



Hillrom™

SAFE PATIENT POSITIONING

LITHOTOMY AND TRENDELENBURG



Continuing Education Course

Hillrom is a part of Baxter

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INTERACTIVE
e-book

Speaker



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Patient Positioning for Lithotomy and Trendelenburg Positions





Overview



The purpose of this educational activity is to explore important considerations for lithotomy and Trendelenburg positions and the devices and equipment that can be used to create safe patient outcomes.

Objectives



1. Explain anatomical considerations and physiologic processes associated with the lithotomy and Trendelenburg positions
2. Describe assessment procedures and tools that may be used to reduce the risk for positioning injury
3. Identify interventions that may be used to reduce the risk for a positioning injury associated with the lithotomy and Trendelenburg positions
4. Discuss quality indicators that should be incorporated into the perioperative positioning program

GOALS OF PATIENT POSITIONING



- Exposure of the surgical site
- Patient's comfort and privacy
- Access to IVs and monitoring equipment
- Optimal patient ventilation (e.g., patent airway, avoid pressure on the chest or abdomen)
- Maintain circulation and protect muscles, nerves, bony prominences, joints, skin, and vital organs from injury
- Observe and protect fingers, toes and genitals
- Stabilize the patient to prevent unintended shifting or movement

TYPES OF PERIOPERATIVE ASSESSMENT



PROCEDURE-SPECIFIC	PATIENT-SPECIFIC	PRESSURE INJURY
<ul style="list-style-type: none"> • Type of procedure • Estimated procedure length • Required position • Potential for position change • Required positioning equipment or devices • Ability of the patient to tolerate the position • Amount of surgical exposure required • Ability of the anesthesia professional to access and provide care for the patient 	<ul style="list-style-type: none"> • Critical devices (e.g., catheters, drains) • Jewelry or body piercings • Braided hair, hair accessories, or hair extensions • Superficial implants (e.g., dermal, iris) • Implanted critical devices (e.g., pacemaker, chemotherapy port) • Prosthetics (e.g., prosthetic limb) • Corrective devices (e.g., orthopedic immobilizer) 	<ul style="list-style-type: none"> • Age • Nutritional status • Laboratory test values • Comorbidities affecting tissue perfusion (e.g., diabetes, peripheral vascular disease) • Skin condition (e.g., color, turgor, integrity, temperature, moisture, pre-existing pressure injury) • American Society of Anesthesiologists physical status classification • Body mass index • Quality of peripheral pulses (e.g., rate, rhythm, symmetry, amplitude)



RISK ASSESSMENT TOOLS



**BRADEN
SCALE**

**MUNRO
SCALE**

**SCOTT
TRIGGERS
TOOL**

POSITIONING SURFACES, EQUIPMENT AND DEVICES



ANTICIPATE AND PLAN

WHAT IS THE BEST
OR BED/TABLE FOR
THE PATIENT?

WILL SPECIAL POSITIONING
SURFACES, EQUIPMENT AND
DEVICES BE NECESSARY?

POSITIONING ACCESSORIES
MUST BE AVAILABLE, IN
WORKING ORDER AND
CLEAN/DISINFECTED.

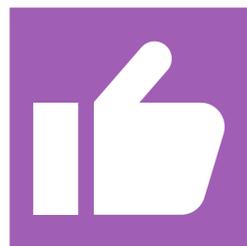
Consider surface and patient's weight

Consider type of procedure (e.g., *robotic-assisted surgeries*)

SUPPORT SURFACES



Support surfaces include the OR table mattress and overlays



PRESSURE REDISTRIBUTION

- Foam
- Gel
- Air
- Fluid



- Rolled blankets
- Folded sheets, towels, blankets

<https://blog.seakexperts.com/wp-content/uploads/Picture1-300x292.png>

EQUIPMENT AND DEVICES



CULTURE OF SAFETY

FORMAL SAFE PATIENT HANDLING AND MOVEMENT PROGRAM WITH:

