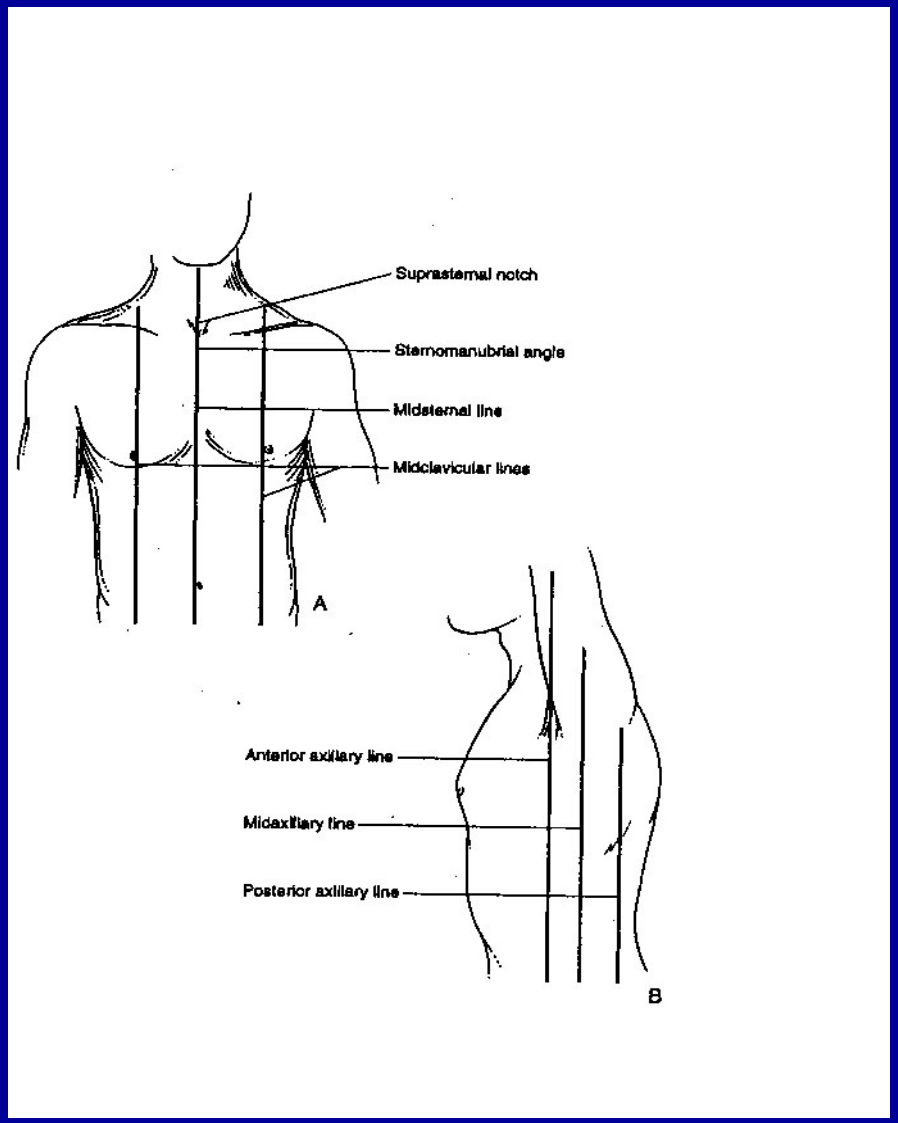
PHYSICAL DIAGNOSIS THE PULMONARY EXAM

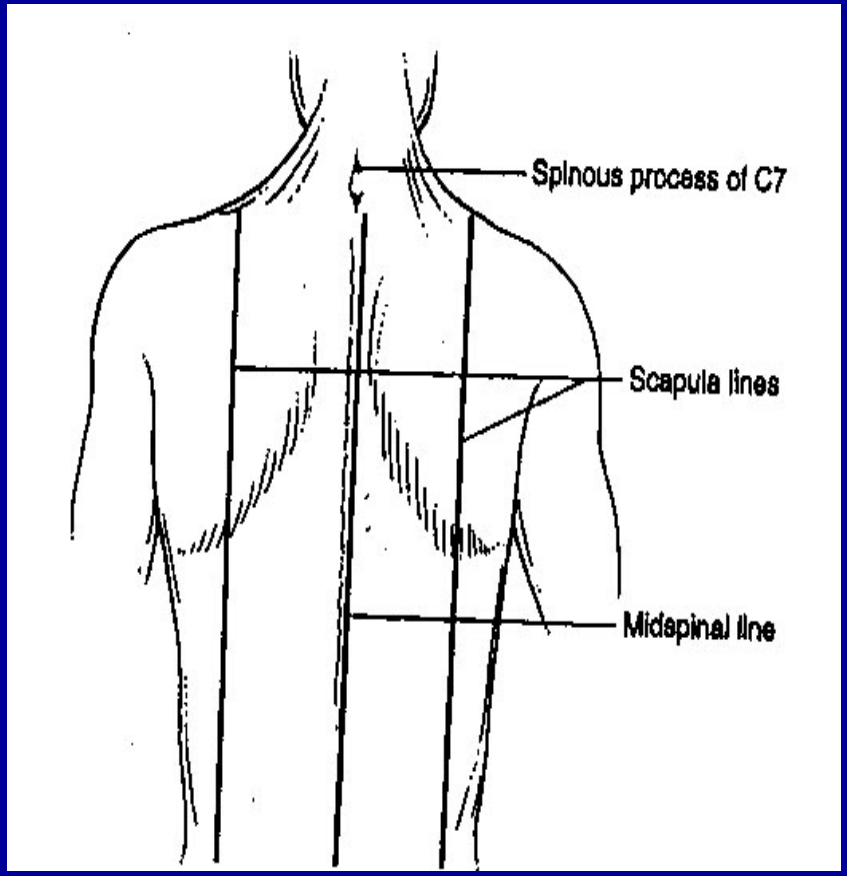
WHAT SHOULD WE KNOW ABOUT THE EXAMINATION OF THE CHEST?

- LANDMARKS
- PERTINENT VOCABULARY
- SYMPTOMS
- SIGNS
- HOW TO PERFORM AN EXAM
- HOW TO PRESENT THE INFORMATION
- HOW TO FORMULATE A DIFFERENTIAL DIAGNOSIS

IMPORTANT TOPOGRAPHY OF THE CHEST



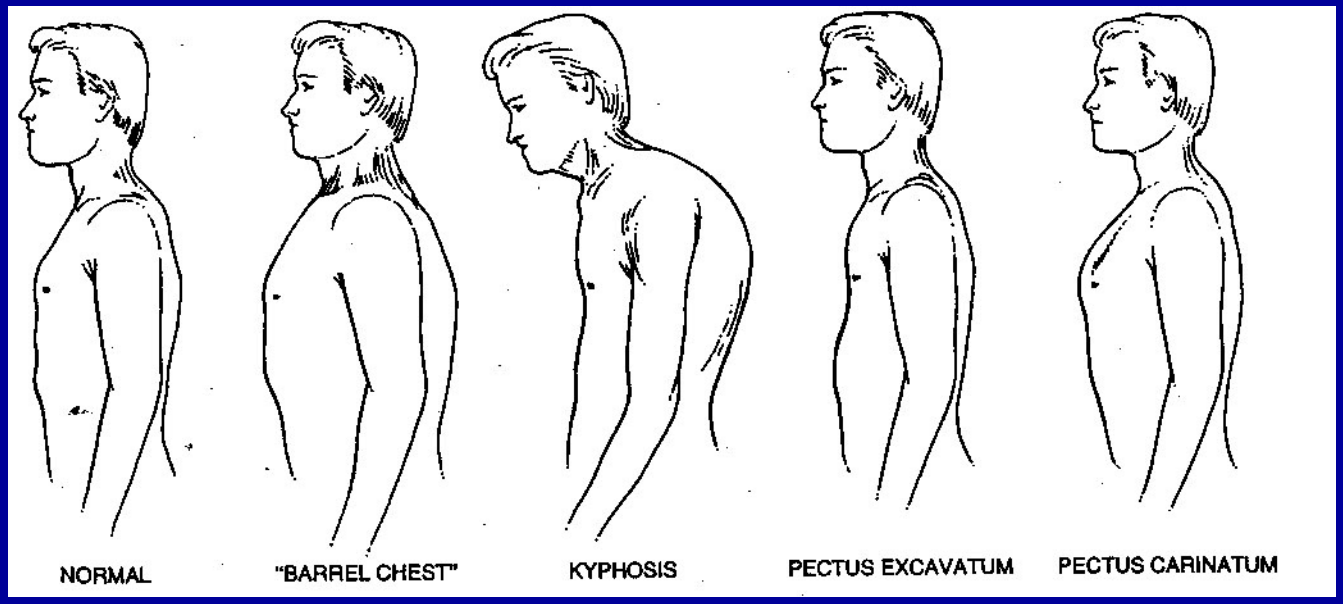
TOPOGRAPHY OF THE BACK



LOOK AT THE PATIENT

- RESPIRATORY DISTRESS
- ANXIOUS
- CLUTCHING
- ACCESSORY MUSCLES
- CYANOSIS
- GASPING
- STRIDOR
- CLUBBING

TYPES OF BODY HABITUS



WHAT IS A BARRELL CHEST?

