

5

Positioning the Patient for Surgery

LEARNER OBJECTIVES

1. Describe the desired patient outcomes relative to positioning.
2. Identify intrinsic and extrinsic factors that place surgical patients at risk for tissue damage.
3. Describe the potential impact of positioning on the respiratory, circulatory, neuromuscular, and integumentary systems.
4. Identify injuries related to improper and prolonged positioning.
5. Discuss the responsibilities of the perioperative nurse in patient positioning.
6. Discuss body structures at risk in each of the five common surgical positions.
7. Identify the equipment available for safely placing patients in each of the common surgical positions.
8. Describe nursing interventions to prevent patient injury in each of the five common surgical positions.
9. Describe special considerations for positioning the morbidly obese patient.
10. Discuss documentation associated with positioning.

LESSON OUTLINE

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- II. Desired Patient Outcomes
- III. Impact of Surgical Positioning: Overview of Injuries
 - A. Respiratory and Circulatory System Compromise
 - B. Neuromuscular Injury
 1. Facial Nerves
 2. Upper Extremity Nerves
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- IV. Responsibilities of the Perioperative Nurse
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- V. Positioning Devices
 - A. Operating Tables and Positioning Accessories
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- VII. Basic Surgical Positions
 - A. Supine (Dorsal Recumbent)
 - B. Trendelenburg
 - C. Reverse Trendelenburg
 - D. Lithotomy

- E. Sitting, Beach Chair
- F. Semi-Sitting, Semi-Fowler's, Lawn-Chair Position
- G. Prone
 - 1. Mayfield Headrest (with Pins)
- H. Kraske (Jackknife) Position
- I. Lateral

VIII. Positioning the Morbidly Obese Patient

IX. Evaluating the Positioned Patient

X. Postoperative Transfer

XI. Documentation of Nursing Actions

Overview

1. The primary reason for placing a patient in a specific surgical position is to give the surgeon access to the operative site.
2. Two important responsibilities associated with positioning are stabilizing the patient to prevent inadvertent movement and protecting the patient from injury.
3. Safe patient positioning is a critical component of perioperative nursing practice. Ideally, the surgeon will orchestrate positioning of the patient; however, it is often the experienced perioperative nurse who coordinates the positioning process.
4. A variety of factors impact the degree of risk for injury related to positioning: the type of anesthesia; the type and length of the surgical procedure; the position required for exposure of the operative site; the patient's age, height, weight, nutritional status, level of mobility; comorbidities; the patient's overall condition at the time of surgery; and whether the patient is positioned correctly and safely.
5. General anesthetic and regional blocks prevent the patient from responding to pain and discomfort, the body's natural warning signals when body parts are stretched, twisted, or compressed. Damage to nerves and vascular structures, as well as respiratory and circulatory compromise, can occur without the patient being aware.

Desired Patient Outcomes

6. Following a surgical procedure, the patient will be free of signs and symptoms of injury related to positioning (Association of periOperative Registered Nurses [AORN], 2011, p. 178):
 - Skin—intact; smooth; free of ecchymosis, cuts, abrasions, shear injury, rash, or blistering

- Cardiovascular status—heart rate and blood pressure within expected ranges; peripheral pulses present and equal bilaterally; skin warm to touch, capillary fill less than 3 seconds

- Neuromuscular status—flexes and extends extremities without assistance; denies numbness or tingling of extremities

7. To protect the patient from injury related to positioning, the perioperative nurse must have knowledge of:
 - Principles of anatomy and physiology
 - The surgical procedure to be performed
 - Anatomical and physiologic changes related to anesthesia, surgical position, prolonged immobility, and pressure
 - Selection and proper use of positioning equipment
 - Proper positioning technique
8. Proper positioning includes maintaining the patient's anatomical body alignment, ensuring optimal airway accessibility, and adequate exposure of the surgical site.
9. Preserving the patient's dignity by preventing unnecessary exposure is also a perioperative nursing responsibility.

Impact of Surgical Positioning: Overview of Injuries

10. The five basic positions used for surgery are supine, lithotomy, sitting, prone, and lateral. Improper technique can lead to injury in any of these positions.
11. Complications from improper positioning include postoperative musculoskeletal pain, joint dislocation, nerve damage, injury to the skin and underlying tissues, and cardiovascular and respiratory compromise.
12. Positioning injuries can be severe, sometimes resulting in permanent damage to the patient.

Respiratory and Circulatory System Compromise

13. Extreme or unnatural positions such as the Trendelenburg position, where the head and upper body are lower than the feet and lower body, affect circulation and oxygen-carbon dioxide exchange. Gravity impacts pulmonary capillary blood volume and the amount of blood available for oxygenation.

14. Unnatural positions or positioning equipment may decrease compliance or excursion of the lung and the ability of the thoracic cage to expand. Reduced lung capacity diminishes the amount of oxygen available for gas exchange. With compromised respiratory mechanics, muscles become fatigued as the patient attempts to compensate, and hypoventilation may occur. Hypoxia and hypercarbia can occur even where respiratory function is supported through mechanical assistance.
15. In the Trendelenburg position, gravity causes abdominal contents to push against the diaphragm, making chest excursion more difficult.
16. The prone position may compress the ribs or sternum, decreasing lung expansion.
17. General and regional anesthetics may disrupt normal vasodilation and constriction. Dilation of peripheral blood vessels can result in a drop in blood pressure. Dilated vessels allow venous blood to pool in dependent areas, reducing the amount of blood returned to the heart and lungs for oxygenation and redistribution.
18. In procedures where body parts are placed in a dependent position for an extended period of time, a significant amount of pooling may occur.
19. Both positioning and anesthetic agents may interfere with the heart's ability to contract, resulting in relaxation of the skeletal muscles that normally support vein walls and help to propel blood, causing in a decrease in cardiac output.
20. Any restriction of flow of blood in the legs has the potential to result in the formation of a blood clot, limiting blood flow, particularly in the deep veins (deep vein thrombosis or DVT). DVT occurs primarily in the lower extremities and is a risk factor for developing a pulmonary embolism (PE).
21. Patients should be assessed for the risk of DVT.
22. Virchow's triad (venous stasis, vessel wall injury, hypercoagulability) can cause formation of a DVT. Other factors contributing to DVT include acute medical illness, acute infectious process, inflammatory conditions, and smoking (AORN, 2015, p. 471).
23. The following conditions place patients at high risk for DVT formation:
 - History of previous DVT
 - Prolonged hospitalization
 - Malignancy or immobility
 - Heart failure
 - Varicose veins
 - Leg ulcers
 - Stroke
 - Age older than 40 years
 - Lengthy procedure
 - Total hip procedure or revision of total hip procedure
24. Sequential compression devices (SCDs) can venous stasis in the immobile patient (**Figure 5-1**). An SCD consists of a sleeve that encompasses the leg and is sequentially inflated and deflated

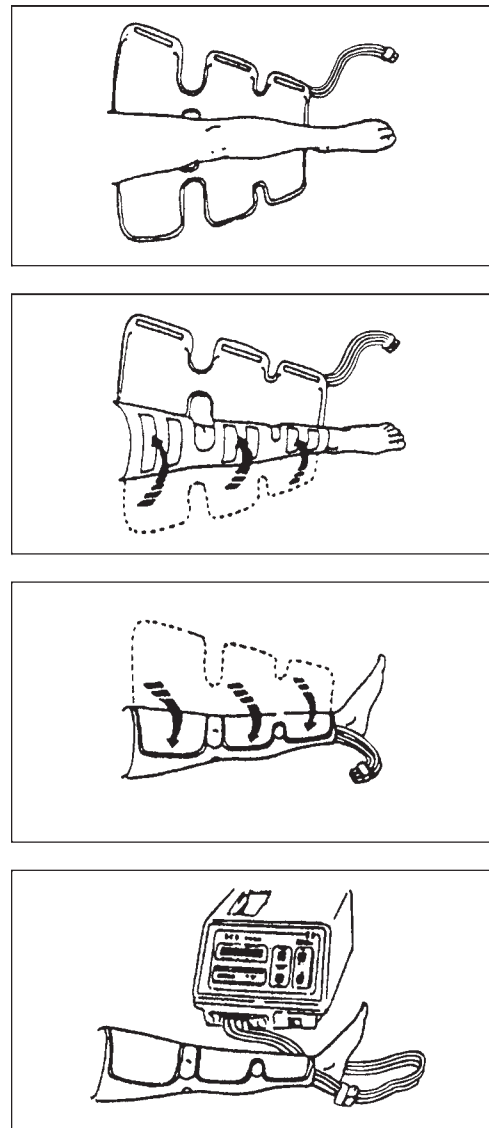


Figure 5-1 Application of sequential compression device.
Courtesy of Kendall Healthcare Products, Mansfield, MA.

- automatically along the extremity. This device promotes blood flow and discourages pooling of blood.
25. Many facilities have implemented policies requiring that SCDs be utilized for all adult patients unless specifically contraindicated.
 26. Sequential compression devices should be applied and activated before the induction of general anesthesia.

Section Questions

1. What is the primary objective for positioning the patient for a surgical procedure? [Ref 1]
2. What are the two responsibilities associated with positioning the surgical patient? [Ref 2]
3. Identify factors that impact the patient's degree of risk for injury related to positioning. [Ref 4]
4. Why is the anesthetized patient at greater risk for positioning injury? [Ref 5]
5. What types of injuries are associated with positioning? [Ref 5]
6. What three body systems are assessed for injuries related to positioning? [Ref 6]
7. Identify three components of proper positioning. [Ref 8]
8. What are the five basic surgical positions? [Ref 10]
9. What types of complications are associated with improper positioning? [Ref 11]
10. How does gravity affect respiration and circulation in the Trendelenburg position? [Refs 13–15]
11. How can general anesthesia disrupt normal circulation? [Refs 17, 19]
12. What is the significance of Virchow's triad? [Ref 22]
13. What are the three components of Virchow's triad? [Ref 22]
14. Identify patients at risk for the development of DVT. [Ref 23]
15. How does a sequential compression device help to prevent a DVT? [Ref 24]

Neuromuscular Injury

27. When the patient is awake, pain and pressure receptors warn against unnatural stretching and twisting of tendons, ligaments, and muscles. Opposing muscle groups prevent strain on muscle fibers. The anesthetized patient is unable to respond to an exaggerated range of motion.
28. Anesthetic agents and muscle relaxants exacerbate the potential for injury by reducing muscle tone and interfering with the patient's normal defense mechanisms.
29. Prolonged stretching or compression of nerves may result in postoperative numbness, tingling, or pain. Severe injury can result in permanent loss of sensation and paralysis.
30. Proper alignment, adequate stabilization, and support of the extremities with sufficient padding minimize musculoskeletal injury. Extremities should be secured and not allowed to hang unsupported over the edge of an arm-board or the operating table.
31. Lower extremities should be positioned slowly and simultaneously to prevent sacroiliac joint dislocation. Should resistance be met in positioning, do not force the movement.
32. Fingers, toes, ears, and nose can be crushed or compressed between two surfaces when the operating table, instrument table, or Mayo stands are adjusted. Team members must maintain a mental image of the location of body parts when the patient's body is hidden by drapes. Neither furniture nor personnel should lean on the patient during the procedure.
33. Injury to the facial nerve (buccal branch), causing motor injury to the mouth, can occur when the nerve is compressed by an improperly fitting or poorly positioned facemask.

