

What Is Prone Patient Positioning?

- › The prone position is defined as lying in a horizontal position with the abdomen facing downward and the face facing either downward or to one side. The prone position is the opposite of the supine position, which is defined as lying face-up in a horizontal position with the back of the head, spinal column, and heels resting directly on a supporting surface. (For information on placing non-critical care patients in the supine position, see *Nursing Practice & Skill ... Patient Positioning (Non-Critical Care Patients): Supine*) **(Figure 1)** . The prone position is also distinguished from pronation (i.e., rotation of the forearm so that the palm of the hand is facing downward)

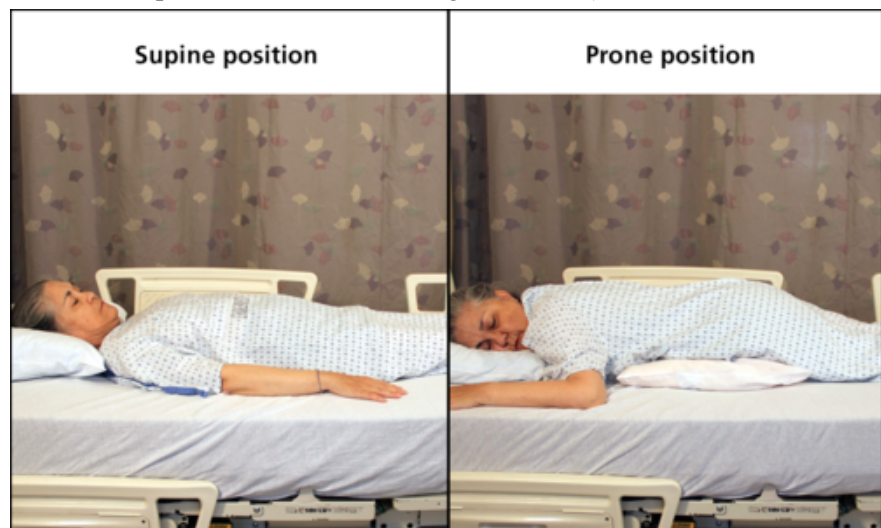


Figure 1: The prone position is the opposite of the supine position. Copyright© 2014, EBSCO Information Services.

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- *What:* The prone position is commonly used in many surgical procedures and is employed postoperatively to avoid placing pressure on vulnerable body sites. Turning the patient to a prone position is a noninvasive procedure that, when properly performed, utilizes knowledge of anatomy and body mechanics. Positioning the patient can require the assistance of additional healthcare workers to avoid problems such as dislodgement of an endotracheal tube (ETT) or other invasive tubes and intravascular lines, especially if the patient has mobility limitations
- *How:* While maintaining patient safety, one or more caregivers provide partial to full assistance in moving the patient into a face-down position (for a description of the levels of assistance different patients require, see *What You Need to Know Before Placing a Non-Critical Care Patient in the Prone Position*, below). No special equipment is required, although an assistive transfer device can be useful if the patient has special mobility, skincare, and/or orthopedic needs (for more information, see *Nursing Practice & Skill ... Transfer of Patient: Using Assistive Devices* . Newer equipment, such as automated beds or lightweight cushioned frames attached to the front of the patient before turning, can be used to achieve prone positioning, but are outside the scope of this *Nursing Practice & Skill*

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- *Where:* Prone positioning of patients is performed in all healthcare settings, including acute care hospitals, long-term care facilities, and the home setting. Patients can be placed in a prone position during diagnostic or surgical procedures, and in bed
- *Who:* Prone positioning of non-critical care patients can be performed by healthcare professionals, assistive personnel, home care staff, and family members who have been appropriately trained in patient positioning and body mechanics. Depending on the wishes of the patient, it can be appropriate for family members to be present during prone positioning

What Is the Desired Outcome of Prone Positioning of Non-Critical Care Patients?

- › Prone positioning allows access to the back of the patient's body, which is especially useful during procedures that involve the spine, sacral area, or the back of the arms and legs
- › Prone positioning can be used to relieve pressure on a specific site (e.g., sacral pressure injury, ventral surgical site) or be alternated with other positions as a means of promoting comfort and preventing musculoskeletal injury (**Figure 2**)

