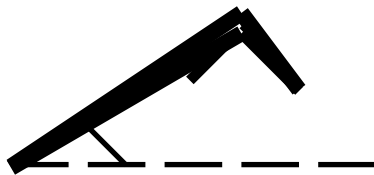


BREATH SOUNDS REVIEW

I. Definition

Breath sounds are the sounds produced by the movement of air throughout the respiratory tract. These sounds vary in their specific characteristics depending upon the area of the thorax being auscultated and whether or not the underlying lung is diseased.

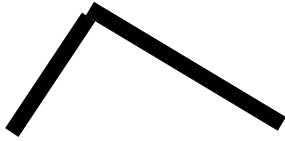
II. Breath Sounds Diagram



- INSPIRATION** - represented by upstroke
- EXPIRATION** - represented by downstroke
- DURATION** - represented by the length of stroke
- AMPLITUDE** - represented by the thickness of the stroke
- PITCH** - represented by the angle of the upstroke

III. Types of Breath Sounds

A. BRONCHIAL



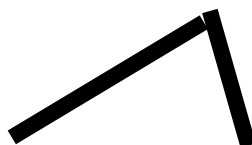
1. Short inspiratory phase and louder expiratory phase.
Brief pause between inspiratory and expiratory phase.
High pitched sounds, loud, harsh, and tubular.
Anteriorly over the trachea.
Not normally heard over lung tissue.

BRONCHOVESICULAR



1. Heard normally over areas of the thorax where the major bronchi are close to the chest wall:
 - a. either side of the sternum
 - b. between the scapula
2. Inspiration and expiration are equal in duration and intensity.
3. “Blowing” sounds created by air moving over larger airways.

C. VESICULAR



1. Heard over peripheral lung tissue – best heard at base of lungs.
2. Softest of breath sounds with a swishing, “gentle sighing” quality.
3. Long inspiratory phase and short expiratory phase.
4. Air moving through smaller airways (bronchioles and alveoli)

BREATH SOUNDS

NORMAL SOUNDS

- Bronchial**
Pitch: High
Intensity: Loud, predominantly on expiration
Normal Findings: A sound like air blown through a hollow tube, heard over suprasternal area and lower trachea mainstem bronchus.
Abnormal Findings: If heard over peripheral lung, may indicate atelectasis or consolidation.
- Bronchovesicular**
Pitch: Moderate
Intensity: Moderate
Normal Findings: A blowing sound heard over airways on either side of sternum, at angle of Louis, and between scapulae.
Abnormal Findings: If heard over peripheral lung, may indicate consolidation.
- Vesicular**
Pitch: High on inspiration, low on expiration
Intensity: Loud on inspiration, soft to absent on expiration
Normal Findings: Quiet, rustling sounds, heard over periphery
Abnormal Findings: If decreased over periphery, may indicate early pneumonia, emphysema, pneumothorax, pleural effusion, or atelectasis

ADVENTITIOUS SOUNDS

- Crackles (Rales)**
Where to Auscultate: Over lung field and airways; heard commonly in bases of lower lung lobes
Timing: More obvious during inspiration
Cause: Air passing through fluid or mucus in any air passage
Description: Light crackling, bubbling, high-pitched
- Gurgles (Rhonchi)**
Where to Auscultate: Over larger airways
Timing: More pronounced during expiration
Cause: Airways narrowed by bronchospasm or secretions
Description: Coarse rattling, gurgling, harsh, moaning or snoring quality
May be cleared by cough
- Wheezes:**
Where to Auscultate: Overall lung fields and airways
Timing: Inspiration or expiration
Cause: Air passing through narrowed airways
Description: Creaking, whistling, high-pitched, musical squeaks
- Pleural Friction Rub:**
Where to Auscultate: Anterior and lateral side of lung fields
Timing: Inspiration
Cause: Inflamed parietal and visceral pleural surfaces rubbing together
Description: Grating or squeaking sounds