Facial Nerves

34. Pressure from endotracheal tube connectors can injure the suborbital nerve, causing numbness of the forehead.

Upper Extremity Nerves

35. The brachial plexus is vulnerable to injury because of its superficial position and close proximity to bony structures.
36. The supine position, with one or both arms extended on armboards, is the most common surgical position. Brachial plexus injury can occur when the arm is extended at an angle greater than 90°. Place the armboard at an angle less than 90°. The patient's palm should be facing up with the fingers extended (AORN, 2015, p. 570).
37. Even when the arm is positioned carefully prior to surgery, unintentional hyperextension of the arm during the procedure might not be noticed when the armboard is hidden by surgical drapes.
38. Shoulder braces, sometimes used to keep patients in the Trendelenburg position from slipping from the table, may cause compression of the brachial plexus. Shoulder braces should be very well padded and should not be located too far medially or laterally.
39. Brachial plexus injury might be evidenced post-operatively by motor and sensory deficits in the arm and shoulder.
40. Ulnar neuropathy, caused by external compression or excessive flexion of the elbow, accounts for approximately one-third of post-positioning nerve injuries. It is more common in men than in women.
41. Pronation of the hand and forearm exerts more pressure on the ulnar nerve (**Figure 5-2**), while supination decreases pressure (Gerken, 2013).
42. Padding the elbow can relieve pressure on the olecranon process.
43. The radial or ulnar nerve may be injured if the elbow slips off the mattress and the nerve is compressed between the table and the medial epicondyle by personnel leaning against the table.
44. Tucking the patient's arm with a draw sheet can minimize the possibility of the arm slipping from the table. The draw sheet is secured under the patient, never under the mattress.
45. Symptoms of ulnar nerve injury include tingling, pain, and numbness in the fourth and

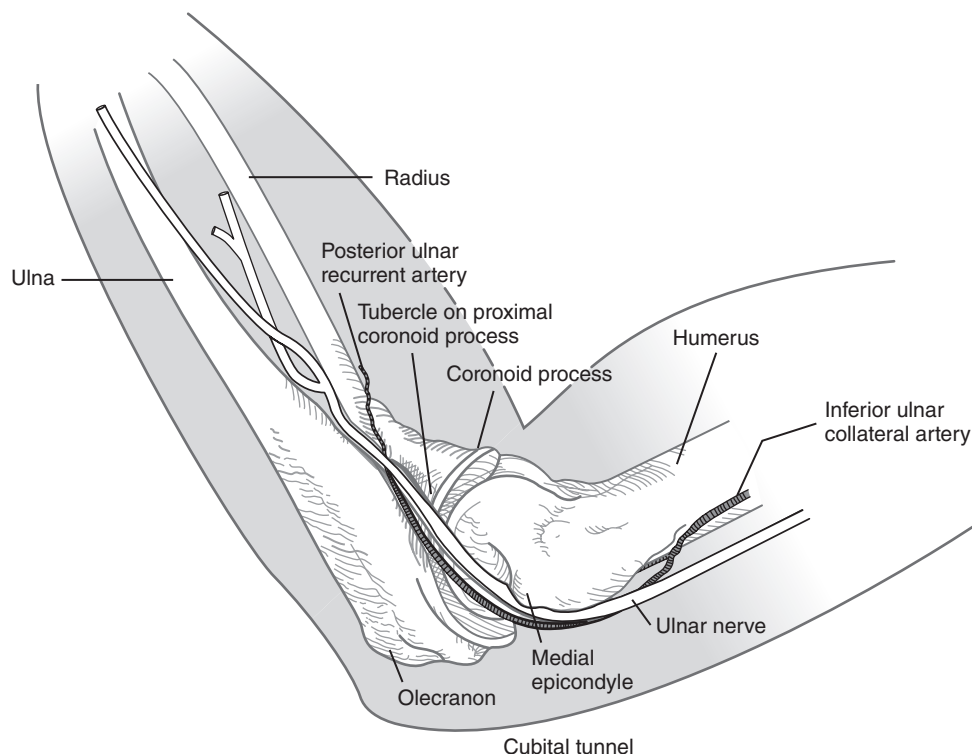


Figure 5-2 Ulnar nerve—most common postoperative peripheral neuropathy.

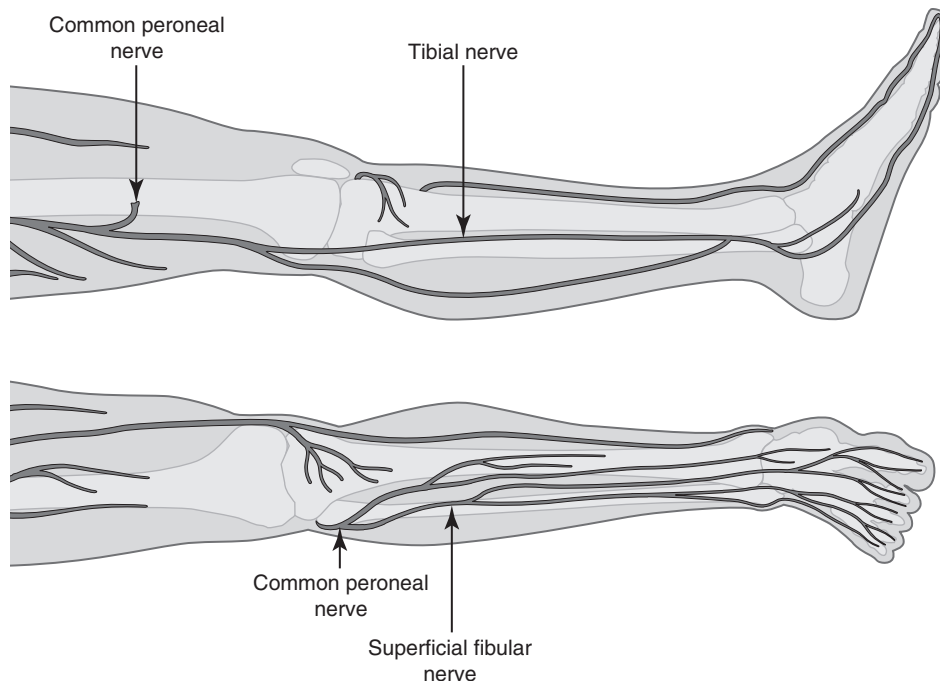


Figure 5-3 Lower extremity nerves.

fifth fingers. Severe injury can result in a weak grip or contractures, leading to a “claw hand.”

46. Radial nerve damage may be evidenced by wrist drop.

Lower Extremity Nerves

47. The peroneal, posterior tibial, femoral obturator, and sciatic nerves (**Figure 5-3**) are at risk for injury in the lithotomy position.
48. Legs improperly placed in stirrups or improperly moved can cause extension, flexion, compression, or stretching injuries to lower extremity nerves.
49. Improper positioning in stirrups can compress the peroneal nerve between the fibula and the stirrup, resulting in foot drop. Stirrups today are designed to prevent this injury if they are used properly.
50. Injury to the femoral obturator nerve, resulting in paralysis and numbness of the calf muscles, can occur if the nerve is compressed between a metal popliteal knee support stirrup and the medial tibial condyle. Adequate padding can prevent this injury.
51. Foot drop from injury to the sciatic nerve can occur if the nerve is compressed or stretched by fully extending the legs in the high lithotomy position and flexing the thighs more than 90° on the trunk.

Integumentary System Injury

52. Goal #14 of The Joint Commission’s (TJC) 2015 patient safety goals is to *prevent healthcare-associated pressure ulcers*. TJC estimates the cost for treatment of a pressure ulcer is \$14,000 to \$40,000 per ulcer.
53. Every facility must have a plan for prediction, prevention, and early treatment of pressure ulcers that includes identifying patients at risk, maintaining and improving tissue tolerance, protecting against adverse effects of external mechanical forces, and staff education (TJC, 2014), all of which are relevant to the perioperative nurse.
54. In 2008, the Centers for Medicare and Medicaid Services (CMS) implemented the Present on Admission (POA) indicator (CMS, 2015). Under this CMS policy, a hospital will not receive additional funds to care for a patient who has acquired a pressure ulcer during hospitalization. This groundbreaking policy provides a significant financial impetus for ulcer prevention.
55. Soft tissues are at risk for injury as a result of the combination of *immobility, pressure, and time*; the risk for tissue damage increases with:
 - The length of time the patient has been immobile
 - Increased pressure on bony prominences
 - The length of the procedure

56. The anesthetized patient is immobile and subjected to uninterrupted pressure during a surgical procedure. External pressure restricting blood flow can cause tissue ischemia that exacerbates the potential for tissue injury. If the patient has been immobile for any length of time prior to the surgery, the risk for tissue damage is higher.
57. Friction and shearing can also cause tissue injury. Friction injuries occur when coarse surfaces such as bed linens or blankets rub against the skin, causing abrasions or blisters. These wounds, though usually superficial, can contribute to the more serious injury of a pressure ulcer.
58. Shearing injuries occur when gravity holds the skin stationary against a surface while the tissues beneath it move. This can occur when the patient is pulled rather than lifted, or when linen or blankets are pulled from beneath the patient.
59. An anesthetized patient who is repositioned incorrectly, or slides up or down on the table, can experience a shear injury. Shearing stretches and tears the subcutaneous capillaries, leading to tissue ischemia and cell death.
60. Deep tissue injury (DTI), or tissue necrosis occurring in the tissues under intact skin, is not uncommon in surgical patients (Figure 5-4). The damage occurs when capillaries are compressed against bony prominences, causing tissue ischemia, cell death, and necrosis (NPUAP, 2012). Prolonged, unrelieved pressure during surgery can occlude blood flow, causing ischemia in even the healthiest of patients.
61. DTI differs from a Stage IV pressure ulcer in that the damage begins deep in the tissue and migrates toward the surface. Muscle closest to the bone is affected first, while the skin remains intact. Over time, as the damage progresses to include subcutaneous tissue and eventually skin, the DTI appears as a bruise and rapidly progresses to an ulcer.
62. A DTI that begins in surgery can go unnoticed for days; hence, the connection between the injury and surgery is often missed. DTIs that appear within 72 hours postoperatively most likely can be attributed to the surgical procedure (Primiano et al., 2011, p. 556).
63. An area on the patient's skin that appears reddened after surgery may be an indication of the beginning of a superficial pressure ulcer, which can progress to involve deeper tissues. A reddened area may also be an indication of a self-healing transient reaction to pressure. In either case, the area should not be massaged. Massage may, in fact, compromise circulation to the affected area.
64. Areas most at risk for pressure ulcer formation are heels, elbows, scapula, sacrum, coccyx, occiput, iliac crest, ear, medial knee, malleolus, and toes, where there is little padding between skin and bone.
65. Intrinsic patient risk factors for pressure injury include age (older patients have less elastic, smaller blood vessels that hinder blood flow); weight (obesity causes additional pressure on bony prominences); nutritional status (malnourished patients); and presence of

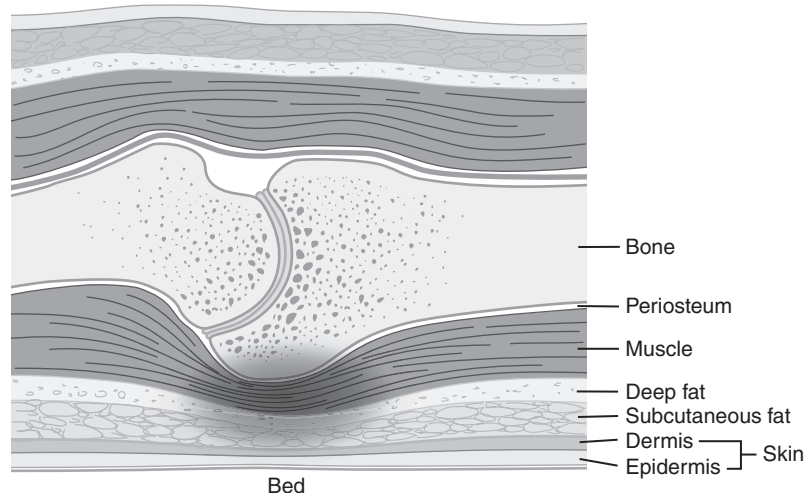


Figure 5-4 Deep tissue injury (DTI) from compression at the bone-tissue interface.

Reprinted with permission from T. Goodman (2012 p. 15). Positioning: A Patient Safety Initiative: Study Guide for Nurses. Dallas, TX: Terri Goodman and Associates.

