

NECK SURGERY:

A Guide to Understanding Your Options





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According to a recent study by the Centers for Disease Control and Prevention, over 50 percent of Americans reported experiencing musculoskeletal pain, with 14 percent complaining of pain in the neck.

We've all experienced musculoskeletal pain at some point in our lives. Whether it stems from an injury, an underlying condition, or simply the degenerative changes that take place as we age, pain is the body's way of letting us know something is wrong. And when the pain originates in the neck, it can affect our movement, range of motion, and overall well being, making even the simplest tasks uncomfortable, if not impossible.

According to a recent study by the Centers for Disease Control and Prevention, over 50 percent of Americans reported experiencing musculoskeletal pain, with 14 percent complaining of pain in the neck.¹ The neck, or cervical region of the spine, is a common site of pain for several reasons: The vertebrae that make up the neck

support the weight of the skull, making them vulnerable to traumatic injury, such as whiplash.

The openings through which nerves pass are smaller in the cervical vertebrae than they are in the chest (thoracic region) or lower back (lumbar region). Therefore, symptoms appear sooner and with greater severity when nerves become compressed or inflamed.

Normal age changes are amplified, because damage to cervical discs, vertebrae, and nerves can directly impact the arms, causing numbness, tingling, pain, and loss of function.



The human spine is composed of 33 interlocking bones that provide support and flexibility to the torso while protecting the spinal cord. The spine is divided into regions: cervical (7 vertebrae), thoracic (12), lumbar (5), sacrum (5 fused) and coccyx (4 fused). The fused bones of the sacrum and coccyx make up the pelvic girdle (the bones you sit on) and provide support and protection to the internal organs.

The spine has a natural S-shaped curvature, supported by strong muscles and ligaments. Extensor muscles, attached to the back of the spine, enable us to stand and lift. Flexor muscles, attached to the front of the spine, allow us to bend and flex, and they also support the lumbar curvature of the spine. Nerves spread out from the spinal cord through small openings (foramina) in the vertebrae, relaying messages between the brain and body, and controlling movement, sensation, and bodily functions. Discs between the vertebrae act as shock absorbers, cushioning the bones and

preventing them from rubbing together. Each disc is composed of a fibrous outer ring (the annulus) surrounding a gel-filled nucleus, which allows the spine to bend, twist, and flex. As we age, the discs can lose mass and fluid, allowing the vertebrae to grind against each other. The discs can also bulge (herniate), which puts pressure on surrounding nerves, causing numbness, tingling, and pain down the arms.



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There are many causes of chronic neck pain, but here are a few of the more common conditions:

Osteoarthritis:

a breakdown in the cartilage that protects the joints of the cervical vertebrae

Degenerative discs:

structural changes in the discs that cause them to fail, allowing bones to rub together and putting pressure on surrounding nerves

Injury:

trauma to the vertebrae and the surrounding tissues

Poor posture:

leads to straining the neck's tendons and ligaments

Repetitive motion:

as seen in some sports injuries, such as swimming or tennis

Whatever the cause, if you suffer from chronic neck pain, there are treatment options that can correct the problem.





If you suffer from chronic neck pain, you know the negative impact it can have on daily life. There are a range of therapies that can address your condition.

- ▶ Anti-inflammatories, steroid injections, or narcotic pain medications can sometimes reduce inflammation and mask discomfort, allowing the body to heal itself.
- ▶ Physical therapy can help restore motion and mobility while instructing you on ways to lift and bend more safely, as well as improve your posture.

- ▶ Resting the neck or eliminating the activity that causes the pain can help—for example, changing your sleep position, avoiding repetitive activities, and correcting your posture. Using heat or cold can reduce inflammation and promote healing.
- ▶ Pain management injections/epidurals/facet blocks/trigger point injections.

But what if you've tried alternative, conservative therapies, and yet continue to suffer? Perhaps it's time to consider surgery.





Chronic neck pain and loss of mobility are reason enough to seek a surgical option, but there are a range of factors that you and your doctor should consider when deciding if it is time for surgery. These include:

Lack of improvement with non-surgical options:

If all other therapies have failed, surgery is the next logical step.

Decrease in mobility or an increase in pain:

Your condition continues to deteriorate.

Nerve damage/neurological deterioration:

You risk permanent disability if you forego treatment.

Uncontrollable pain:

pain management therapies fail.

Certain conditions will also indicate that it is time for a surgical option. These include:

- ▶ A spinal cord at risk of permanent injury
 - ▶ Continued loss of coordination, which can lead to associated accidents and injuries
 - ▶ Cumulative disability as symptoms stack up
 - ▶ Myelopathy, disease of the spinal cord
 - ▶ A herniated disc, which puts pressure on surrounding nerves
 - ▶ Spinal stenosis, a narrowing of the nerve outlets that puts pressure on nerves
 - ▶ Instability of the spine, placing the spinal cord at risk
 - ▶ Spinal deformities, such as kyphosis (anterior curvature of the thoracic spine)
 - ▶ Tumors/infections of the spine/vertebrae
 - ▶ Rheumatoid arthritis, which can lead to joint deterioration and nerve damage
- Any of these conditions can cause chronic pain and loss of function and may be corrected with the appropriate surgical option.