- Policies and Procedures
- Education/Annual Review

PERIOPERATIVE TEAM MEMBERS SHOULD:

- Be informed by current evidence
- Understand that innovative technology continues to evolve
- Verify:
 - » Cleanliness, surface integrity, correct function
 - » Compatibility with support surfaces
 - » Weight and height capacity



LITHOTOMY POSITION

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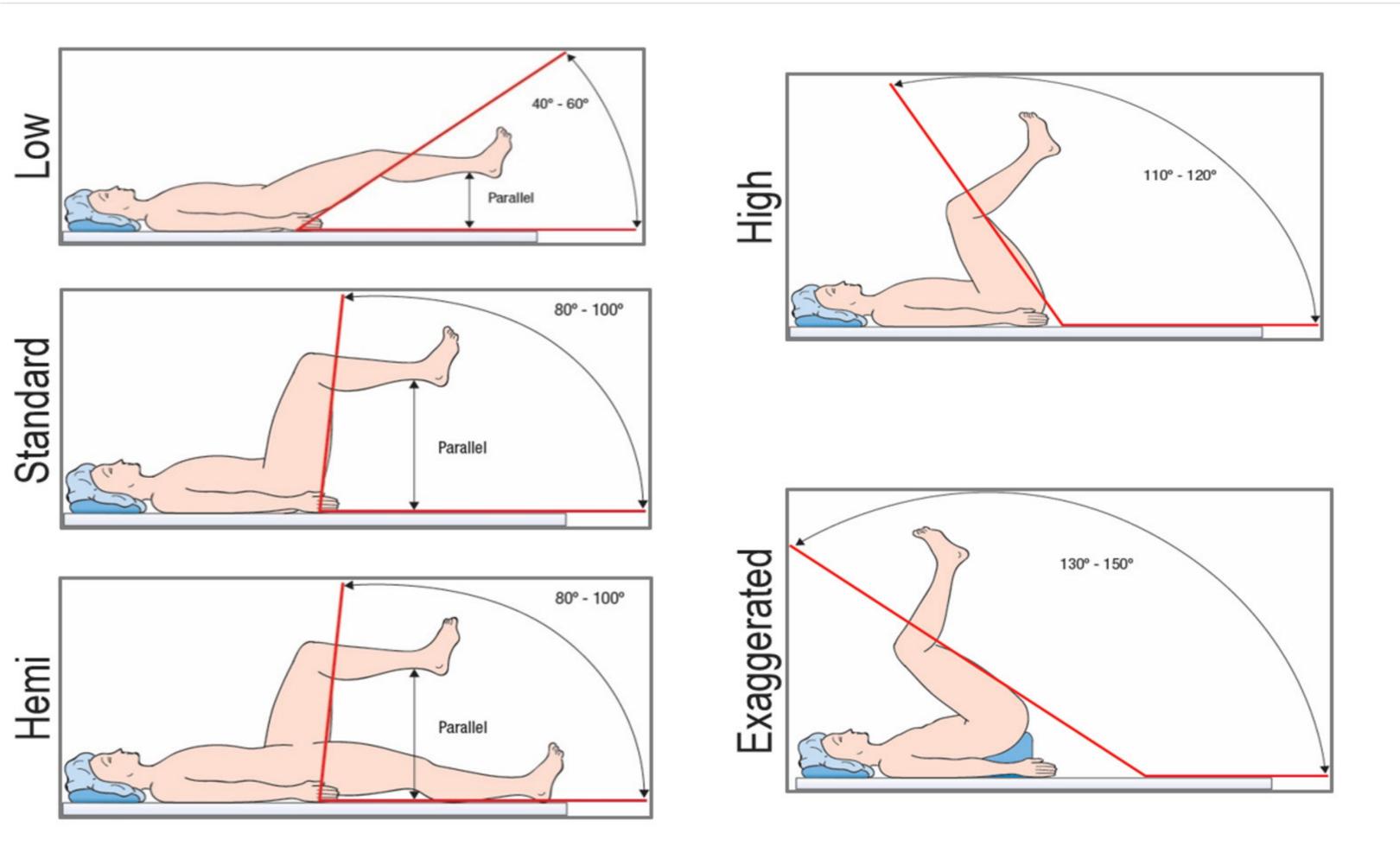