- diabetes, vascular disease, or hypertension (the latter two conditions are associated with diminished circulation).
66. Other intrinsic factors affecting the risk for pressure injury include immobility, infection, incontinence, and impaired sensory perceptions.
 67. Extrinsic factors that increase the risk of tissue damage include temperature, friction, shear, and moisture.
 68. Extrinsic factors related to the surgical procedure that place patients at risk for injury include sedation, anesthetic agents, retractors, warming devices, and pooled prep solutions.
 69. Adequate padding with effective pressure-relieving products is essential to protect bony prominences and prevent pressure ulcer formation. (Figures 5-5, 5-6, and 5-7).
 70. An individual can withstand a large amount of pressure for a short period of time more successfully than a small amount of pressure over a longer period of time.
 71. In one meta-analysis of studies involving surgical patients over a 5-year period, the average incidence of pressure ulcers was estimated at 11% (Chen, Chen, & Wu, 2012), an increase from 8.5% in an earlier study (Aronovich, 2007). Reported incidences in the studies analyzed varied from 11% to 22%, demonstrating that risk factors such as the type of surgery, the quality of positioning equipment, and endogenous patient characteristics have a significant impact on outcomes.
 72. It is well documented that the incidence of pressure ulcers in all patient populations rises markedly in procedures lasting for more than 2 to 2.5 hours (Goodman, 2012).
 73. Commercial operating room table pads and positioning devices are designed to reduce pressure and help prevent tissue injuries in the surgical patient. In 2014, the Rehabilitation

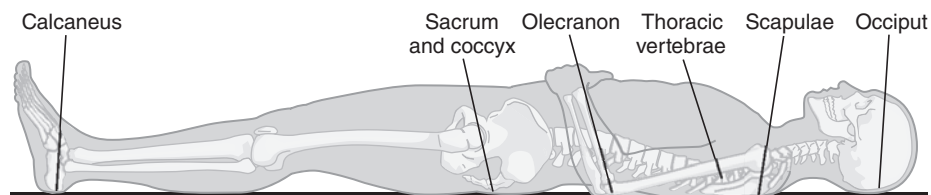


Figure 5-5 Potential pressure points in the supine position.

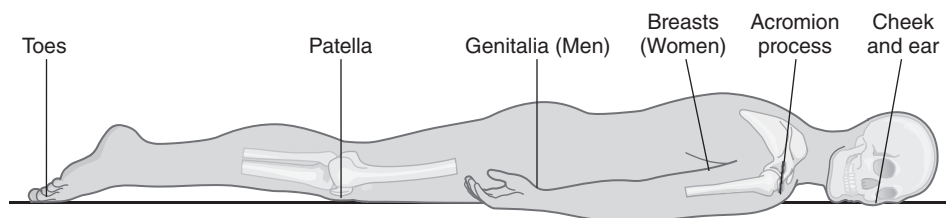


Figure 5-6 Potential pressure points in the prone position.

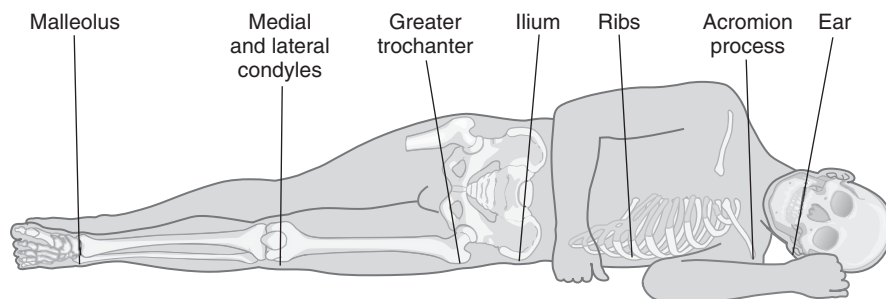


Figure 5-7 Potential pressure points in the lateral position.

Engineering and Assistive Technology Society of North America (RESNA) published the first *American National Standard for Support*

Surfaces, which provide an objective means for evaluating and comparing support surface characteristics (Hermans, Weyl, & Reger, 2014).

Section Questions

1. How do anesthetic agents and muscle relaxants increase the likelihood of positioning injury during surgery? [Refs 27–28]
2. What steps can be taken to minimize the potential for injury? [Ref 30]
3. How should lower extremities be handled? [Ref 31]
4. What damage can be done to a patient hidden under drapes? [Ref 32]
5. Describe approaches to preventing injury to the brachial plexus. [Refs 36–38]
6. What positioning techniques can prevent ulnar neuropathy? [Refs 41–42]
7. Contrast the symptoms of ulnar nerve injury with injury to the radial nerve. [Refs 45–46]
8. What types of nerve injuries can occur in the lower extremities? [Ref 48]
9. Contrast symptoms of injury to the peroneal nerve with obturator nerve injury. [Refs 49–50]
10. How can positioning injure the sciatic nerve? [Ref 51]
11. What three factors combine to place surgical patients at risk for tissue injury? [Ref 55]
12. Describe friction and shear injuries and how they can be avoided. [Refs 57–59]
13. Explain how deep tissue injury (DTI) differs from a Stage IV pressure ulcer. [Refs 60–61]
14. Describe both intrinsic and extrinsic factors that predispose patients to tissue injury. [Refs 65–68]
15. Surgical procedures of what duration increase the likelihood of tissue damage, even in healthy patients? [Ref 72]

Responsibilities of the Perioperative Nurse Patient Advocate

74. The patient undergoing surgery is vulnerable to positioning injury, particularly when the procedure is performed under general anesthesia and lasts longer than a few hours. Neuromuscular, musculoskeletal, integumentary, and physiologic systems can be severely compromised at a time when the patient is unable to identify and address the problem.
75. Although the surgeon, surgical assistants, anesthesia personnel, and other members of the nursing team may participate in patient positioning, it is most frequently the perioperative nurse who positions the patient.
76. The perioperative nurse is a crucial patient advocate, and at no time should the responsibility to ensure proper positioning be assumed to belong to another team member. The unconscious surgical patient is unable to respond

to pain or discomfort, and responsibility for patient safety becomes a perioperative nursing responsibility.

Nursing Considerations

Patient Assessment

77. Planning for positioning begins with a nursing assessment of the patient, including the following considerations:
 - Age
 - Height, weight, and body mass index (BMI)
 - Skin condition
 - Presence of jewelry
 - Nutritional status
 - Allergies (including latex allergy, because tape is sometimes used as a positioning aid)
 - Preexisting conditions (e.g., vascular, respiratory, circulatory, neurologic, immune system suppression)

- Physical or mobility limitations
 - Prosthetic, corrective, or implanted devices
 - Activity level (immobility places the patient at higher risk for pressure damage)
 - Peripheral pulses
 - Level of consciousness
 - Perception of pain
 - Psychosocial or cultural issues (AORN, 2015, pp. 565–566)
78. Several risk assessment scales for pressure ulcer development are available (e.g., Braden, Gosnell, Abruzzese); however, no scale specific for the intraoperative patient population has been accepted. Efforts have been made to modify the Braden scale for the perioperative environment with some success. For example, Galvin and Curley (2012) had success with the Braden Q + P in the pediatric population (**Exhibit 5-1**).
 79. In a number of studies, increasing age, a diagnosis of either diabetes or vascular disease, and vascular procedures were found to be the most frequent predictors of perioperative pressure ulcers (Goodman, 2012, pp. 23–26). Reduction in blood perfusion may be responsible for increased incidence of pressure ulcers in patients undergoing vascular procedures lasting more than 2.5 hours.
 80. Extrinsic risk factors include type and length of procedure, position, anesthetic agents, retractors, warming devices, and pooled prep solutions. The quality of the operating room bed mattress and positioning devices play a significant role in preventing pressure damage (Goodman, 2012, pp. 40–48). In a number of studies, the most significant extrinsic risk factor was time on the operating room mattress.
 81. The surgical procedure will determine the desired patient position. Lengthy procedures under anesthesia require extended periods of immobility and increase the risk for injury. Surgeries performed on areas where access is difficult may result in unnatural positions that increase the risk for injury.
 82. Elderly patients have decreased muscle tone, poor skin turgor, and less subcutaneous fat and muscle to cushion bony prominences. These factors place elderly patients at increased risk for impaired skin integrity.
 83. Height and weight are useful to determine appropriate positioning aids. Activity level and muscle tone provide information about how well the patient moves and the degree to which the patient may participate in transfer to and from the operating room bed.
 84. Drugs and anesthetic agents can alter the patient's ability to move. Baseline data provide information that is useful for evaluating the impact of drugs and anesthesia on movement and muscle tone.
 85. Patients with poor nutritional status are at increased risk for tissue injury. Malnourished patients lack the protein reserves necessary to maintain healthy skin cells and are at increased risk for skin impairment.
 86. Obese patients may trap moisture and fluids from skin-prep solutions in tissue folds, which may lead to skin breakdown. Adipose tissue is not well vascularized, and the pressure resulting from positioning can cause a decrease in circulation to peripheral body areas. Excess body weight increases the strain on joints and ligaments. Respiratory function is compromised in obese patients because of increased weight on the chest. Obesity also places an increased workload on the heart and circulatory system.
 87. Anesthetic agents and positioning for surgery place additional strain on respiratory function.
 88. Positioning that increases venous blood return to the heart can further compromise circulation.
 89. Underweight patients experience greater than normal pressure on bony prominences and, therefore, are at greater risk for impaired skin integrity.
 90. Patients with existing integumentary damage are at increased risk for further skin impairment. Diminished body fat provides little protection for peripheral nerves, and the underweight patient is at high risk for nerve damage.
 91. Certain preexisting injuries or conditions and certain surgical procedures may require additional planning to prevent injury. Preexisting conditions requiring additional considerations include the following:
 - Demineralized bone conditions such as osteoporosis and malignant metastasis—increased risk of fracture
 - Diabetes, anemia, and paralysis—increased risk for skin breakdown
 - Arthritis and joint prosthesis—limited joint movement

Exhibit 5-1 Braden Scale for Predicting Risk for Pressure Damage

BRADEN SCALE FOR PREDICTING PRESSURE SORE RISK				
Patient's Name _____		Evaluator's Name _____		Date of Assessment _____
SENSORY PERCEPTION ability to respond meaningfully to pressure-related discomfort	1. Completely Limited Unresponsive (does not moan, flinch, or gasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body	2. Very Limited Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body.	3. Slightly Limited Responds to verbal commands, but cannot always communicate discomfort or the need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	4. No Impairment Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.
MOISTURE degree to which skin is exposed to moisture	1. Constantly Moist Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	2. Very Moist Skin is often, but not always moist. Linen must be changed at least once a shift.	3. Occasionally Moist Skin is occasionally moist, requiring an extra linen change approximately once a day.	4. Rarely Moist Skin is usually dry, linen only requires changing at routine intervals.
ACTIVITY degree of physical activity	1. Bedfast Confined to bed.	2. Chairfast Ability to walk severely limited or nonexistent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	3. Walks Occasionally Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.	4. Walks Frequently Walks outside room at least twice a day and inside room at least once every two hours during waking hours
MOBILITY ability to change and control body position	1. Completely Immobile Does not make even slight changes in body or extremity position without assistance	2. Very Limited Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.	3. Slightly Limited Makes frequent though slight changes in body or extremity position independently.	4. No Limitation Makes major and frequent changes in position without assistance.
NUTRITION <u>usual</u> food intake pattern	1. Very Poor Never eats a complete meal. Rarely eats more than 1/2 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement OR is NPO and/or maintained on clear liquids or IVs for more than 5 days.	2. Probably Inadequate Rarely eats a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding	3. Adequate Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) per day. Occasionally will refuse a meal, but will usually take a supplement when offered OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs	4. Excellent Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.
FRICTION & SHEAR	1. Problem Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction	2. Potential Problem Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down.	3. No Apparent Problem Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair.	
				Total Score

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- Edema, infection, obstructive pulmonary disease, and other conditions that reduce respiratory and cardiac reserves
 - Immunocompromise—increased risk of skin breakdown
92. Surgical procedures requiring additional considerations include:
- Surgeries lasting 2 hours or longer—increased risk for tissue damage
 - Vascular surgery compromises blood perfusion to tissues—increased risk for skin breakdown
 - Surgeries where prolonged traction or sustained pressure is required—increased risk for skin breakdown and nerve damage
 - Warming devices placed under the patient may increase the potential for pressure ulcer (Seaman et al., 2012)

Planning Care

93. The perioperative nurse should communicate with surgical and anesthesia personnel to determine any specific needs related to patient positioning. This information, the procedure, assessment data, and nursing diagnoses serve as the basis for planning the care necessary to correctly position the patient. The perioperative nurse selects appropriate positioning equipment and makes decisions regarding the number of persons needed to assist with positioning and whether aspects of positioning can be assigned to ancillary personnel.