There are several standard surgical procedures to address chronic neck pain. The decision to choose one over the others should be made in consultation with your doctor, based on the severity of your condition and the extent of damage to your spine.

Anterior cervical discectomy and spine fusion (ACDF):

An incision is made in the front of the neck (anteriorly), the damaged disc is removed, and the affected vertebrae are then fused using a bone graft (from the patient, from a cadaver donor, or a synthetic graft) and secured with plates and screws. The main drawback of ACDF is the loss of range of motion once the vertebrae are fused together.

Artificial disc replacement (ADR):

Replacement of a damaged disc with a synthetic device that can mimic the cushion and support of natural discs.

Hybrid approach:

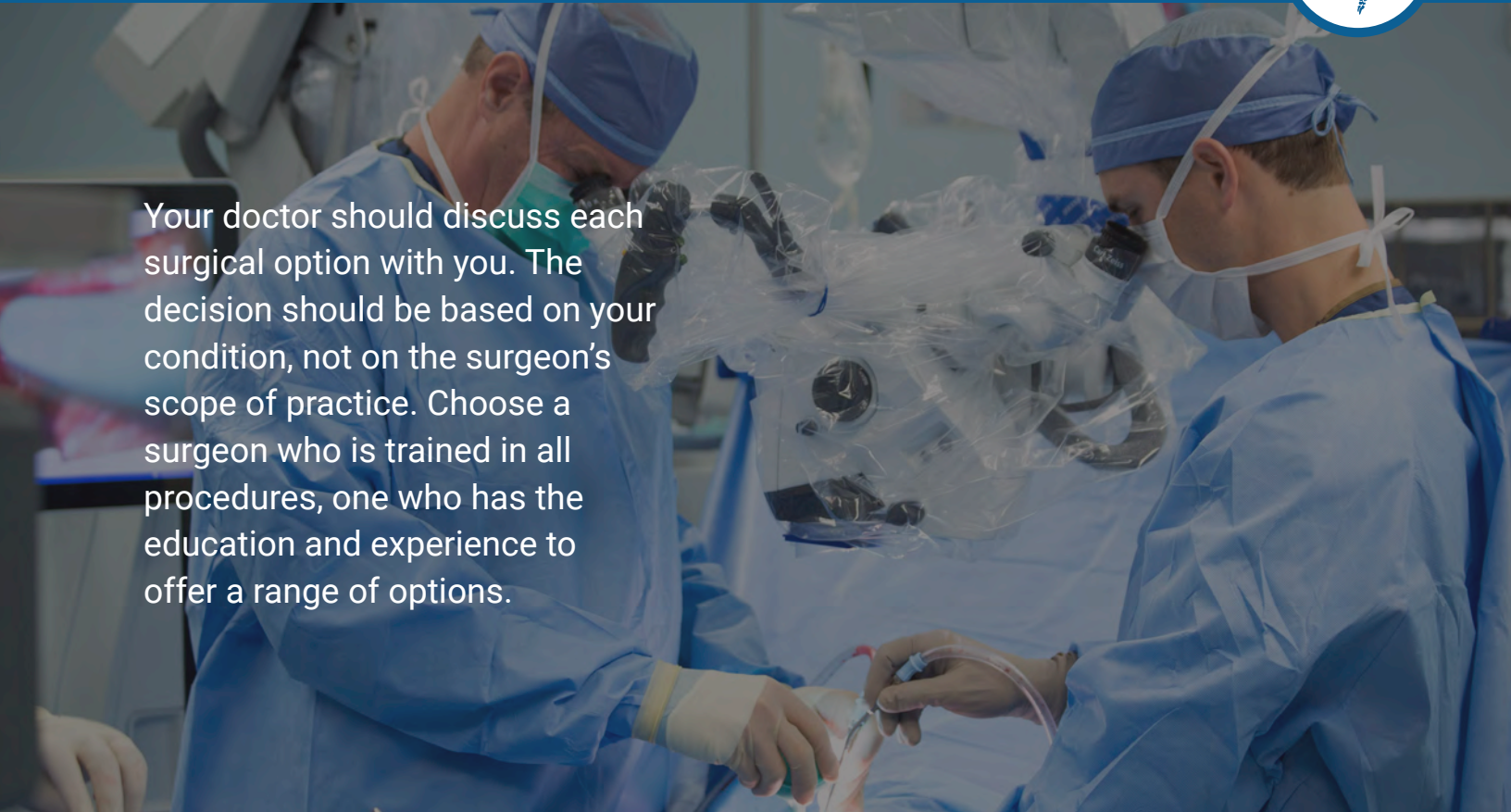
A combination of multi-level ACDF (involving several joints) and disc replacement.

