Lung and Thorax Assessment

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Lung Examination

Objectives:

At the end of this lab, the students will be able to:

1. Demonstrate the ability to safely & accurately complete thorax & lung assessment.

2. Demonstrate the ability to accurately document thorax & lung assessment data in organized

manner.

Equipment Needed

1. Stethoscope

2. Small ruler, marked in centimeters

3. Marking pen

4. Alcohol swab

Preparation

1. The patient must be properly undressed and gowned for this examination.
2. Ask the client to sit upright & the male to disrobe to the waist.
3. For female, leave the gown on & open at the back.
4. When examining the anterior chest, lift up the gown & drape it on her shoulders rather than removing it completely.
5. For farther comfort: a warm room, a warm diaphragm end piece.
6. Private examination time with no interruption.
7. Observe the patient for general signs of respiratory disease (finger clubbing, cyanosis, air hunger, etc..).

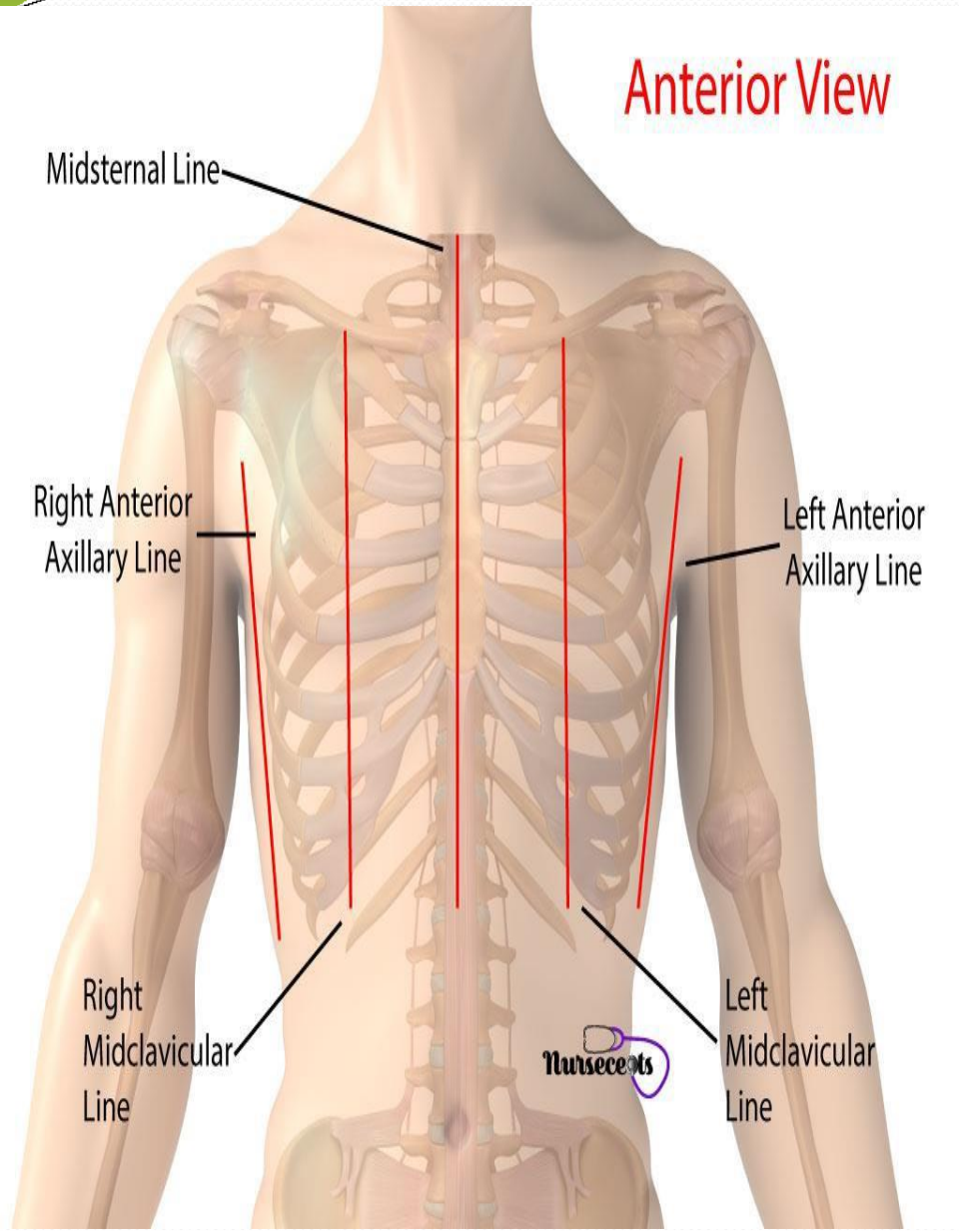
Chest Landmarks

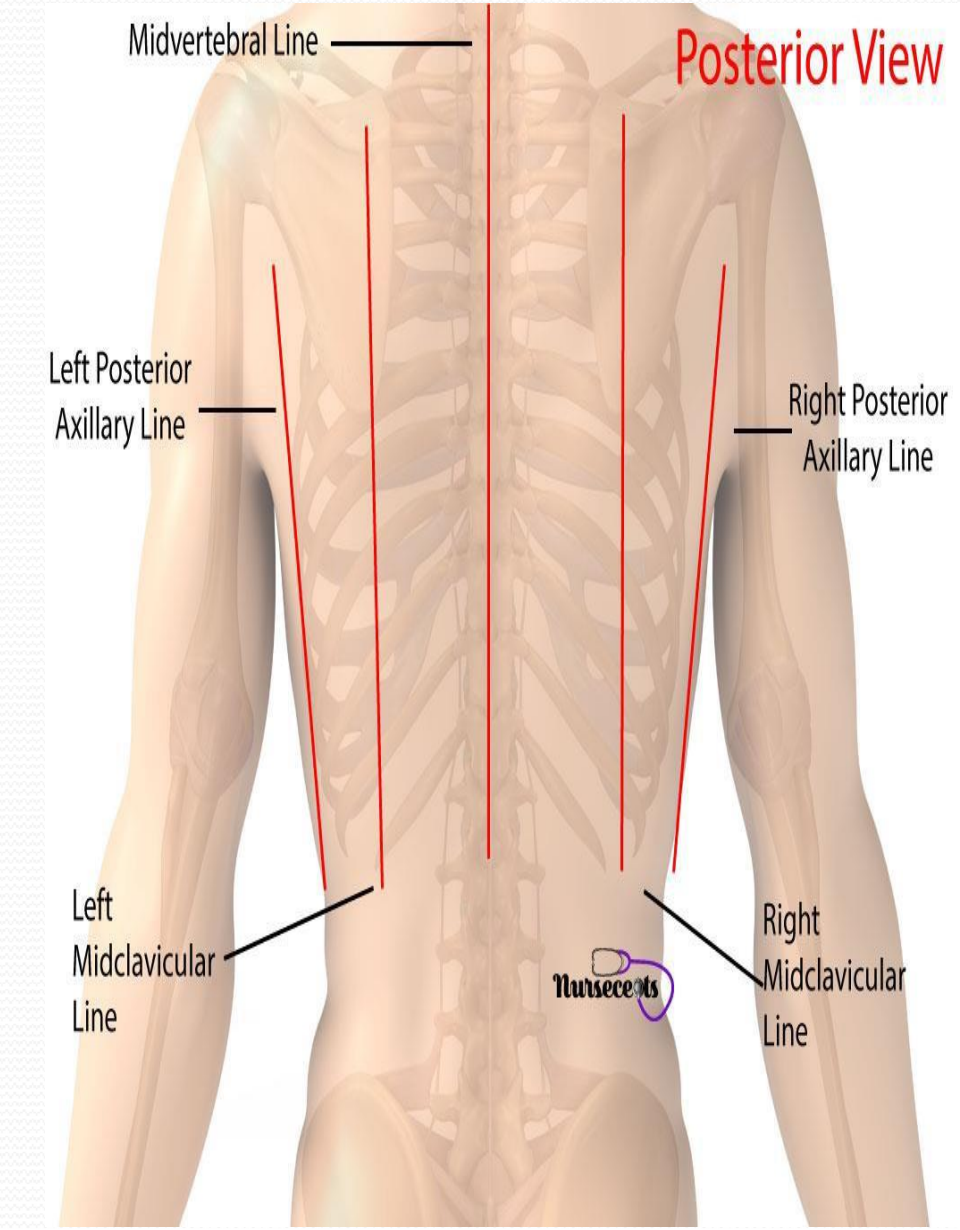
Anterior:

1. Right anterior axillary line
2. Right midclavicular line
3. Mid sternum line
4. left midclavicular line
5. left anterior axillary line
6. Mid axillary line

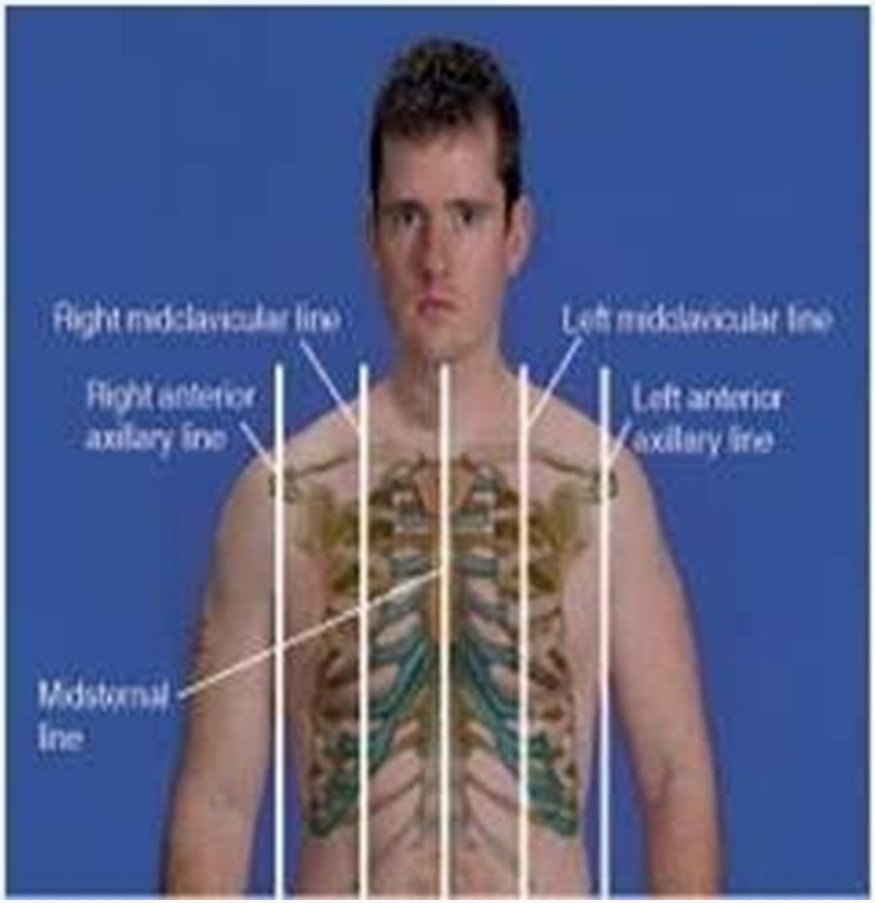
Posterior:

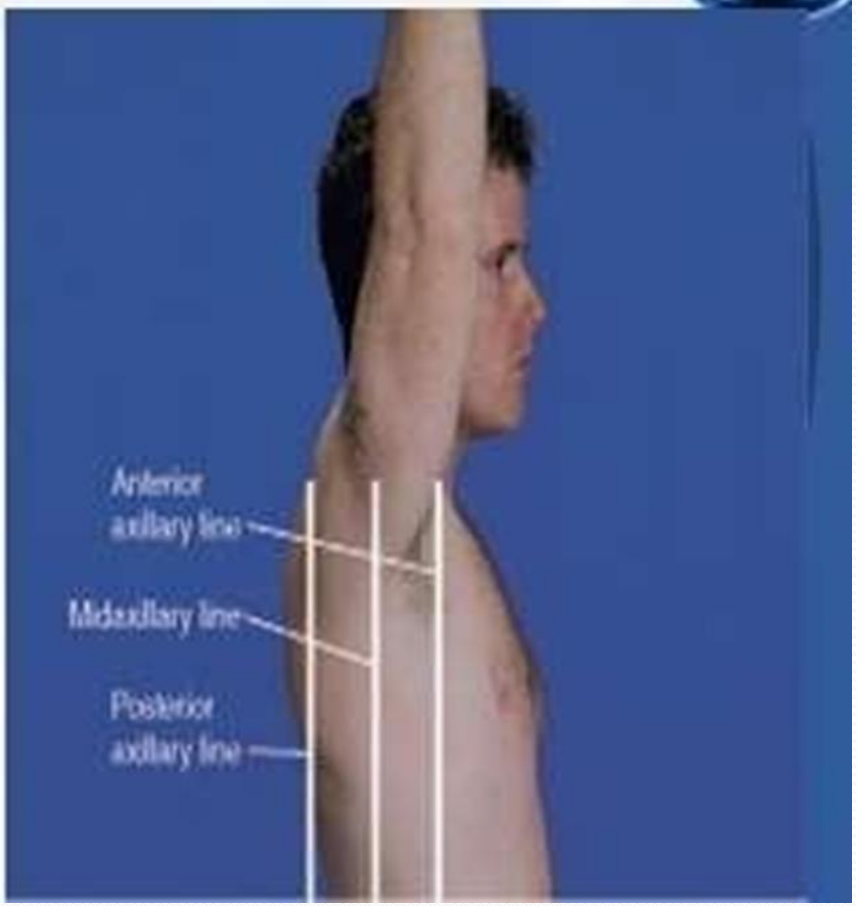
1. L . posterior axillary line
2. L .mid scapular line
3. Mid spinal
4. R. mid scapular line
5. R. posterior axillary line
6. Axillary line.