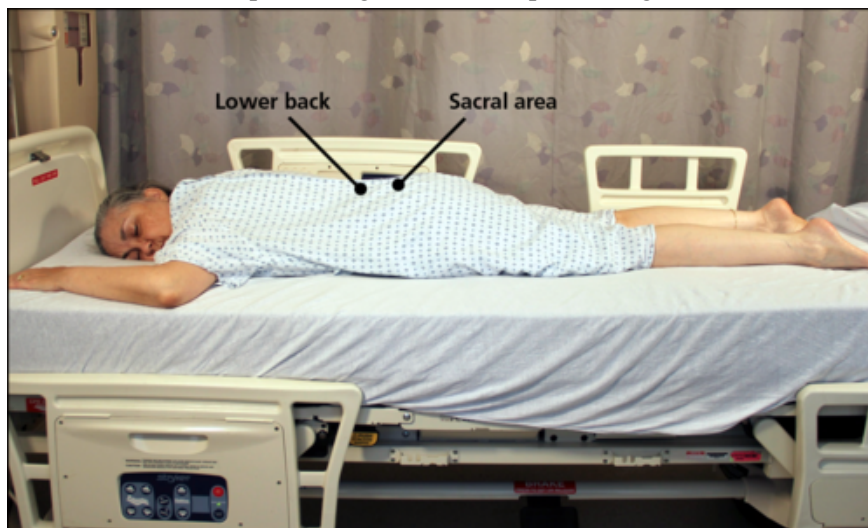


Figure 2: Prone positioning may be used to relieve pressure on different sites of the body. Copyright© 2014, EBSCO Information Services.

- › Prone positioning is used for pulmonary toileting (i.e., a set of activities/methods performed to clear the airways of mucus and secretions; also called pulmonary hygiene) and to improve ventilation and oxygenation in patients with early-stage pneumonia, acute lung injury, or acute respiratory distress syndrome (ARDS)

Why Is Prone Positioning of Non-Critical Care Patients Important?

- › When alternated with other positions (e.g., supine, lateral), prone positioning can promote comfort and help prevent or heal pressure injuries in patients with limited mobility, poor nutritional status, and/or older age by relieving pressure exerted on bony prominences
- › Prone positioning can decrease morbidity and mortality in patients with early stage pneumonia, acute lung injury, or ARDS
 - In guidelines published in 2017, the American Thoracic Society, European Society of Intensive Care Medicine, and Society of Critical Care Medicine recommend that patients with severe ARDS receive prone positioning for more than 12 hours per day (Fan et al., 2017)
- › Prone positioning can relieve pressure to a surgical site (e.g., ventral surgical site) or other vulnerable body sites

Facts and Figures

- › Authors of a recent systematic review and meta-analysis of eight randomized controlled trials including 2,129 patients with ARDS found no overall difference in mortality rates associated with prone positioning, compared to supine positioning. However, in subgroup analyses, these found a 26% reduction in mortality in patients who received prone positioning for 12 or more hours per day and a 26% reduction in mortality risk in patients with moderate to severe ARDS. Prone positioning was associated with increased risk of endotracheal tube obstruction and pressure injuries compared to supine positioning (Munshi et al., 2017)
- › Prone positioning reduced rectal and bowel radiation doses in patients undergoing pelvic intensity-modulated radiation therapy for prostate cancer (Kószó et al., 2018) and, when large margins are needed, reduces bowel cavity radiation doses in patients undergoing volumetric arc therapy for gynecologic cancers (Heijkoop et al., 2016)

- › Researchers in a prospective randomized trial of 101 obese patients reported that performing colonoscopy in the prone position resulted in significantly shorter cecal intubation times and reduced need for patient repositioning (Uddin et al., 2013)

What You Need to Know Before Placing a Non-Critical Care Patient in the Prone Position