Impact of Anesthesia

94. Patients who are awake or lightly sedated are able to communicate when they experience pain or discomfort. In contrast, patients under general anesthesia are totally dependent on the surgical team to protect them from injury. Patients who receive regional anesthesia will not feel or report pain and are at risk for injury to anesthetized regions that are improperly positioned.
95. The anesthesiologist or nurse anesthetist will perform a patient assessment prior to delivering anesthesia. The assessment data coupled with the specialized body of knowledge of anesthesia will determine the limitations to positioning with regard to anesthesia.
96. Anesthesia personnel (anesthesiologist or nurse anesthetist) are concerned with airway access,

respiratory and circulatory functions, and monitoring lines. Anesthesia has a profound effect on cardiac and respiratory function.

Patient Dignity

97. Patient dignity should be a significant consideration during positioning. The patient should not be exposed unnecessarily, and, once positioning is complete, a final check should be made to ensure that the patient is appropriately covered. Patients should be comfortable with the idea that, even when they are anesthetized, they will be appropriately covered. Traffic in the room should be limited, and the doors kept closed.
98. Provide privacy for the patient to speak openly to the perioperative staff while awake (AORN, 2015, p. 568).
99. For some patients, the response to entering the operating room is to relinquish control to their caregivers. Even an awake patient who feels a loss of dignity when exposed during positioning may not feel confident enough to cover an area inadvertently left exposed. The perioperative nurse, as patient advocate, must preserve the patient's dignity whether the patient is awake or asleep.

Positioning Devices

100. Even good positioning techniques can result in tissue damage when poorly designed positioning devices are used. When positioning equipment is purchased, manufacturers should provide evidence of the efficacy of products; evidence should demonstrate that a product provides proper support and reduces pressure as expected.
101. Some type of operating bed or table is used for every surgical procedure. Most procedures use a standard operating table with attachments that facilitate the positioning required for the procedure.
102. Positioning equipment should be clean, in good repair, and used only by staff who are knowledgeable of the intended use of each piece of equipment.
- As soon as the patient is transferred to the operating room table, a safety strap is placed across the thighs to remind the patient that the bed is narrow.

- A draw sheet under the patient's body can serve as a lift sheet. A draw sheet may be used to secure the patient's arms at the sides.
 - Blankets and sheets are for patient warmth. They should not be folded or rolled and used as positioning devices. They may provide stability for the patient, but they do not reduce pressure on patient tissues.
 - Sheets and blankets provide privacy and preserve patient dignity.
 - A pillow or contoured foam or gel headrest is used to position the patient's head and to protect the ears and nerves of the head and face.
 - Donuts are not recommended as headrests or to support other high-pressure areas (Goodman, 2012, p. 41).
 - Sandbags are used for immobilization.
 - Pillows or foam or gel pads may be used to support and elevate body parts.
 - The firmness and density of foam padding determines its support capability. Soft foam “bottoms out” under pressure, providing little protection. Only foam that is specifically engineered to reduce pressure should be used for positioning.
 - Gel pads are made from oil-based chemical compounds or polymers sealed in a sturdy membrane-like, water-repellent covering.
 - Tape is sometimes used to secure the patient or an extremity in position. Avoid placing tape directly on the patient. Assessment for tape allergy should precede the use of tape as a positioning aid.
 - Eye pads may be used to protect the eyes and keep them closed.
103. Pneumatic SCDs, elastic bandages, or anti-embolism stockings reduce venous pooling and are frequently used to prevent DVT. In some facilities, these devices are used for every patient.
104. Table attachments are available to maintain the stability of body parts. Personnel must demonstrate competence in use of operating tables and utilize attachments appropriately.
- Head rest—protects patient from tissue injury and also from unintentional dislodging of airway management devices
 - Anesthesia screen—holds surgical drapes away from patient's face and helps to prevent the trapping of oxygen under drapes
 - Armboard—supports patient's arms and provides the anesthesia provider access to peripheral intravenous lines and monitoring equipment
 - Shoulder braces—prevent the patient from sliding in Trendelenburg position
 - Kidney brace—elevates the flank in lateral position for kidney procedures
 - Table strap—helps to secure the patient on the table
 - Table extensions—extend the length of the table for tall patients
 - Foot board—table extension placed at a 90° angle to the table to keep the patient from sliding downward in reverse Trendelenburg position
105. Unique positioning accessories and entire complex tables have been designed to achieve specific positions and to provide patient safety and support. Each special table has a variety of accompanying equipment and accessories (Figures 5-8 and 5-9). Equipment associated with each type of table must be readily available for a procedure. Locating missing pieces can result in costly delays, and using the wrong pieces can result in injury to the patient.
106. Stirrups are used to elevate the legs off the surface of the operating table for gynecology, urology, and orthopedic procedures (Figure 5-10). Legs should be lifted into

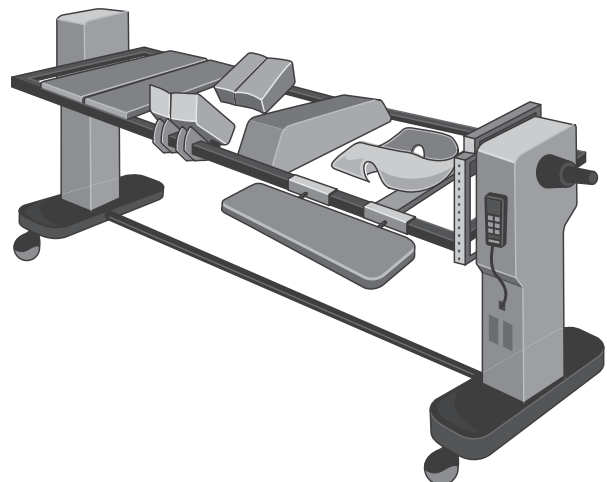


Figure 5-8 Jackson-type table with accessories.

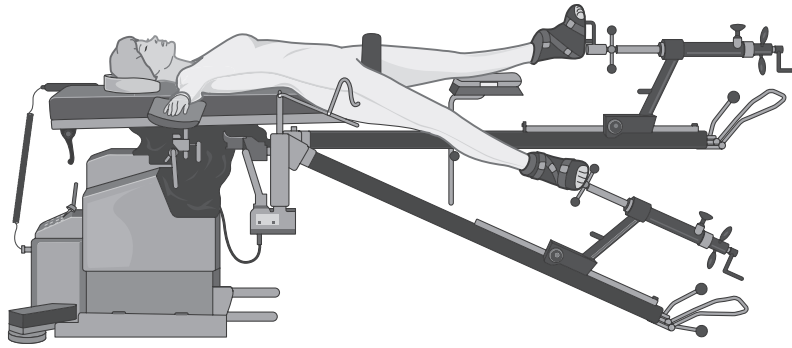


Figure 5-9 Hana fracture table.



Figure 5-10 Stirrups.

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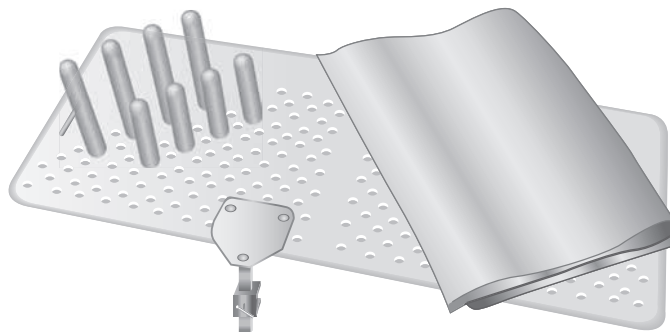


Figure 5-11 Pegboard for lateral positioning.

stirrups and lowered from stirrups simultaneously and slowly to avoid joint and nerve injury. Legs should be positioned and padded to avoid pressure on nerves or skin.

107. A pegboard is a device attached to the table for lateral positioning (Figure 5-11). Padding is required both the pegboard surface and the posts used to hold the patient in place.

108. A beanbag positioner is a pillow-type device filled with small particles. The patient is positioned on the device, which is molded around the patient and remains in place when the air is suctioned out. These are commonly used for lateral positioning (Figure 5-12) and to stabilize the patient in the steep Trendelenburg position that is common in robotic procedures.

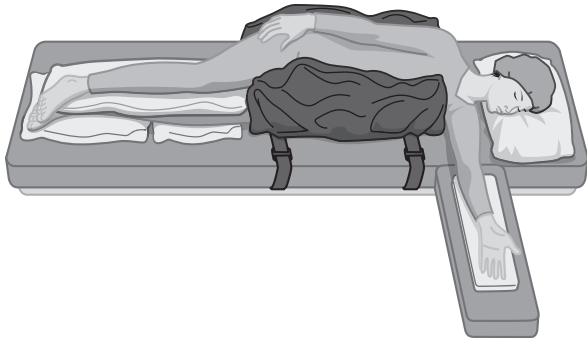


Figure 5-12 Beanbag immobilizer.

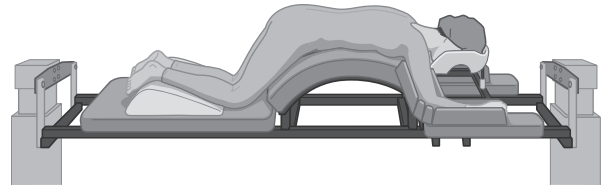


Figure 5-13 Laminectomy frame.

109. Newer beanbag technology has straps to hold the device securely to the bedframe, provides a softer envelope for the patient, and preserves skin integrity with a single-use cover that wicks away moisture and eliminates the

pressure from wrinkled linen otherwise used to cover the device.

110. A laminectomy frame (Figure 5-13; or chest rolls that extend from the acromioclavicular joint to the iliac crest) supports the body in the prone position. Positioning must permit adequate excursion of the chest for effective respiration. Breast tissue must be arranged carefully to avoid unnecessary compression.

Section Questions

1. Why must the nurse assume responsibility for protecting the patient from injury during a surgical procedure? [Refs 75–76]
2. What patient factors do the nurses assess when planning for patient positioning? [Ref 77]
3. What is the most significant extrinsic risk factor for tissue injury related to surgery? [Ref 80]
4. What factors place elderly patients at higher risk? [Ref 82]
5. What about malnutrition places a patient at risk for tissue injury? [Ref 85]
6. What risk factors are specifically associated with obese patients? [Ref 86]
7. What factors affect respiration and circulation during surgery? [Refs 87–88]
8. What preexisting patient conditions require additional planning for positioning? [Ref 91]
9. What types of procedures require additional considerations for protecting patients? [Ref 92]
10. What two body systems are profoundly impacted by anesthesia? [Ref 96]
11. What is the nurse's responsibility for protecting the patient's dignity during positioning? [Refs 97–99]
12. What evidence should be available before purchasing any positioning equipment? [Ref 100]
13. Discuss the use of pillows, sheets, blankets, foam and gel padding, and tape as positioning aids. [Ref 102]
14. What can be used to prevent DVT during a surgical procedure? [Ref 103]
15. Explain the purpose for commonly used table attachments. [Ref 104]
16. Discuss responsibilities associated with specialty surgical procedure tables. [Ref 105]
17. What are some of the nursing responsibilities associated with using stirrups for positioning the patient? [Ref 106]
18. What is the purpose of the pegboard attachment for the operating table and what are some nursing considerations when it is used? [Ref 107]
19. How does the beanbag position hold the patient in the desired position? [Refs 108–109]
20. What are some nursing responsibilities associated with using beanbag positioning devices? [Ref 110]

Implementation of Patient Care

Transportation and Transfer

111. The patient's identity should be verified, the surgical site should be marked, the procedure should be verified with the patient or a qualified patient representative, and the consent form should be signed—all before the patient is transported to the operating room.
112. The patient's condition, the presence of invasive lines, the planned procedure, and institutional policy determine whether the patient may ambulate to the operating room or whether a wheelchair or stretcher is required.
113. Stretchers used for transportation should have side rails and a locking mechanism, and the head should elevate to alter the patient's position. Pediatric transport crib rails should be high enough to prevent a standing child from falling out (AORN, 2015, p. 567).
114. During transport, stretcher side rails are kept up and the safety strap, if present, is secured. The patient is covered to maintain body temperature and to preserve dignity. The stretcher is pushed by the staff member at the head of the stretcher who is in close proximity to the patient's airway.
115. The nursing assessment will determine whether the patient's condition requires special equipment for transport, and whether additional personnel are required. (For example, patients on ventilators are transported to the operating room in a bed rather than on a stretcher, and additional personnel are required to wheel the bed and maintain the patient's respirations during transport.) Institutional policy may require the presence of nursing and/or medical personnel during transport of critically ill or ventilator-dependent patients.
116. Patient transfer from the stretcher to the operating table begins only when sufficient personnel are available. The stretcher is first brought adjacent to the operating table, and the side rail that is proximal to the table is lowered. Both the stretcher and the table are locked in place and raised or lowered to equal height. All patient intravenous lines and catheters need to be visible and free from entanglement. All team members must be ready for patient transfer.
117. During transfer to the operating table, one team member stands at the far side of the table to receive the patient. Another team member

stands at the near side of the stretcher to assist the patient's move onto the operating room bed, and to ensure that the stretcher does not move away from the table should the lock fail. Operating room personnel must use good body mechanics to prevent injury to themselves.