Anterior View
Midsternal Line
Right Anterior Axillary Line
Left Anterior Axillary Line
Right Midclavicular Line
Left Midclavicular Line
Nursecots

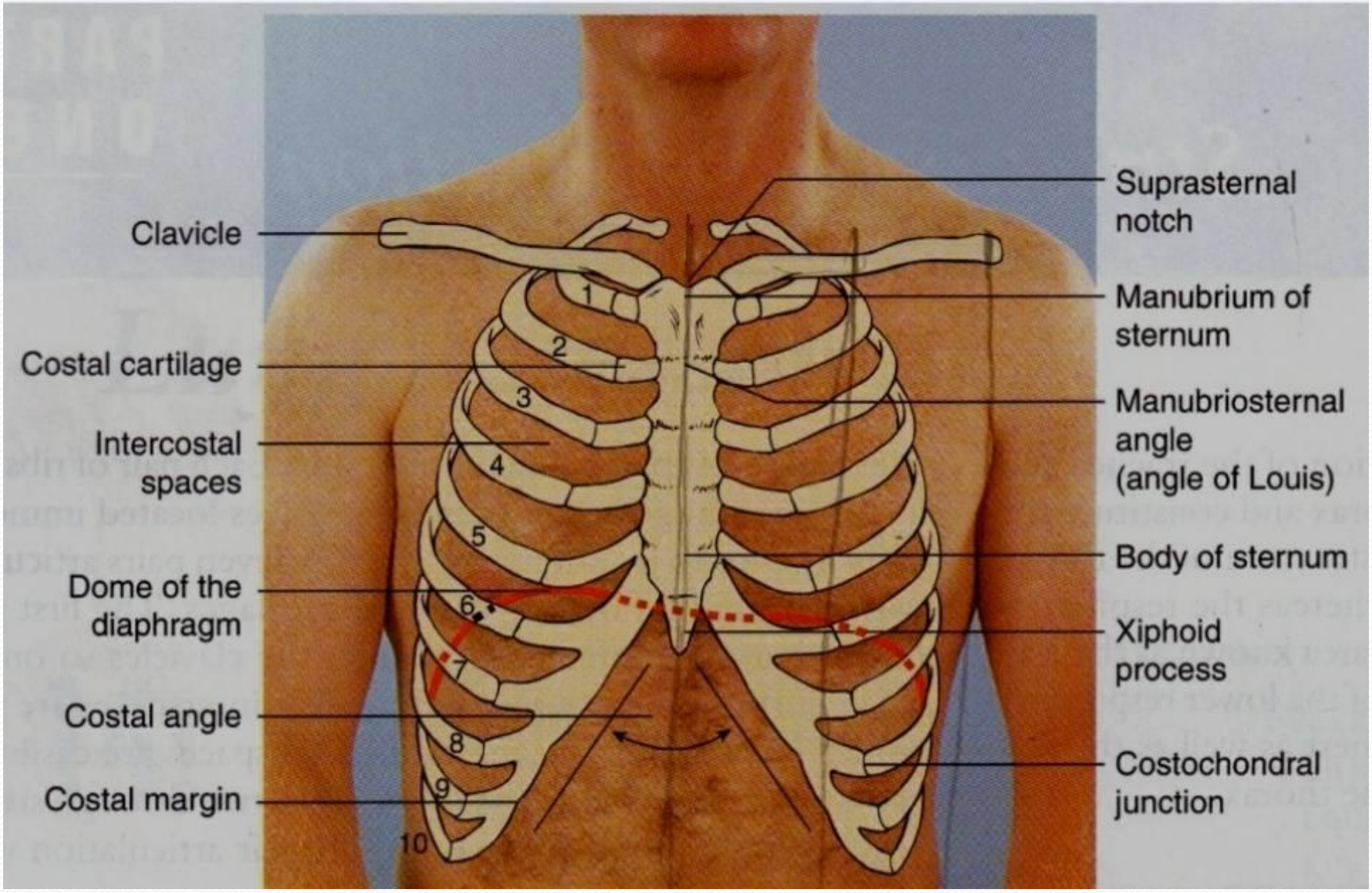

Posterior View
Midvertebral Line
Left Posterior Axillary Line
Right Posterior Axillary Line
Left Midclavicular Line
Right Midclavicular Line
Nursecots

Normal Findings on Physical Examination

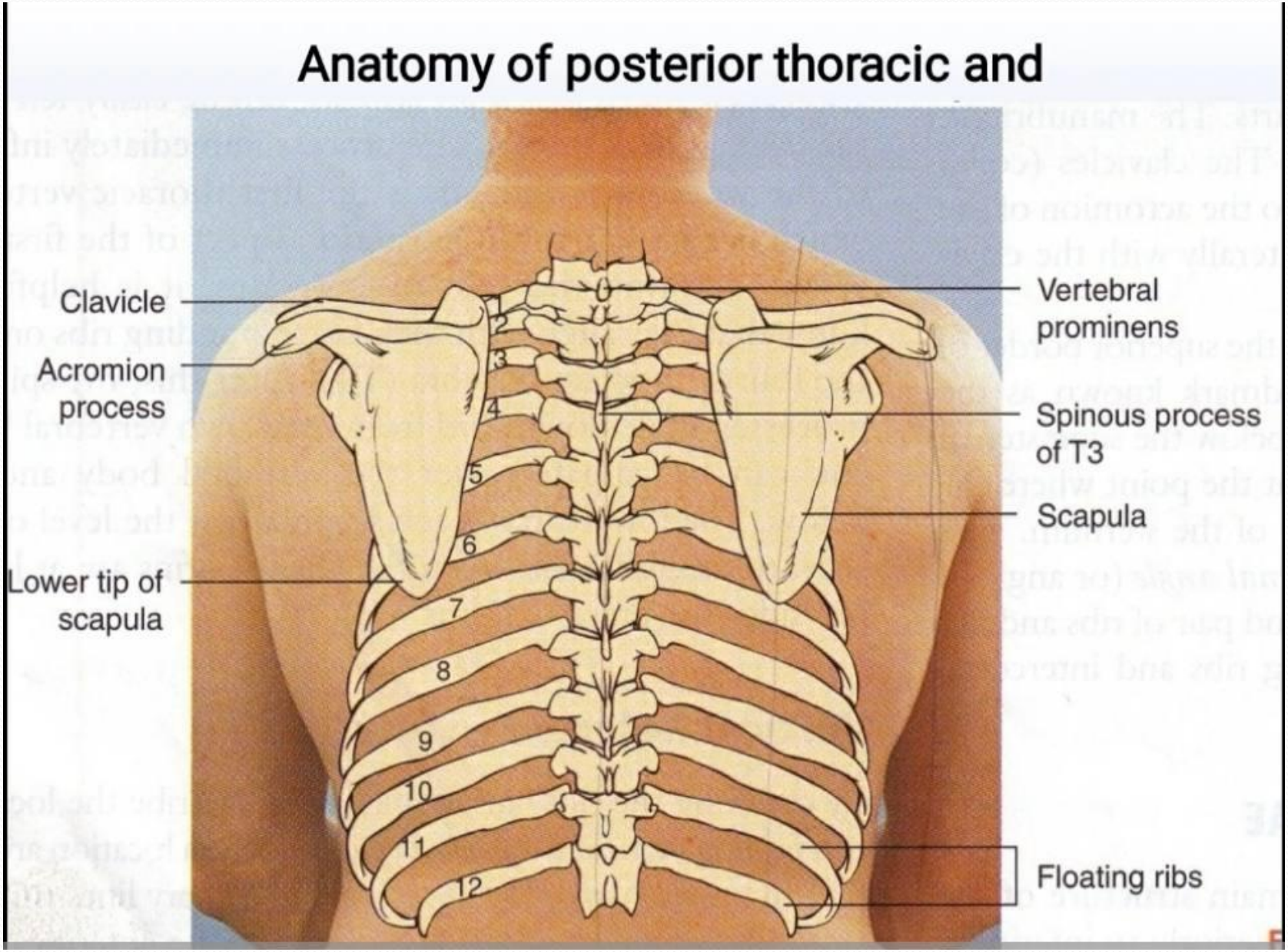




Anatomy of anterior thoracic and lung



Anatomy of posterior thoracic and

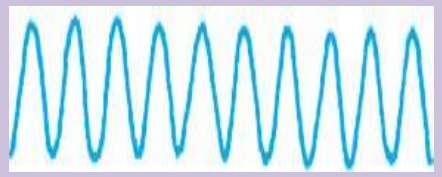


Inspect anterior, posterior, & lateral thorax for the following:

- ✓ Skin color, scars, incision,
- ✓ Shape, deformity and symmetry
- ✓ Rib slope : Less than 90 degree downward
- ✓ Breathing pattern (thoracic, abdominal)
- ✓ Anterior-posterior to lateral diameter 1 : 2 ratio
- ✓ Shape & position of sternum : level with ribs
- ✓ Position of trachea Midline

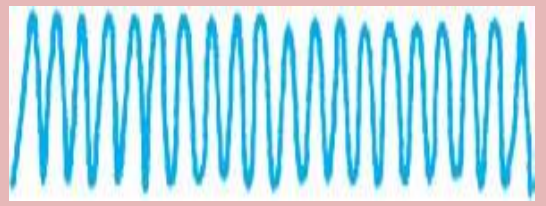
Breathing Pattern

Eupnea: Normal breathing is relaxed, effortless, and regular at 14-20 breath\minute

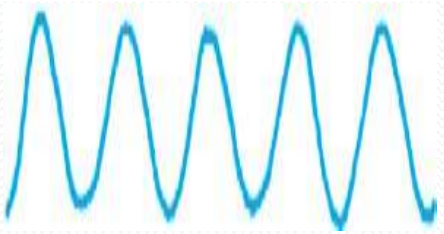


Normal breathing

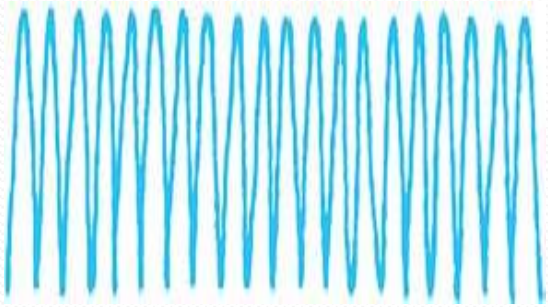
Tachypnea: Rapid shallow breathing is a rate above 20 breaths per minute, associated with increased activity or a disease process.



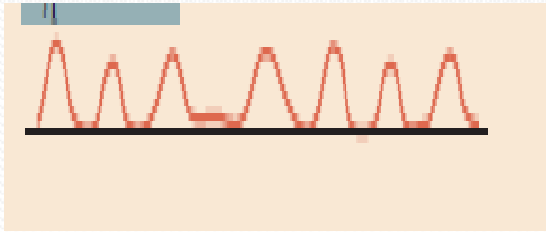
Bradypnea: slow breathing is a rate blow 12 breath per minute with normal depth and rhythm , associated with Sedation , anesthesia.



Hyperventilation: increased depth and rate of breathing (kussmaul 's respiration caused by diabetic ketoacidosis.



Hypoventilation : Shallow irregular breathing hypercapnia and hypoxemia such as in COPD.



Apnea: is the absence of respirations.