Posterior cervical foraminotomy:

A “clean-out” procedure to remove bone spurs and between potentially herniated disc in order to alleviate pressure on the spinal cord or spinal nerves without requiring any implants or fusion.



There are several standard surgical procedures to address chronic neck pain. The decision should be made in consultation with your doctor.

A photograph of two surgeons in an operating room, wearing blue scrubs, masks, and caps, focused on a surgical procedure. The image is overlaid with a semi-transparent blue box containing text.

Your doctor should discuss each surgical option with you. The decision should be based on your condition, not on the surgeon's scope of practice. Choose a surgeon who is trained in all procedures, one who has the education and experience to offer a range of options.

Each procedure has its pros and cons. For severely damaged discs or vertebrae, ACDF may be the only option that provides enough support and stability. By eliminating motion at the site, the procedure improves the joint's stability, although mobility is lost.

The key advantage of artificial disc replacement is that the normal mobility of the neck is maintained, because there is no fusion involved. Other advantages of ADR include lack of complications associated with bone grafting (namely,

pain at the place where the graft was taken from the patient) or problems with fusion hardware (plates, wires, and screws) or potential failed fusion.

Your doctor should discuss each surgical option with you. The decision should be based on your condition, not on the surgeon's scope of practice. Choose a surgeon who is trained in all procedures, one who has the education and experience to offer a range of options. If the surgeon can only offer one option, it is time to seek a second opinion.



The main goals of surgery are to alleviate pain and symptoms and improve quality of life by allowing you to return to normal activities. The resulting mobility and range of motion will depend on the type of surgery and the extent of existing damage, but in general, neck surgery is aimed at achieving the following objectives:

- ▶ Removal of the damaged disc (when appropriate)
- ▶ Stabilization of the cervical spine, through either fusion or disc replacement

- ▶ Decompression of the spinal cord by alleviating pressure on the surrounding nerves
- ▶ Restored alignment of the cervical spine
- ▶ Removal of a tumor, when present
- ▶ Drainage of cysts/infection

Thoughtful consultation with your doctor will allow you to set realistic goals for your surgery.





Choosing a surgeon is your first step when considering neck surgery, but a key consideration when choosing your surgeon should be his or her surgical approach. New techniques and technology now allow a more targeted approach, known as minimally invasive spine surgery.

Minimally invasive spine surgery (MISS) is an innovative approach to treating chronic neck pain. This revolutionary method utilizes high-powered microscopes, allowing the surgeon to operate through small incisions, restoring function while reducing trauma to surrounding tissues. Other advantages of MISS include:

- ▶ Quicker recovery time (the procedure is usually performed on an outpatient basis)
- ▶ Minimal blood loss
- ▶ Less exposed tissue
- ▶ Reduced scarring
- ▶ Improved function

With minimally invasive spine surgery, you will typically be up and walking the day of surgery. In fact, walking helps promote healing by accelerating the recovery process. No more lengthy stays in bed. MISS will get you back on your feet and back to your active life.



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Where you have your surgery is just as important as the surgeon and procedure, and your best alternative is to choose a surgeon who works within an integrated facility, one that can direct your treatment from start to finish. An integrated facility should offer:

- ▶ Board-certified specialists who have the best training and experience in a wide range of orthopedic conditions
- ▶ Advanced techniques that use cutting-edge technology, such as stem cell regenerative therapy for disc replacement
- ▶ Minimally invasive spine surgery for a quicker, safer recovery
- ▶ MISS performed on an outpatient basis to reduce the risk of hospital-based infection
- ▶ A record of cleanliness with a zero MRSA (methicillin-resistant *Staphylococcus aureus*) infection rate, common in hospital settings
- ▶ A higher caregiver-to-patient ratio, for more personalized attention
- ▶ Advanced imaging (CT and MRI) to accurately assess and diagnose your problem
- ▶ Pain management specialists who can treat both chronic and acute disorders while offering alternative therapies, such as acupuncture and chiropractic care
- ▶ Rehabilitative therapists who can tailor your physical therapy based on your condition and goals
- ▶ Sports medicine specialists who combine strength and conditioning with sports psychology to help athletes achieve peak performance
- ▶ A state-of-the-art facility with personalized service and customized treatment plans

Deciding on neck surgery is a big step toward recovery. Knowing your options is critical to making the right choice—of surgeons, procedures, and facilities. Choosing a qualified surgeon who offers a minimally invasive technique within an integrated facility means you will be on the path to an active, pain-free lifestyle sooner than you ever imagined. The choice is yours. Be sure to make the right one.



DISC's extensive team of highly specialized physicians utilizes both traditional and innovative solutions to diagnose, treat, and rehabilitate patients within a fully integrated medical facility. The result is an unmatched quality and continuity of care trusted by thousands of patients including many even elite athletes to get back to life.

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