118. If the patient is unable to move unaided, he or she is lifted from stretcher to bed; alternatively, the patient may be transferred with a roller or lateral transfer sheet/device. A patient lift may be more appropriate for obese patients. The patient is lifted—never pushed or pulled. Pushing and pulling create a shearing effect that compromises blood vessels and obstructs blood flow, creating the potential for a pressure ulcer.
119. Intravenous lines, monitoring devices, and endotracheal tubes are supported during transfer. The anesthesia provider typically supports the patient's head and indicates readiness for any move.

Initial Position Techniques

120. The safety strap is placed immediately when the patient is transferred to the operating table. The patient is never left unattended while on the operating table.
121. Prior to being anesthetized, the patient is positioned supine with careful attention to proper body alignment. Legs are secured with the table strap, which is applied 2 inches above the knees. Venous thrombosis can result when superficial veins are occluded by pressure, straps, or other positioning devices. Safety straps should be tight enough to secure the patient but not so tight as to impair superficial venous return.
122. If necessary, the arms may be initially secured at the patient's side, with a draw sheet drawn over the arm and tucked under the patient (not under the mattress). The elbow should be padded, the palm should face the patient, and the arm should not be secured so tightly that it interferes with circulation or monitoring devices.
123. If the patient is awake, all actions should be explained. The patient should be asked if he or she is comfortable; if the patient is not comfortable, make appropriate adjustments.
124. Because the temperature in the operating room is generally cool, a warm blanket should be available to the patient. Forced-air warming blankets are available in a variety of configurations and can cover the patient to help

prevent hypothermia. Forced-air devices are never used without the appropriate blanket, because the air coming directly out of the hose is hot and can cause a burn. Maintaining normothermia can also help to prevent postoperative infection (Seamon, 2012).

125. Many patients are uncomfortable lying flat on their backs. In such a case, pillows can be placed under the patient's knees and head.
126. To reduce the potential for compression injury and/or electrical burn, no part of the patient should contact a metal surface.
127. All body parts are supported and not allowed to hang free where they may be compressed or stretched.
128. To prevent compression and trauma to blood vessels, skin, and the tibial nerve, legs must not be crossed at the ankles.

Section Questions

1. When is the surgical site marked and consent form signed? [Ref 111]
2. Describe stretchers and cribs appropriate for transporting patients to the operating room. [Refs 113–114]
3. Which situations might require special equipment or personnel for transport? [Ref 115]
4. Describe the process for transferring the patient safely to the operating room bed. [Refs 116–119]
5. What is the proper technique for placing the safety strap on the patient? [Ref 120]
6. What is the proper way to secure the patient's arm at the side? [Ref 122]
7. What is an important caution about using forced-air devices with forced-air blankets? [Ref 124]
8. Other than comfort, what is an important reason for keeping the patient warm? [Ref 124]
9. What can be done to relieve pressure on the back in the supine position? [Ref 125]
10. Why is it important to be careful not to leave the patient's legs crossed at the ankles? [Ref 128]

Basic Surgical Positions

Supine (Dorsal Recumbent)

129. The supine position is the most common surgical position (**Figure 5-14**). Procedures in this position include abdominal surgeries and those that require an anterior approach. Head, neck, and most extremity surgeries, as well as most minimally invasive procedures, are done in the supine position.
130. In the supine position, the patient is positioned flat on the back with the head and spine in a horizontal line. Hips are parallel to each other, and the legs are positioned in a straight line, uncrossed, and not touching each other.

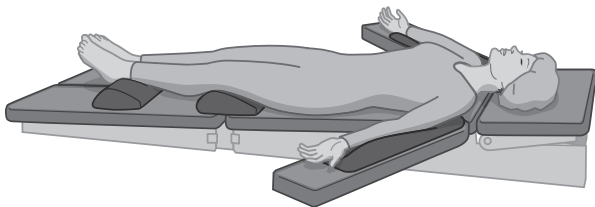


Figure 5-14 Supine position.

131. The head is supported by a headrest or pillow to prevent stretching of neck muscles.
132. Arms may rest on padded armboards or at the patient's side. When the arms are extended, armboards are positioned at less than a 90° angle from the body and palms are supinated (facing upward) to prevent ulnar and radial nerve compression.
133. When the arms are positioned at the patient's sides, the palms should rest against the patient and the elbows should be padded and must not be flexed or extend beyond the mattress. The arm is secured with a draw sheet that extends above the elbows and is secured under the patient (AORN, 2011, p. 345).
134. Take extra caution to be sure the sheet securing the arm is not so tight that it will interfere with the blood pressure cuff or intravenous line. The risk for infiltration of the intravenous line or compartment syndrome exists with the arms tucked.
135. A small pillow may be placed under the lumbar curvature to prevent the back strain that occurs when paraspinal muscles are relaxed

from anesthetic and muscle-relaxant agents. An anesthetized patient lying on the back for hours will likely experience temporary lumbar pain without a lumbar support.

136. The table strap is applied loosely at least 2 inches above the knees to prevent hyperextension of the knees. The strap should be secure, but not constricting, and should never be placed over a bony prominence.
137. Appropriate protective padding is placed at pressure points. To prevent plantar flexion and crushing injuries to the toes, the table must extend beyond the toes. A table extension may be required for tall patients.
138. Pressure points at risk for skin injury in the supine position include skin over bony prominences: occiput, spinous processes, scapulae, styloid process of the ulna and radius (elbow), olecranon process, sacrum, and calcaneus (heel). Skin breakdown from pressure is most common on the elbow, the sacrum, and the heel (Figure 5-5).
139. Nerves or nerve groups at risk include the brachial plexus, radial, ulnar, median, common peroneal, and tibial nerves.
140. Vital capacity can be reduced because of restriction of posterior chest expansion. If the patient is pregnant, a wedge may be placed under the patient's right side to prevent

hypotension caused by pressure from the uterus on the aorta and vena cava.

Trendelenburg

141. Trendelenburg (Figure 5-15) is a supine position in which the table is tilted head down so that the patient's head is lower than the feet. This position is used for providing additional visualization of the lower abdomen and pelvis and is also indicated for patients who develop hypovolemic shock. Patients having robot procedures are frequently placed in the Trendelenburg position.
142. The patient is positioned supine with knees over the lower break in the table. All safety measures are initiated before the table is tilted. To help maintain this position, the lower part of the table may be adjusted so that the patient's legs are parallel with the floor.
143. Take particular care when using shoulder braces because they pose a risk for brachial plexus injury unless they are positioned very carefully against the acromion and spinous process of the scapula.
144. Check the position of the patient's arm and hand to make certain that the elbow does not extend beyond the table and that the fingers are not too close to the lower break in the table where they might be crushed when the table is adjusted.

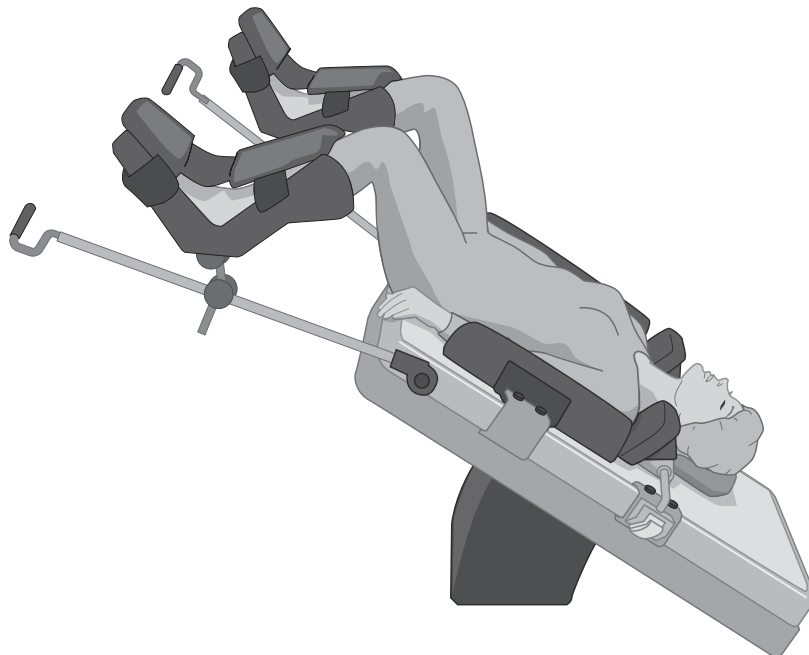


Figure 5-15 Trendelenburg.

145. Before the table is tilted into Trendelenburg position, Mayo stands, tables, and other equipment are adjusted.
146. All movements are done slowly to allow the body enough time to adjust to the change in blood volume, respiratory exchange, and displacement of abdominal contents.
147. Before the procedure begins, ensure that the Mayo stand and other equipment are not touching the patient.
148. Respiratory and circulatory changes occur as a result of redistribution of body mass. Abdominal contents press against the diaphragm, limiting expansion and decreasing the ventilation-perfusion ratio.
149. Trendelenburg position increases intrathoracic and intracranial pressure. Because of these changes, the patient should remain in

Trendelenburg position for as short a time as possible.

Reverse Trendelenburg

150. In reverse Trendelenburg, the table is tilted feet down. This position is used for head and neck procedures and to provide visualization in laparoscopic procedures in the upper abdomen.
151. The patient's feet should rest firmly on a padded footboard, preventing the patient from sliding down on the table.
152. A pneumatic sequential compression device, elastic bandages, or anti-embolism stockings prevent pooling of blood in the legs.
153. Movement in and out of reverse Trendelenburg is done slowly to allow sufficient time for the heart to adjust to change in blood volume.