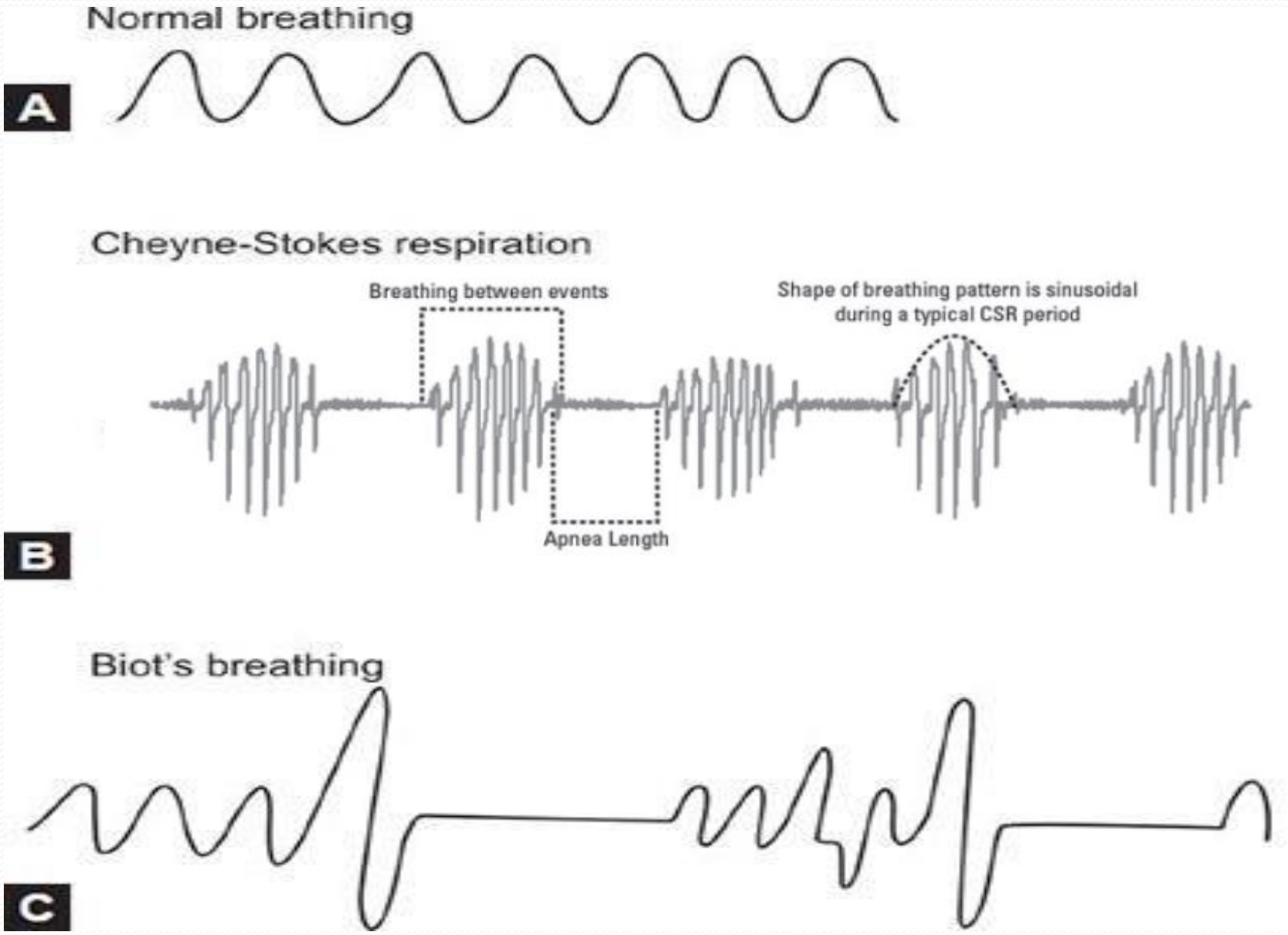
Cheyne-Stokes respiration (CSR)

is the term for cycles of breathing characterized by deep, rapid breaths for about 30 seconds, followed by absence of respirations for 10 to 30 seconds.

Cheyne-Stokes respirations constitute a serious symptom and precedes death in cerebral hemorrhage, uremia, or heart disease

Biot's respiration

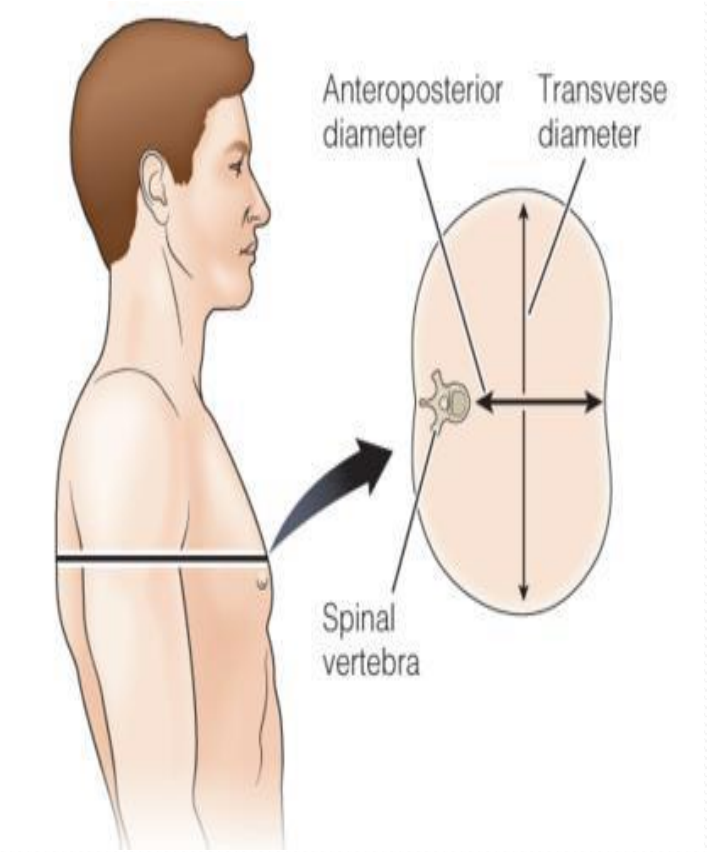
is characterized by irregularly interspersed periods of apnea in a disorganized and irregular pattern, rate, or depth. indicating increased intracranial pressure.


Normal breathing
A
Cheyne-Stokes respiration
Breathing between events
Shape of breathing pattern is sinusoidal during a typical CSR period
Apnea Length
B
Biot's breathing
C

