

ARTIFICIAL LUMBAR DISC REPLACEMENT

Introduction

Individuals suffering from severe or worsening back conditions caused by diseased, damaged, or herniated (slipped or bulging) lumbar discs may benefit from surgery in which the affected discs are replaced by prosthetic discs.

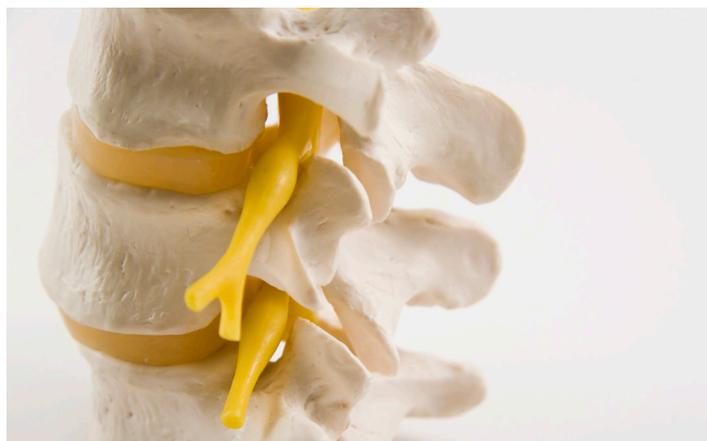
The decision to have surgery should be taken under the advice of a doctor or specialist, with careful consideration given to the possible benefits, risks and complications.

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Procedure for artificial lumbar disc replacement ^{1,3}

Lumbar disc replacement is generally done through an incision made in the abdomen. Depending on the country and local regulations for disc replacement procedures, either a total disc replacement (all or most of the damaged disc), or a disc nucleus replacement (only the center of the disc) will be performed. For total disc replacement, the discs used may be metal, biopolymer (a plastic-like material), or a combination of these. The inserted disc usually consists of



two plates, one that attaches to the vertebrae above the original disc site and one that attaches to the vertebrae below this site. A soft, plastic-like piece may lie between these plates to facilitate motion. In the case of nucleus (disc center only) replacement, the material used is biopolymer and is meant to function like a normal disc center.

Effectiveness of artificial lumbar disc replacement

The long-term effectiveness and safety of artificial disc replacement is not yet well established.¹ Moreover, the medical community is not unanimous in endorsing this procedure as an effective alternative to spinal fusion surgery.³

Alternatives to artificial lumbar disc replacement

Surgery is not generally recommended for individuals as a first option for individuals suffering from disc-related back pain. With rare exceptions, non-surgical treatments are always preferable, at least for the first three months after the onset of symptoms. Only if there is no relief or improvement should surgery be considered.



Spinal fusion

As a surgical alternative to artificial lumbar disc replacement, spinal fusion surgery is often considered. Spinal fusion joins two or more vertebrae together using a bone graft for the purpose of making the spine stronger.

Artificial lumbar disc replacement may be preferred over spinal fusion surgery due to the shorter recovery time and greater chance of spinal mobility attained after the operation. In addition, disc replacement is considered to result in less stress on the other discs in the spine, as well as the fact that this procedure eliminates the need for bone grafting from another area of the body or using donated bone.³

On the other hand, in the event that an individual requires revision surgery (due to complications, failure of surgical goals, or gradual wear and tear), those who have undergone artificial lumbar disc replacement tend to face greater complications than those who have had spinal fusion surgery.³

Risks, complications and preparation for artificial lumbar disc replacement

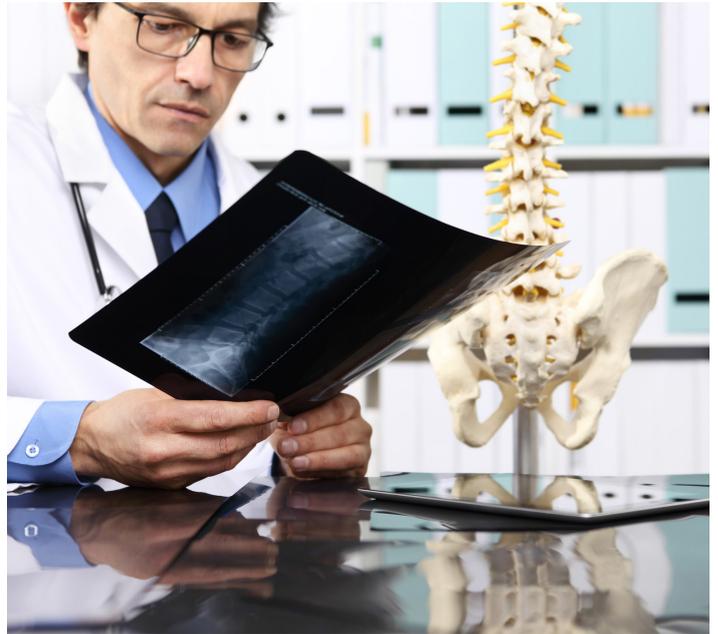
All operations carry the risk of complications and side effects. Some of the complications which may be more specific to artificial lumbar disc replacement include, but are not limited to, the following³:

- Allergic reaction to the materials used in the implant.
- Breaking, bending, shifting, or loosening of the implanted disc. This can require emergency surgery, with its own complications.
- Potential production of wear debris (microscopic particles caused by friction) over time, the side effects of which are not fully known.

Eligibility for artificial lumbar disc replacement

Artificial lumbar disc replacement may be unsuitable or unsafe for individuals with the following conditions or circumstances^{2,3}:

- Smoking or tobacco use within at least 6 weeks of surgery
- Damage, herniation, degeneration, or disease in more than one disc
- Spondylolisthesis, osteoporosis, or spinal fracture
- Allergies to any of the materials used in the replacement disc
- Spinal tumor or spinal infection
- Morbid obesity
- Abnormalities or significant changes to spinal facet joints
- Pregnancy
- Chronic steroid use
- Any type of autoimmune condition
- Prior abdominal surgery or who problems with blood vessels in the front part of the spine



Questions about your diagnosis?

Unsure which treatment is right for you?

Did you know you have access to a free, independent and confidential decision support service?

Discuss your concerns and have your case reviewed by a specialist in your condition.

The decision is yours. And we're with you all the way.



1. Artificial Disc Replacement. Cleveland Clinic Web site. <https://my.clevelandclinic.org/health/articles/artificial-disc-replacement>. Copyright 2017. Accessed June 5th, 2017.

2. Artificial disc replacement (ADR). North American Spine Society website. <https://www.spine.org/KnowYourBack/Treatments/SurgicalOptions/ArtificialDiscReplacement.aspx>. Accessed October 2, 2017.

3. Artificial Lumbar Disc Surgery. American Association of Neurological Surgeons. <http://www.aans.org/en/Patients/Neurosurgical-Conditions-and-Treatments/Artificial-Lumbar-Disc>. Accessed September 27, 2017.

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