

Direct Lateral Interbody Fusion (DLIF) **(Stand alone or with posterior instrumentation)**

What is a DLIF and who needs it?

- A DLIF is a minimally invasive type of lumbar fusion surgery aimed to reduce back and nerve pain by removing painful discs and pressure on the nerves as well as provide stabilization to the vertebra.
- The nerves are decompressed by removing the disc from a lateral approach (the side of the body). Bone graft is applied to the space the disc had occupied. As the bone graft heals, it fuses the vertebra above and below and forms one long bone.
- It is recommended for the following conditions after failing to improve from conservative treatments:
 - Spondylolisthesis (Spinal instability)
 - Degenerative disc disease
 - Recurrent disc herniation
 - Radiculopathy
 - Spinal Stenosis

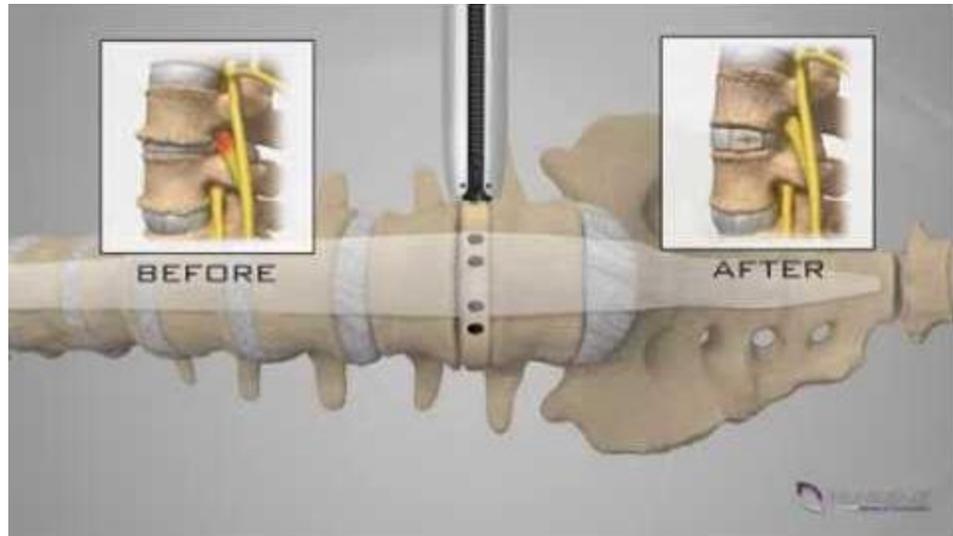
How is it done? DLIF Surgery Technique

DLIF procedure is performed through an incision on the side of the body between the bottom of the ribcage and the top of the pelvis. In certain cases the DLIF is done as a “stand alone” procedure. If further stabilization is required, then a second procedure is performed to place pedicle screws from a posterior approach. In this case, two horizontal incisions on the lower back are made to insert the screws. For a revision surgery, the previous incision may or may not be used. If hardware is already present, this will be removed and replaced with new hardware when appropriate.

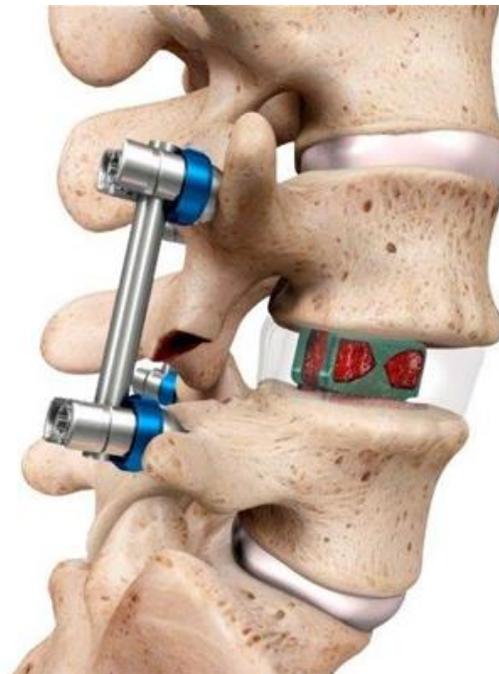
- The patient is positioned on his/her side. An incision is made between the bottom of the ribcage and the top of the pelvis with the guidance of fluoroscopy (x-ray). Retractors hold back the surrounding muscles and provide access to the disc space.



- The disc space is entered and disc material is removed.
- A **spacer** or **interbody cage** that is filled with bone graft is placed into the disc space to maintain the disc height.



- At this time, the surgeon may decide that further stabilization is required. The patient will be positioned prone (on the belly) and small incisions will be made on the back.
- **Pedicle screws** are placed into each vertebra.
- **Rods** are placed in the pedicle screws to connect the vertebra across the disc spaces.



- The **wound** is closed. The sutures are buried underneath the skin and do not need to be removed at a later date. The incision is also covered with a skin glue that will act as a bandage and supplement the closure.

Follow this link to watch an animated video of the surgery:

<https://www.spine-health.com/video/lateral-lumbar-interbody-fusion-xlif-video>

What to expect in the hospital?