Inspection

Normal chest

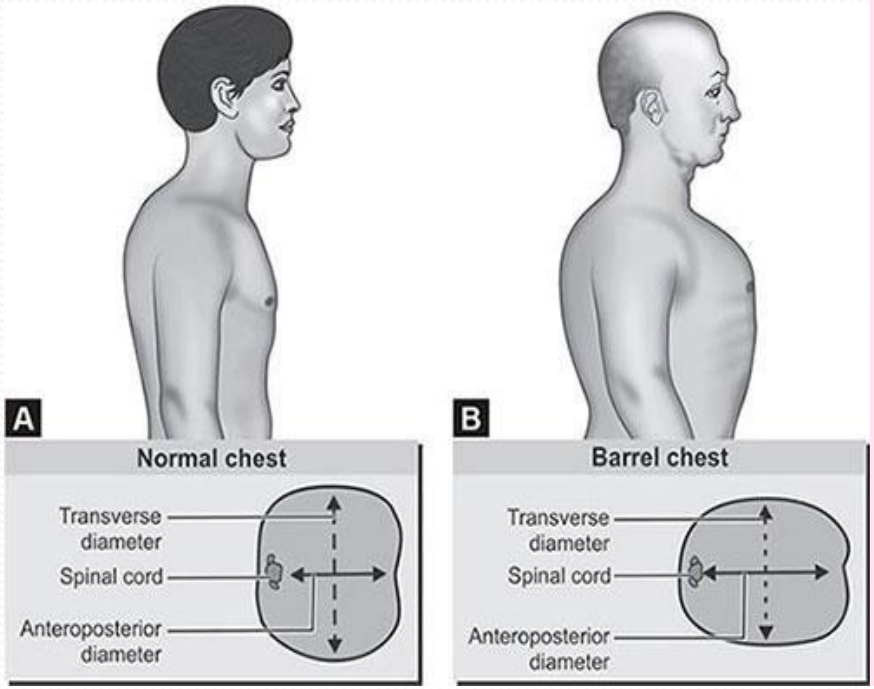
Anterior/posterior diameter 1:2

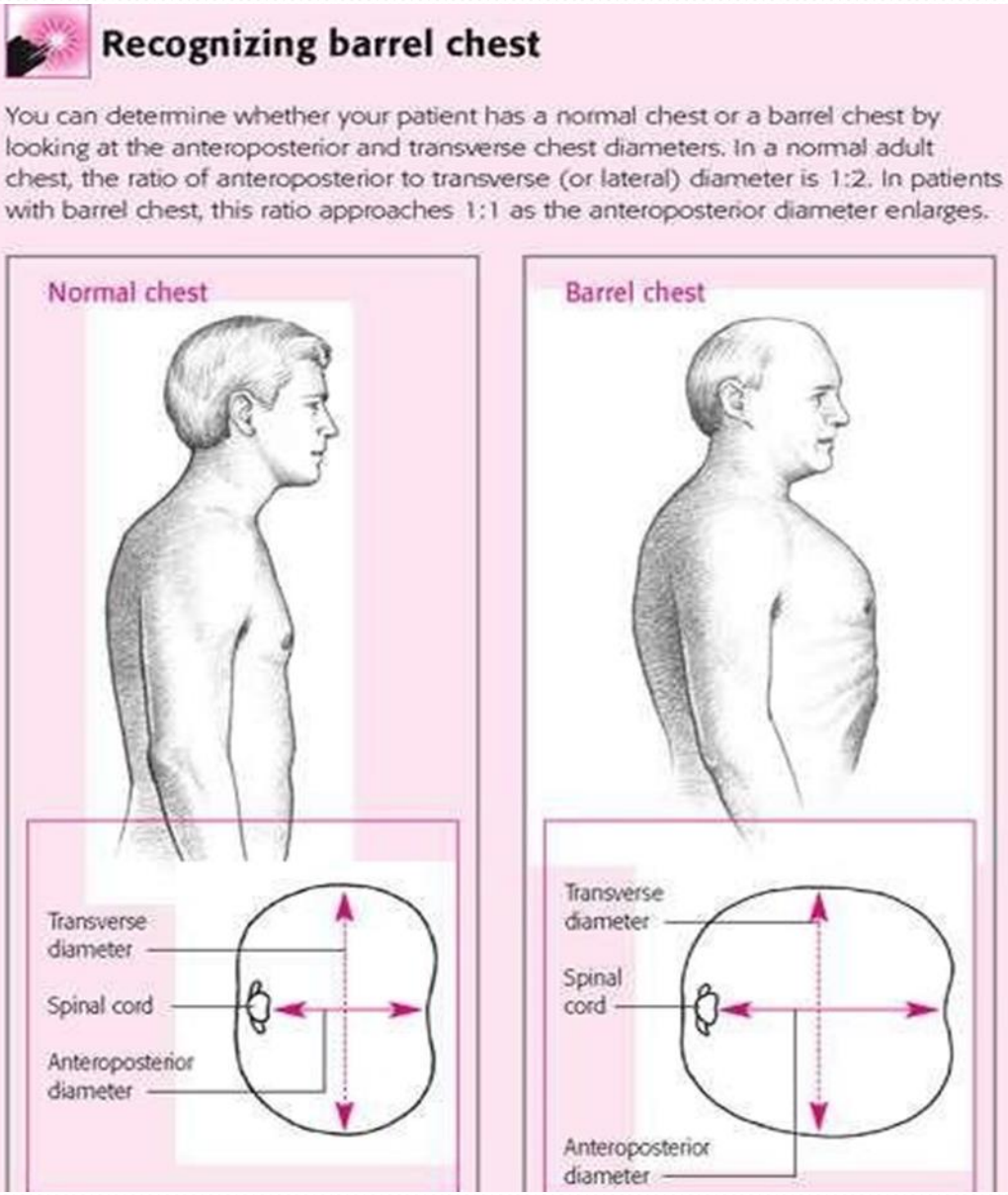


Inspection

Barrel chest

anterior-posterior diameter 2:2

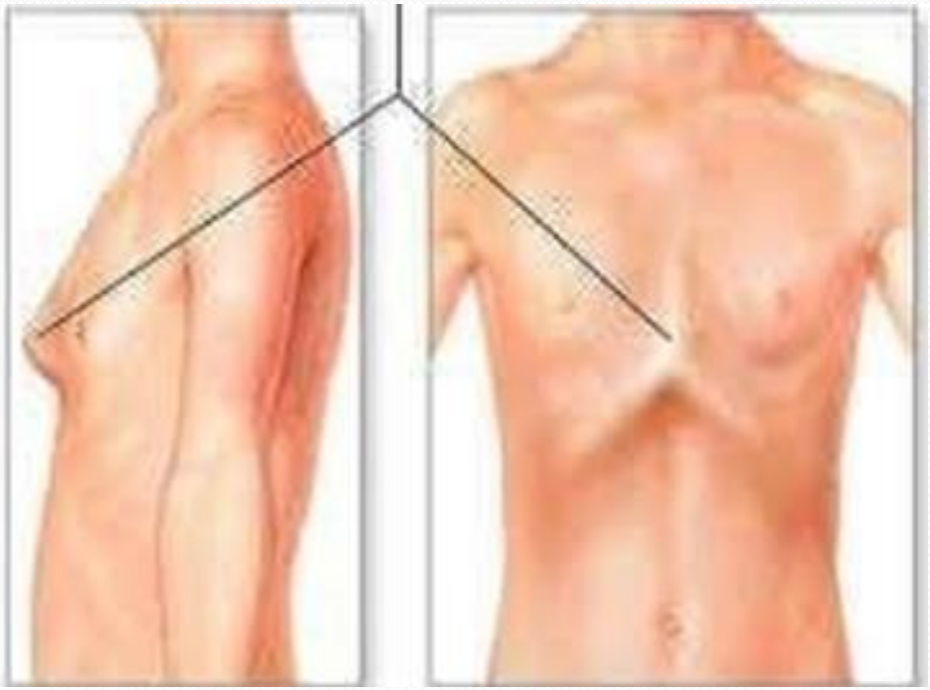


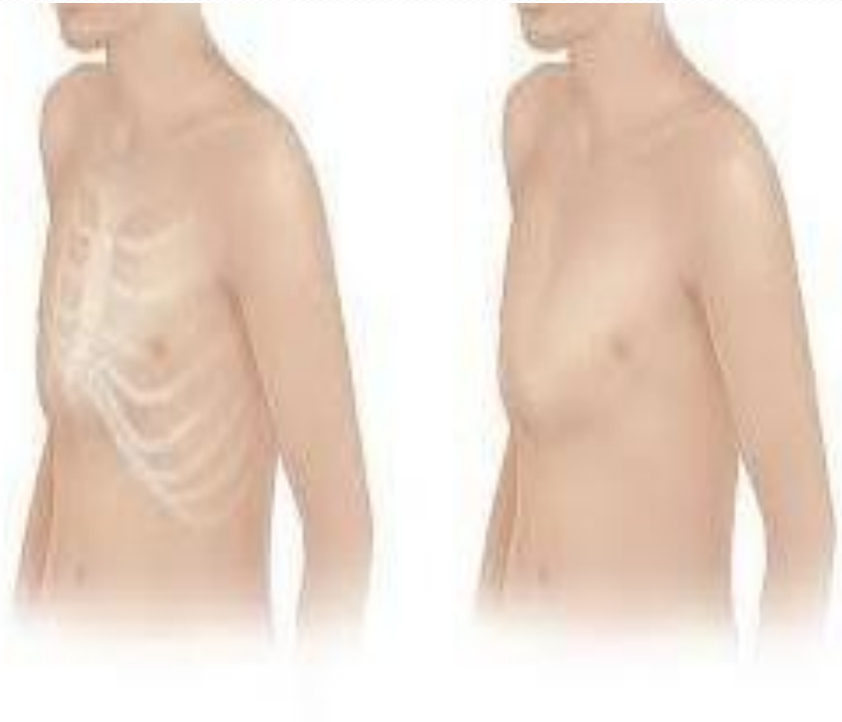


Inspection

Pigeon chest Sternum protrudes outward

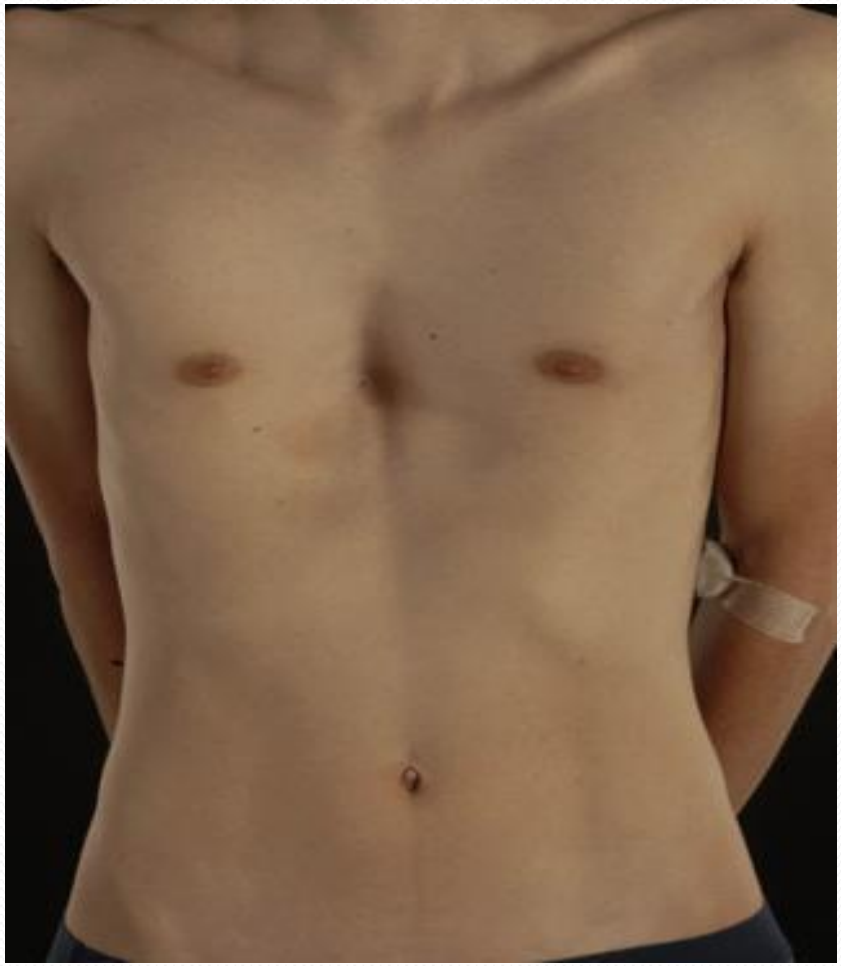
anterior-posterior diameter





Pigeon chest (pectus carinatum)

Funnel Chest (Pectus excavatum)



Inspection

Scoliosis

Lateral curvature of thoracic spine

Assessment

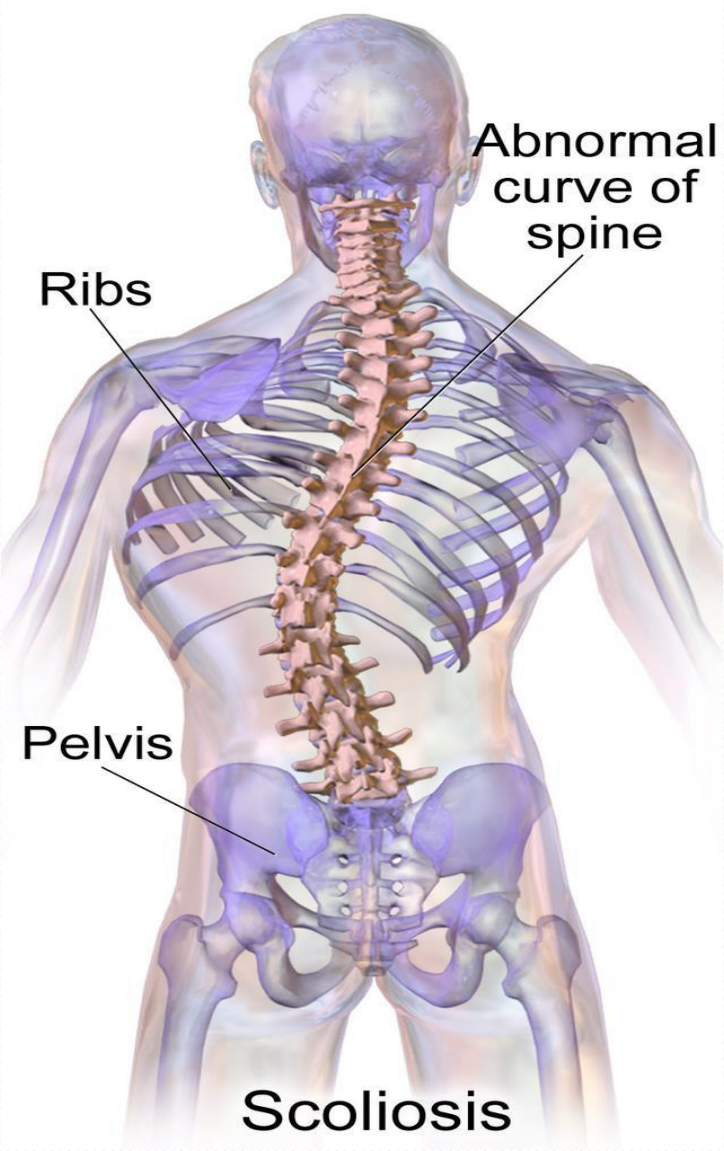
Shoulders elevated?