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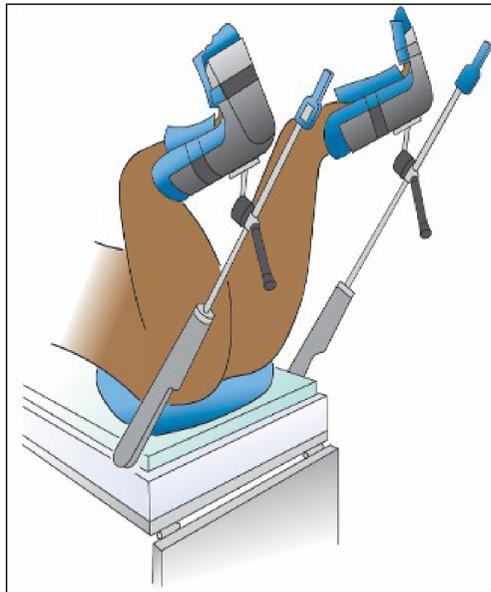
LITHOTOMY IN COMBINATION WITH TRENDELENBURG



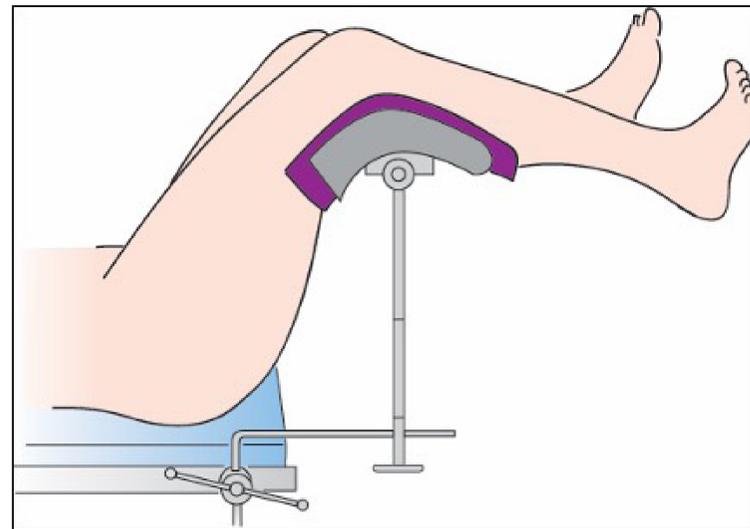
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TYPES OF LEG HOLDERS



BOOT-TYPE



KNEE-CRUTCH



CANDY CANE

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RECOMMENDATIONS FOR LITHOTOMY POSITION



- Protect the patient's hands and fingers
- Do not place the safety restraint over the patient's chest or abdomen
- Position the patient's buttocks even with the lower break of the procedure bed
- Position hips in a manner that prevents excessive flexion, rotation, or abduction
- Place leg holders at an even height
- With candy cane-shaped leg holders, place additional padding around the patient's foot and ankle
- Do not allow the patient's legs to rest against the leg holder posts
- Scrubbed personnel should not lean against the patient's thighs
- Place the patient's legs into the leg holders slowly and simultaneously
- Remove the patient's legs from the leg holders in a two-step process
 - » Remove the legs slowly and simultaneously from the leg holders and bring them together before the legs are lowered to the OR bed
 - » Simultaneously lower the patient's legs to the OR bed.