- THORACIC INDEX – RATIO OF THE ANTERIORPOSTERIOR TO LATERAL DIAMETER NORMAL 0.70 – 0.75 IN ADULTS - >0.9 IS CONSIDERED ABNORMAL
- NORMALS - ILLUSION
- COPD

AM J MED 25:13-22,1958

PURSED – LIPS BREATHING

- COPD – DECREASES DYSPNEA
- DECREASES RR
- INCREASES TIDAL VOLUME
- DECREASES WORK OF BREATHING

CHEST 101:75-78, 1992

WHITE NOISE (NOISY BREATHING)

- THIS NOISE CAN BE HEARD AT THE BEDSIDE WITHOUT THE STETHOSCOPE
- LACKS A MUSICAL PITCH
- AIR TURBULENCE CAUSED BY NARROWED AIRWAYS
- CHRONIC BRONCHITIS

CHEST 73:399-412, 1978

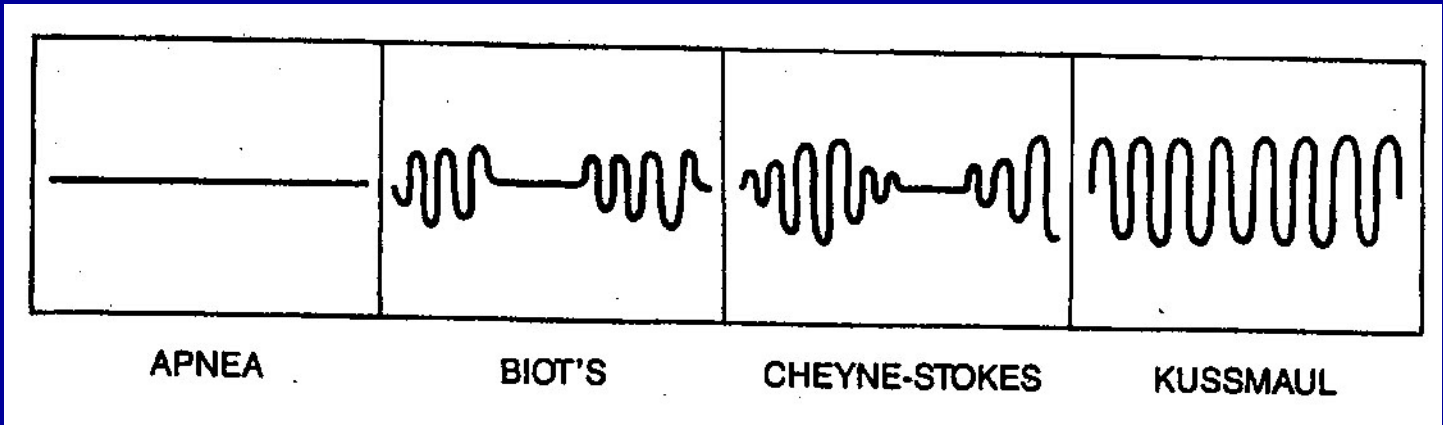
RESPIRATORY ALTERNANS

- NORMALLY BOTH CHEST AND ABDOMEN RISE DURING INSPIRATION
- PARADOXICAL RESPIRATION IMPLIES THAT DURING INSPIRATION THE CHEST RISES AND THE ABDOMEN COLLAPSES
- IMPENDING MUSCLE FATIGUE

DO NOT FORGET THE TRACHEA

- TRACHEAL DEVIATION
- AUSCULTATE - STRIDOR
- TRACHEAL TUG (OLIVERS SIGN) – DOWNWARD DISPLACEMENT OF THE CRICOID CARTILAGE WITH VENTRICULAR CONTRACTION – OBSERVED IN PATIENTS WITH AN AORTIC ARCH ANEURYSM
- TRACHEAL TUG (CAMPBELL'S SIGN) – DOWNWARD DISPACEMENT OF THE THYROID CARTILAGE DURING INSPIRATION – SEEN IN PATIENTS WITH COPD

ABNORMAL BREATHING PATTERNS



APNEA - CARDIAC ARREST

BIOTS – INCREASED INTRACRANIAL PRESSURE – DRUGS- MEDULLA

CHEYNE STOKES – CONGESTIVE HEART FAILURE – DRUGS – CEREBRAL

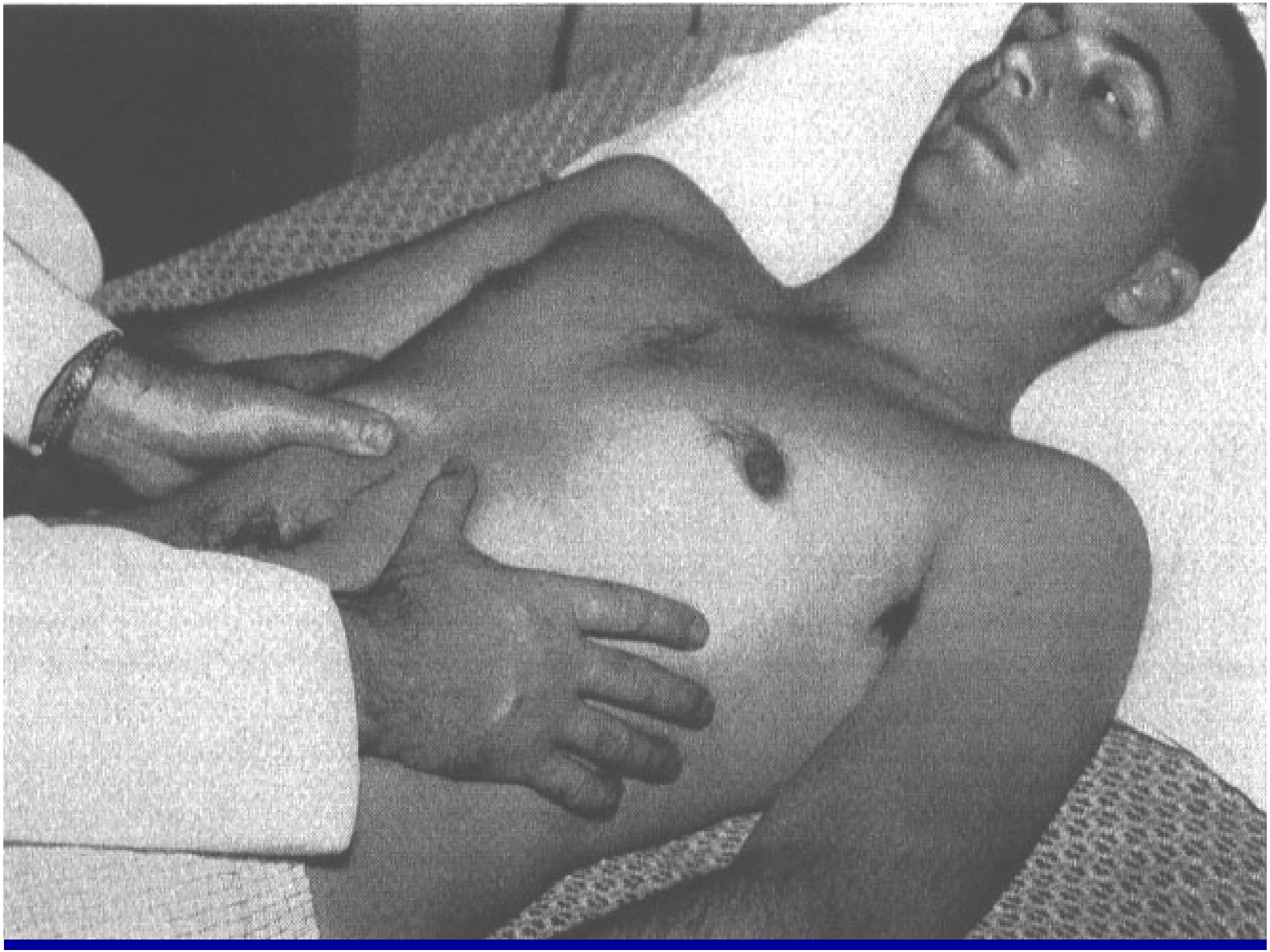
KUSSMAULS – METABOLIC ACIDOSIS

HOOVERS SIGN

- COPD
- IN COPD THE DIAPHRAGM MAY BE FLATTENED, DURING THE INSPIRATORY PHASE OF A BREATH THE RIBS ARE PULLED INWARD AND MEDIALLY RATHER THAN OUTWARD AND LATERALLY