Complications

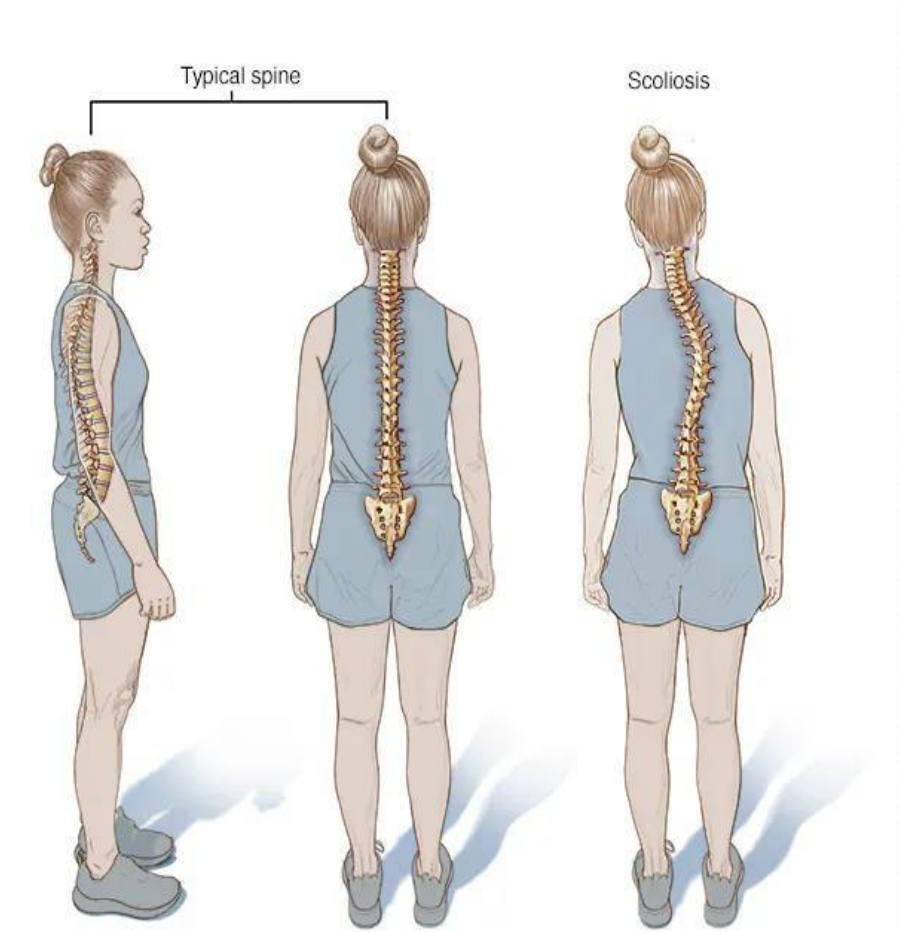
Lung & heart damage

Back problems

Body image



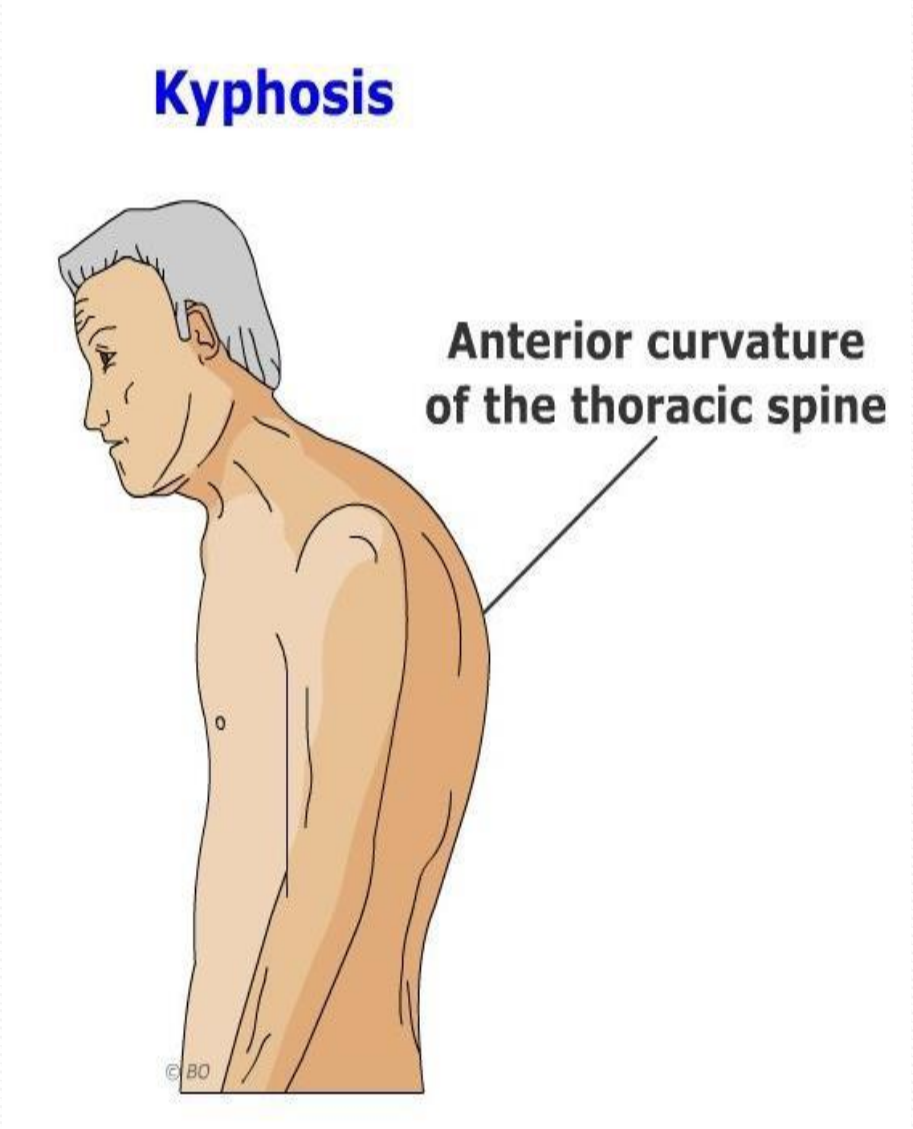
Scoliosis


Typical spine
Scoliosis

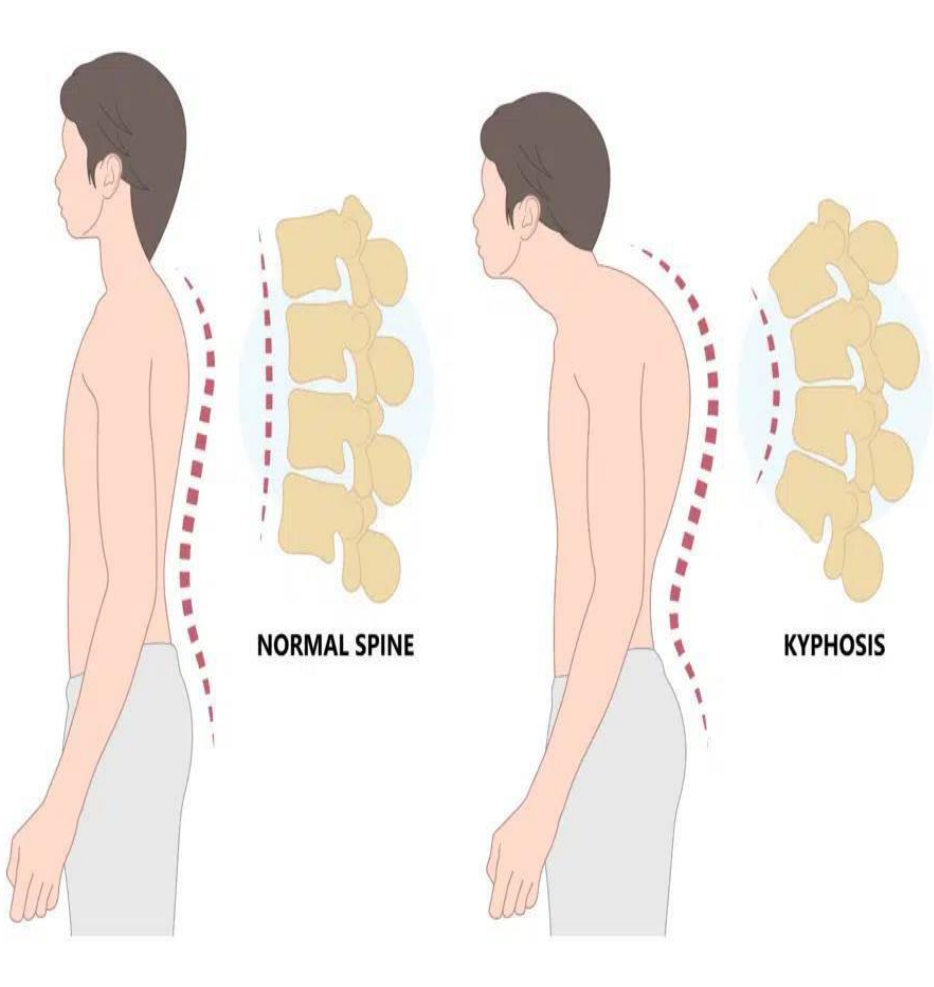

Signs of scoliosis
Uneven shoulders
Curve in spine
Uneven hips
A.D.A.M.

Inspection

- **Kyphosis**
  - Abnormal curvature of the thoracic spine

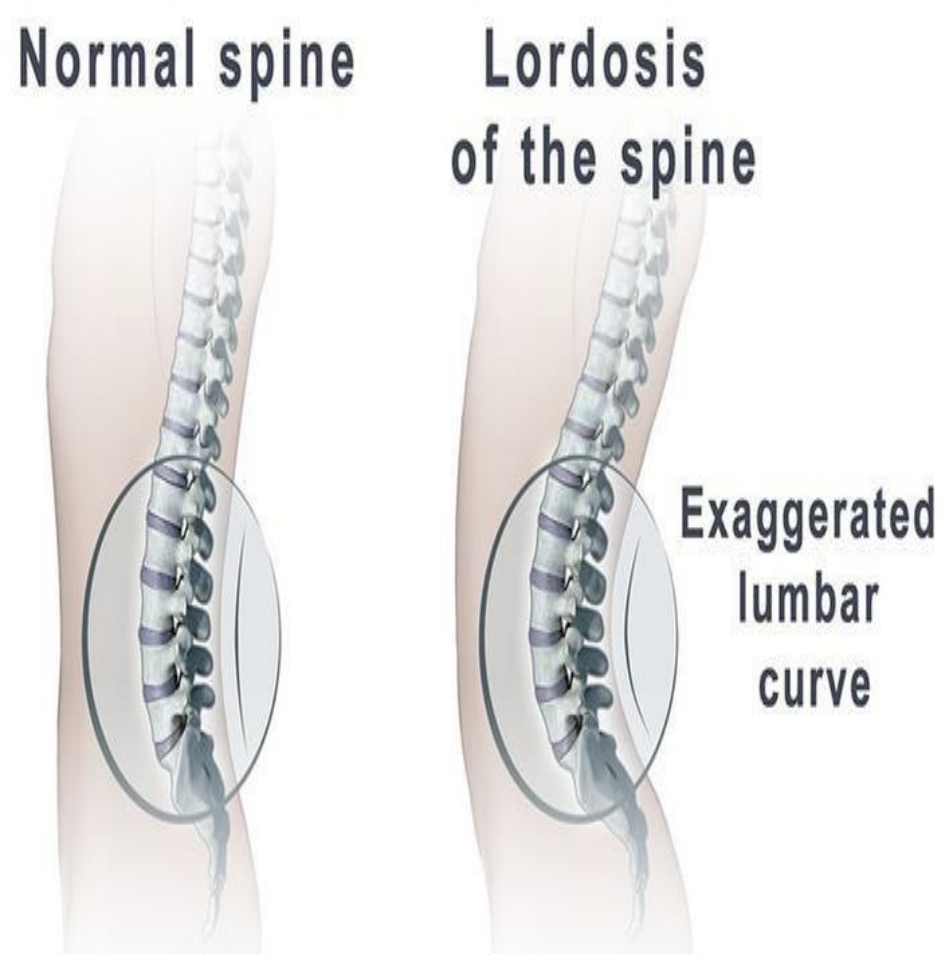


Kyphosis

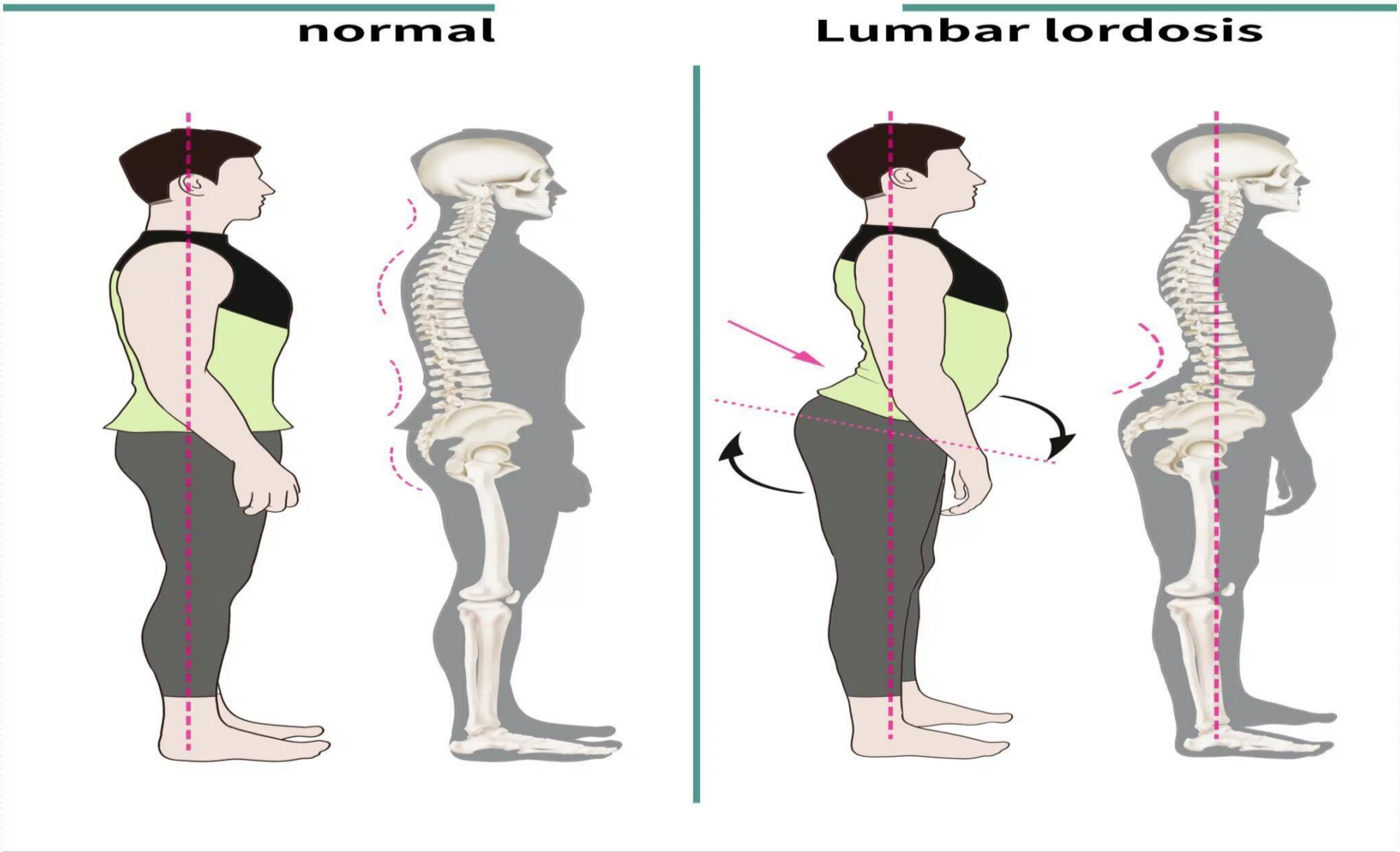


Inspection

- Lordosis
  - Sway-back
  - Abnormal curvature of the lumbar spine



Lordosis



Palpate thorax at the following :

Sensation : no pain or tenderness

Vocal fremitus (tactius) as client says ***99Use either the palm base (the ball)*** of fingers, or the ulnar edge of one hand.

-Touch the client's chest- Ask the client to repeat a resonant phrases that generate strong vibration

Like ***.99***

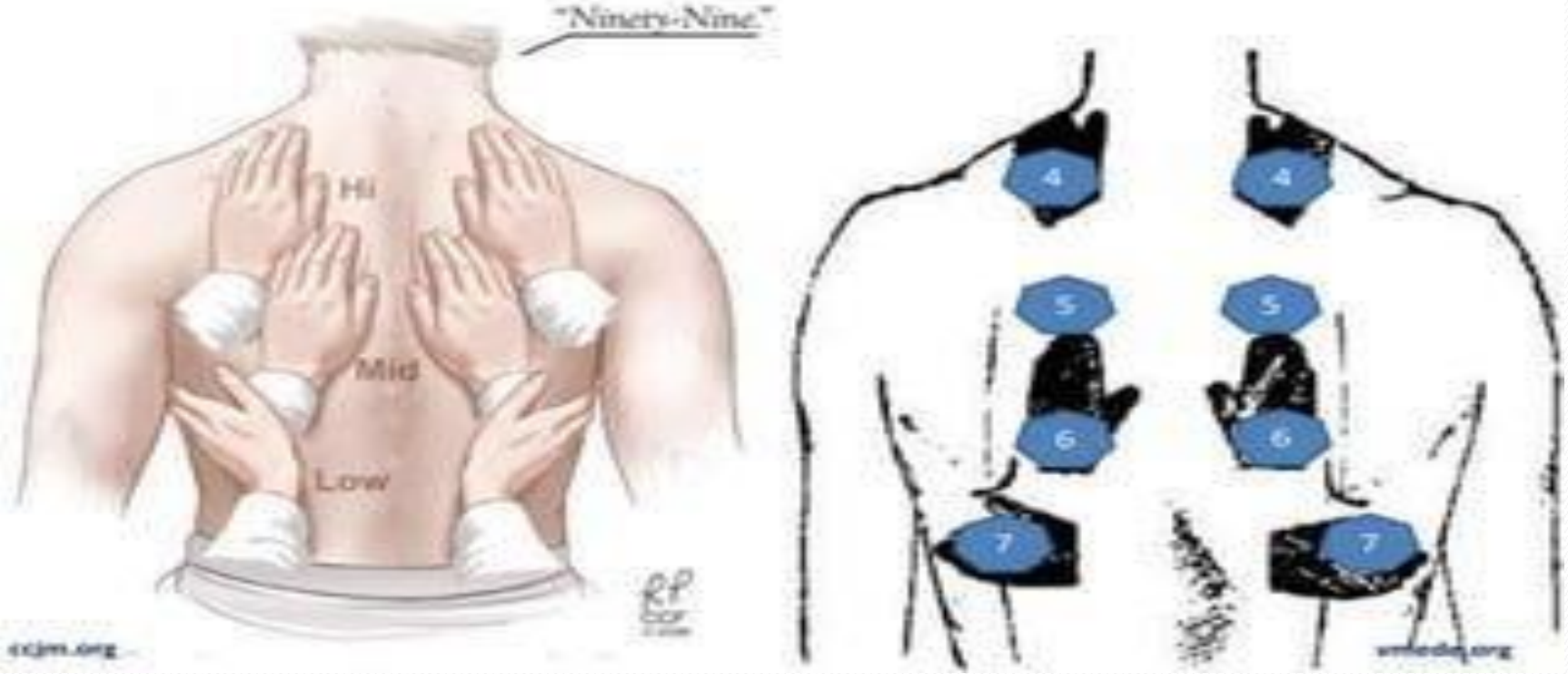
Start over the lung apices & palpate from side to another.- Avoid palpating over the scapulae.

