PROCEDURE

Disk replacement - lumbar spine

Lumbar disk replacement removes a damaged lower-back disk and replaces it with an artificial disk

PURPOSE
Relieve disk-related back pain while preserving spinal movement

PROCEDURE TYPE
Therapeutic surgery through an abdominal approach

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
About two to three hours for one level

PREPARATION
Fasting, medication review, and stopping selected blood thinners

RECOVERY
One to three hospital days; no driving until cleared

MAIN RISKS
Infection, bleeding, nerve injury, implant movement

RESULTS
Recovery assessed over weeks to months

Overview

Lumbar disk replacement is surgery on the lower spine. The surgeon removes a damaged spinal disk and replaces it with an artificial disk made from metal, plastic, or both.

Spinal disks cushion the bones of your spine, called vertebrae, and allow movement. An artificial disk aims to reduce pain while preserving some movement at the treated level.

The surgeon usually reaches the spine through the front of your abdomen. A specialist access surgeon may help move the abdominal organs and major blood vessels safely aside.

Disk replacement is not suitable for every type of back pain. Careful assessment is needed because pain can come from joints, nerves, muscles, or several disks.

Why the procedure is performed

Lumbar disk replacement may be offered for ongoing lower-back pain caused by degenerative disk disease, in which a disk has worn down or become damaged.

It is usually considered only after nonsurgical treatments, such as physical therapy, activity changes, pain medicines, and injections, have not provided enough relief.

Unlike spinal fusion, which permanently joins two vertebrae, disk replacement aims to preserve movement. This may reduce stress on nearby spinal levels, but it cannot prevent all future problems.

Who should and should not have it

You may be considered for disk replacement if your pain mainly comes from one damaged lower-spine disk, imaging findings match your symptoms, and your spine is stable enough to support the implant.

Approved uses differ among artificial disk models. Many are intended for skeletally mature adults with disease at one lower-lumbar level after at least six months of nonsurgical care.

Disk replacement may be avoided when there is:

Previous abdominal surgery, smoking, body weight, pregnancy, other illnesses, and medicines may also affect whether or when surgery is appropriate. An active infection or uncontrolled medical condition may mean surgery should be delayed.

- Significant arthritis in the facet joints behind the spine
- Osteoporosis or another weak-bone condition
- Spinal instability, major slippage, or marked deformity
- Infection, fracture, or a tumour near the surgical area
- Severe nerve narrowing that requires a different operation
- Disease at several levels not covered by the selected implant
- An allergy or sensitivity to device materials
- Blood-vessel anatomy that makes the abdominal approach unsafe

How to prepare

Follow your treating facility's instructions because fasting, medication, and arrival requirements can differ.

Tell the surgical team about all medicines, supplements, allergies, and previous reactions to anaesthesia. Blood thinners and some diabetes or weight-management medicines may require special instructions. Do not stop prescribed medicine unless your team tells you to.

You will need to stop eating and drinking for a set time before general anaesthesia. Nicotine can interfere with healing, so ask about support if you smoke or use nicotine.

Arrange transportation after discharge and help at home. Place frequently used items where you can reach them without bending or twisting.

What happens during the procedure

After general anaesthesia, you will be unconscious and will not feel the operation. You will usually lie on your back.

The surgeon makes an abdominal incision and reaches the front of the lumbar spine, moving major blood vessels and abdominal structures aside. X-rays confirm the correct level and implant position.

The damaged disk is removed. The surgeon prepares the nearby vertebrae, selects an appropriately sized artificial disk, and places it into the empty disk space. Imaging is used to check its position.

The abdominal structures are returned to place, the incision is closed, and you are taken to a recovery area.

Recovery and what to expect afterward

Pain around the abdominal incision and lower back is expected at first. Temporary leg discomfort, numbness, or muscle spasms may occur, but report new or worsening symptoms.

You may begin with liquids and return to ordinary food as your appetite and bowel function recover. Anaesthesia, pain medicines, and reduced activity can cause nausea or constipation.

Staff usually help you stand and walk soon after surgery. Follow instructions about physical therapy and avoiding heavy lifting, repeated bending, twisting, or high-impact exercise while tissues heal.

Do not drive home or drive while taking sedating medicine or while pain limits your reactions. Resume driving only when your surgical team says it is safe.

Return-to-work timing depends on healing and job demands. Work involving lifting, driving, climbing, or repeated movement usually requires more recovery time than desk work.

Risks and possible complications

All surgery and anaesthesia carry risks. Lumbar disk replacement also has risks related to the abdominal approach and implant.

Possible complications include:

The procedure may not relieve pain as much as hoped. Problems can also develop later at the treated or nearby spinal levels.

- Bleeding, infection, blood clots, or a reaction to anaesthesia
- Injury to nerves, blood vessels, bowel, urinary structures, or nearby tissues
- Persistent pain or new back or leg symptoms
- Implant movement, sinking, loosening, wear, breakage, or incorrect positioning
- Unwanted bone formation around the implant, limiting movement
- Sexual problems from nearby nerve injury, including retrograde ejaculation in some men
- Further surgery, possibly to remove the implant or perform a fusion

Results and follow up

X-rays may be taken after surgery to check the implant. Follow-up visits assess your wound, movement, symptoms, and return to activity.

Incision pain often improves as tissues heal. Improvement in long-standing back pain may take weeks or months, and some pain or activity limits may remain.

Attend routine appointments even if recovery is going well. Periodic imaging may be needed to check implant position and movement. Long-term durability differs by device and cannot be guaranteed for your lifetime.

Alternatives

You do not have to choose disk replacement. Alternatives include:

The best option depends on the source of pain, bone strength, spinal stability, anatomy,

previous treatment, and your priorities.

- Continued nonsurgical care: Physical therapy, exercise, activity changes, medicines, and selected injections avoid surgical risks but may not provide enough relief.
- Spinal fusion: Fusion can treat some conditions unsuitable for disk replacement but removes movement at the operated level and requires bone healing.
- Decompression surgery: This removes tissue pressing on nerves. It may help symptoms from nerve compression but does not treat every source of back pain.
- No operation for now: Monitoring gives you more time to consider your choices, but symptoms may continue.

When to call your healthcare team

Contact your surgical team promptly for increasing incision redness, drainage, fever, worsening pain, persistent vomiting, new numbness, difficulty urinating, or constipation that does not improve with the recommended plan.

Seek urgent medical care for a new or one-sided painful, swollen calf.

Call emergency services for:

Questions about medicines, wound care, activity, or returning to work can usually wait for routine contact with your surgical team.

- Trouble breathing, chest pain, fainting, or coughing up blood
- Sudden loss of leg strength or inability to walk
- New loss of bladder or bowel control
- Rapidly increasing abdominal swelling, severe abdominal pain, or heavy bleeding

Common questions

Will I be asleep?

Yes. The procedure is normally performed under general anaesthesia.

Can I drive home?

No. Someone must take you home. Do not drive until you are off sedating pain medicine, can move comfortably, and have been cleared by your team.

How painful is it?

Abdominal-incision and lower-back pain are common during early recovery. Tell your team if pain is severe, rapidly worsening, or different from what you were told to expect.

When will I know if it worked?

Imaging can check implant position immediately, but pain and function are assessed over weeks to months as healing and rehabilitation progress.

Will the artificial disk wear out?

Artificial disks are designed for long-term use, but wear, loosening, movement, or unwanted bone growth can occur. An implant cannot be guaranteed to last for the rest of your life.

Sources

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- National Institute for Health and Care Excellence. Prosthetic Intervertebral Disc Replacement in the Lumbar Spine . Interventional Procedures Guidance IPG306, 2009.
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