THORACIC EXPANSION

- ASYMETRY IN EXPANSION OF THE THORAX CAN BE DETECTED DURING INSPECTION OF THE CHEST
- DURING PROMPTED INHALATION OBSERVE THE MOVEMENT OF THE THORAX
- PLEURAL EFFUSION, PNEUMOTHORAX



COPD

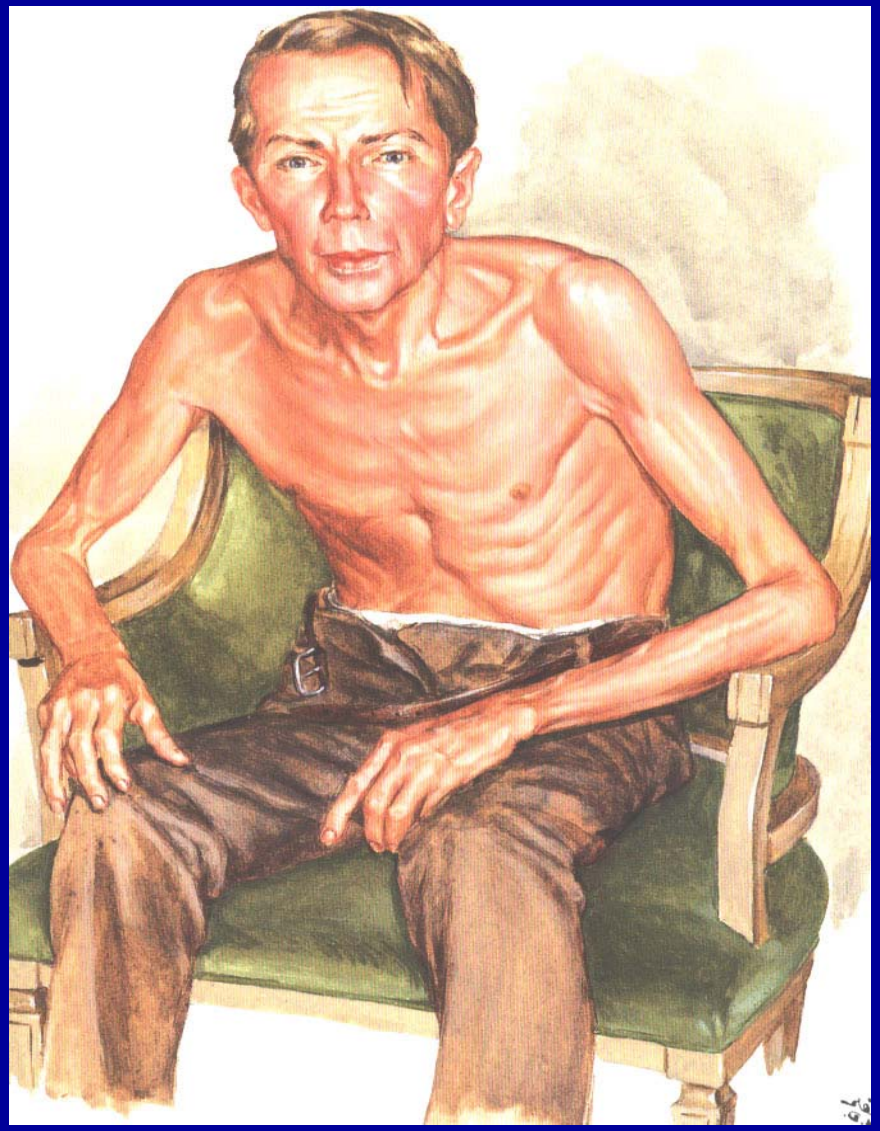
PINK PUFFERS

BLUE BLOATERS

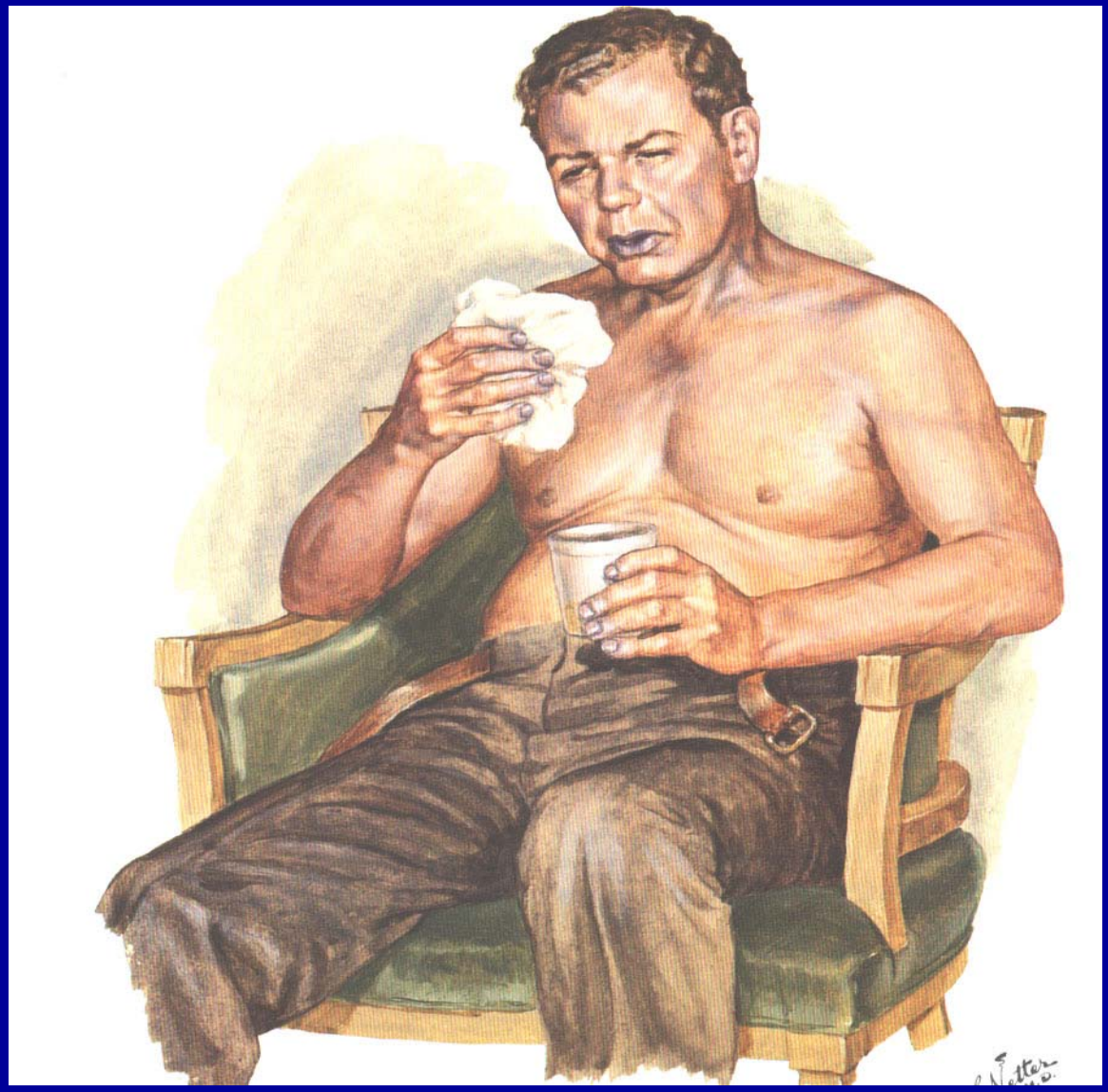
DAHL'S SIGN

NICOTINE STAINS

SMOKERS FACE



THORAX 38:595-600, 1983



BLUE BLOATER

PALPATION

- FEELING WITH THE HAND – FINGERTIPS
- TEXTURES
- DIMENSIONS
- CONSISTENCY
- TEMPERATURE
- EVENTS

PERCUSSION