Vibration decreased over periphery of lungs & increased over major airways.

Decreased Vocal fremitus (COPD, Pneumothorax)

Increased Vocal fremitus (fibrosis, consolidation)

Vocal (tactile) fremitus



- Patients with emphysema, which results in the rupture of alveoli and trapping of air, exhibit almost no tactile fremitus.

Palpate chest expansion(Respiratory excursion):

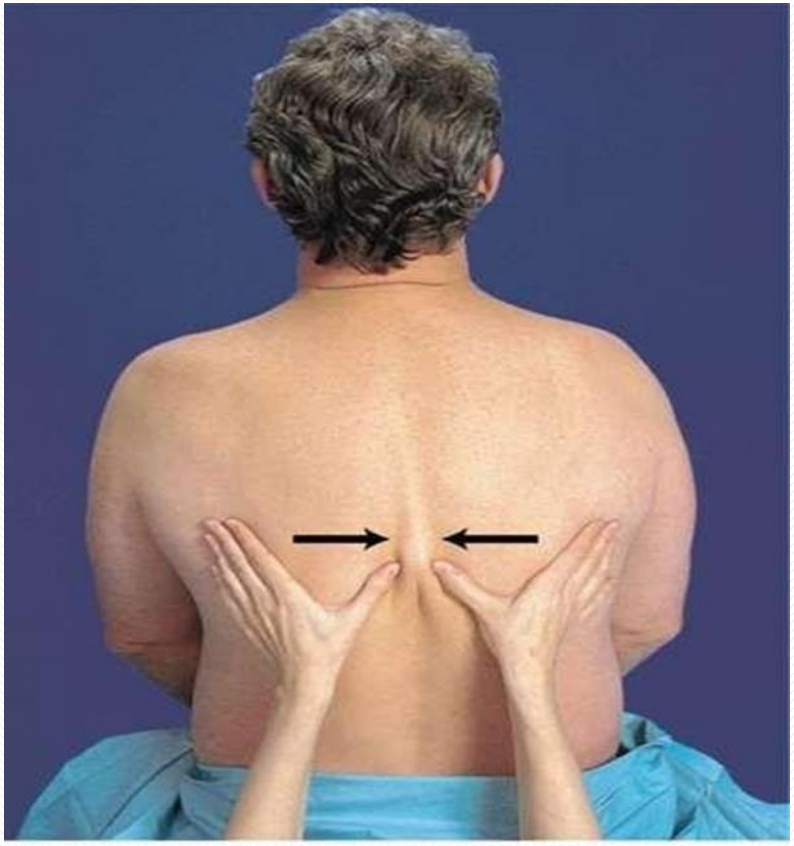
Posterior : placing your warmed hand on the poster lateral chest wall

- The thumbs should be at level of **T9** or **T.10**
- Slide your hands medially to pinch up a small fold between your thumbs.
- Ask the client to take deep breath.
- Your thumb should move with respiration.

Anterior: placing your warmed hand on the anterolateral wall.

- Thumbs should be along the costal margins & pointing toward the xiphoid process. - Ask the client to take deep breath.
- Watch your thumbs move with respiration.

2to -3inch(5-8cm) symmetrical thoracic expansion. Symmetrical expansion (thumbs move apart equal distance in both directions.(

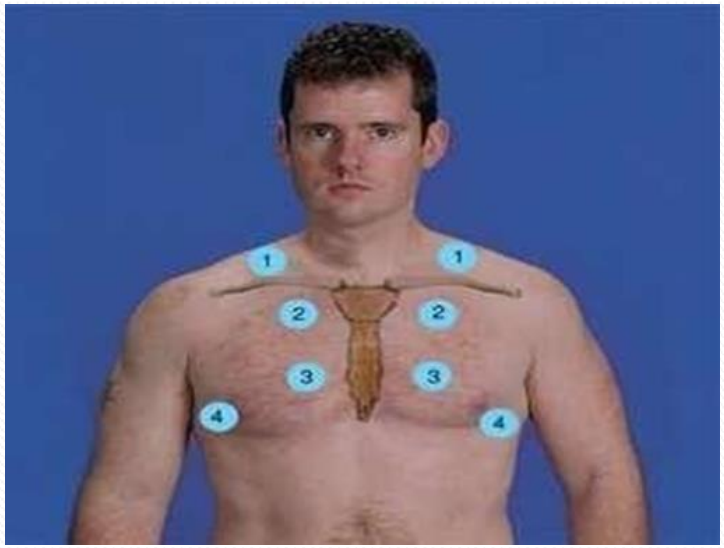


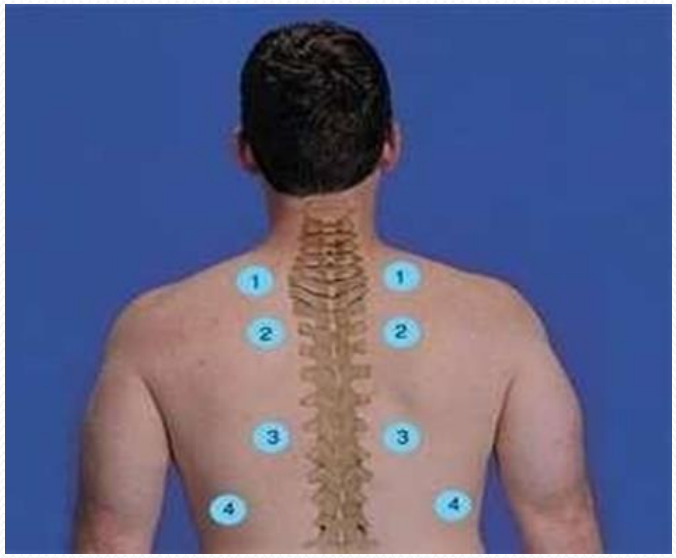
Decreased chest excursion may be caused by chronic fibrotic disease. Asymmetric excursion may be due to splinting secondary to pleurisy, fractured ribs, trauma, or unilateral bronchial obstruction

Percussion

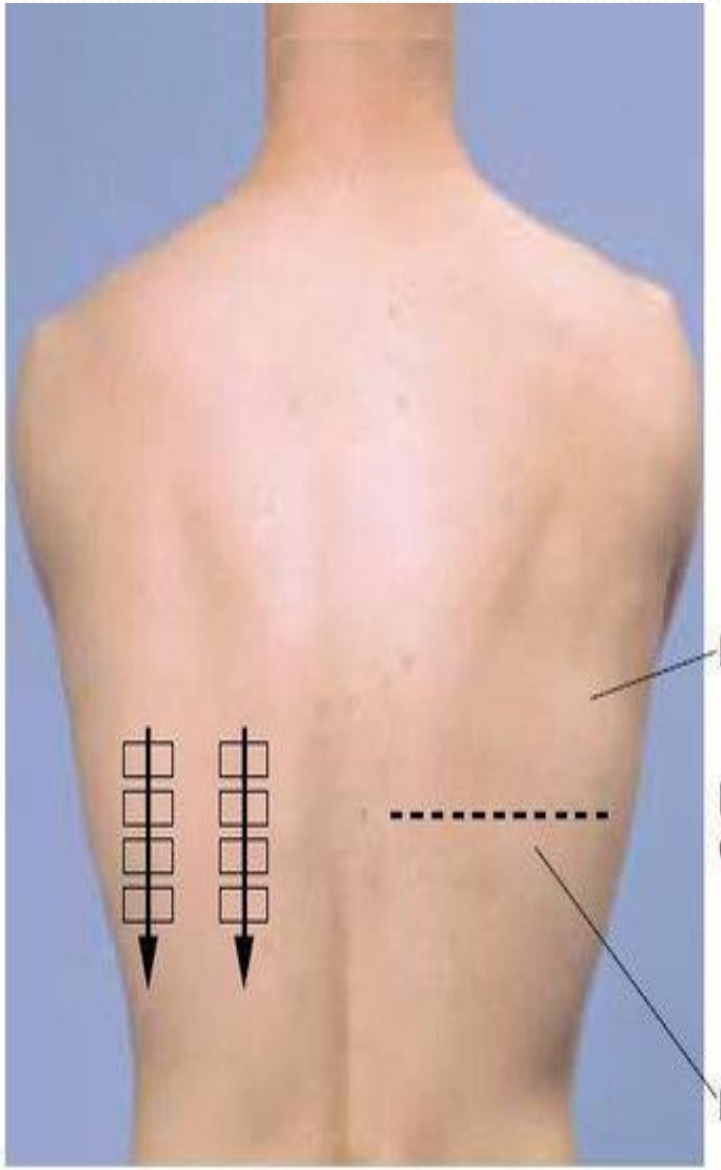
- Dullness & resonance
- Compare left and right, upper and lower
- Percussion (Diaphragmatic Excursion)

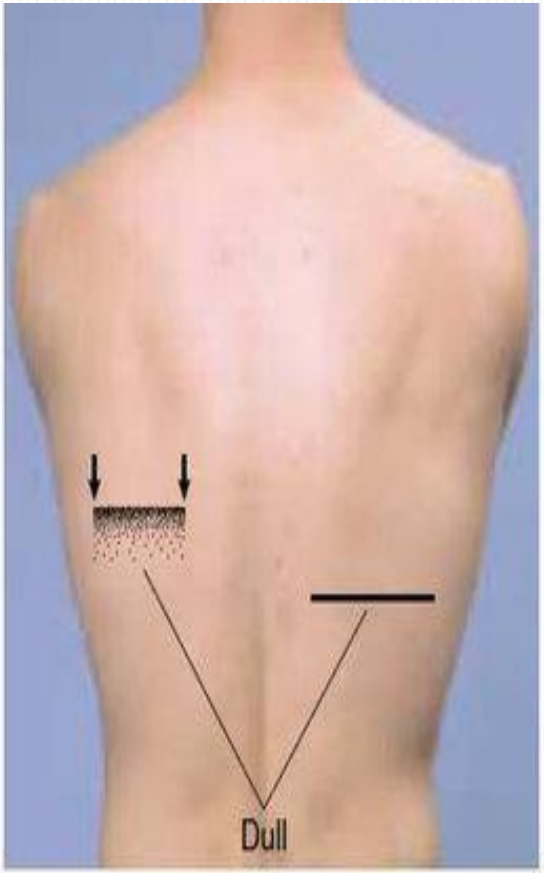
It should be equal bilaterally, & measure about 3-5cm in adult, although it may be up to 7-8cm.





Location and sequence of percussion





An abnormally high level suggests *pleural effusion*, or a high diaphragm as in *atelectasis* or *phrenic nerve paralysis*.

