

Percussion & Vibrations

	Percussion	Vibrations
Description of technique	  <p>The technique, usually performed with two hands (depending on the size of the area), involves the rhythmical flexion and extension of the wrist onto the chest wall at a rate and pressure that is comfortable for the patient.</p> <p>The patient may be instructed to do tidal volume breaths or sets of thoracic expansion exercises followed by breathing control. Ideally there should be pauses after 20-30 seconds of continuous percussion and vibrations applied intermittently.</p> <p>5 breathes and reassess patient</p>	 <p>Vibration to the chest wall is the manual application of fine oscillatory movements, of high frequency, with chest compression timed with expiration.</p> <p>While vibration is being administered, the patient is instructed to take slow deep breaths (thoracic expansion exercises) to enhance the effect of airflow on the movement of secretions.</p> <p>As the patient breathes out, a rapid oscillatory movement is applied in the direction of the normal movement of the ribs and is transmitted through the chest using body weight.</p> <p>5 exhalations and reassess patient</p>
Used in conjunction with	<p><i>Percussions used when these other techniques don't work!</i></p> <p>Bronchodilator medication</p> <p>Vibrations</p> <p>Gravity assisted drainage position</p> <p>ACBT</p>	<p><i>Vibrations used when these other techniques don't work!</i></p> <p>Bronchodilator medication</p> <p>Percussions</p> <p>Gravity assisted drainage position</p> <p>ACBT</p>
Theorized effects of percussion or vibration	<p>The rationale for the technique is that the application of force to the chest wall alters the intrapleural pressure through an energy wave created by the mechanical force of the percussive.</p> <p>This pressure change is transmitted through to the lung tissue and assists in</p>	<p>Augments expiratory flow to help mobilize with secretions.</p>

	dislodging secretions from the airway wall.	
Indications	<p>Impaired airway clearance and retained secretions!</p> <p>When patient's can't participate in other airway clearance techniques.</p> <p>Patient is a little sicker.</p> <p>Patient must be awake for vibrations but not for percussions!</p> <p>Passive treatment option when patient is either too unwell or cognitively not capable of co-operating with more active airway clearance strategies such as positive expiratory pressure (PEP) therapy and huffing</p> <p>Infants who are not old enough to co-operate with voluntary breathing strategies</p> <p>Can be applied in intensive care to enhance secretion movement during hyperinflation maneuvers.</p>	
Contra-indications	<p>Osteoporosis</p> <p>Thoracic cardiac surgery</p> <p>Subcutaneous emphysema (air bubbles in the skin, air has escaped from some sort of lung pathology)</p> <p># ribs / rib pathology</p> <p>Thoracic / cardiac surgery</p> <p>Pain</p> <p>Frank haemoptysis</p> <p>Liver disease, coagulopathies, BMD deficiency</p> <p>Metastatic deposits</p> <p>Clotting disorders</p> <p>Loss of skin integrity (surgery, burns, wounds)</p>	
Precautions	COPD may trigger acute bronchospasms	

	Bronchospasm which can be triggered.
Objective measures after treatment	Auscultation Cough SPO2 Respiratory rate and work of breathing. Adverse changes to WOB.
Dosage	Till airway clearance. Cough is clear. 10-15 mins and combined with positioning.

Positive Expiratory Pressure (PEP)

PEP is the cornerstone of the many sputum clearance devices that patients can use to further improve their sputum clearance.

How does PEP work to clear sputum?

- Tomato sauce bottle where you need air behind the sauce to get it out.
- Equal pressure point principle which prevents dynamic airway collapse. So the airway doesn't collapse down to prevent the sputum coming out.

In what situations would you prescribe PEP over other forms of airway clearance?

- For outpatients. Too expensive to have on every ward.
- Patients chronic lung conditions with impaired airway clearance i.e. *CF*, *bronchiectasis*, *asthma*, *COPD*