TWO TECHNIQUES

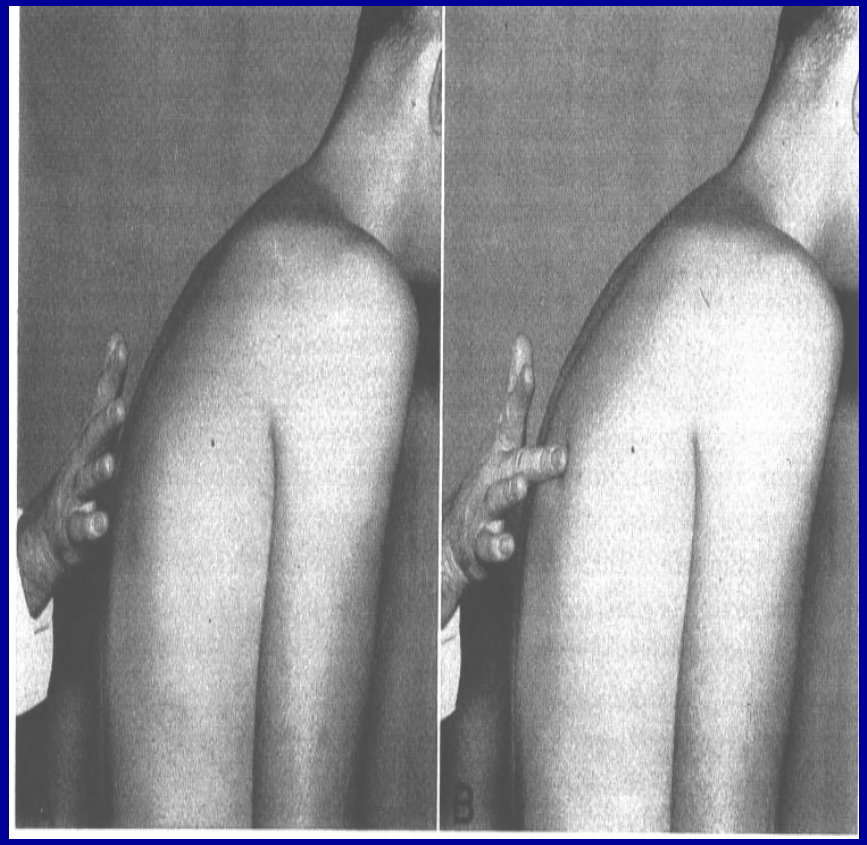
- DIRECT – BLOW LANDS DIRECTLY ON THE CHEST
- INDIRECT – PLESSIMETER - USUALLY THE MIDDLE FINGER

THREE TYPES

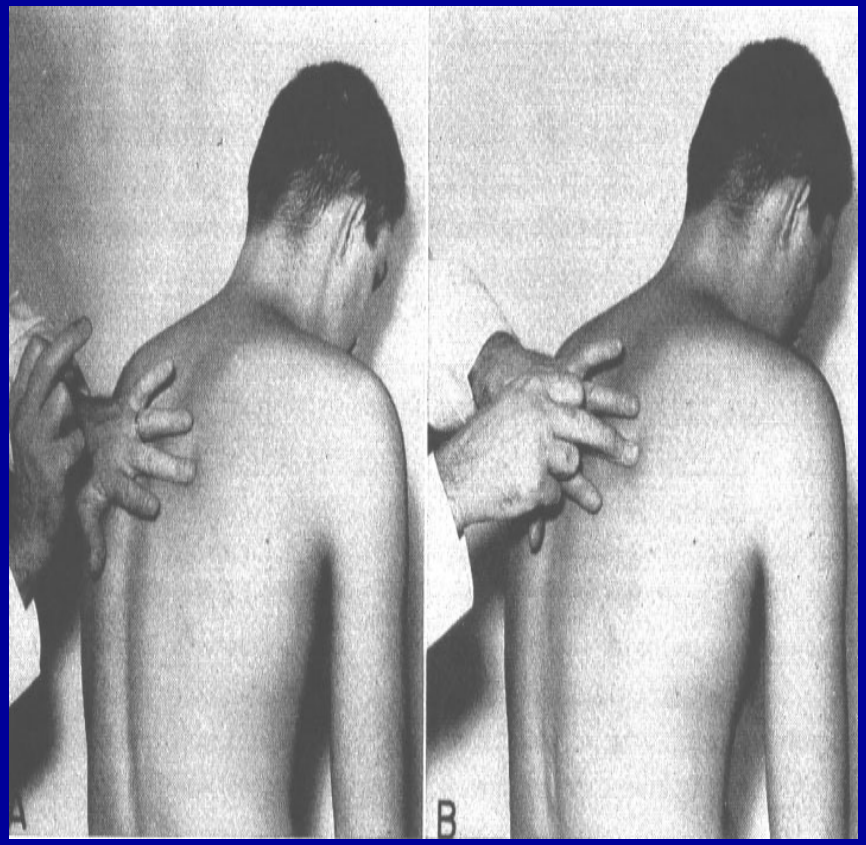
- COMPARATIVE
- TOPOGRAPHIC
- AUSCULATORY

DISEASE A MONTH 41:643-692,1995

METHODS OF PERCUSSION



DIRECT



INDIRECT

DISEASE A MONTH 41;643-692:1995

PERCUSSION SOUNDS

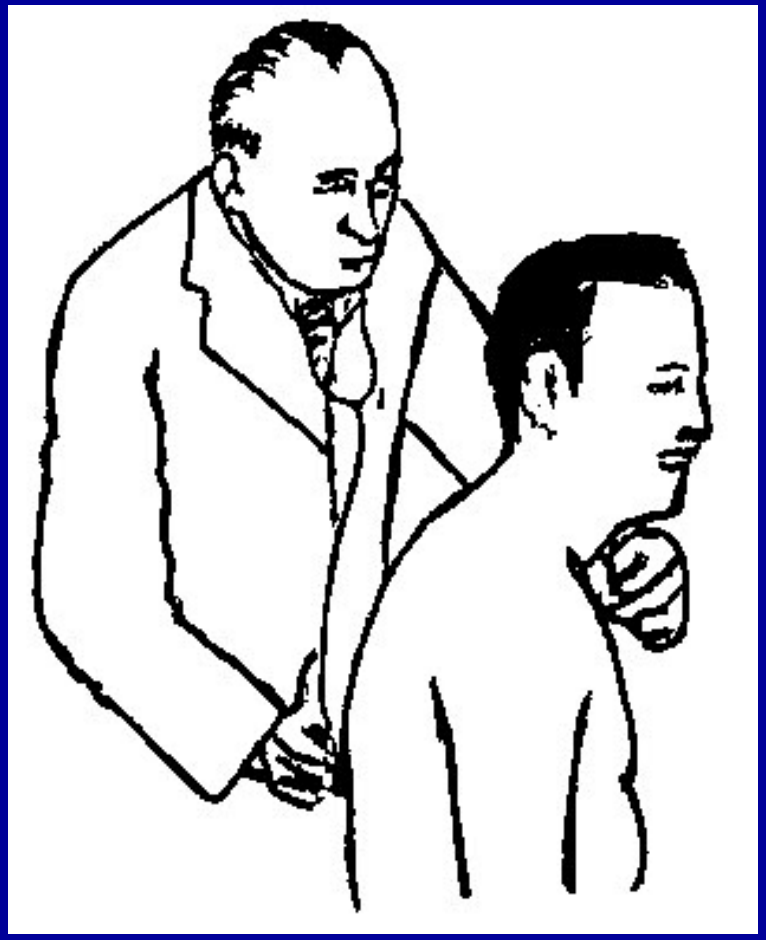
- TYMPANY – HEARD OVER THE ABDOMEN
- RESONANCE – HEARD OVER NORMAL LUNG
- DULLNESS – HEARD OVER LIVER OR THIGH