- › The patient's weight, medical condition, mobility needs, and complexity of medical treatments (e.g., to avoid dislodgement of indwelling devices) must be considered prior to placing a patient into the prone position. Levels of assistance can be categorized as follows:
 - Dependent—patient is unable to lift more than a third of his/her weight or is unpredictable in the amount of assistance he/she can provide; assistive transfer devices are required
 - Partial Assist—patient requires some physical assistance and/or verbal guidance when moving; stand-by assistance is necessary
 - Independent—patient is able to move and perform physical tasks safely without staff assistance or the use of assistive devices
- › If the patient reports pain or discomfort when being turned, the nurse should
 - ask the patient to describe the pain, if possible, including its location
 - perform a neurologic assessment to identify any changes in the patient's condition compared with before turning was initiated
 - return the patient to the supine position
 - notify the treating clinician if a change in neurologic status or continuous pain is present
- › Some patients are not comfortable in the prone position or are unable to tolerate facing downward for an extended period of time
 - A turning schedule should be created that initially allows the patient to remain in the prone position for a short time (e.g., 10 minutes) and gradually increases the time spent in the prone position until the patient can tolerate lying prone for 2 hours followed by lying supine for 2 hours
- › Preliminary steps that should be performed before placing the patient in prone position include the following:
 - Review facility/unit-specific protocols relevant to patient positioning, if available, including information about
 - safe patient handling
 - the use of proper body mechanics
 - the proper use of facility skin assessment forms for accurate documentation of the patient's skin condition
 - Review the treating clinician's order for patient positioning, which can include frequency of position changes and any contraindicated positions
 - Review the manufacturer's instructions for all equipment to be used, and verify that the equipment is in good working order
 - Review the patient's medical history/medical record for
 - any allergies (e.g., to latex, medications, or other substances); use alternative materials, as appropriate
 - any mobility limitations
- › Determine the number of staff members required for repositioning based on weight, medical condition, mobility needs, and complexity of medical treatments; coordinate with staff members if assistance is anticipated and/or obtain an assistive transfer device, if applicable
- › Gather supplies, including the following:
 - Nonsterile gloves and additional personal protective equipment (PPE; e.g., gown, mask) depending on the patient's known or suspected infectious status and whether exposure to body fluids is anticipated
 - Facility-approved pain assessment tool
 - Prescribed medications (e.g., analgesics), if indicated
 - Pillows
 - Draw sheet
 - Assistive transfer device, if needed
 - 2 small rolled towels or hand rolls (i.e., preformed devices that prevent full contraction of the hand and reduce risk for skin breakdown)
 - Footboard (optional)
 - Bite block (if the patient's tongue cannot be positioned inside the mouth)

- EKG lead patches, if applicable

How to Place a Non-Critical Care Patient in the Prone Position

- › Perform hand hygiene and don nonsterile gloves and other PPE, as indicated
- › Identify the patient according to facility protocol
- › Establish privacy by closing the door to the patient's room/or drawing the curtain surrounding the patient's bed
- › Introduce yourself to the patient and family member(s), if present; explain your clinical role; assess the coping ability of the patient and family and for knowledge deficits and anxiety regarding patient positioning
 - Determine if the patient/family requires special considerations regarding communication (e.g., due to illiteracy, language barriers, or deafness); make arrangements to meet these needs if they are present
 - Use professional certified medical interpreters, either in person or via phone, when language barriers exist
 - Explain the procedure for prone positioning and its purpose; answer any questions and provide emotional support as needed
 - As appropriate, ask family members and other visitors to leave the patient's room to promote privacy
- › Assess the patient's general health status, including his/her pain level using a facility-approved pain assessment tool (13)
 - Premedicate patient with prescribed analgesic medication, if appropriate; allow for therapeutic level to be reached before initiating patient movement (13)
- › Verify that the bed is at a comfortable working height (e.g., thigh level) and that the bed wheels are locked to reduce your risk for muscle injury (especially to the back) (8)
- › Secure all equipment (e.g., oxygen tubing, intravenous lines) that is attached to the bed or the patient
- › Lower the head of the bed to flat or as low as permitted by the patient's condition (16)
- › Lower the side rails of the bed on the side closest to you
- › Remove any pillows that could interfere with repositioning the patient
- › Verify that the patient's tongue is positioned inside the mouth. If the patient's tongue is swollen or otherwise protruding, insert a bite block into the mouth to position the tongue inside the mouth to prevent injury during movement (8, 19)
- › Remove EKG leads from the anterior chest as needed (8, 16)
- › Move the patient to the nearest side of the bed, using an assistive transfer device or draw sheet to reduce friction, as needed, so that the patient will be in the center of the bed after he/she has been placed in the prone position
- › Adjust the following steps according to the patient's mobility limitations
- › To turn a patient from the supine position to the prone position:
 - ›
 - Align the patient's head with the spine
 - Position the patient's arm that is farthest from you so that it is parallel to his/her body, with the hand slightly under the hip
 - Gently straighten the patient's legs, and slowly roll the patient away from you to his/her side, over the arm that you have positioned as described above
 - Continue to roll the patient until he/she is lying on the abdomen
- › To turn a patient from a lateral (i.e., side-lying) position to the prone position:
 - ›
 - Align the patient's head with the spine
 - Gently straighten the patient's legs and slowly roll the patient onto his/her abdomen
- › After positioning the patient in a prone position, perform the following for correct body alignment, to promote patient comfort, and to relieve high-pressure areas that can develop pressure injuries:
 - ›
 - Reposition the pillows for comfort, especially under the neck, head, and forearms
 - Turn the patient's head to one side
 - Place the patient in either of the following positions:
 - With the arms in a flexed position and the elbows at or near shoulder level
 - With the arm of one side flexed at shoulder level, the upper thigh of the same side flexed, and the arm and leg on the opposite side extended
 - Place small hand roll or folded towel in each hand
 - Place the patient's feet against a footboard to promote normal flexion
 - Replace EKG leads on the patient's back as needed
- › Raise the side rails and lower the bed for patient safety