Section Questions

1. Describe the proper positioning of the patient in supine position. [Refs 130–137]
2. What is important about positioning the patient's arm on an armboard? [Ref 132]
3. What is one danger of securing the arms tightly at the patient's side? [Ref 134]
4. What might happen if the patient's feet extend beyond the operating room table? [Ref 137]
5. Name the bony prominences at risk for pressure injury in the supine position. [Ref 138]
6. Which nerves are at risk for injury in the supine position? [Ref 139]
7. How do we relieve pressure on the vena cava when positioning a pregnant patient? [Ref 140]
8. How does the Trendelenburg position differ from the supine position? [Ref 141]
9. In which instances is the Trendelenburg position appropriate? [Ref 141]
10. What is the danger in using shoulder braces to keep the patient from sliding in Trendelenburg position? [Ref 143]
11. Why are changes in position done slowly? [Ref 146]
12. How are the patient's anatomy and physiology affected in Trendelenburg position? [Refs 148–149]
13. For which types of procedures is the reverse Trendelenburg position used? [Ref 150]
14. What can we use to keep the patient from sliding in the reverse Trendelenburg position? [Ref 151]
15. Why is the patient moved in and out of reverse Trendelenburg slowly? [Ref 153]

Lithotomy

154. In lithotomy position, the patient is supine with the legs elevated, abducted, and supported in stirrups (**Figure 5-16**). The buttocks are even with the lower break in the table.
155. This position is used primarily for procedures involving the perineum region, pelvic organs, and genitalia.
156. Arms are secured on padded armboards to prevent crushing fingers and hands when the bottom section of the table is lowered or raised. Armboards should be positioned at an angle less than 90° to the body.
157. Stirrups are attached securely to the table, positioned according to the manufacturer's instructions, and adjusted to the length of the

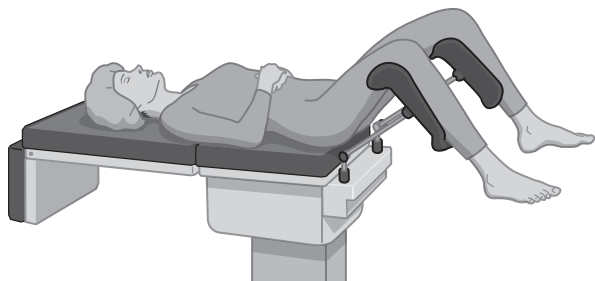


Figure 5-16 Lithotomy position.

- patient's legs to prevent pressure at the knee and lumbar region of the spine.
158. Various types of stirrups are available, and their selection should be made carefully based on patient size and the type and length of the surgical procedure (Figure 5-10).
 159. At-risk pressure points vary according to the type of stirrups used. Pay particular attention to the femoral epicondyle, tibial condyles, and lateral and medial malleoli.
 160. Padding protects the legs from pressure from the stirrup itself, and from external compression of nerves. To prevent injury to the femoral and obturator nerves, the inner thigh should be free of pressure from the stirrup.
 161. Although rare, compartment syndrome—characterized by pain, muscle weakness, and loss of sensation—has been reported as a complication of the lithotomy position (AORN, 2015, p. 572).
 162. To prevent hip dislocation or muscle strain from an exaggerated range of motion, the legs are raised and lowered slowly and simultaneously by two members of the surgical team. During leg elevation, the foot is held in one hand and the lower part of the leg in the other hand. The legs are flexed slowly, and the padded foot is secured in the stirrup.
 163. Padding may be placed under the sacrum to prevent lumbosacral strain.
 164. After the legs are safely secured, the bottom section of the table is lowered or removed.
 165. Following the procedure, the lower section of the table is raised or replaced to align with the rest of the table. The patient's legs are removed from the stirrups simultaneously, extended fully to prevent abduction of the hips, and lowered slowly onto the table. The table strap is then applied.

166. When the legs are lowered, 500 to 800 mL of blood is diverted from the visceral area to the extremities, which can cause hypotension. Lowering the legs slowly will prevent severe sudden hypotension.
167. Lithotomy position can reduce respiratory efficiency if pressure from the thighs on the abdomen and pressure from the abdominal viscera on the diaphragm restrict thoracic expansion. Lung tissue becomes engorged with blood, and vital capacity and tidal volume are decreased.
168. If nursing assessment suggests a limited range of hip motion because of contractures, arthritis, prosthesis, or another condition, the patient may be placed in lithotomy position while awake so the patient can participate and ensure that the position is comfortable.

Sitting, Beach Chair

169. The sitting position (Figure 5-17) is primarily used for shoulder surgery, often with the beach-chair table attachment that allows half of the backrest on the affected side to be removed for improved access to the surgical site.
170. During breast reconstruction, the patient is sometimes raised into the sitting position to assess breast symmetry, and occasionally the patient remains in the sitting position for the remainder of the surgery.
171. The sitting position has been used for certain craniotomies and cervical laminectomy, but this is rarely done, because the negative venous pressure in the head and neck places these patients at risk for air embolism that can be fatal. When done, a central venous catheter with a Doppler ultrasound flowmeter monitors the

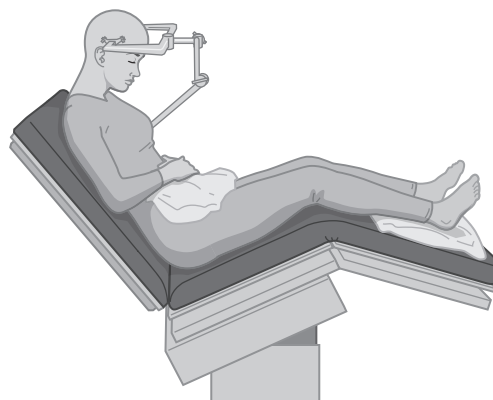


Figure 5-17 Sitting position.

sitting patient. The Doppler device is used to detect an air embolism, and the central venous pressure line is used to extract the air.

172. The patient is initially positioned supine. The head is supported in a secure headrest. The feet are usually supported on a padded footrest. The foot of the table is slowly lowered, flexing the knees and pelvis. The upper portion of the table is raised to become the backrest, and the torso reaches an upright position.
173. The arms may be flexed at the elbows and rest on a pillow on the patient's lap or on an adjustable padded platform in front of the patient. The arms should not fall into a dependent position.
174. Pressure points are similar to the supine position; however, the operating table should have a well-constructed, pressure-reducing pad because most of the patient's body weight rests on the ischial tuberosities and the sacral nerve.
175. Additional padding will protect other pressure points at increased risk for injury including the

scapulae, olecranon process, back of the knees, sacrum, ischial tuberosities, and calcaneus.

176. Antiembolism stockings or a sequential compression device prevent postural hypotension and pooling of blood in lower extremities.

Semi-Sitting, Semi-Fowler's, Lawn-Chair Position

177. The Semi-Fowler's position is essentially a supine position with the table adjusted to emulate a lawnchair. The patient's body is flexed at the pelvis and knees. While the patient is in a reclining position, the back of the table can be adjusted from nearly flat to nearly sitting, depending upon the procedure.
178. With the back raised to different levels, this position is used for nasopharyngeal, facial, neck, and breast surgery.
179. A roll may be placed under the patient's neck to hyperextend the neck and provide better access to the surgical site.

Section Questions

1. Describe the lithotomy position. [Ref 154]
2. Why should the patient's arms be positioned on armboards? [Ref 156]
3. Which pressure points are at risk for injury when the patient's legs are in stirrups? [Ref 159]
4. Describe compartment syndrome. [Ref 161]
5. Why are the patient's legs raised and lowered slowly and simultaneously? [Ref 162]
6. What is the procedure for removing legs from stirrups at the conclusion of the procedure? [Ref 165]
7. How can lowering the legs cause hypotension, and what can be done to prevent this? [Ref 166]
8. How can the lithotomy position reduce respiratory efficiency? [Ref 167]
9. What patient conditions represent a challenge to placing a patient in the lithotomy position? [Ref 168]
10. For what procedures can the sitting position be used? [Refs 169–171]
11. Describe the danger of air embolism in the sitting position, and explain how this risk is managed. [Ref 171]
12. How are the arms managed with the patient in the sitting position? [Ref 173]
13. What bony prominence bears the majority of the patient's weight in the sitting position? [Ref 174]
14. Identify other pressure points at risk for injury in the sitting position. [Ref 174]
15. Describe the semi-Fowler's position. [Ref 177]

Prone

180. In the prone position, the patient lies face down (Figure 5-18). This exposure of the posterior body is used for procedures of the spine, back, rectum, and the posterior aspects of extremities.

181. The patient will either lie on a special table engineered for prone positioning, or on a regular table with a laminectomy frame (Wilson Frame) or chest rolls. All of the necessary positioning equipment must be collected and

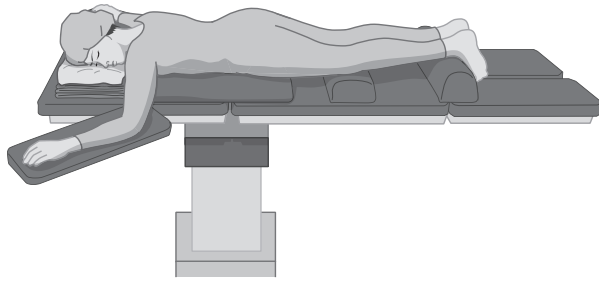


Figure 5-18 Prone position.

available prior to intubation and transfer of the patient.

182. The anesthesia provider induces the patient on the stretcher.
183. The stretcher height is raised slightly higher than the operating table to facilitate moving the patient from stretcher to table. The side rail closest to the operating table is lowered, and the stretcher is positioned adjacent to the operating table and locked.
184. Following intubation, the anesthesia provider secures the endotracheal tube to prevent dislocation and applies ointment to the eyes and tapes them shut to prevent corneal abrasion. The other side rail is lowered. The anesthesia provider will indicate when the patient is ready to be moved onto the operating room table.
185. A minimum of four persons is necessary to safely turn the adult patient from a supine position on the stretcher to a prone position on the operating table. The anesthesia provider supports and manages the head, one person supports and rotates the torso while the person on the other side of the bed positions the patient on the frame or chest rolls. The fourth person supports and moves the lower body.
186. All movement of the patient is done slowly and gently to allow the body time to adjust to the change in position. During turning, the patient's arms and hands are placed at the sides. The body is maintained in anatomical alignment, and all team members work in concert to turn the patient in a single motion.
187. The patient is placed either on the pads on the special table specifically designed for chest, hips, and thighs or onto chest rolls or a laminectomy frame (e.g., Wilson frame), positioned lengthwise on the operating table from the acromioclavicular joint to the iliac crest. This positioning lifts the patient's chest off the operating table and facilitates respiratory expansion. Female breasts and male genitalia must be arranged to avoid unnecessary compression.
188. Chest rolls that are too small or that are improperly positioned can result in restricted lung expansion. Female breasts and male genitalia must be free and not compressed.
189. After the patient is supine, the arms are brought down and forward in a normal range of motion and placed on armboards positioned next to the head. The arms are flexed at the elbows with the hands pronated (palms down) and elbows padded.
190. The anesthesiologist either turns the patient's head to one side or places it in a headrest designed to protect the airway, and then checks that the patient's eyes are closed to prevent corneal abrasion and are free from pressure that can cause permanent eye injury. The ears must be not folded unnaturally. Neck and spine must be in good alignment.
191. A pillow under the ankles lifts the toes off the mattress and prevents stretching of the anterior tibial nerve to prevent plantar flexion and foot drop.
192. The table strap helps to hold the patient in position on the table. It is placed across the mid-thighs, which are first covered with a sheet, pad, and/or a blanket to protect the skin. The strap should be at least 2 inches above the knees to promote superficial venous return.
193. A small pillow or foam padding under the knees prevents pressure on the patellae.
194. If the patient has a stoma, take precautions to prevent ischemic compression of the stoma against the frame or chest rolls that can lead to tissue necrosis and sloughing.
195. Pedal pulses are assessed to assure circulation to the lower extremities.

Mayfield Headrest (with Pins)

196. If a Mayfield headrest (Figure 5-19) is used, the surgeon will attach the head brace with pins to the patient after induction while the patient is still supine on the stretcher.
197. After the patient has been placed in the prone position, the surgeon will hold the patient's head in the brace while the nurse removes the head attachment from the operating table and replaces it with the Mayfield table attachment.
198. The nurse will adjust the table attachment until it is aligned perfectly with the patient's head, which the surgeon is holding in the

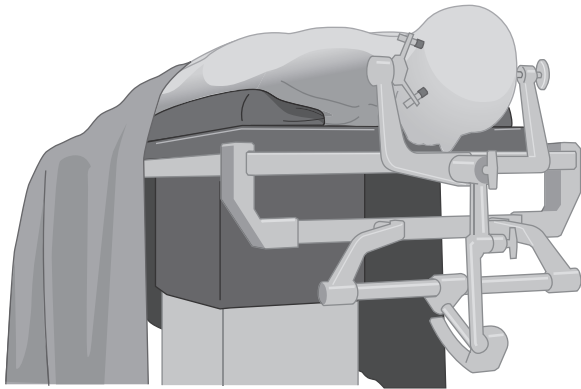


Figure 5-19 Mayfield headrest.

desired position for surgery. The nurse will then secure the headpiece in place.