AUSCULTATORY PERCUSSION

METHOD

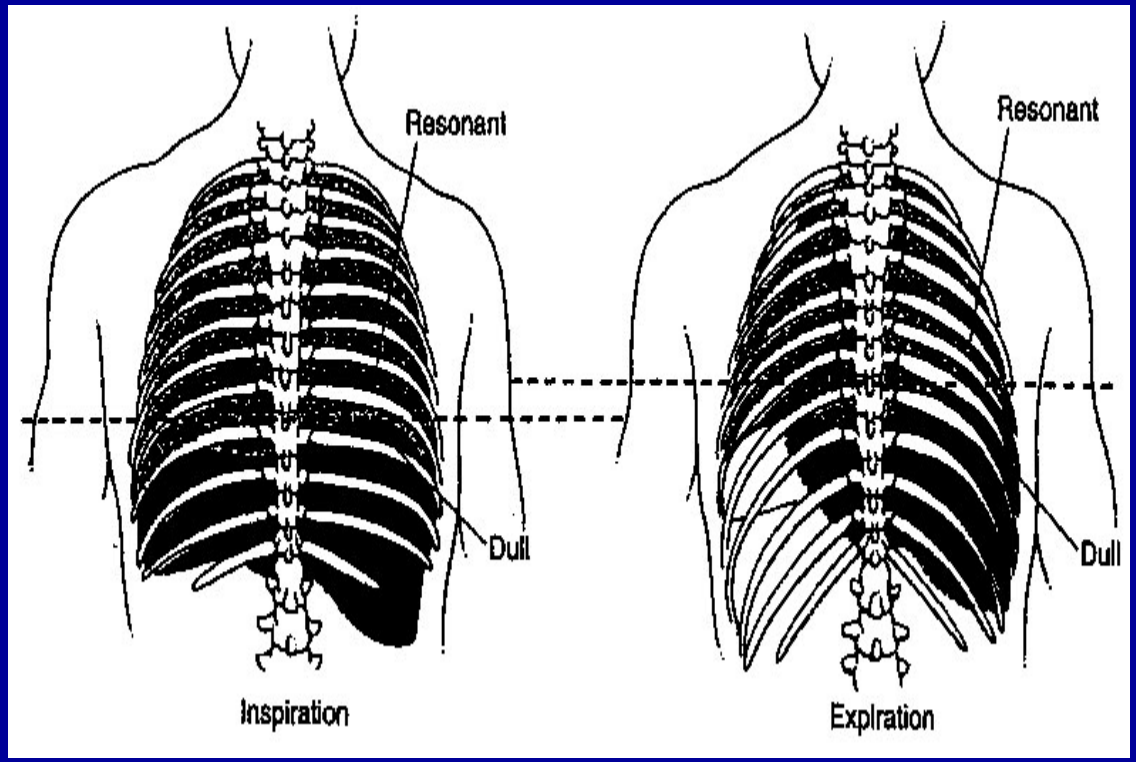
THE STETHOSCOPE IS PLACED OVER THE POSTERIOR CHEST WALL, THE CLINICIAN THEN TAPS LIGHTLY OVER THE MANUBRIUM, EQUIVALENT SOUNDS SHOULD BE HEARD OVER CORRESPONDING AREAS OF THE LUNG. ASYMETRY SUGGESTS DISEASE.

AUSCULTATORY PERCUSSION



MANGIONE *PHYSICAL DIAGNOSIS SECRETS* 2000

TOPOGRAPHIC PERCUSSION



METHOD

TRANSITION POINT BETWEEN DULLNESS AND RESONANCE AT FULL INSPIRATION AND EXPIRATION

DIAPHRAGMATIC EXCURSION IS THE DISTANCE BETWEEN THESE TWO POINTS

NORMAL 3 – 6 CM

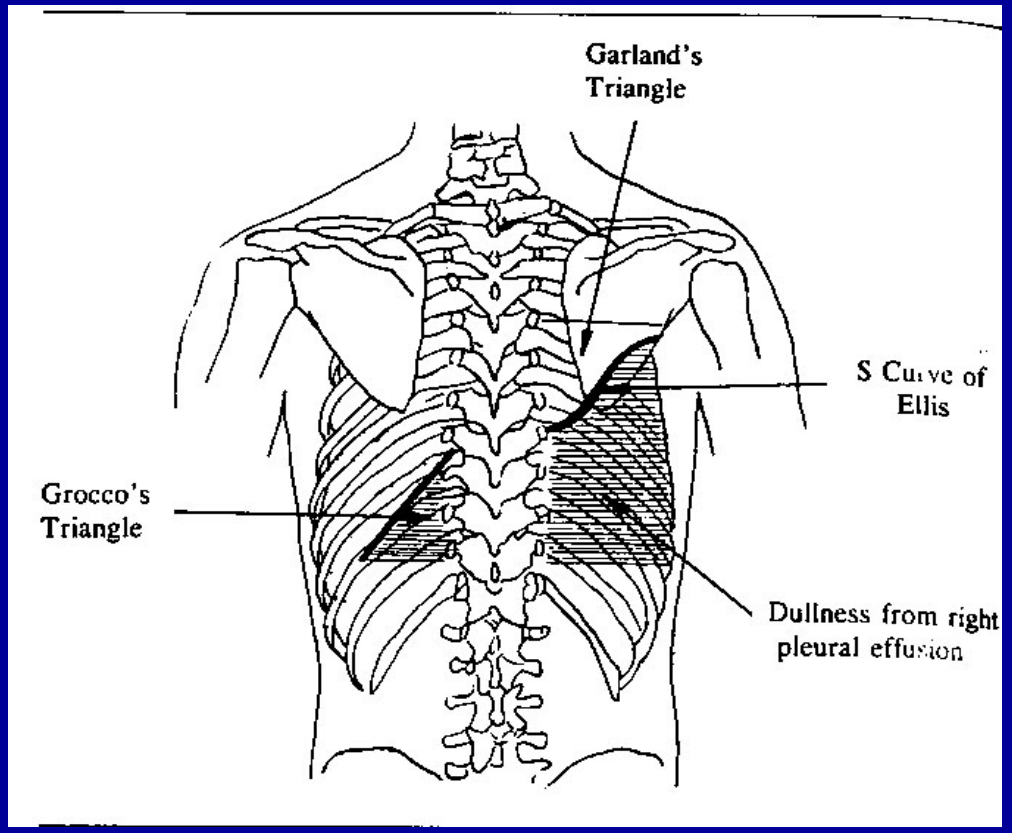
LONG FORGOTTEN PERCUSSION TERMS

- SKODAIC RESONANCE – HYPERRESONANT SOUND GENERATED BY PERCUSSION OF THE CHEST ABOVE A PLEURAL EFFUSION

- GROCCO'S TRIANGLE – RIGHT - ANGLED TRIANGLE OF DULLNESS FOUND OVER THE POSTERIOR REGION OF THE CHEST OPPOSITE A LARGE PLEURAL EFFUSION

DISEASE A MONTH 41:643-692, 1995

GROCCO'S TRIANGLE



DISEASE A MONTH 41;643-692:1995

MAIN SYMPTOMS OF PULMONARY DISEASE

- COUGH
- DYSPNEA
- HEMOPTYSIS
- CHEST PAIN – PLEURITIC
- WHEEZING
- CYANOSIS
- SPUTUM PRODUCTION

WHAT QUESTIONS SHOULD BE ASKED WHEN PRESENTED WITH A SPECIFIC SYMPTOM? *COUGH*

- QUALITY
- QUANTITY
- CHRONOLOGY
- SETTING
- AGGRAVATING FACTORS
- ALLEVIATING FACTORS
- ASSOCIATED MANIFESTATIONS
- LOCATION

ALWAYS DESCRIBE THE COUGH

- PRODUCTIVE – NONPRODUCTIVE
- ACUTE – CHRONIC
- TIME OF DAY
- PRECIPITANTS – RELIEF
- BLOODY – NON BLOODY
- BARKING – HACKY

WHEEZING

- ASTHMA
- BRONCHITIS
- VOCAL CORD DYSFUNCTION
- FOREIGN BODY ASPIRATION
- INFECTIONS – CROUP LARYNGITIS
- CONGESTIVE HEART FAILURE
- COPD
- FORCED EXPIRATION IN NORMAL SUBJECTS
- CYSTIC FIBROSIS

NOT ALL THAT WHEEZES IS ASTHMA

THE NUMEROUS ETIOLOGIES OF CHEST PAIN

- PLEURITIC – PARIETAL PLEURA – SHARP STABBING – INSPIRATION
- ESOPHAGEAL – REFLUX
- CARDIAC – MYOCARDIAL INFARCTION
- GALL BLADDER – CHOLECYSTITIS
- CHEST WALL – COSTOCHONDRITIS
- GREAT VESSELS – DISSECTION
- PULMONARY - PNEUMOTHORAX

THE PNEA'S

- DYSPNEA – SOB - IS NOT THE SAME AS TACHYPNEA - RR > 25 BR/MIN
- BRADYPNEA - RR< 8 BR/MIN
- PND - PAROXYSMAL NOCTURNAL DYSPNEA SUDDEN ONSET OF SOB DURING SLEEP
- ORTHOPNEA – SOB LYING FLAT
- PLATYPNEA – SOB SITTING UP AND BETTER LYING FLAT
- TREPOPNEA – SHORTNESS OF BREATH IN ONE LATERAL DECUBITUS POSITION WHICH IS IMPROVED BY TURNING ON THE OPPOSITE SIDE

SPUTUM - WHAT ARE ITS CHARACTERISTICS ?