- › Reassess the patient's comfort level and place the call light and bedside table within reach
- › Dispose of used PPE and perform hand hygiene
- › Make the appropriate notation in the patient's treatment administration record and/or flow sheet to indicate that repositioning was performed and/or document the following information in the patient's medical record:
 - Date and time of prone positioning
 - Description of the procedure, including the use of any assistive transfer device
 - Patient assessment findings, such as
 - pre-procedure respiratory status
 - level of pain
 - skin assessment findings, including any signs of skin breakdown
 - Patient's response to the prone position, including any reports or indications of pain, dyspnea, or discomfort
 - Any unexpected patient events or outcomes, interventions performed, and whether or not the treating clinician was notified
 - Patient/family member education, including topics presented, response to education provided/discussed, plan for follow-up education, and details regarding any barriers to communication and/or techniques that promoted successful communication

Other Tests, Treatments, or Procedures That May Be Necessary Before or After Placing a Non-Critical Care Patient in the Prone Position

- › If in bed, the patient should be repositioned periodically to avoid the development of complications related to immobility (i.e., pressure injuries), as ordered by the treating clinician or per facility protocol
- › Range of motion exercises to the shoulders, arms and legs should be performed every 2 hours
- › While in the prone position, the patient's head should be turned hourly to prevent facial pressure injury
- › If the prone position is necessary for a surgical or diagnostic procedure, care and treatment related to the surgery or procedure will begin following prone positioning

What to Expect After Placing a Non-Critical Care Patient in a Prone Position

- › The patient will be comfortable and pressure on bony prominences will be minimized or relieved
 - If the patient is able to communicate, he/she will express feeling comfortable
 - If the patient is non-communicative, vital signs will indicate that the patient is not in distress (e.g., heart rate and respiratory rate will be within baseline limits)
- › The patient's airway will remain patent and respiratory effort will be unlabored
- › If the prone position is necessary for a surgical or diagnostic procedure, there will be no complications related to prone positioning and prolonged immobility; post-procedurally, the patient will be repositioned for comfort and safety

Red Flags

- › Dragging a patient across the surface of the bed can cause friction and shear to skin and subcutaneous tissues, which triggers skin breakdown and leads to the development of pressure injuries
- › Prone positioning increases risk for skin breakdown and development of pressure injuries on the face, sternum, hips, and knees; these areas can require additional padding after positioning
- › Facial/eyelid edema can result from prone positioning. This is usually a cosmetic problem that resolves quickly when the patient is returned to a supine or lateral position
- › Prone positioning during lengthy surgery increases intraocular pressure and can predispose patients to developing ischemic optic neuropathy
- › Potential problems that can develop during patient positioning include the following:
 - Inadvertent removal, manipulation, or kinking of lines and tubes, which should be replaced or repositioned as necessary
 - Deterioration in oxygenation/hemodynamics, although this is usually transient. Observe for return to previous level of blood oxygen saturation and contact the treating clinician if the patient's status does not stabilize
 - Mobilization of secretions in the airway; suctioning the airway as required will maintain patency
- › Other potential complications of prone positioning including cardiac arrest, contractures, enteral feeding intolerance, and wound dehiscence
 - In the event of cardiac arrest during surgical procedures in the prone position, chest compressions and defibrillation can be administered in the prone position
- › Absolute **contraindications** to prone positioning include acute arrhythmia; hemodynamic instability; increased intracranial pressure; pregnancy (second or third trimester), facial trauma or surgery; frequent seizures; pelvis, rib, or sternum fractures;

- external fixation of fractures; spinal instability; abdominal compartment syndrome; and recent sternectomy, cardiac surgery, ophthalmic surgery (with increased intraocular pressure), or abdominal surgery or intestinal ischemia
- › Relative **contraindications** to prone positioning include bronchopleural fistula, hemoptysis/alveolar hemorrhage, tracheostomy in previous 24 hours, significant ribcage abnormalities, intraabdominal pressure > 20 mm Hg, and pregnancy (first trimester)

What Do I Need to Tell the Patient/Patient's Family?

- › Explain the purpose and steps of prone positioning to the patient and/or family and respond to any questions or concerns
- › Ask the patient, if communicative, to alert healthcare staff to any discomfort experienced during or after positioning

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