

PRONE POSITIONING FOR REFRACTORY HYPOXEMIA



Prone positioning is a technique used to help improve oxygenation in clients with severe acute respiratory distress syndrome (ARDS) and refractory hypoxemia. Client is positioned on their abdomen. Prone positioning is generally reserved for ventilated clients, but may be considered for non-ventilated clients meeting criteria for hypoxia. Prone positioning is most effective when started in the early stages of ARDS (within first 36 hours).

Contraindications to prone ventilation

Spinal instability or at risk for (rheumatoid arthritis)	Anterior burns	Pregnancy
Unstable fractures (pelvic, facial)	Chest tubes	Shock
Raised intracranial pressure	Recent endotracheal surgery	Open wounds

How does prone positioning affect oxygenation? Prone positioning alters the mechanics and physiology of gas exchange in the lungs.

Due to gravity, fluid pools in the dependent alveoli in the lungs.

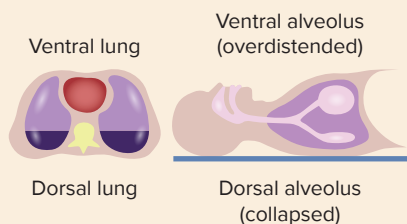


Dependent alveoli are more fluid-filled than air-filled.



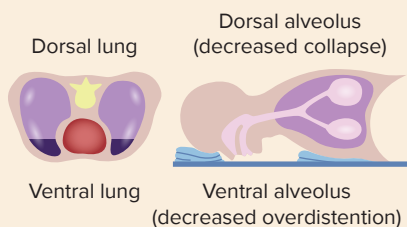
Prone position can help expand collapsed alveoli, which increases ventilation capacity and improves oxygenation.

Supine position

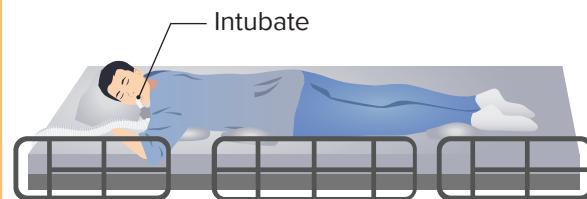


- Dependent alveoli are in the back (dorsal).
- The heart and mediastinum add increased pressure to the lungs, which can collapse the dorsal alveoli.
- The added pressure in this position can increase the risk of atelectasis.

Prone position



- Dependent alveoli are in the front (ventral).
- Fluid can shift from back to front.
- This shift in fluid can give the posterior alveoli the chance to recover.



Preparing for prone ventilation procedure

Check for contraindications.

Assemble sufficient team members and supplies for procedure, including team lead.

Consider possible adverse effects of prone positioning.

Explain the maneuver to the client and/or their family.

Confirm placement of endotracheal tube from recent imaging.

Inspect and confirm that the endotracheal tube and all catheters are firmly secured.

Consider exactly how the client's head, neck, and shoulder girdle will be supported after they are turned prone.

Stop tube feeding, cap or clamp the feeding and gastric tubes.

Prepare endotracheal suctioning equipment.

Decide whether the turn will be towards right or left.

Prepare all IV tubing and catheters for connection when the client is prone.

Potential complications of prone positioning

Nerve compression	Increased intraabdominal pressure
Dislodging tubes or catheters	Venous stasis (e.g. facial edema)
Pressure sores	Retinal damage
Transient reduction in oxygen saturation	Transient arrhythmias

NOTES