- YELLOW – GREEN
- RUSTY
- CURRANT JELLY
- PINK – BLOOD TINGED
- FROTHY
- BLOODY
- SMELL – FOUL?

HEMOPTYSIS REQUIRES CAREFUL QUESTIONING

- THIS SYMPTOM USUALLY DENOTES A SERIOUS ILLNESS. TB, TUMOR, BRONCHIECSTASIS, PE, CARDIAC DISEASE
- THE PATIENT SHOULD BE QUESTIONED CAREFULLY REGARDING HOW MUCH, FREQUENCY WEIGHT LOSS ETC.

CLUES TO DIFFERENTIATING HEMOPTYSIS FROM HEMATEMESIS

HEMOPTYSIS	HEMATEMESIS
COUGH	NAUSEA – VOMITING
FROTHY	NOT FROTHY
COLOR- BRIGHT RED	COFFEE GROUNDS
PUS	FOOD
DYSPNEA	NAUSEA
CARDIAC DISEASE	GI DISEASE

CYANOSIS

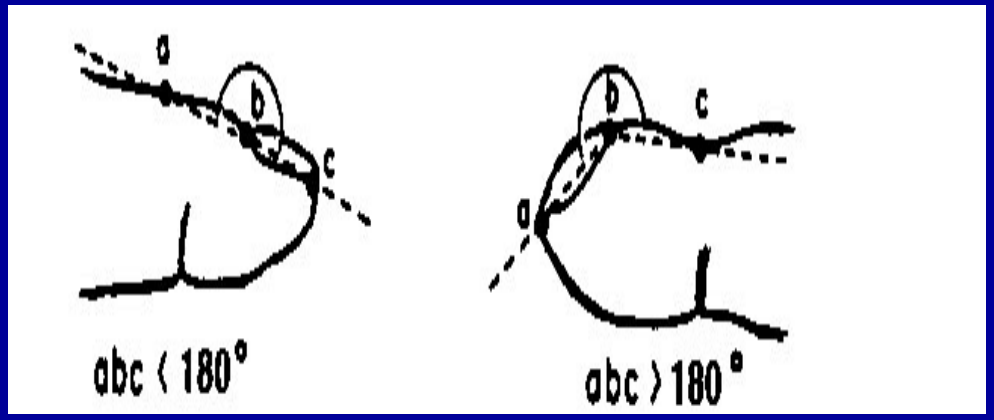
- PERIPHERAL – HANDS, FEET – WARMING DECREASES CYANOSIS – DECREASED CARDIAC OUTPUT
- CENTRAL- LIPS, TONGUE,SUBLINGUAL - RIGHT TO LEFT SHUNTS
- PSEUDOCYANOSIS – BLUE PIGMENTS IN SKIN - AMIODARONE

CRIT CARE NURS 13:66-72, 1993

CLUBBING

- PAINLESS – FINGERNAILS CURVED AND WARM
- ENLARGEMENT OF THE CONNECTIVE TISSUES IN THE TERMINAL PHALANGES OF THE FINGERS >TOES
- HEREDITARY
- DISEASE – INTERSTITIAL FIBROSIS, TUMOR, BRONCHIECSTASIS, HEART DISEASE,ENDOCARDITIS
- OCCASIONALLY ASSOCIATED WITH HYPERTROPHIC OSTEOARTHROPATHY

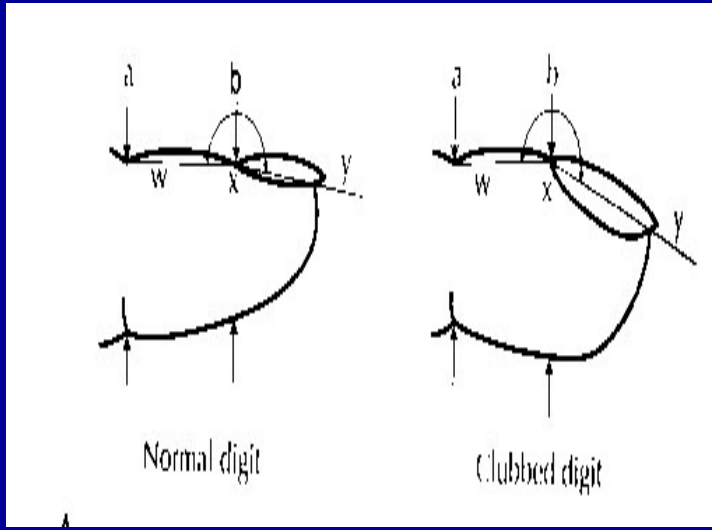
CLUBBING



LOVIBOND'S ANGLE – THE ANGLE BETWEEN THE BASE OF THE NAIL AND SURROUNDING SKIN.

CLIN CHEST MED 8:287-298,1987

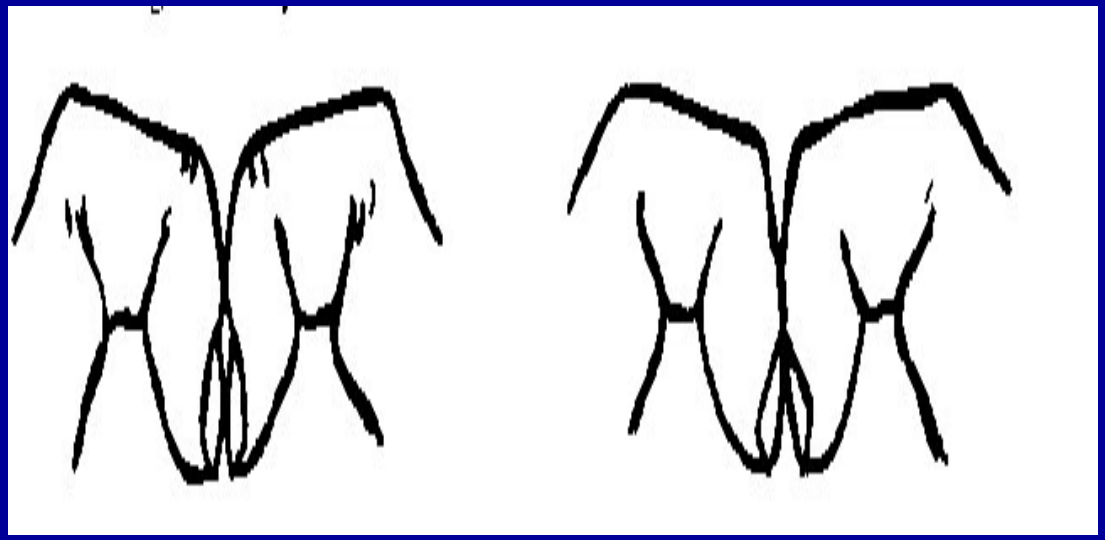
CLUBBING



INTERPHALANGEAL DEPTH IS THE RATIO OF THE DIGITS DEPTH MEASURED AT B DIVIDED BY THAT AT A. O.9 normal 1.2 CLUBBED A RATIO > 1 INDICATES CLUBBING (B-distal phalangeal depth A- interphalangeal joint depth)

