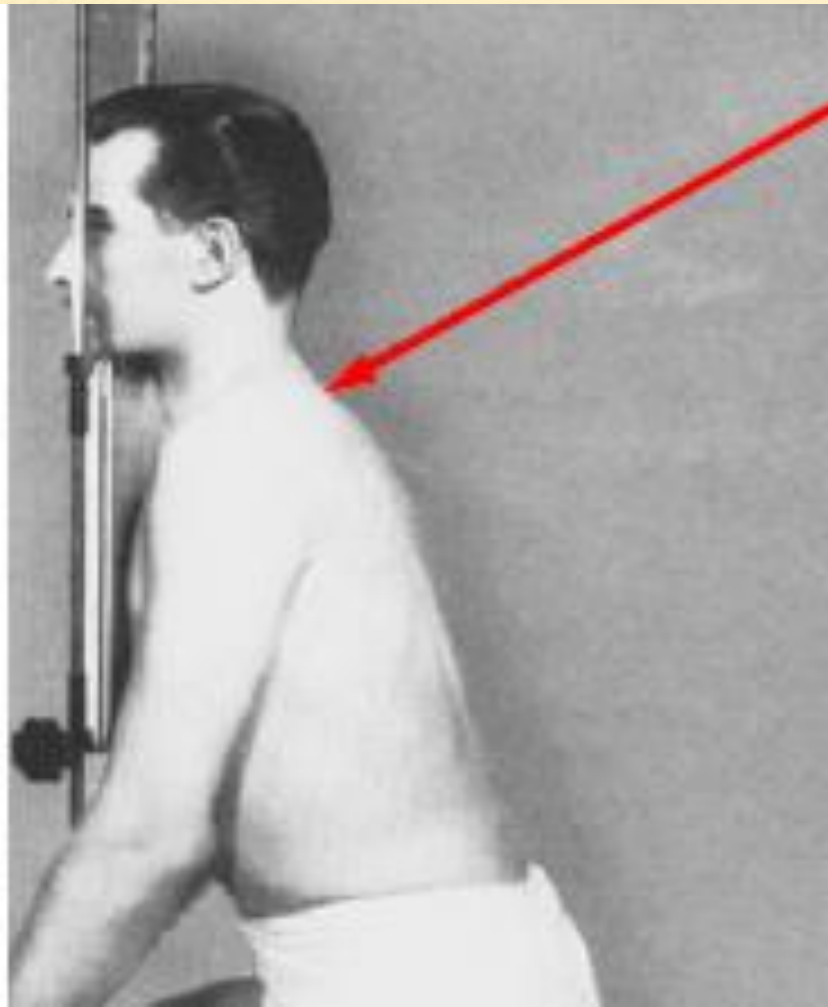
CR : Mid of midsternum , 3-4 inch (9cm) below jugular notch .

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:

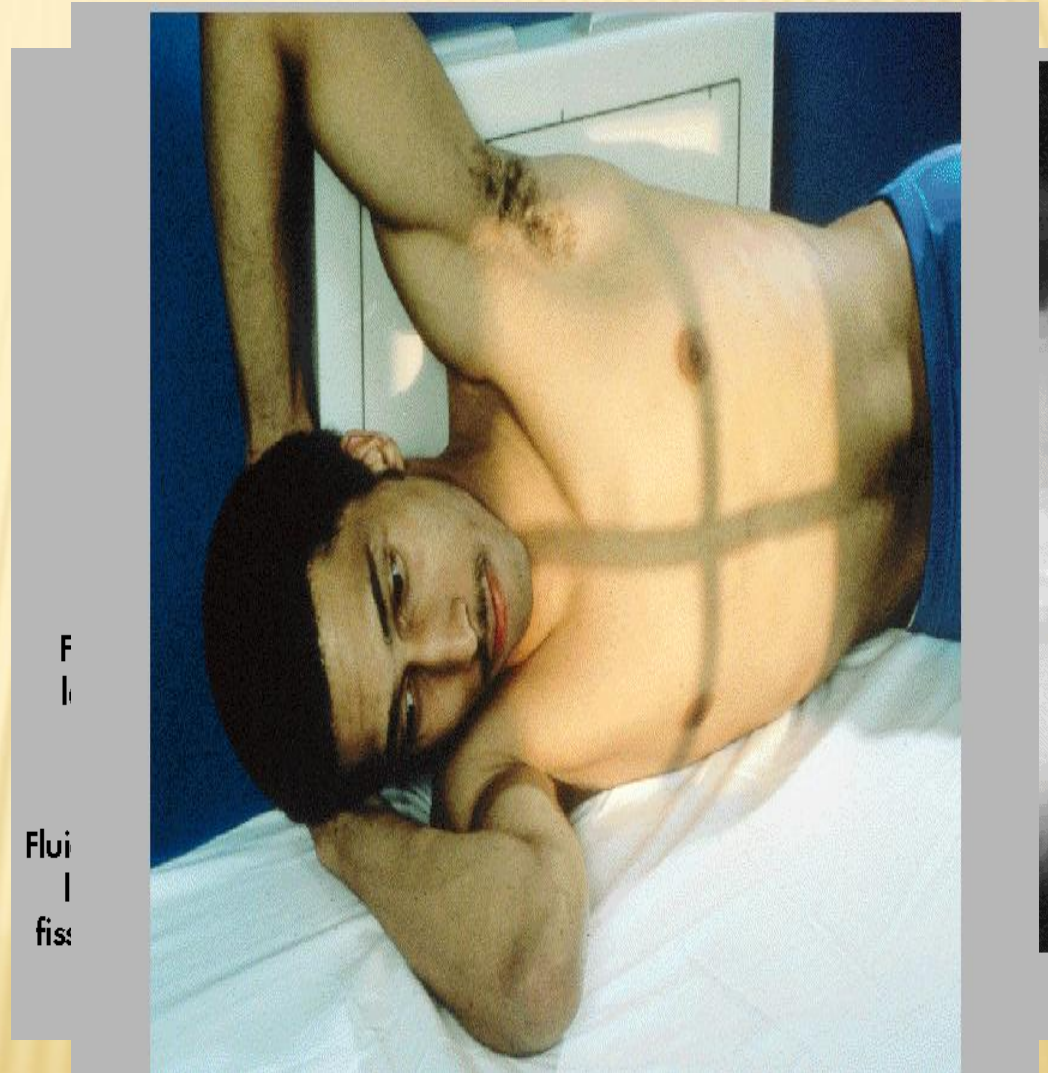
KV: 110 -125

MAS : 3

Film size; 35×43 cm crosswise

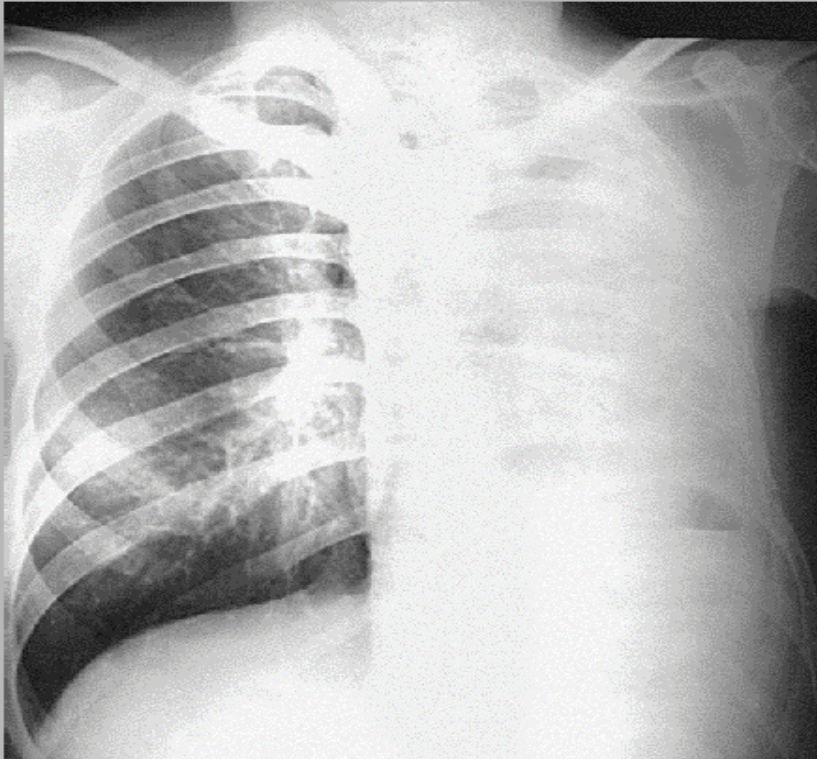
CR: Horizontal to IR , at level of T7
3-4 inches (8-10cm) inferior to
level of jugular notch .

SID: 180 cm to minimize mag.

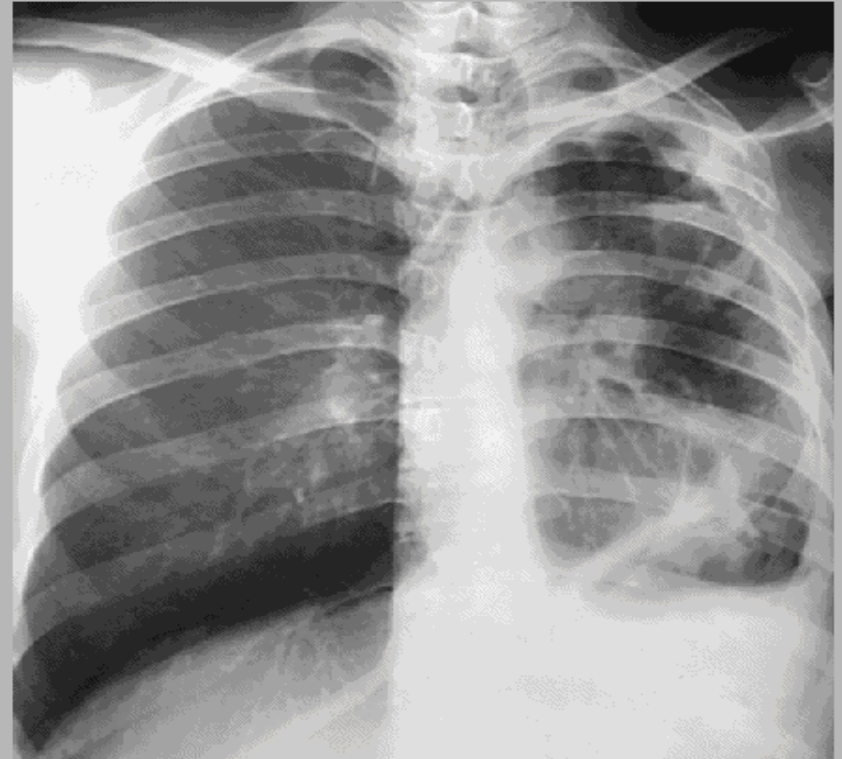


Non-grid

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

