

Patient Positioning: Lithotomy Position

Patient positioning is a procedure that requires the moving, the securing and the stabilising of a patient. This is done in such a manner as to ensure adequate access to the surgical site whilst maintaining proper body alignment, physiological function, ensuring comfort and preventing injury to the patient.

Incorrect positioning could compromise the patients' skin integrity, leading to the formation of pressure ulcers and could cause neuromuscular damage. There are four factors that commonly cause injury to skin, and they are:

- Pressure
- Friction
- Shearing
- Maceration

Prolonged **pressure** to one area will result in decreased tissue perfusion which in turn could cause tissue necrosis and the formation of pressure ulcers. **Friction** to skin can be caused by dragging a patient across bed linen or it can be caused by rubbing up against a safety strap. **Shearing** and friction to skin can also be caused by pulling linen out from underneath a patient, or when transferring a patient from the operating table to the bed. **Maceration** of skin occurs when the skin is exposed to fluid over a period. The fluid saturates the skin and weakens the epidermis. Macerated skin is more vulnerable to friction, shearing and the formation of pressure ulcers.

Common surgical patient positions include:

- Lithotomy
- Lateral
- Prone
- Supine
- Trendelenburg
- Reverse Trendelenburg

Lithotomy Position



In this position the patient is lying supine with legs raised, abducted and secured on a pair of stirrups or leg holders. Two people are needed to lift and position the patient's legs. The legs must be lifted simultaneously and slowly to prevent strain on the patients back and to prevent dislocating the patient's hips. The legs must be well secured in the leg holders. The leg holders should be appropriately padded. They must be well secured to the table and at equal height. Potential pressure areas in this position include the head, sacrum, calves and the heels. Care must be taken not to injure the patient's fingers when lowering or removing the bottom end of the operating table.

Do not apply a patient restraint across the abdomen or chest when the patient is in lithotomy position as this increases the risk of restricting respiration and the development of a pressure sore.

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Which Leg Holder do I use?

There are 3 types of legs holders. The type of leg holder used should be based on the needs of patient. It is best to use a leg holder that supports the legs over the largest possible surface area.



Candy Cane

The patient's legs are raised, and the foot is secured in the double sling. Padding must be placed between the patient's leg and the pole to prevent injury. When using these leg holders there is a risk of injury to the lateral aspect of the knee resulting in foot drop or nerve injury to the patient's leg. It is also possible to over rotate the patient's hips which could potentially cause injury to the sciatic nerve. Care should be taken when positioning the feet in the slings as pressure from the sling could cause plantar nerve injury.



Knee Crunch

The leg holder is attached to the table, and the patient's leg is raised and placed over the padded support. With this leg holder all the weight rests on the support at the level of the knee. This has the potential to cause injury as there is pressure on the popliteal fossa. The increased pressure in this region can also obstruct venous and lymphatic return.



Boot Type

The leg holder is attached to the table and the patient's leg is lifted and supported in a boot. This type of stirrup supports the entire leg as the pressure is evenly distributed to the leg and foot. Care must still be taken when using this leg holder as incorrect placement can result in injury to the patient. The booted systems normally incorporate hydraulic power to assist with positioning the leg. They are simple and effortless to use thereby reducing risk to the patient and the theatre staff. These leg holders are designed to ensure that there is no pressure on the popliteal fossa or where the perineal nerve is superficial. The boot pad covers the foot and lower leg, securing it in place.

Removing a patient's legs from leg holders in the lithotomy position

The AORN (Association of Operating Room Nurses) guidelines recommends that removing the patients' legs should be done using a 2-step method, and a minimum of two people are required.

Step 1

Each person manages a leg each, the legs must be removed slowly and simultaneously from the leg holders.

Step 2

The legs are then slowly and simultaneously lowered onto the operating table.

The reason two people are required is that it prevents stresses and injury to the hip joint and pelvis of the patient and it prevents injury to the staff that can be caused by awkward or heavy lifting.

Lithotomy position: Effect on circulation

When the patient's legs are raised into lithotomy, blood is shifted to the central circulation and there is decreased perfusion to the legs. The patient's overall circulating blood volume is altered when the legs are lowered, as blood returns to the peripheral circulation. If the legs are lowered too quickly it can cause a rapid volume shift that will affect the patient's blood pressure. The anaesthetist should be notified prior to lowering the patient's legs.

Test yourself

1. The sling from a candy-cane shaped lithotomy stirrup can cause plantar nerve injury

True

False

2. It is not possible to over rotate the patient's hips when using candy-cane shaped lithotomy stirrup

True

False

3. Hydraulic power assisted stirrups reduce risk of injury to staff

True

False

4. Knee crunch leg holders do not apply pressure to the popliteal fossa

True

False

5. The boot type stirrup supports the entire leg

True

False

Answers:

1 = T 2 = F 3 = T 4 = F 5 = T

References:

1. *Interoperative patient positioning: its more than just comfort*: STERIS study guide 02.
2. Phillips N, 2007, *Berry and Khon's Operating Room Technique*; Mosby Inc. 11th Ed.
3. Van Wocklin SA, 2018. *Clinical Issues: Using the safety restraint when a patient is in the lithotomy position*. AORN Journal, Vol. 107, No. 1.
4. Van Wocklin SA, 2018. *Clinical Issues: Selecting leg holders for use when a patient is in the lithotomy position*. AORN Journal, Vol. 107, No. 1.
5. Van Wocklin SA, 2018. *Clinical Issues: Removing a patient's legs from the leg holders in the lithotomy*. AORN Journal, Vol. 107, No. 1.



Courses in Decontamination and Sterilization

These courses are run at various venues throughout South Africa and sponsored by SafMed. The courses are not product related and are run by Qualified Nursing lecturers who are experts in the field of Theatre and CSSD.

The two courses are known as: *Foundation Course in Sterilization and Decontamination (One day)*
The Advanced Course in Decontamination and Quality Management (One day)
In order to attend these courses an application form must be submitted.

For course dates and application forms please contact:

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