

Postural Drainage

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Postural drainage (bronchial drainage), an intervention for airway clearance, is a means of mobilizing secretions in one or more lung segments to the central airways by placing the patient in various positions so gravity assists in the drainage process.

- When secretions are moved from the smaller to the larger airways, they are then cleared by coughing or endotracheal suctioning.
- *Postural drainage therapy* also includes the use of manual techniques, such as percussion, shaking, and vibration, coupled with voluntary coughing.

GOALS

Prevent Accumulation of Secretions in Patients at Risk for Pulmonary Complications

- Patients with pulmonary diseases that are associated with increased production or viscosity of mucus, such as chronic bronchitis and cystic fibrosis
- Patients who are on prolonged bed rest
- Patients who have received general anesthesia and who may have painful incisions that restrict deep breathing and coughing postoperatively
- Any patient who is on a ventilator if he or she is stable enough to tolerate the treatment

Remove Accumulated Secretions from the Lungs

- Patients with acute or chronic lung disease, such as pneumonia, atelectasis, acute lung infections, COPD
- Patients who are generally very weak or are elderly
- Patients with artificial airways

Postural Drainage: Indications

- Difficulty with **secretion** clearance
- Adult having difficulty expectorating sputum volume greater than approximately **25 ml/day**
- **Atelectasis** caused by mucus plugging
- Presence of a **foreign body** in the airway

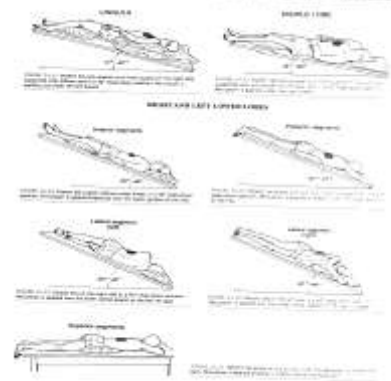
Relative Contraindications to PD

- Severe hemoptysis
- Untreated acute conditions
 - ✓ Severe pulmonary edema
 - ✓ Congestive heart failure
 - ✓ Large pleural effusion
 - ✓ Pulmonary embolism
 - ✓ Pneumothorax
- Cardiovascular instability
 - ✓ Cardiac arrhythmia
 - ✓ Severe hypertension or hypotension
 - ✓ Recent myocardial infarction
 - ✓ Unstable angina
- Recent neurosurgery
 - ✓ Head-down positioning may cause increased intracranial pressure; if PD is required, modified positions can be used

Remember The Anatomy!

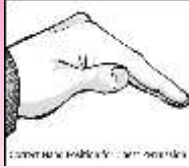


RIGHT AND LEFT UPPER LOBES



Percussion

- Percussion is used to augment mobilization of secretions by mechanically dislodging viscous or adherent mucus from the airways. Percussion is performed with cupped hands over the lung segment being drained.
- The therapist's cupped hands strike the patient's chest wall in an alternating, rhythmic manner
- The therapist should try to keep shoulders, elbows, and wrists loose and mobile during the maneuver.
- Mechanical percussion is an alternative to manual percussion techniques.
- Percussion is continued for several minutes or until the patient needs to alter position to cough. This procedure should not be painful or uncomfortable.
- Perform 2-5 minutes per lung segment



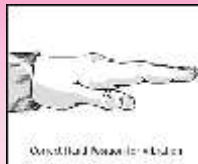
Relative Contraindications to Percussion

- Over fractures, spinal fusion, or osteoporotic bone
- Over tumor area
- If a patient has a pulmonary embolus
- If the patient has a condition in which hemorrhage could easily occur, such as in the presence of a low platelet count, or if the patient is receiving anticoagulation therapy
- If the patient has unstable angina
- If the patient has chest wall pain, for example after thoracic surgery or trauma



Vibration

- Vibration, another manual technique, often is used in conjunction with percussion to help move secretions to larger airways.
- It is applied *only during the expiratory phase* as the patient is deep-breathing.
- Vibration is applied by placing both hands directly on the skin and over the chest wall (or one hand on top of the other) and gently compressing and rapidly vibrating the chest wall as the patient breathes out. Pressure is applied in the same direction as the chest is moving.
- The vibrating action is achieved by the therapist isometrically contracting (tensing) the muscles of the upper extremities from shoulders to hands.



Shaking

- Shaking is a more vigorous form of vibration applied during exhalation using an intermittent bouncing maneuver coupled with wide movements of the therapist's hands.
- The therapist's thumbs are locked together, the open hands are placed directly on the patient's skin, and fingers are wrapped around the chest wall.
- The therapist simultaneously compresses and shakes the chest wall



Modified Postural Drainage

- Some patients who require postural drainage cannot assume or cannot tolerate the positions optimal for postural drainage.
- For example, a patient with congestive heart failure may exhibit indications of orthopnea (shortness of breath while lying flat).
- After neurosurgery a patient may not be allowed to assume a head-down (Trendelenburg) position because this position causes increased intracranial pressure.
- After thoracic surgery a patient may have chest tubes and monitoring wires that limit positioning. Under these circumstances and others, positioning during postural drainage must be modified.
- The positions in which postural drainage is undertaken are modified consistent with the patient's medical or surgical problems.