

Airway Clearance Techniques, Evidence-informed Practice - Physiotherapy

The term “chest physiotherapy” is often mistakenly used to denote techniques that assist patients with removal of respiratory secretions. The preferable term is “*airway clearance techniques*” (ACT) as “chest physiotherapy” is a more global term that includes techniques that enhance ventilation in addition to those targeting secretion clearance.

Airway clearance techniques include: percussion, vibration, Active Cycle of Breathing Technique (ACBT), rib springing, autogenic drainage, postural drainage, assisted cough, forced exhalation technique, suction and use of mechanical devices such as Positive Expiratory Pressure (PEP), Intrapulmonary percussive ventilation (IPV), High-frequency chest wall compression (HFCWC), Oscillating PEP and mechanical insufflation-exsufflation.

Generally, ACT is indicated is for individuals whose function of the mucociliary clearance system and/or cough mechanics are altered and whose ability to mobilize and expectorate airways secretions is compromised (Volsko, 2013). The table below provides a summary of recommendations for ACT.

Summary of the evidence

Effective – ACT recommended
Mucus plugging with resulting collapse of alveoli
Resolving pneumonia in the presence of secretions that the patient cannot clear independently
Patients with acute exacerbation of COPD, who have secretions that cannot be cleared independently
Patients with Cystic Fibrosis who have secretions that cannot be cleared independently
Patients with neuromuscular conditions associated with a weak cough (especially when the cough peak flow is < 270 L/min) and secretions cannot be cleared independently
Patients with bronchiectasis who are unable to clear secretions independently
Conditions / situations in which there are increased secretions that the patient cannot clear independently
Ineffective – ACT not recommended
Pleural effusion
Pulmonary edema
Acute stage of pneumonia (during consolidation phase)
Patients with COPD who can effectively clear their own secretions

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Contraindicated

Specific airway clearance techniques may be contraindicated in certain situations. The physiotherapist will conduct a thorough assessment of each patient and will select the best method, considering patient's

No specific ACT has been found to be more effective than another and an individualised approach has been recommended (McIlwaine et al, 2017) that should take into account the patient's disease state, preference and motivation together with the physiological knowledge base of each ACT.

It is important to note that ACTs are only one component of effective management of patients with respiratory conditions involving retained secretions. Indeed, there is good evidence supporting early and progressive mobilization to reduce postop complications and promote airway clearance.

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