



RankenJordan
PEDIATRIC BRIDGE HOSPITAL

Chest Physical Therapy (CPT)

A roadmap to airway clearance

What is Chest Physical Therapy?

Chest Physical Therapy or CPT is a treatment used to help mobilize mucus out of the lungs. It is also referred to as airway clearance or bronchial hygiene therapy.

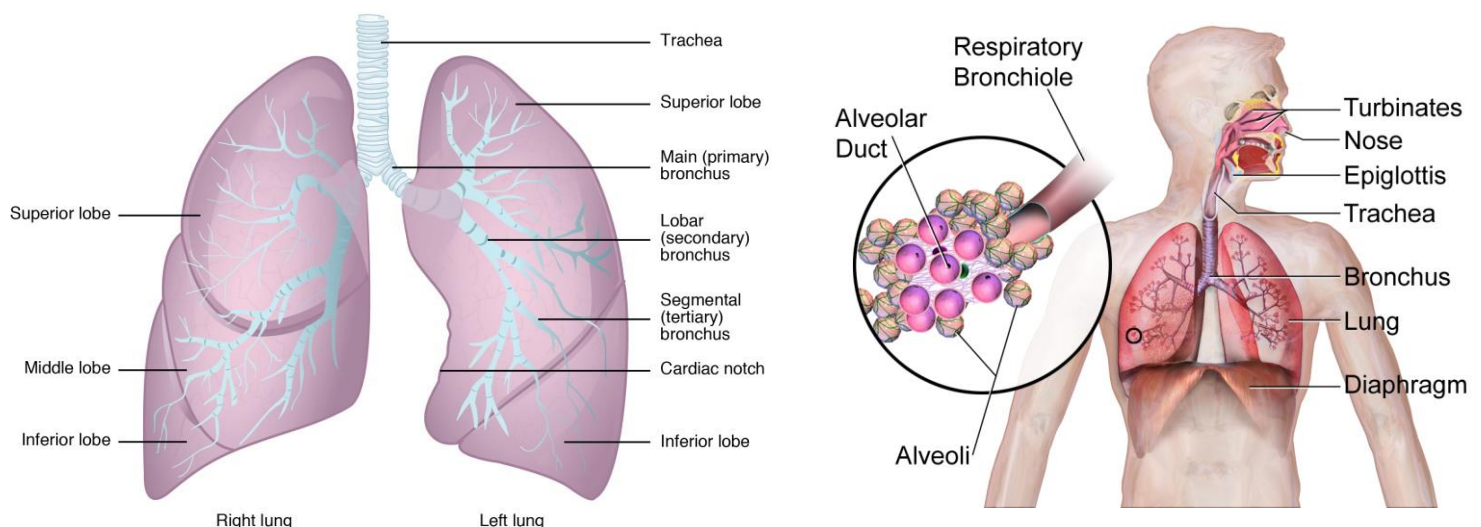
What kinds of CPT are there?

Postural Draining- This involves placing the person in different positions to drain areas of the lung. It is most effective when used in conjunction with another form of CPT (e.g., manual, percussion).

Manual CPT, Percussion, Vibration- This involves percussing (clapping) or vibrating the chest wall with various methods to move mucus into the larger airways to be coughed out or suctioned.

Important tips to follow when doing CPT on your child.

- Perform at least 1hr before meals or 2 hrs after meals.
- Prescribed bronchodilator therapy should be given 15 min before therapy.
- Use caution concerning any tubes or equipment connected to the patient as the patient changes position (ventilator, high humidity).
- Watch for signs of intolerance, monitor heart rate, oxygen saturation, increase work of breathing.
- Pillows and blankets can help with positioning.
- If your child is having a hard time breathing, has poor color, and is fighting the therapy—stop the treatment. Have child sit up, relax, and catch their breath before continuing.



Types of Airway Clearance

High-Frequency Oscillating Vest



Used on children > 3 yrs of age

How does it work?

An inflatable vest or wrap is attached to a machine that vibrates at a high frequency. These vibrations deliver rapidly repeating pulses of air that gently squeeze and release the upper body. This helps with loosening and thinning mucus from the lungs so it can be coughed or suctioned out.

Indications

Vest therapy is typically started on patients who are unable to effectively mobilize and cough out their own secretions. It may also be recommended for children with recurrent lung infections.

General Use (as ordered by Doctor)

Frequency of treatments: may range from once a day to every four hours

Length: May range from 10min - 30min

Hertz (how fast it vibrates): 5 - 25 Hz, typically structured with 3 different Hz frequencies per cycle (e.g., 8 Hz/5min, 10 Hz/5min, 12 Hz/5min). *Suction after each cycle or as needed.

Pressure (how much the vest inflates): 30-60%, smaller the child, the lower the pressure you want to choose.

Intermittent Percussive Ventilation (IPV)



How does it work?

The IPV creates short, rapid inspiratory flow pulses into the airway to help break down and loosen mucus in the lungs. This is done through the Phasitron nebulizer as seen in the picture on the left.

Indications

IPV therapy is typically started on patients who are unable to effectively mobilize and cough out their own secretions. It is most effective with patients who have an artificial airway like that of a tracheostomy tube. IPV is typically not used at home due to high associated costs compared to the Vest.

General Use (as ordered by Doctor)

Frequency of treatments: may range from once a day all to every four hours

Length: 12-15 minutes, 1 mL = 1 min (e.g., 3mL of Albuterol + 9mL of normal saline will last roughly 12 min)

Hertz (frequency): 1-11 Start at the fastest setting (11) and rotate dial counterclockwise every 2-3 min. If your child is not tolerating the lower Hz then rotate dial to a faster setting.

Pressure: Keep the working pressure <35 cmH20 to prevent lungs from being overdistended.

Manual CPT



Correct hand position for CPT

How does it work?

Chest percussion or clapping to various lung segments with cupped hands, mask, or mechanically with a motorized percussor.

Indications

Manual CPT is started on patients who are unable to effectively mobilize and cough out their own secretions. It is the cheapest form of CPT and its effectiveness is dependent upon the quality of percussions by caregiver.

General Use (as ordered by Doctor)

Frequency: may range from as needed all the way up to every four hours.

Length: Dependent on tenacity of secretions but limit total treatment time to 30min. Typical treatment is 2-3 min per lung segment.

*If using hands, when clapping, you should hear a “cupping” sound not a “slapping” sound.