199. The patient must never be repositioned on the table while the head brace is secured to the table attachment.

Kraske (Jackknife) Position

200. The jackknife position is used for rectal procedures (Figure 5-20).
201. The patient is first placed in the prone position on chest rolls with the hips over the center table joint. Chest rolls are not necessary if the patient is awake. The table is flexed to a 90° angle, causing the hips to be raised and the head and legs to be lowered.
202. All precautions appropriate for the prone position are applicable to the jackknife position.
203. Venous pooling in the chest and feet can cause a decrease in mean arterial blood pressure. Restriction of diaphragm movement combined with increased blood volume in the lungs can cause a decrease in ventilation and cardiac output. Because of its adverse effect on the respiratory and circulatory systems,

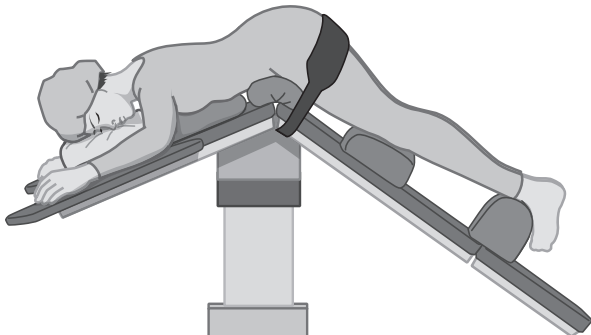


Figure 5-20 A jackknife position.

the jackknife position is considered one of the most precarious surgical positions.

Lateral

204. In the lateral (or lateral decubitus) position (Figure 5-21), the patient lies on one side. In the right lateral position, the patient lies on the right side for surgery on the left side of the body. The reverse is true for the left lateral position.
205. The lateral position is used to access the thorax, kidney, retroperitoneal space, and hip.
206. Lateral position is often supported with a pegboard (Figure 5-11) or beanbag vacuum-positioning device (Figure 5-12).
207. The patient is induced in the supine position. A team of four persons then lifts and turns the patient onto the nonoperative side. The patient is lifted in the supine position toward the edge of the operative side of the table then turned onto the side toward the center of the table.
208. The anesthesia provider supports the head and neck and guards the airway. The person standing on the operative side lifts and supports the chest and shoulders. The person on the patient's other side lifts and supports the hips, while the fourth person supports and rotates the legs.
209. The patient's head is supported with a pillow or headrest, and the body is checked for proper alignment with the head in cervical alignment with the spine.
210. The lower leg is flexed. The lateral aspect of the lower knee is well padded to prevent peroneal nerve damage that might result in foot drop caused by pressure from the fibula on the nerve. A pillow is placed between the legs, and the upper leg is extended. Feet and ankles are padded and supported to prevent foot drop and pressure injuries of the malleolus. The patient is secured with the table strap or with wide tape applied across the upper hip and fastened to the table.

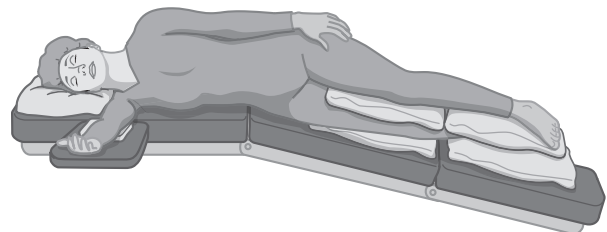


Figure 5-21 Lateral.

211. A small roll or padding is placed under the patient's lower axilla to relieve pressure on the chest and axilla, to allow sufficient chest expansion, and to prevent compression of the brachial plexus by the humeral head. The lower arm is slightly flexed and placed on a padded armboard. The upper arm may rest on a padded elevated armboard or other padded support. Take care not to abduct the arm more than 90°, because an angle greater than 90° can cause injury to the brachial plexus.
212. For kidney procedures, it is important that the patient's flank be positioned over the kidney elevator (kidney rest) with the iliac crest just below the table break. The table may be flexed at the center break. The kidney rest is raised to provide greater exposure of the area from the 12th rib to the iliac crest. Kidney braces that fit over the kidney elevator may be used to support and maintain the patient in this position. These devices must always be well padded.
213. Respiratory efficiency is affected by pressure from the weight of the body on the lower chest. The lower lung receives more blood from the right side of the heart in the lateral position, so it has increased perfusion but less residual air because of mediastinal compression and weight from abdominal contents.
214. Circulation is compromised by pressure on abdominal vessels and pooling of blood in the lower extremities. In the right lateral position, compression on the vena cava impairs venous return. If the kidney elevator is raised, additional pressure on abdominal vessels can further compromise circulation.
215. Injury of the eye or ear is a special concern with the patient in the lateral position. The ear must lie flat and the eyelid must be closed.

Section Questions

1. What procedures are commonly done in the prone position? [Ref 180]
2. What positioning equipment options are available for the prone position? [Ref 181]
3. Describe the process of moving the supine patient into the prone position. [Refs 182–186]
4. What specific responsibilities are associated with positioning the patient on a laminectomy frame or chest rolls? [Ref 187]
5. Describe the proper method for positioning the arms in prone position. [Ref 189]
6. How does the anesthesia provider protect the head and maintain the patient's airway? [Ref 190]
7. Describe positioning of the legs and feet. [Refs 191, 193]
8. Why is it important to assess pedal pulses with a patient in the prone position? [Ref 195]
9. What are special considerations associated with the Mayfield headrest with pins? [Refs 196–199]
10. Why is the jackknife position considered precarious? [Ref 203]
11. The patient will be placed in the right lateral position for surgery on which kidney? [Ref 204]
12. What positioning devices are available for lateral positioning? [Ref 206]
13. Describe the transition from the supine position to the lateral position. [Refs 207–211]
14. What is the purpose of the kidney rest? [Ref 212]
15. Describe the impact on respiratory efficiency and circulation in the lateral position. [Refs 213–214]

Positioning the Morbidly Obese Patient

216. The morbidly obese patient is an individual with a BMI of greater than 40.
217. The operating room bed must be capable of supporting the patient's weight and must be wide enough to contain the patient. Side extensions may be necessary. The manufacturer's instructions for use must be followed for weight restrictions.
218. Obesity places an increased workload on the heart and circulatory system, and respiratory

function is compromised in obese patients because of increased weight on the chest.

219. The supine position may cause the patient to have difficulty breathing due to pressure of the viscera on the diaphragm. A wedge should be placed under the right flank to relieve pressure on the vena cava.
220. The lithotomy and Trendelenburg positions should be avoided, because they may also cause respiratory and circulatory compromise.
221. The prone position may cause pressure on the diaphragm.
222. Skin breakdown is a challenge with obese patients, because moisture and fluids from skin-prep solutions may become trapped in tissue folds. Adipose tissue is not well vascularized, and the pressure resulting from positioning can cause a decrease in circulation to peripheral body areas.
223. The safety strap must be long enough and wide enough to secure the patient. Two safety straps may be necessary—one for the upper portion of the legs and one for the lower portion.
224. Lifting devices should be used to transfer the patient.

Evaluating the Positioned Patient

225. The anesthetized patient cannot report discomfort or pain related to positioning, and the effects of improper positioning will usually not be identified until the patient recovers from anesthesia and is able to report pain and injury. The patient relies on the surgical team to ensure that positioning injuries do not occur.
226. Once the patient is in position for the surgery, and before prepping and draping the patient, the perioperative nurse should do a thorough, once-over check to ensure that the patient's body is in alignment, extremities are not extended beyond their natural range of motion, bony prominences are appropriately padded, nerves where injury can occur are protected, respiratory and circulatory efforts are restricted as little as possible, and positioning devices are appropriately positioned and padded and holding the patient's body securely without excessive restriction on body structures.

227. Intermittent reevaluation of the patient's position throughout the procedure is important. If the patient is repositioned during the procedure, a thorough reevaluation is critical, with adjustments made as necessary.

Postoperative Transfer

228. When surgery is completed and the anesthesia provider indicates that the patient is stable and can be moved, the postoperative bed or stretcher is brought adjacent to the operating table. It is raised or lowered to the level of the operating table and locked into place.
229. Ideally, four people should be available to transfer the anesthetized adult patient slowly and smoothly to the bed or stretcher with a roller or lateral transfer sheet/device, maintaining the airway and proper body alignment. Lines and catheters must be protected and kept free from entanglement.
230. The patient is lifted or rolled onto the bed or stretcher, avoiding pushing and pulling. Side rails are raised and locked for safe patient transfer.

Documentation of Nursing Actions

231. Nursing documentation related to positioning should include the following information:
 - Assessment and considerations for positioning—desired outcomes
 - Overall skin condition on arrival and discharge from the perioperative suite
 - Position
 - Placement of extremities
 - Type and placement of positioning equipment and devices, such as stirrups, rolls, padding, and restraints
 - Precautions to protect eyes
 - Presence and placement of safety strap or equivalent
 - Who positioned the patient
 - Any changes made in positioning during the procedure
 - Patient condition following surgery—whether desired outcomes were met
 - Signature

Section Questions

1. How can you tell if a bed is designed to support the weight of your patient? [Ref 217]
2. What are some of the challenges the obese patient faces with positioning? [Refs 218–219]
3. How might pressure on the vena cava be relieved to promote improved circulation? [Ref 219]
4. What challenges for the obese patient are associated with prone, lithotomy, and Trendelenburg positions? [Refs 220–221]
5. Why are obese patients at high risk for skin breakdown? [Ref 222]
6. What is the purpose of a “once-over check” following positioning of the patient? [Ref 226]
7. Which member of the surgical team determines when the patient can be moved following surgery? [Ref 227]
8. How many people should participate in transferring the patient from the operating table to bed or stretcher? [Ref 229]
9. What safety considerations are associated with moving the patient onto the stretcher or bed? [Ref 229]
10. Which elements should be included in the nurse’s documentation of positioning? [Ref 231]

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Post-Test

Read each question carefully. Each question may have more than one correct answer.

