

Keywords used: disc replacement vs. fusion

Problem: For decades, spinal fusion has been the gold standard of treatment for debilitating degenerative disc disease. However, research indicates that disc replacement is another viable option.

Solution: This article aims to accomplish the following:

1. Compare the benefits and limitations of disc replacement and spinal fusion.
2. Expound on patients who are a good candidate for spinal surgery.

Disc Replacement vs. Fusion: Neurosurgery Advancements

Degenerative disc disease is a primary culprit of low back pain and a leading cause of global disability. As the condition worsens, the patient often feels chained to the chair. Going to the bathroom or the kitchen becomes a chore. Yet, they frequently oppose spinal surgery. Fear causes them to stay bound to the pain.

When conservative methods prove ineffective, surgery can be a viable, safe option. For decades, spinal fusion has been the gold standard of surgical treatment for debilitating degenerative disc disease. It continues to be a reliable therapy, reducing pain and disability. However, in 2007, the Food and Drug Administration (FDA) approved the first total disc replacement. This minimally invasive procedure boasts pain reduction while maintaining spinal mobility. Advancements in neurosurgery provide surgical options. Patients and providers ask, "Which is the best, disc replacement or fusion?" Keep reading to discover the benefits of both and which patients qualify.

Key Takeaways

- Degenerative disc disease causes compression of the spinal column and chronic pain. The pinching of nerve roots, or radiculopathy, frequently produces radiating pain.
- Insufficient pain relief after six months of nonsurgical therapies may indicate surgical intervention. Though patients often oppose surgery, it is frequently the best option.
- For decades, spinal fusion has been the gold standard of treatment for debilitating degenerative disc disease.
- Spinal fusion reduces pain levels, promoting independence. However, patients lose movement in the fused joint.
- During disc replacement, the neurosurgeon replaces the deteriorated disc with an artificial implant. This surgical innovation boasts all the benefits of fusion. Patients additionally profit from sustained mobility in the affected joint.

Degenerative disc disease

Degenerative disc disease affects the shock-absorbing vertebral discs. The 26 bones of the vertebral column depend on these pillow-like rings for movement and spinal protection. These discs promote flexibility, load-sharing and pain-free mobility. When discs erode, the whole body suffers. The exact etiology of degenerative disc disease is unclear. However, genetics, lifestyle and environmental factors correlate to disc deterioration.

The spinal discs consist of two layers: the nucleus pulposus and the annulus fibrosus. The nucleus pulposus is a soft, gelatinous material that acts like a pillow. The annulus fibrosus, made of fibrocartilaginous material, encapsulates the nucleus pulposus.

Herniation of the nucleus pulposus can compress the spinal cord or nerves. Consequently, patients often experience radiculopathy, the pinching of nerve roots. This condition can cause radiating pain, weakness or numbness.

More than 90% of herniated discs occur between the L4 and S1 disc space. Radiculopathy of L4, L5 or S1 nerve root can lead to pain that radiates to the posterior leg or dorsal foot. Neurologic compromise adversely impacts a patient's ability to perform activities of daily living (ADLs). At this point, physicians should consider recommending surgical intervention.

Spine surgery is a reliable treatment that decompresses and stabilizes the spine. Patients often experience apprehension about spinal surgery. However, with an experienced neurosurgeon, patients typically feel relief from the debilitating pain. With surgical intervention, they can break the chain that keeps them bound to pain and inactivity. Disc replacement versus fusion — which option is the safest, most effective treatment for debilitating degenerative disc disease?

Spinal fusion

Spinal fusion is the go-to surgical intervention for degenerative disc disease. A neurosurgeon removes the damaged disc and fuses the adjacent vertebrae. This treatment is highly effective at alleviating pain in the damaged area. For many patients, this procedure significantly improves their life. It **restores their ability to perform ADLs and diminishes pain**. However, spinal fusion prevents movement in the fused joint, reducing flexibility. Some patients complain of stiffness in the joint. Additionally, spinal fusion increases the workload on the adjacent joints.

Disc replacement

Disc replacement is an innovative alternative to spinal fusion. During this minimally invasive surgery, the neurosurgeon **removes the damaged disc, replacing it with an artificial implant**. The disc implant consists of material similar to other joint replacements. Some of the benefits related to disc replacement are:

- Improved spinal mobility

- Successful pain relief
- Less risk of spinal muscle injury
- Fewer complications
- Diminished workload on adjacent joints
- Shorter operating time and hospital stay

Disc replacement is an exciting innovation. However, not everyone is a good candidate. So, which surgery — disc replacement or fusion — is right for your patient?

Disc replacement vs. fusion: Who is a good candidate?

Degenerative disc disease is a common and often debilitating condition. Patients are desperate for relief. However, they feel nervous about going under the knife. So, how do physicians know who is a good candidate for surgery?

Patients may be a good candidate for disc replacement in the following situations:

- Only one or two levels of spine degeneration
- Insufficient pain relief after six months of nonsurgical intervention
- Functional disability
- Absence of severe arthritis in the spinal column
- Not excessively overweight
- No history of spine surgery
- No significant nerve compression or joint disease

Spinal fusion may be a better option for the following conditions:

1. Instability at the involved segment
2. Severe arthritis in the adjacent joints
3. Osteoporosis

Spinal fusion and disc replacement reduce chronic back pain, decompress the spinal column, and improve the patient's ability to perform ADLs. Patients must understand that surgery is a safe option. Both of these spinal surgeries can help restore independence and improve capabilities.

Using evidence-based technology to advance procedures

Chronic back pain affects all aspects of life and takes a toll on emotional, mental and physical well-being. Patients want help knowing how to relieve the pain and get back to independent living. Though many patients may not want to hear it, surgical intervention is often the best option. Spinal fusion remains a viable solution for many patients. However, disc replacement surgery is also receiving rave reviews. Both reduce pain associated with degenerative disc disease and help patients break free from its bondage.

<Facility Name> uses evidence-based interventions and proven technology to advance neurosurgery. With access to minimally invasive technology, we help patients get back to independent living. We would be honored to be your partner in care. Click the "Refer" button to get started.

Resources

"Total disc replacement versus fusion for lumbar degenerative diseases - a meta-analysis of randomized controlled trials." NIH: National Library of Medicine, 2019, Total disc replacement versus fusion for lumbar degenerative diseases - a meta-analysis of randomized controlled trials - PMC.

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