HYPONYCHIAL ANGLE IS THE ANGLE W XY. AN ANGLE > 190 DEGREES INDICATES CLUBBING. 185 DEGREES NORMAL – 200 DEGREES CLUBBED

CLUBBING



SCHAMROTH'S SIGN – LOSS OF THE SUBUNGUAL ANGLE

CLIN CHEST MED 8:287-298,1987

LUNG SOUNDS

BREATH SOUNDS

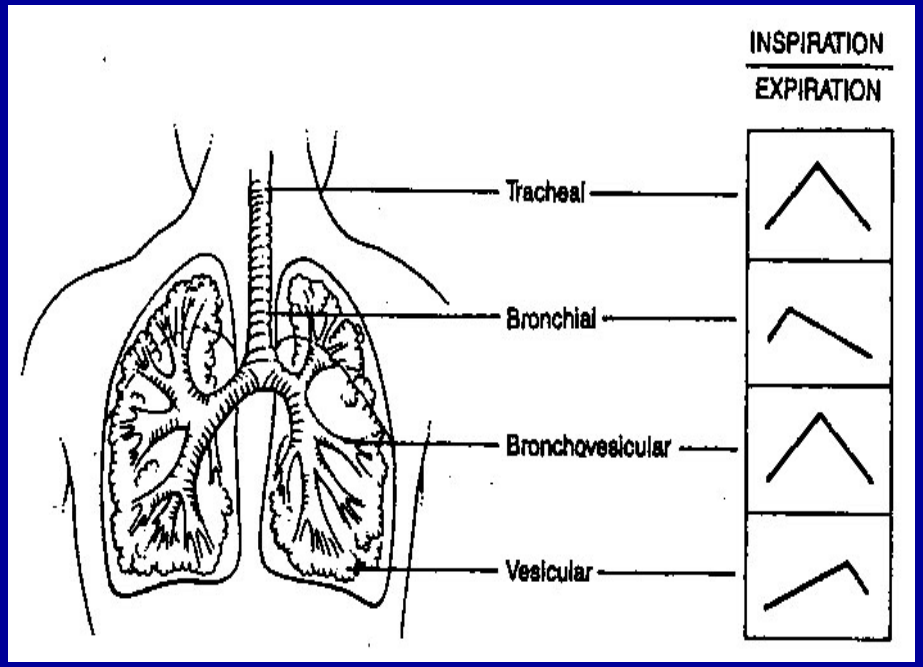
ADVENTITIOUS

BREATH SOUNDS

- VESICULAR – NORMAL BREATH SOUNDS - SITE OF PRODUCTION THE ALVEOLI
- TRACHEAL – TUBULAR – LIKE BLOWING AIR THROUGH A HOLLOW TUBE – PHYSIOLOGIC
- BRONCHIAL – TUBULAR - *ALWAYS PATHOLOGIC WHEN THEY OCCUR OVER POSTERIOR OR LATERAL CHEST WALL*
- BRONCHOVESICULAR – CHARACTERISTICS OF BOTH VESICULAR AND TUBULAR – DO THEY EXIST?
- ADVENTITOUS – EXTRA SOUNDS

BREATH SOUNDS

TIMING



CHARACTERISTIC	TRACHEAL	BRONCHIAL	BV	VESICULAR
INTENSITY	VERY LOUD	LOUD	MODERATE	LOW
I:E RATIO	1:1	1:3	1:1	3:1

ADVENTITIOUS SOUNDS

- THESE ARE SOUNDS HEARD DURING AUSCULTATION OTHER THAN BREATH SOUNDS OR VOCAL RESONANCE
- NOMENCLATURE – HAS BEEN CONFUSING
- CRACKLES – DISCONTINUOUS SOUNDS
- WHEEZES AND RHONCHI – CONTINUOUS SOUNDS

ATS NEWS 3:5-6,1977

SEMIN RESPIR MED 6:210-219,1985

ADVENTITIOUS LUNG SOUNDS (BRUITS ETRANGERS – FOREIGN SOUNDS)

- WHEEZE – HIGH PITCHED
- RHONCHI – LOW PITCHED
- CRACKLE ⟺ RALES - HAIR VELCRO (FINE – COARSE)
- PLEURAL RUBS – CREAKING LEATHER
- STRIDOR

CRACKLES

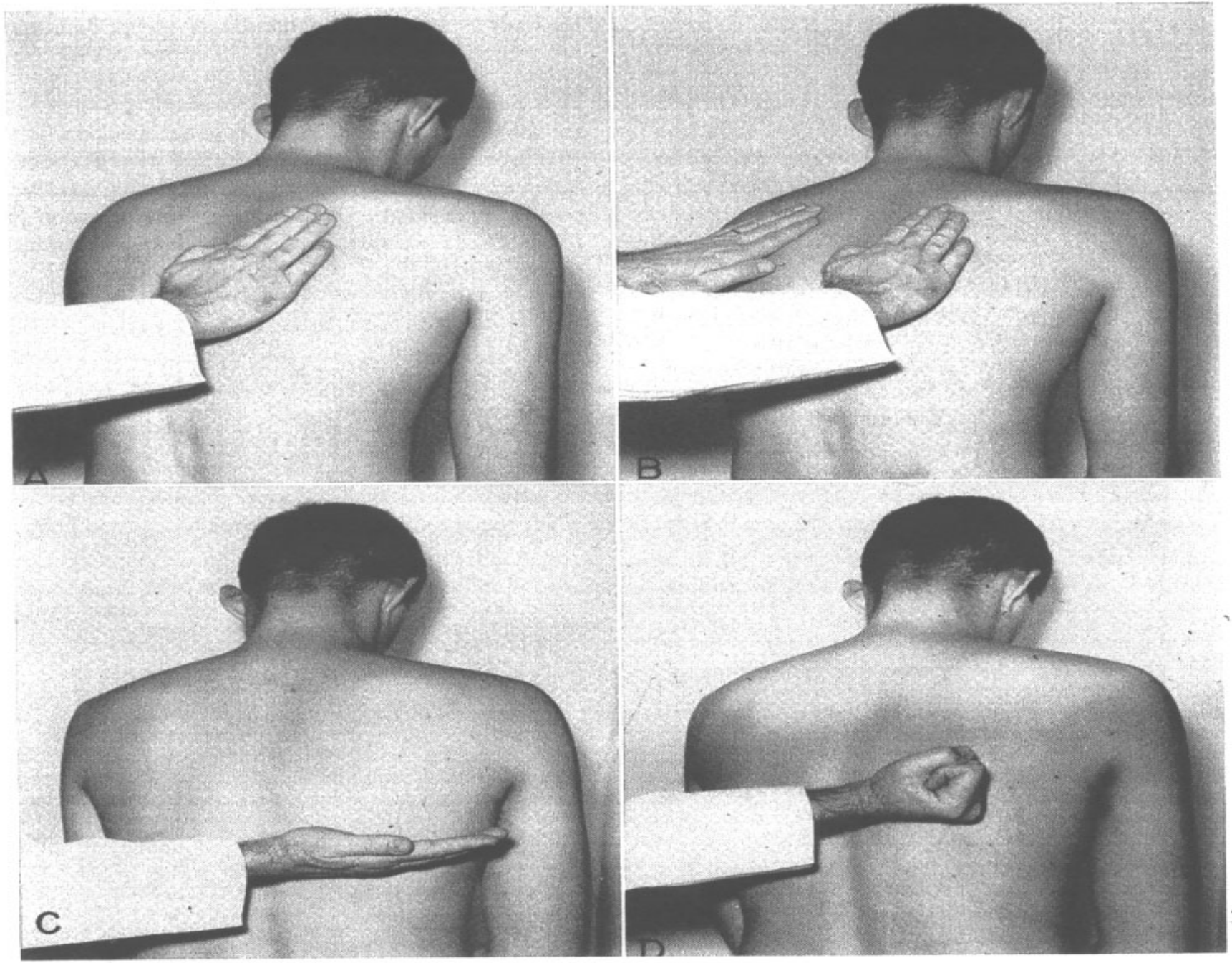
EARLY AND MID INSPIRATORY	LATE INSPIRATORY
COARSE	FINE
LOW PITCHED	HIGH PITCHED
CLEAR WITH COUGHING	DO NOT CLEAR WITH COUGHING
SCANTY	PROFUSE
GRAVITY IN DEPENDENT	GRAVITY DEPENDENT
TRANSMITTED TO THE MOUTH	POORLY TRANSMITTED TO THE MOUTH
ASSOCIATED WITH OBSTRUCTION	ASSOCIATED WITH RESTRICTION

BRONCHITIS-BRONCHIECSTASIS	INTERSTITIAL FIBROSIS - INTERSTITIAL EDEMA

FREMITUS = VIBRATION

TACTILE FREMITUS

- A THRILL OR VIBRATION WHICH IS FELT ON THE CLINICIANS HAND WHILE RESTING IT ON THE PATIENTS CHEST WALL AT T HE SAME TIME THE PATIENT SPEAKS. 99 – 1-2-3
- SYMETRY MAY BE SEEN IN NORMALS
- ASYMETRY – IS ABNORMAL


A
B
C
D

TACTILE FREMITUS

INCREASED

- PNEUMONIA

DECREASED

- PNEUMOTHORAX
- PLEURAL EFFUSION
- COPD
- FAT

VOCAL FREMITUS

- THE PATIENTS VOICE IS HEARD THROUGH A STETHOSCOPE PLACED ON THE PATIENTS CHEST – NORMALLY THE SOUNDS ARE INDISTINCT
- ABNORMALITIES – BRONCHOPHONY, PECTORILOQUY, EGOPHONY
- CONSOLIDATION