Auscultation

Purpose

Asses normal and abnormal air flow through bronchial tree by using

Diaphragm of stethoscope

Compare R to L

Auscultation: normal lung sound

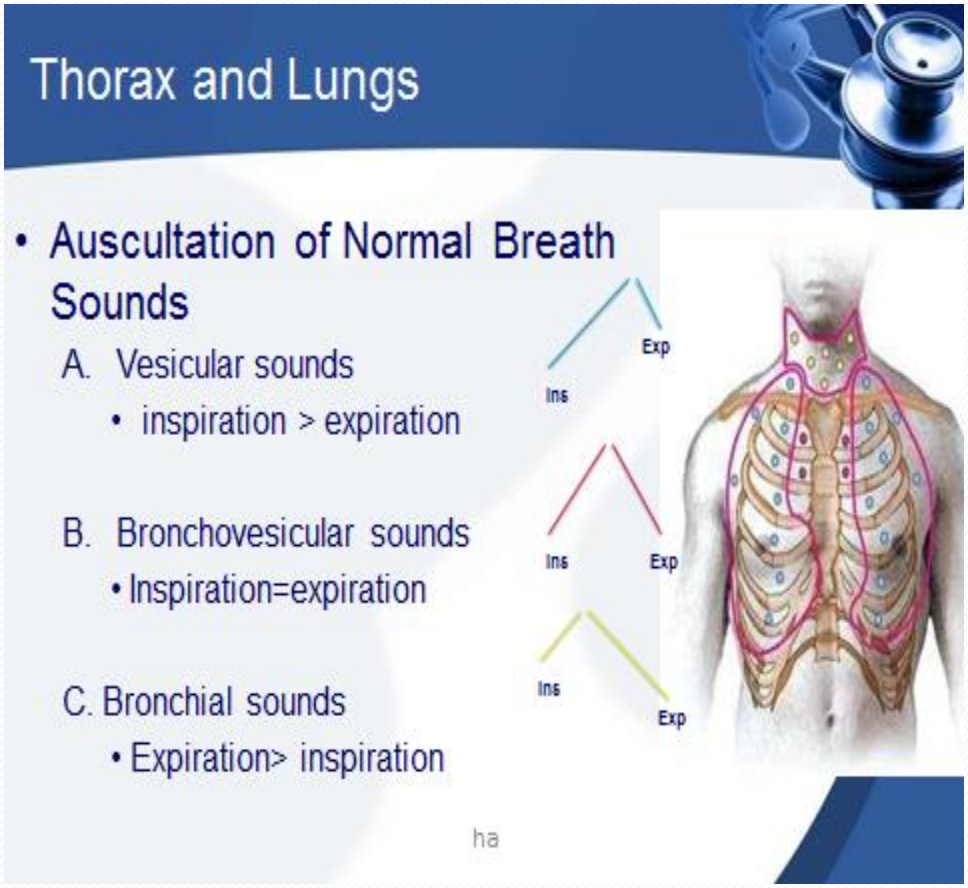
Bronchial : Trachea , high , inspiration shorter than expiration

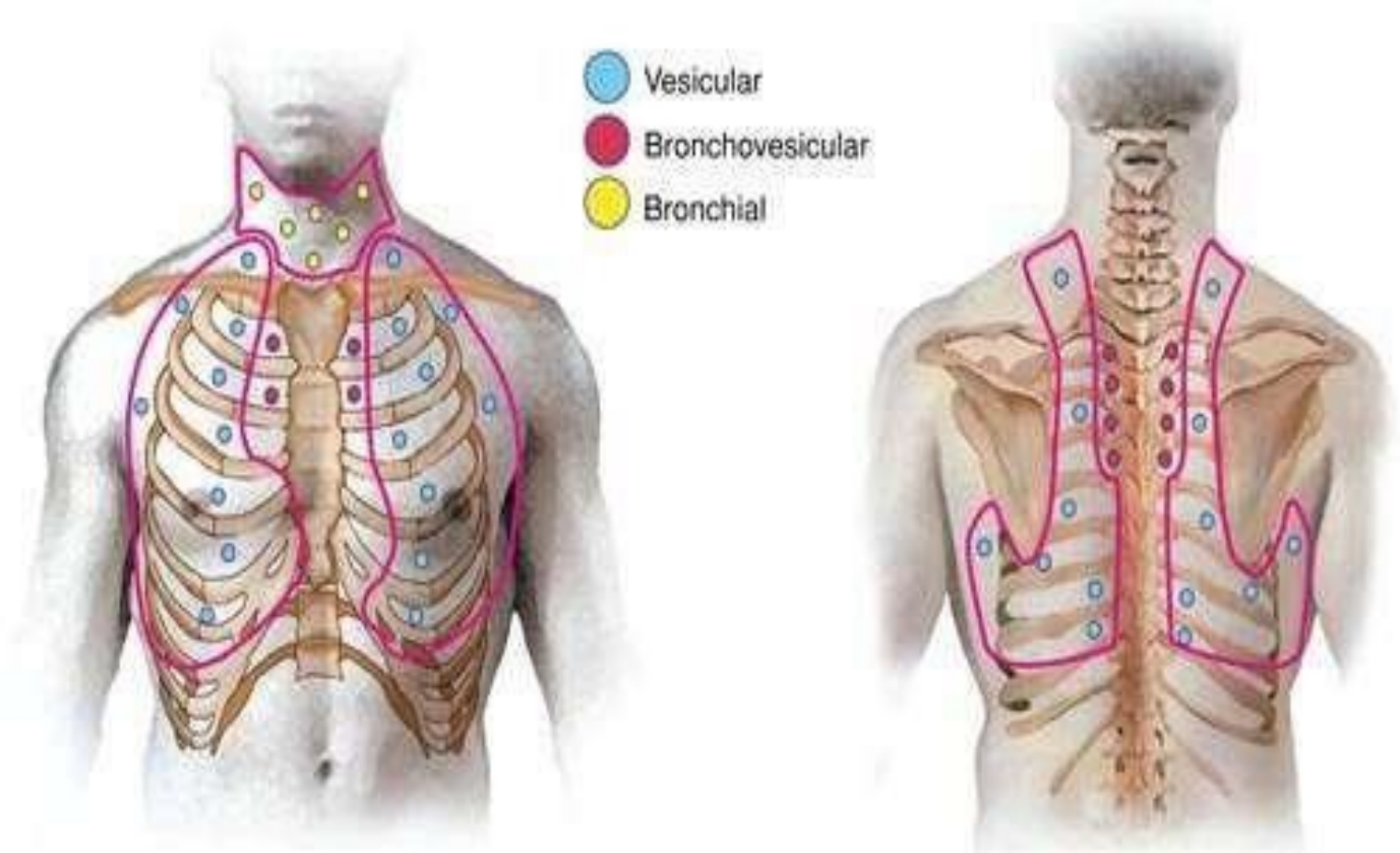
Bronchovesicular:

Moderate , Between scapulae

Side of sternum intercostals space , inspiration equal with expiration

Vesicular : Lung field , inspiration longer than expiration is it soft and low




Vesicular
Bronchovesicular
Bronchial

Adventitious breath sound

- **Crackles (fine):** high, short, popping sound heard during inspiration not clear with cough.

✓ Caused by: inhaled air sudden open of the small deflated air passage with sticky with exudates, can be associated with pneumonia, congestive heart failure or bronchitis and asthma.

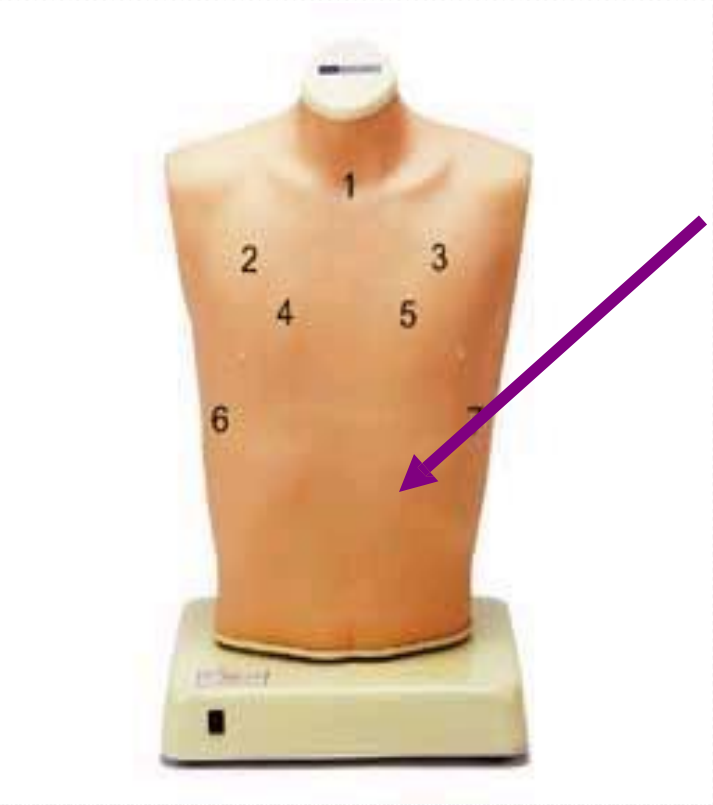
- **Coarse crackles:**

  low pitch bubbling , moist sound that may persist from early inspiration to early expiration air comes into contact with secretions in the large bronchi and trachea may indicated pneumonia, pulmonary edema client with COPD.

- **Wheeze(sibilant):** high in pitch ,musical sound heard in expiration or may be inspiration ,air pass through constricted passage as secretion or tumor heard asthma or emphysema
- **Wheeze (sonorous):** low pitch snoring or moaning sound heard during expiration clear with cough , heard in bronchitis , sleeping apnea.
- **Stridor:** harsh honking wheeze heard with broncholaryngospasm as in croup

- **Pleural friction rub:** low pitch grating sound superficial occur during I&E result of rubbing of two inflamed pleural surface as pleuritic.

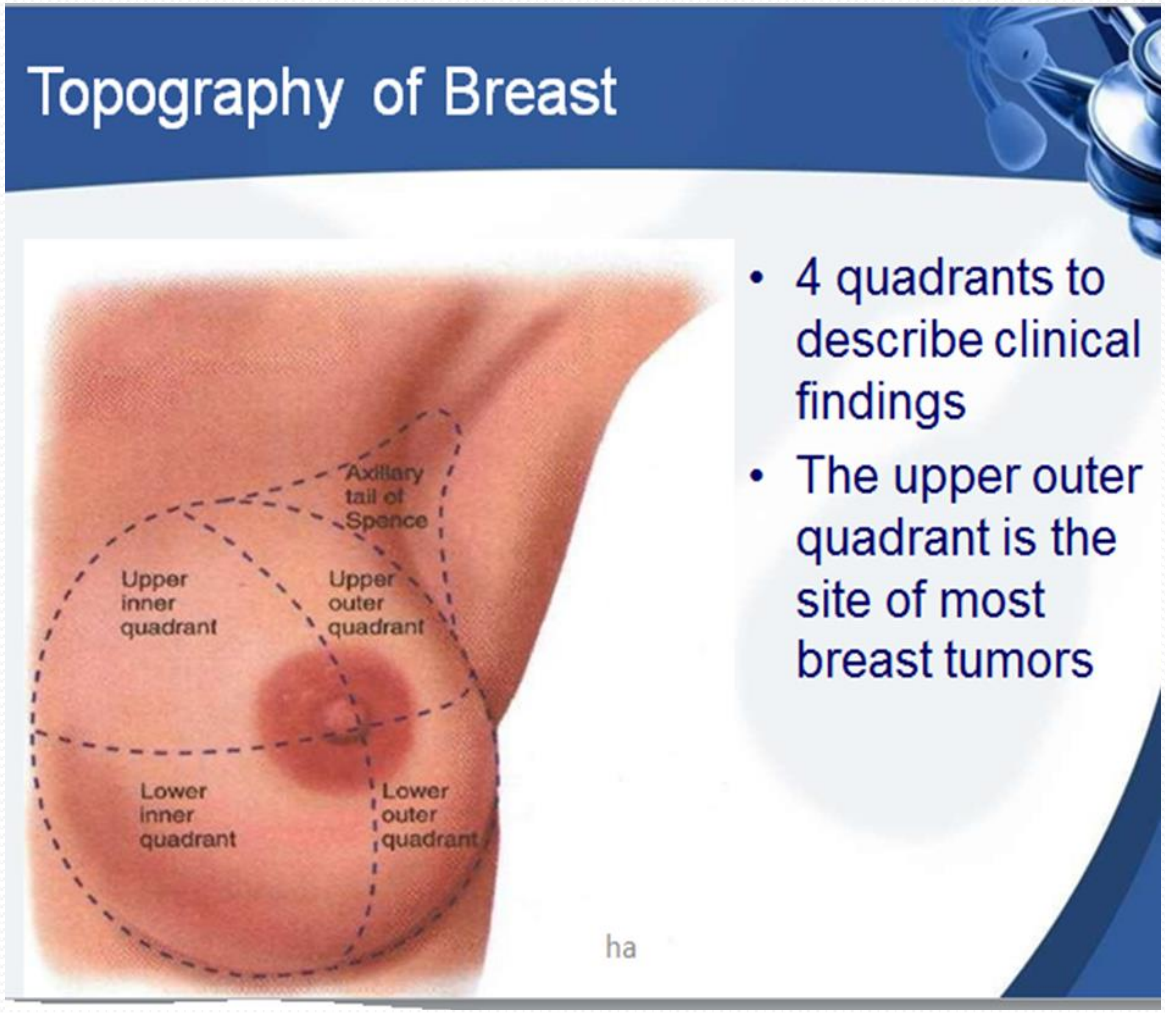
✓ Best heard anterior, Lower, lateral area