1. What is the primary reason for selecting a specific surgical position?
 - a. Preventing tissue damage
 - b. Providing exposure to the operative site
 - c. Keeping the patient comfortable
 - d. Following facility policy
2. What are the two primary nursing responsibilities associated with positioning the patient?
 - a. Stabilizing the patient to prevent inadvertent movement
 - b. Preserving the patient's dignity
 - c. Protecting the patient from injury
 - d. Assisting anesthesia with maintaining the patient's airway
3. Ideally, which member of the surgical team orchestrates the positioning process?
 - a. Surgeon
 - b. Anesthesiologist
 - c. Scrub nurse
 - d. Circulating nurse
4. Which factors influence the potential for injury related to surgical positioning?
 - a. Type of procedure
 - b. Age of the patient
 - c. Position required for the procedure
 - d. Comorbidities
5. Which of the following positions is most likely to affect circulation and oxygen–carbon dioxide exchange?
 - a. Supine
 - b. Sitting
 - c. Trendelenburg
 - d. Reverse Trendelenburg
6. What physiologic outcomes are associated with compromised respiratory mechanics?
 - a. Hypoventilation
 - b. Hyperkalemia
 - c. Hypercarbia
 - d. Hypoxia
7. What are the three components of Virchow's triad that contribute to the formation of DVT?
 - a. Venous stasis
 - b. Hypercoagulability
 - c. Small-diameter vessels
 - d. Vessel wall injury
8. Which of the following procedures places patients at high risk for DVT formation?
 - a. Coronary artery bypass
 - b. Laparoscopic cholecystectomy
 - c. Craniotomy
 - d. Total hip replacement

9. Which of the following is likely to cause injury to the brachial plexus?
 - a. Tucking the arms too tightly at the patient's sides
 - b. Hyperextension of the arm on an armboard
 - c. An automatic blood pressure cuff cycling too often
 - d. Pressure on the acromion process of the elbow
10. Injury to which nerve accounts for one-third of nerve injuries related to positioning?
 - a. Brachial plexus
 - b. Radial nerve
 - c. Peroneal nerve
 - d. Ulnar nerve
11. Which of the following are symptoms of an ulnar nerve injury?
 - a. Pain, tingling, or numbness in the ring finger and little finger
 - b. Weakness of grip leading to a "claw hand"
 - c. Pain, tingling, or numbness in the first and middle fingers
 - d. Wrist drop
12. What three primary factors impact the risk for sustaining tissue damage?
 - a. Surgical procedure
 - b. Immobility
 - c. Pressure
 - d. Time
13. Which of the following injuries occurs when the skin remains stationary when the patient is moved?
 - a. Shear
 - b. Friction
 - c. Pressure
 - d. DVT
14. What is a deep tissue injury?
 - a. A red area over a bony prominence that progresses from skin to deep tissues
 - b. Stage IV ulcer
 - c. Damage to the large muscles
 - d. Necrosis at the bone–tissue interface that does not become evident until days after surgery
15. Extrinsic factors that contribute to pressure injuries include
 - a. sedation.
 - b. warming devices.
 - c. length of surgery.
 - d. obesity.
16. Which of the following place(s) the elderly at great risk for tissue damage?
 - a. Decreased muscle tone
 - b. Less subcutaneous tissue to protect bony prominences
 - c. Heightened sensitivity to heat
 - d. Poor skin turgor

17. What is the most critical component when preparing to transfer the patient from the stretcher to the operating table?
 - a. Suction on and available
 - b. A sufficient number of personnel
 - c. Raising the stretcher to equal the height of the operating table
 - d. Lifting device
18. How can blankets and sheets be used in positioning the patient?
 - a. Draw sheet to reposition patient
 - b. Provide warmth
 - c. Provide privacy
 - d. Rolled up to provide support
19. The table strap should be placed
 - a. as soon as the patient has been transferred to the operating table.
 - b. snugly across the patient's knees.
 - c. 2 inches above the patient's knees.
 - d. across the patient's hips.
20. Which of the following represents correct positioning of the patient's hands?
 - a. Palms up on padded armboard
 - b. Palms up when arms are at the patient's side
 - c. Palms down on padded armboard
 - d. Palms facing patient when arms are at the patient's side
21. Pressure points associated with the supine position include which of the following?
 - a. Occiput
 - b. Acromion process of the shoulder
 - c. Sacrum
 - d. Heel
22. The Trendelenburg (head down) position is used
 - a. to provide good visualization of the lower abdomen and pelvis.
 - b. to manage hypovolemic shock.
 - c. for obese patients, to keep them from sliding off the table.
 - d. for robotic surgery.
23. Why is movement out of the Trendelenburg position done slowly?
 - a. To keep the patient from getting dizzy
 - b. To prevent nausea and vomiting
 - c. To prevent headache and increased intracranial pressure
 - d. To allow the patient to adjust to the changes in blood volume and respiratory exchange
24. Some challenges in the Trendelenburg position include
 - a. decreased intrathoracic pressure.
 - b. decreased ventilation-perfusion ratio.
 - c. increased intracranial pressure.
 - d. Mayo stand placing pressure on the patient's legs and feet.

25. For what circumstances is the reverse Trendelenburg position appropriate?
 - a. Head and neck procedures
 - b. Obese patients
 - c. Laparoscopic procedures of the upper abdomen
 - d. Craniotomy
26. What steps are taken to prevent hip dislocation and muscle strain in the lithotomy position?
 - a. Legs are raised quickly, one at a time.
 - b. Legs are raised slowly, one at a time.
 - c. Legs are raised and lowered slowly and simultaneously.
 - d. Legs are raised and lowered quickly and simultaneously.
27. What is a serious potential complication associated with the sitting position?
 - a. Postural hypotension
 - b. Air embolism
 - c. Iliac crest compression
 - d. Increased intracranial pressure
28. How is cardiorespiratory expansion preserved in the prone position?
 - a. Pillows are placed under the patient's chest.
 - b. Shoulder braces hold the patient in place.
 - c. Chest rolls or a laminectomy frame lift the patient's chest from the table.
 - d. The patient's weight rests on knees and shoulders.
29. How are the patient's arms managed in the prone position?
 - a. Arms are at the sides when the patient is turned onto the bed.
 - b. Arms are extended on padded armboards at an angle less than 90°.
 - c. Arms are tucked at the sides with palms facing the patient.
 - d. Arms are rotated down and forward onto armboards next to the patient's head.
30. What is one very important principle related to positioning in a Mayfield headrest with pins?
 - a. The surgeon will attach the head brace before the induction of anesthesia.
 - b. The patient must never be repositioned while the head is secured to the table attachment.
 - c. Final positioning of the patient on the table will be completed after the head brace has been secured in the table attachment.
 - d. The surgeon aligns the patient's head in the head brace with the table attachment that the nurse is holding.
31. Which of the following are challenges related to the jackknife position?
 - a. Restriction of diaphragm movement
 - b. Increased blood volume in the lungs
 - c. Increase in ventilation and cardiac output
 - d. Venous pooling in the chest and feet
32. Which areas are at risk for injury in the lateral position?
 - a. Eye
 - b. Ear
 - c. Peroneal nerve
 - d. Brachial plexus

33. Which of the following are challenges that an obese surgical patient faces?
- a. Respiratory restriction from visceral contents pushing against the diaphragm
 - b. Circulatory compromise due to the increased workload obesity places on the heart
 - c. Skin break because adipose tissue is poorly vascularized and pressure can cause a further decrease in circulation
 - d. Moisture trapped in skin folds, which can accelerate tissue breakdown
34. Describe the reason for the “once-over” check of the patient following positioning.
- a. Once the drapes are in place and the surgery has begun, it is too late to spot and correct positioning errors.
 - b. The circulating nurse is ultimately responsible for any adverse outcomes of positioning.
 - c. Any improvements in patient positioning can be made prior to prepping and draping of the patient.
 - d. A thorough reevaluation of the patient’s position is important if the patient is repositioned during the surgical procedure.
35. Nursing documentation related to positioning should include:
- a. the patient’s skin condition before positioning.
 - b. the patient’s position and positioning equipment used.
 - c. the presence and placement of a safety strap.
 - d. who positioned the patient.

Competency Checklist: Positioning the Patient for Surgery

Under “Observer’s Initials,” enter initials upon successful achievement of competency. Enter N/A if competency is not appropriate for institution.

Name _____

	Observer’s Initials	Date
1. Table operation		
a. Armboards—attach, remove, adjust	_____	_____
b. Rotation—right, left, Trendelenburg, reverse Trendelenburg, flex	_____	_____
c. Lower leg portion of table and remove section (lithotomy position)	_____	_____
d. Attach/remove side rail stirrup holders	_____	_____
e. Other	_____	_____
2. Patient transfer		
a. Side rails up and secure during transport	_____	_____
b. Patient covered	_____	_____
c. Stretcher adjacent to table with proximal side rail lowered	_____	_____
d. Stretcher and table locked	_____	_____
e. Stretcher and table are equal height	_____	_____
f. Two team members present during transfer	_____	_____
g. Patient lifted or rolled, not pulled; lift/transfer device as appropriate	_____	_____
3. Supine		
a. Patient is flat on back with head and spine in a straight, horizontal line.	_____	_____
b. Hips are parallel and legs are in a straight line and uncrossed.	_____	_____
c. Safety strap is placed at least 2 inches above the knees (secure but nonconstricting).	_____	_____
d. Small pillow is placed beneath the patient’s head.	_____	_____
e. Arms extended on armboards are at less than a 90° angle from the body and supinated.	_____	_____
f. Arms at patient’s side are not flexed and do not extend beyond the mattress; arms are secured with a draw sheet, not too tightly.	_____	_____
g. Protective padding is placed at pressure points.	_____	_____
4. Trendelenburg		
a. Patient is positioned supine.	_____	_____
b. Knees are over lower break of the table.	_____	_____
c. Table is tilted head down.	_____	_____
d. Following table tilt, patient’s toes are checked.	_____	_____
5. Reverse Trendelenburg		
a. Patient is positioned supine.	_____	_____
b. Table is tilted feet down.	_____	_____
6. Lithotomy		
a. Equipment assembled	_____	_____
• Appropriate stirrups	_____	_____
• Operating table stirrup holders	_____	_____
• Padding	_____	_____

	Observer's Initials	Date
b. Patient is initially positioned supine.	_____	_____
c. Buttocks are positioned directly above the break in the table.	_____	_____
d. Both legs are simultaneously and slowly raised and positioned in stirrups by two people.	_____	_____
e. Both stirrups are at even height.	_____	_____
f. Fibular head is free of pressure from stirrups.	_____	_____
g. Stirrups are not exerting pressure against the upper inner aspect of the calf.	_____	_____
h. Padded stirrups do not compress vascular structures in the popliteal space.	_____	_____
i. Padding is placed beneath the sacrum.	_____	_____
j. Both legs are slowly and simultaneously lowered to the bed by two people.	_____	_____
7. Sitting		
a. Patient is initially positioned supine.	_____	_____
b. Foot of table is slowly lowered.	_____	_____
c. Upper portion of table is raised.	_____	_____
d. Feet are supported on a padded footrest.	_____	_____
e. Torso and shoulders are secured with table strap.	_____	_____
f. Arms are flexed and positioned on a pillow on the patient's lap.	_____	_____
g. Pressure points are padded.	_____	_____
8. Prone		
a. Equipment assembled	_____	_____
• Chest roll or laminectomy frame	_____	_____
• Donut	_____	_____
• Pillows and padding	_____	_____
b. Patient is logrolled from the stretcher to the operating table onto chest rolls or laminectomy frame by four people.	_____	_____
c. Arms are rotated through their normal range of motion and positioned on padded armboards next to the patient's head.	_____	_____
d. Arms are not abducted beyond 90°.	_____	_____
e. Elbows are padded.	_____	_____
f. Patient's head is positioned to one side and supported on a donut.	_____	_____
g. Eyes and ears are checked for pressure points.	_____	_____
h. Male genitalia are checked for pressure points.	_____	_____
i. Female breasts are checked for pressure points.	_____	_____
j. Knees and toes are protected with padding.	_____	_____
9. Jackknife (Kraske's)		
a. Patient is positioned prone.	_____	_____
b. Hips are placed over the center table break.	_____	_____
c. Arms are positioned on padded armboards next to the patient's head.	_____	_____
d. Elbows are flexed; palms are pronated.	_____	_____
e. Pillow is placed beneath the ankles.	_____	_____
f. Table strap is placed across thighs.	_____	_____
g. Table is flexed to a 90° angle.	_____	_____

	Observer's Initials	Date
10. Lateral		
a. Equipment is assembled (all components, attachments, pillows, etc.).		
b. Patient begins in supine position.		
c. Patient is turned onto the nonoperative side by four people.		
d. Patient's head is in cervical alignment with the spine.		
e. Bottom leg is flexed.		
f. Lateral aspect of lower knee is padded.		
g. Upper leg is extended.		
h. Pillow is placed between the legs.		
i. Patient is secured with table strap or tape across hips.		
j. Axillary roll is placed at the lower axilla.		
k. Lower arm is flexed on a padded armboard.		
l. Upper arm is supported on a padded elevated armboard/pillow/padded support.		
m. Arms are not abducted more than 90°.		
n. Lower ear is flat and eyes are closed.		
11. Assembles appropriate positioning devices for morbidly obese patient		
12. Documentation		
a. Preoperative assessment of skin		
b. Assessment—considerations for positioning		
c. Position		
d. Placement of padding		
e. Safety strap		
f. Who positioned patient		
g. Intraoperative changes made to position		
h. Outcome		
i. Signature		

Observer's Signature _____

Initials _____ Date _____

Orientee's Signature _____