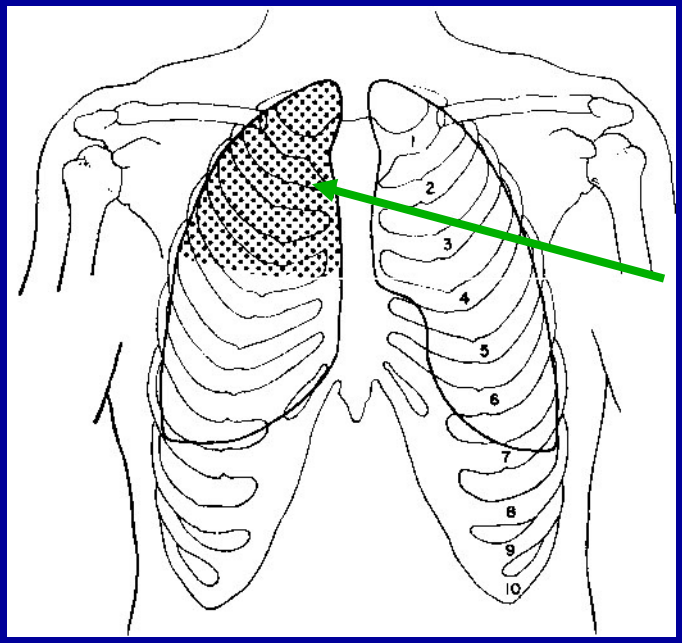
VOCAL FREMITUS

- BRONCHOPHONY – SOUND OF THE BRONCHI – SOUND MUCH LOUDER THAN NORMAL - WORDS INDISTINCT
- PECTORILOQUY – VOICE OF THE CHEST – WHISPER – WORDS INDISTINCT
- EGOPHONY – VOICE OF THE GOAT – BLEATING - E – A CHANGES – COMPARE SIDE TO SIDE
- REMEMBER - ALL SUGGEST **CONSOLIDATION** OF THE LUNG

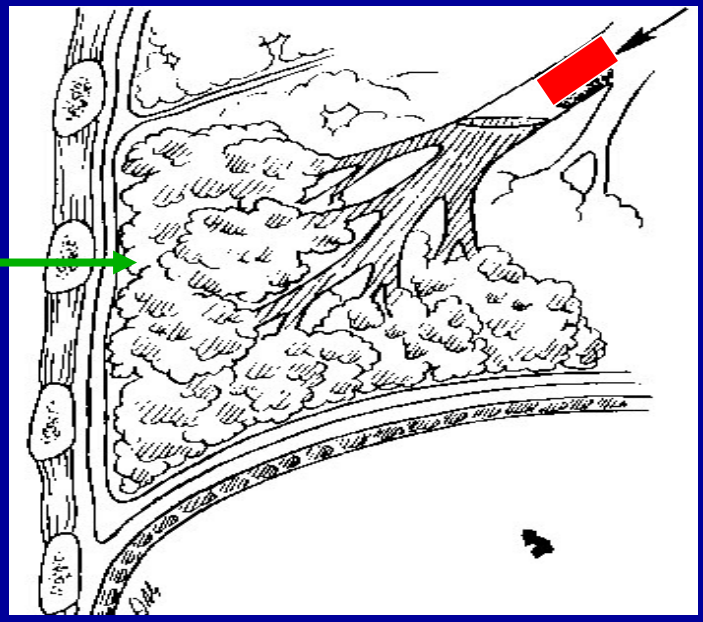
PUTTING IT ALL TOGETHER

- PNEUMONIA
- PNEUMOTHORAX
- PLEURAL EFFUSION
- ASTHMA

PNEUMONIA



PNEUMONIA



INSPECTION – SPLINTING

PALPATION – INCREASED FREMITUS

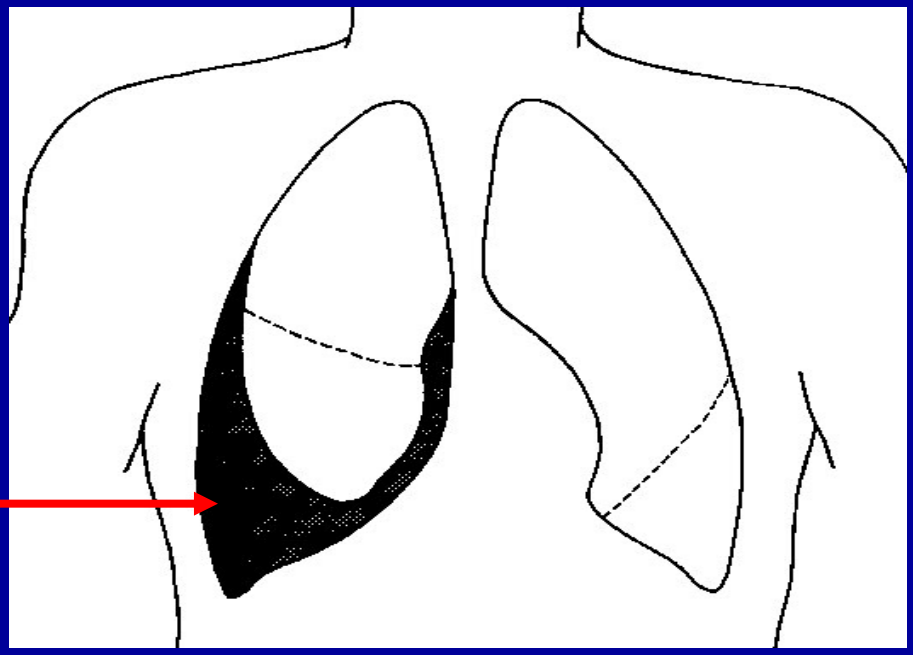
PERCUSSION – DULL

AUSCULTATION – BRONCHIAL BREATH SOUNDS, CRACKLES, EGOPHONY, PECTORILOQUY, RHONCHI

ENDOBRONCHIAL **OBSTUCTION** MAY MASK THE USUAL PHYSICAL FINDINGS OF PNEUMONIA

PLEURAL EFFUSION

PLEURAL EFFUSION



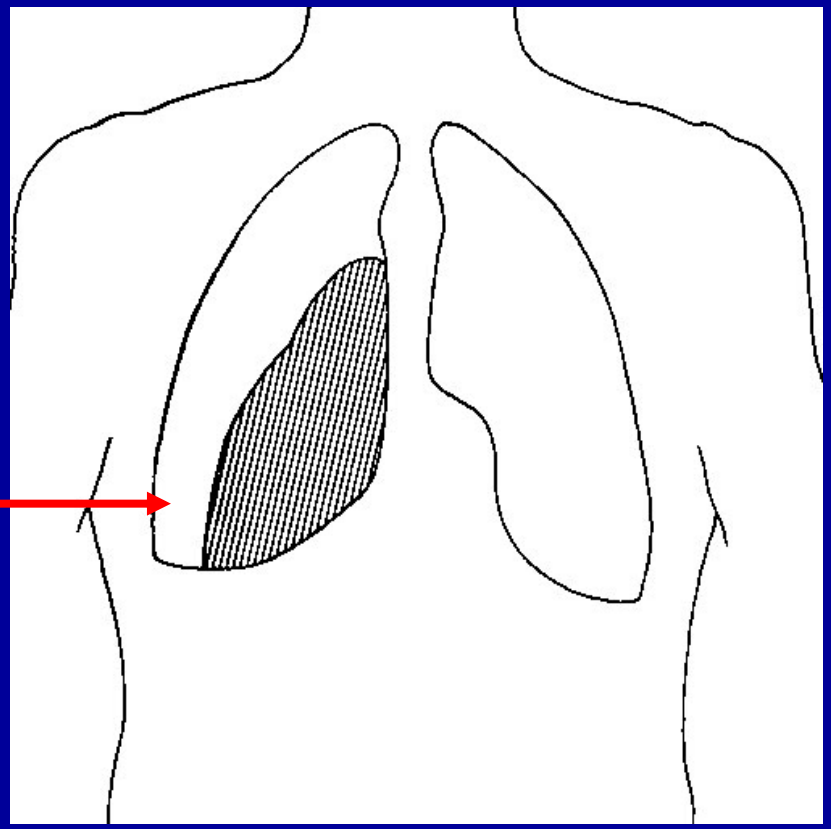
INSPECTION – LAG AFFECTED SIDE

PALPATION – ABSENT FREMITUS

PERCUSSION – FLAT, DULL

AUSCULTATION – ABSENT OVER EFFUSION, BRONCHIAL IMMEDIATELY ABOVE EFFUSION, RUB OCCASIONALLY

PNEUMOTHORAX



INSPECTION – LAG AFFECTED SIDE

PALPATION – ABSENT FREMITUS

PERCUSSION – TYMPANIC

AUSCULTATION – ABSENT BREATH SOUNDS

ASTHMA

INSPECTION – ACCESSORY MUSCLES, UNCOMFORTABLE

PALPATION – DECREASED FREMITUS

PERCUSSION – HYPERRESONANCE

AUSCULTATION – PROLONGED INSPIRATORY AND EXPIRATORY WHEEZES