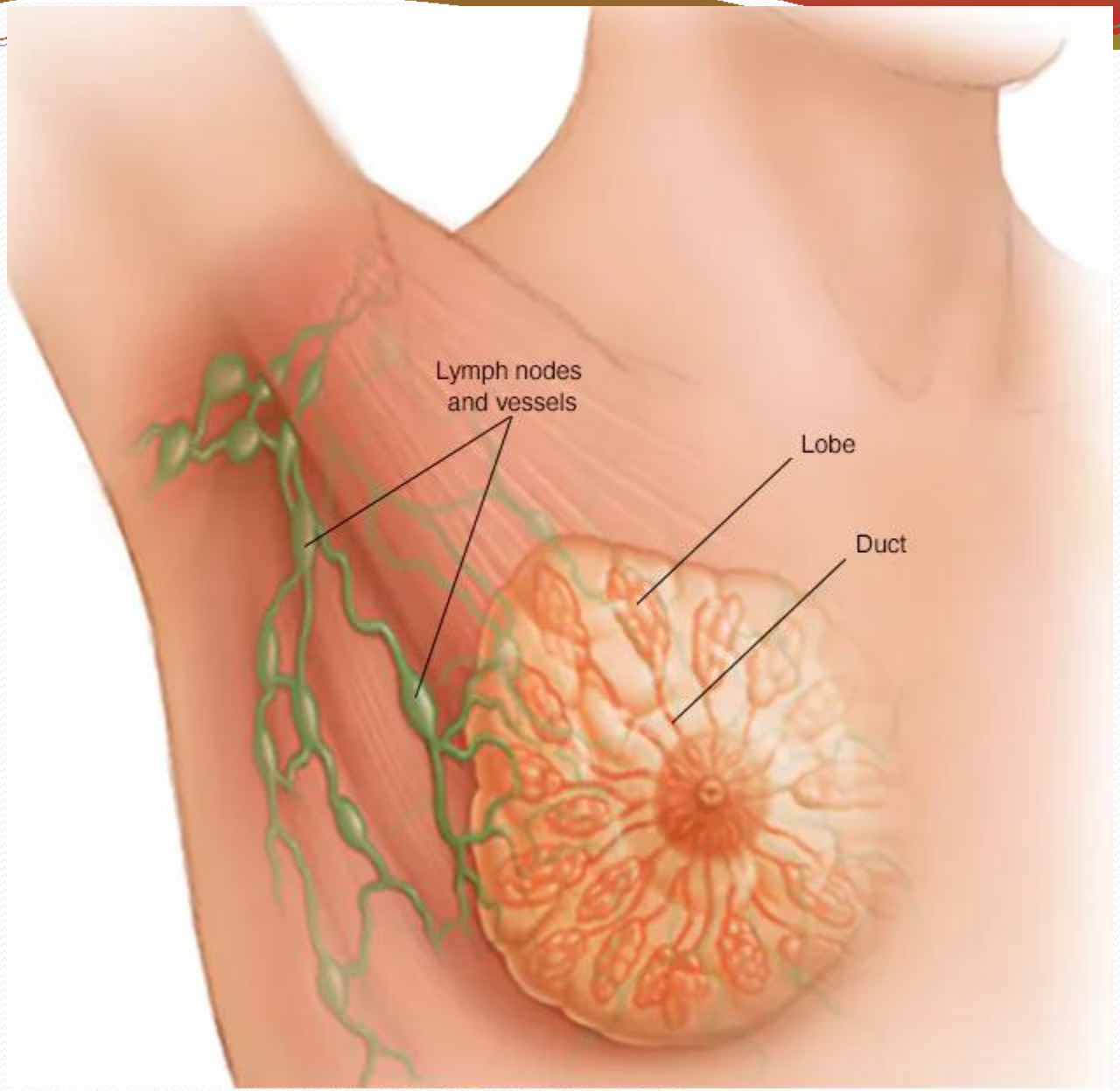


Breast Examination

Breast Development

- Milk production
- Usually begins at 8 to 10 years of age
- Stimulated by estrogen release during puberty

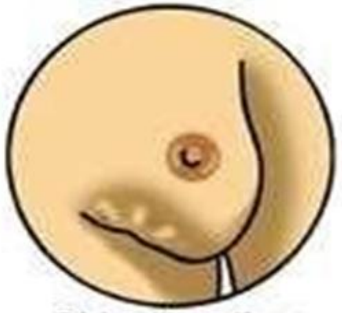




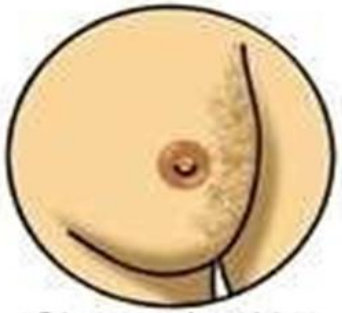
Assessment

- Assess characteristics
  - Color
  - Vascularity
  - Thickening or edema
  - Size and symmetry
  - Contour
  - Lesions or masses
  - Discharge

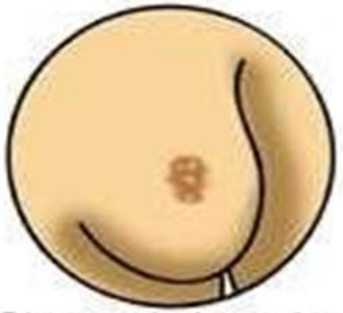
Lump



Skin dimpling



Change in skin color or texture



Change in how the nipple looks, like pulling in of the nipple.

Clear or bloody fluid that leaks out of the nipple

Normal Findings

- Breast and axillae are flesh colored
- Areolar areas and nipples are darker in pigmentation
- No thickening or edema

- Nipples should point upward and laterally, may point outward and downward

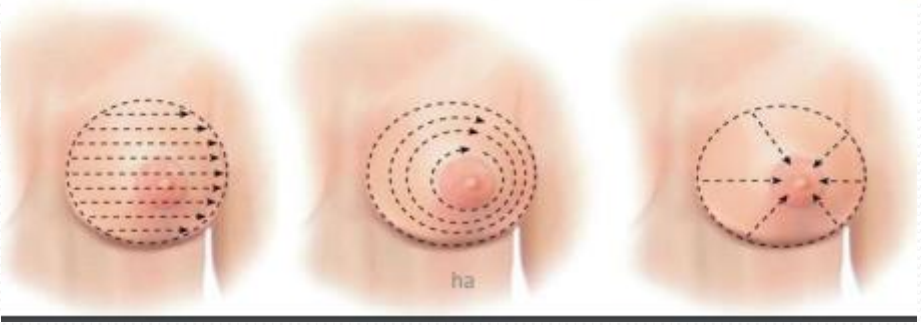
- Breasts, areolar areas, nipples should be symmetrical
- Breasts are convex, without flattening, retractions, or dimpling
- Free from masses, tumors, primary or secondary lesions

Gynecomastia

- Enlargement of male breast
- Physiological enlargement of neonates breast

Palpation

- Techniques
  - Wedge
  - Concentric circles
  - Parallel lines



Breasts and Axillae

- Palpation of four quadrants of breasts
- Palpation of supra-clavicular, infra-clavicular, and axillary nodes
- Education and encouragement of questions about breast self-examination (BSE)
- Breast cancer can also occur in males.

- **No discharge from nipples in nonpregnant, nonlactating female**
- **Palpable lymph nodes less than 1 cm in diameter usually are clinically insignificant**
- **Palpation should not elicit pain**
- **Consistency of breast tissue is highly variable depending on age, time in menstrual cycle, and proportion of adipose tissue**
- **Breasts are usually nodular or glandular before menses**

Palpating axillary nodes in breast examination

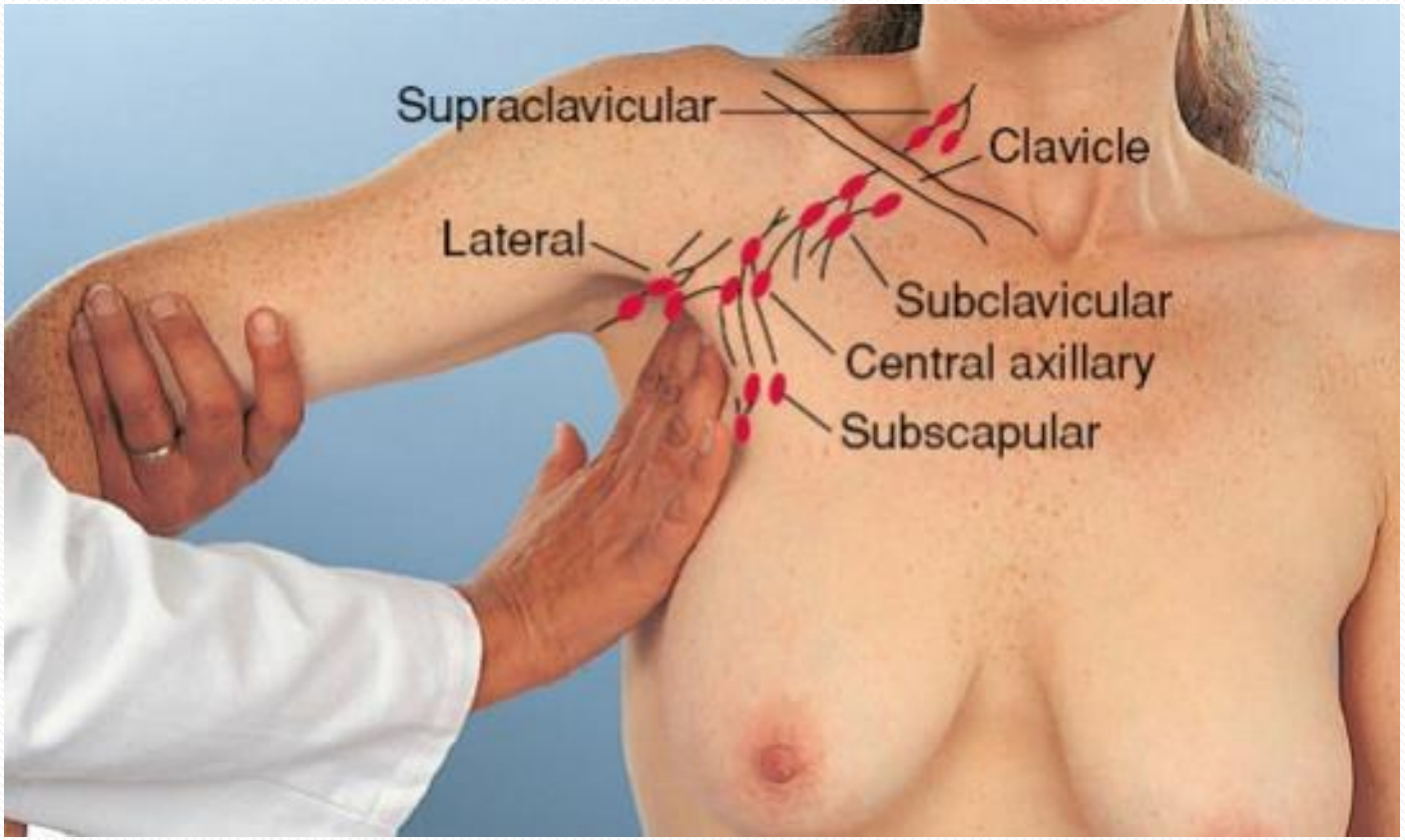


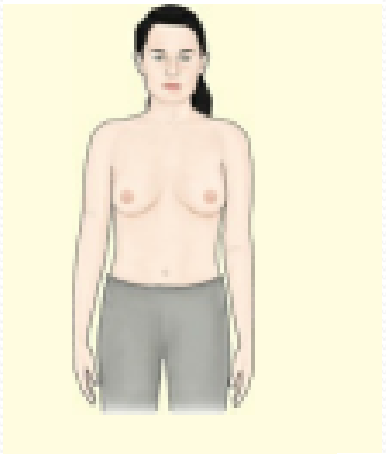
Chart 58-2 PATIENT EDUCATION

Breast Self-Examination

The nurse instructs the patient to perform the following steps:

Step 1

1. Stand in front of a mirror.
2. Check both breasts for anything unusual.
3. Look for discharge from the nipple, puckering, dimpling, or scaling of the skin.



Step 2

Steps 2 and 3 are done to check for any changes in the contour of your breasts. As you do them, you should be able to feel your muscles tighten.

1. Watch closely in the mirror as you clasp your hands behind your head and press your hands forward.
2. Note any change in the contour of your breasts.

Step 3

1. Next, press your hands firmly on your hips and bow slightly toward the mirror as you pull your shoulders and elbows forward.
2. Note any change in the contour of your breasts.

Step 4

Some women do step 4 of the examination in the shower. Your fingers will glide easily over soapy skin, so you can concentrate on feeling for changes inside the breast.

1. Raise your left arm.
2. Use three or four fingers of your right hand to feel your left breast firmly, carefully, and thoroughly.
3. Beginning at the outer edge, press the flat part of your fingers in small circles, moving the circles slowly around the breast.
4. Gradually work toward the nipple.
5. Be sure to cover the whole breast.
6. Pay special attention to the area between the breast and the underarm, including the underarm itself.
7. Feel for any unusual lumps or masses under the skin.
8. If you have any spontaneous discharge during the month—whether or not it is during your breast self-examination—see your primary provider.
9. Repeat the examination on your right breast.

Step 5

1. Step 5 should be repeated lying down.
2. Lie flat on your back with your left arm over your head and a pillow or folded towel under your left shoulder. (This position flattens your breast and makes it easier to check.)
3. Use the same circular motion described earlier.
4. Repeat on your right breast.