LITHOTOMY POSITION: AREAS AT RISK FOR INJURY AND POTENTIAL COMPLICATIONS



	PERIPHERAL NERVES	BONY PROMINENCES	BLOOD VESSELS
AREAS AT RISK FOR INJURY	<ul style="list-style-type: none"> • Brachial plexus • Common peroneal • Femoral • Median • Obturator • Radial • Sciatic • Tibial • Ulnar 	<ul style="list-style-type: none"> • Femoral epicondyles • Lateral malleolus • Lateral and medial humeral epicondyles • Occiput • Olecranon process • Radial styloid process • Scapula • Spinous process of first thoracic vertebra • Tibial condyles • Ulnar styloid process 	<ul style="list-style-type: none"> • External iliac artery • Femoral artery • Inferior vena cava • Saphenous vein
POTENTIAL COMPLICATIONS	<ul style="list-style-type: none"> • Circulatory compromise • Hypotension (if legs are raised or lowered too quickly) • Musculoskeletal injury 	<ul style="list-style-type: none"> • Nerve damage • Pre-existing backache may worsen (if buttocks and lower back are not adequately supported) • Skin breakdown 	



TRENDELENBURG POSITION

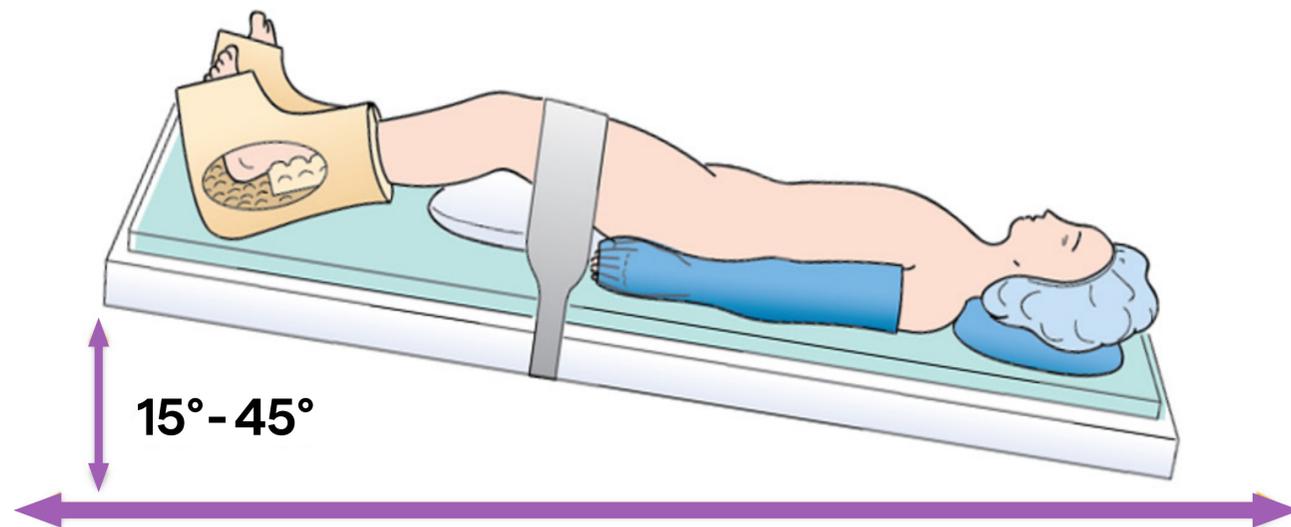


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COMPLICATIONS & CONSIDERATIONS: TRENDLENBURG POSITION

- Prevent unintended movement and shearing
- Use least amount of angle degree as possible
- Do not abduct arms beyond 90°
- Tuck or pad arms properly
- Do not place patients with increased intracranial pressure in this position; may cause increase in intraocular pressure
- Watch for circulatory effects (increased blood pressure, general vasodilation, leading to decreased cardiac output)
- Watch for respiratory compromise due to displaced abdominal contents (e.g., more challenging to ventilate lungs)
- Do not hyperextend the neck





REPOSITIONING



UNINTENDED MOVEMENT



- Gravitational forces can create friction and increase the risk of skin breakdown
- Increased risk of shear to scapula and sacrum
- Potential pressure on brachial plexus
- During robotic-assisted surgery, incisional tears can occur at the port sites resulting in hernias
- Obese patients more susceptible to downward shifting