The expected hospital stay following a DLIF is three to five days. Physical therapy will begin the day following surgery beginning with gradual mobilization. It is important to let your therapists know about stairs or other obstacles in your home so he/she may work specifically on these issues. Pain control is provided initially with a PCA pump (patient controlled anesthesia). On post op day 2, the PCA is discontinued and you will be transitioned to oral pain medications. Lab work is routinely obtained to determine how your body is recovering from the surgery. A drain is placed in the wound during the operation to collect any continued bleeding. This is usually removed post op day 2 or 3.

What to expect after discharge?

Most patients are discharged home following this type of surgery. Home health nursing and/or physical therapy will be arranged if necessary. If for some reason, you are not deemed independent enough to go home at the time of discharge, it will be arranged for you to proceed to a skilled nursing facility or inpatient rehab center for extended therapy. The length of time you spend in the facility will be determined by your progress. Oral pain medications will be provided based on what is working best for you while in the hospital. *It is important to take narcotic medications as they are prescribed.* Early refills cannot be provided if you run out before the next refill is due.

Limitations/Restrictions include:

- Walk at least 3 times a day, gradually increasing time/distance
- No lifting over 10 lbs.
- Avoid bending, stooping, twisting and squatting.
- No tub baths or submerging the incision under water. You may take showers and use soap and water to clean the incision. No dressing should be needed once you are discharged. If any drainage is present, apply an absorbent dressing and change as needed until wound is dry.

When to call the office?

- If temperature is above 101F
- If wound is draining, particularly if the drainage is yellow or foul smelling
- If pain increases significantly
- If weakness in the lower extremities develops

An appointment with Dr. Lowe or Sam will be made 4 weeks from your surgery date. At this visit, you can expect examination of the wound and physical functionality, x-rays, and medication adjustments. Outpatient physical therapy will typically start 3 months after the surgery. This allows time for the incision and surrounding muscles to heal and the beginnings of bone consolidation to form. Exercise is a central component of the healing process.

When will the pain resolve?

Leg pain from a compressed nerve is generally relieved within a few days of the surgery. It is normal to have some residual leg pain while the nerve is healing. Following a DLIF, it is normal for the thigh on the same side as the DLIF incision to feel weak. Numbness/tingling may last for weeks to months but should progressively resolve. The back will be very sore for the 1st month after surgery. This will progressively resolve over the next 6 months. Keep in mind that each individual's recovery process will vary to a certain extent depending on a number of factors. These factors include the patient's pathology, prior physical condition, prior and overall health, the extensiveness of lumbar fusion, and the individual's perception of pain and recovery.

When can I drive or return to work?

- You can typically drive 2 weeks after surgery. Keep in mind, this depends on the amount of pain medication you are taking at the time.
- For office/sedentary type work, you can expect to return to work in 6 weeks. 3 months may be required for more labor intensive occupations.

What can I do to ensure a successful surgery?

- Exercise as directed. Walking after surgery will benefit your heart, lungs and musculoskeletal system following your surgery. It can also be great for dealing with the emotional strife that may follow a major procedure. Gradually increasing your exercises and stopping when there is added pain is the recommended method.
- Healthy sleep habits. Getting enough sleep is essential to help repair the body. Many patients find it helpful to sleep in a recliner during the first few weeks.
- Healthy eating. A diet with sufficient amounts of protein is important. Also drink plenty of fluids. The bowel is often slow to “wake up” after anesthesia and pain medications can be very constipating. Adding a stool softener or laxative may be helpful.
- **NO SMOKING!!!** Numerous studies have demonstrated that the rate of non-fusion in smokers is as much as twice that found in non-smokers. One of the most negative effects of nicotine is decreased revascularization of the bone graft. In essence, the bone graft does not get enough nutrients due to a lack of blood supply and, therefore, does not grow and cannot form a fusion. Smoking has also been shown to accelerate existing degenerative disc disease. Continuing to smoke may lead to the need for more surgery. Nicotine is the main culprit which means that using nicotine replacements such as patches or gum will not alleviate the problem. We can provide a prescription to help with smoking cessation.

What are the risks of the surgery?

As with any surgery, there are certain risks and complications to consider.

- Bleeding
 - A moderate amount of blood loss is expected during a DLIF and is depending on the number of levels involved.
 - Your blood will be collected as the operation is being performed and returned to your body if needed.
 - If more blood is needed, then a transfusion (receiving someone else’s blood) may be required to return your values to normal. This usually occurs 1-2 day after the surgery.

- Infection
 - During the procedure, you will receive prophylactic antibiotics through an IV. An antibiotic powder will also be placed in the wound before closure to help prevent infection.
 - Keeping the incision clean and dry will help prevent complications.
- Nerve damage
 - During spine procedures, injury to the nerve can occur during decompression or manipulation of the nerve to get to another structure. This is a very rare occurrence and dependent on the expertise of your surgeon.
- Failed fusion (pseudoarthrosis)
 - Refer to the ***NO SMOKING!!!*** paragraph above. Non-union occurs in 5 to 10% of all spine surgeries and is heavily influenced by smoking.
 - Other causes of a non-union include too much movement of the fusion site following surgery or suffering from recurrent falls which may shift or fracture the hardware.
- Failure to reduce pain
 - Studies indicate approximately 20% of spine surgeries fail to reduce back pain. This a multifactorial problem and heavily dependent on proper patient selection, overall health condition prior to surgery, other conditions related to the spine not addressed in this type of spine surgery, failure to be compliant with physical therapy, and surgeon expertise.