RECOMMENDATIONS FOR TRENDLENBURG POSITION



Place patient who has physical limitations (e.g., arthritis, knee injury) in the anticipated position before being anesthetized to ensure that the position is comfortable and safe for the patient

Anesthesia professional should check the patient's airway maintenance device and take corrective actions as indicated

Secure the patient's arms by tucking them at the sides with a draw sheet or securing them at the sides with arm guards

TRENDELENBURG POSITION: AREAS AT RISK FOR INJURY AND POTENTIAL COMPLICATIONS



AREAS AT RISK FOR INJURY	PERIPHERAL NERVES	BONY PROMINENCES		BLOOD VESSELS
POTENTIAL COMPLICATIONS	<ul style="list-style-type: none"> • Brachial plexus • Common peroneal • Median • Radial • Tibial • Ulnar 	<ul style="list-style-type: none"> • Calcaneus • Lateral and medial humeral epicondyles • Occiput • Olecranon process • bra • Ulnar styloid process 	<ul style="list-style-type: none"> • Radial styloid process • Sacrum • Scapula • Spinous process of first thoracic verte 	<ul style="list-style-type: none"> • Inferior vena cava • Popliteal artery • Saphenous vein
	<ul style="list-style-type: none"> • Blood pressure changes • Cerebral edema 		<ul style="list-style-type: none"> • Intraocular pressure increase • Respiratory distress 	

POSTOPERATIVE ASSESSMENT



- Report areas of the patient's body that should be assessed and monitored for potential injury at every phase of care
- Summarize events during the intraoperative period that may have contributed to a position-related injury
- Include:
 - » Position of the patient during the procedure
 - » If patient was repositioned during the procedure
 - » Length of time spent in each different position intraoperatively
 - » Length of time patient spent in each different position intraoperatively

PRE-OP NURSE

INTRA-OP NURSE

POST-OP NURSE

POSTOPERATIVE ASSESSMENT



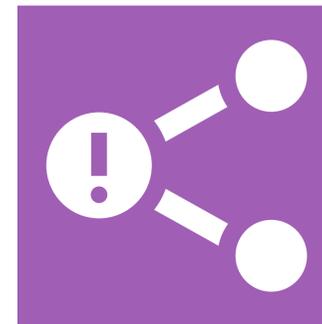
PERIANESTHESIA NURSES SHOULD ASSESS FOR:



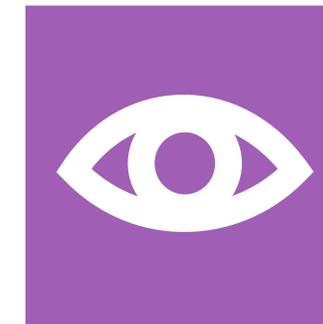
**Pressure
Injury**



**Extremity Nerve
Dysfunction**



**Compartment
Syndrome**



**Ocular
Injury**

QUALITY AND PERFORMANCE IMPROVEMENT



- Documentation of Care
- Preventive Maintenance of equipment
- Initial and ongoing education/competency verification
- Policies and Procedures
- Quality Management System to evaluate compliance
- Report to MedWatch when malfunction causes injury/death

SUMMARY



- Positioning is **one of the most important** tasks of the perioperative RN
- Conduct a **thorough preoperative assessment**
- **Communicate to team** about patient's risk for positioning injury
- **Plan** for appropriate positioning surfaces, equipment and devices
- **Thorough assessments and hand-offs** between phases of care
- Positioning should include **documentation, education, policies and procedures**, quality management

LITHOTOMY CONSIDERATIONS

Type of leg holder, timing and repositioning

TRENDELENBURG CONSIDERATIONS

Degree of tilt, timing, repositioning and prevention of inadvertent movement/sliding

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THANK YOU.

ABOUT HILLROM

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