



# ADULT SPINAL DEFORMITY

## Patient Decision Guide



**SUMMIT  
ORTHOPEDICS**

### ABOUT ADULT SPINAL DEFORMITY

Adult spinal deformity refers to a condition where the spine curves abnormally, resulting in pain and functional disability.

The abnormal curvature may be in the form of scoliosis (deformity when viewed from the front half of your body), kyphosis (deformity when viewed from the side), or both. As the population ages, there has been an increased demand for the evaluation and treatment of these conditions.

#### WHAT CAUSES ADULT SPINAL DEFORMITY?

Causes of adult spinal deformity include:

- » Age-related degenerative spine changes
- » Pre-existing scoliosis from childhood

#### WHAT ARE THE SYMPTOMS?

Signs of adult scoliosis include:

- » Abnormal bending of spine to the left or right
- » Clothing doesn't fit properly
- » Head position may change

- » Shoulders and hips may no longer be level
- » The rib cage may look different on one side compared to the other
- » Back pain

Signs of kyphosis include:

- » Forward bending of the spine, which leads to difficulty in maintaining an upright posture
- » Pain or stiffness in the shoulders or upper back

#### HOW IS IT DIAGNOSED?

Spinal deformity is generally diagnosed with a physical examination. When appropriate, your physician may also obtain an X-ray to determine the extent of the curve.

#### SAGITTAL IMBALANCE

Sagittal imbalance is a condition in which the spine is out of balance from front to back. When realigned properly, the spine can move more efficiently, reducing the amount of energy needed to move while also reducing wear and tear on nearby areas of the spine.

## NONSURGICAL TREATMENT OPTIONS

In order to compare and determine the best treatment for you, here is a summary of the possible next steps once spinal deformity has been diagnosed:

### ACTIVITY CHANGES

Patients with spinal deformity may experience relief with activity changes. Avoidance of activities that aggravate pain such as prolonged standing, repetitive lifting, and bending can reduce symptoms. The use of a cane or a walker or bracing may also be effective for certain individuals with spinal deformity.

#### ○ ADVANTAGES

- + no surgical risks
- + low to no cost
- + minimal time investment in recovery

#### ✗ DISADVANTAGES

- will likely only partially address the pain
- often results in severe limitation of activities

### MEDICATION

Some medications can be used to help reduce pain and swelling. These include anti-inflammatory medications, topical cortisone gels, and cortisone injections. Note that Summit Orthopedics does not offer long-term narcotic pain management.

#### ○ ADVANTAGES

- + can be a lower cost
- + less invasive treatment option

#### ✗ DISADVANTAGES

- some medications and supplements can cause a harmful reaction with pain medications
- pain medications can cause dependency

### INJECTIONS

Injections can help relieve pain and improve function by relieving inflammation, irritation, and swelling. It may help you be able to participate in a physical therapy program designed to strengthen muscles and improve range of motion.

#### ○ ADVANTAGES

- + cost-effective
- + nonsurgical option
- + shorter recovery time
- + enables activity to address causes of pain

#### ✗ DISADVANTAGES AND SIDE EFFECTS

- possibility of allergic reaction or side effects such as headache
- temporary pain at injection site
- possibility of short-term relief

### PHYSICAL THERAPY

Physical therapy aims to strengthen muscles and improve range of motion, with the desired result of reducing pain and improving function. Physical modalities such as deep heating treatment and electrical stimulation may help relieve pain from muscle spasms. While it may not be an available option for everyone depending on the severity of the condition, if effective, therapy can have long-term benefits.

#### ○ ADVANTAGES

- + facilitates strengthening of spinal muscles
- + nonsurgical option

#### ✗ DISADVANTAGES AND SIDE EFFECTS

- time commitment
- doesn't address pain in the short-term

## SURGICAL TREATMENT OPTIONS

For patients who have persistent, debilitating symptoms after exhausting nonsurgical methods of treatment, surgery may be considered. Surgery has been shown to result in significant reduction of pain and improvement in function and overall quality of life. Surgery attempts to address back pain by correcting the deformity or preventing progression, and to alleviate lower extremity pain by decompressing the nerves.

### NONSURGICAL TREATMENT VS. SURGERY

The decision to continue nonsurgical treatment versus pursuing surgery ultimately depends on the severity of the symptoms and how much it affects your function. For patients with mild symptoms and minimal functional issues, and who do not have neurologic concerns, continued nonsurgical treatment is a good option. This can be in the form of activity modification, medications, injections, and physical therapy. However, in patients who have moderate to severe pain and functional problems even with nonsurgical management, and in those who have progressive deformity and/or neurologic concerns, surgical intervention is the treatment of choice. While any surgery for these conditions carries significant risks, this has to be balanced with the knowledge and evidence that patients who undergo surgery for spinal deformity have been shown to achieve significant improvement in pain, daily life functions, and overall quality of life.

## DECOMPRESSION (LAMINECTOMY)

The aim of this surgery is to relieve lower body pain by addressing nerve impingement (pinching). This option is ideal for patients whose main symptoms are related to nerve issues and who have medical conditions that make a more extensive fusion procedure too risky. A decompression (without fusion) must be considered carefully because decompressing an already unstable section of the spine can lead to both poor outcomes and a need for more surgery. In selected cases, a decompression can be a successful surgery.

### ○ ADVANTAGES

- + improved pain, mobility, and function
- + return to quality-of-life-improving activities
- + better enables health-promoting activity
- + shorter recovery time compared to a spinal fusion

### ✗ DISADVANTAGES AND SIDE EFFECTS

- high cost
- some recovery time for patient and caregiver
- standard surgical and anesthesia risks
- long-term activity modification/range of motion
- for aggressive arthritis, the benefit can lessen over time
- less likely to improve pain in the back itself

## SPINAL FUSION

This option is the treatment of choice for patients with intense back pain and who have instability or progressive spinal deformity. The spine can be approached from the front, back, or both directions. In severe deformities, the surgeon will need to do an osteotomy, which involves removing wedges of bone from the spine to enable correction of any spinal deformities. The extent of surgical treatment varies greatly, depending on local anatomy and the degree of deformity. Some patients will benefit from either a 1- or 2-level fusion, while other patients may need larger reconstruction of multiple levels.



Summit Orthopedics is the first surgery center in the nation to receive the prestigious

### **CERTIFICATE OF DISTINCTION IN THE MANAGEMENT OF SPINAL FUSION**

by The Joint Commission for superior patient outcomes and quality of care.

## POSTERIOR SPINAL FUSION (PSF)

The spine is approached from the back. Typically a decompression (laminectomy) is performed, which is then followed with screws and rods being placed to stabilize the bones. The bone edges are roughed up to create some light bleeding, and a bone graft is placed over the bleeding bone edges. The bone graft may come from a cadaver, a local bone removed during decompression, or from a separate area of the patient's body such as the iliac crest. Over time, the bone graft will heal to the roughed-up bone edges and form a fusion.

## ANTERIOR LUMBAR INTERBODY FUSION (ALIF)

In this procedure, the spine is accessed from the abdomen, and it is often performed by an abdominal surgery specialist such as a general surgeon or vascular surgeon. The front of the disc is cut, and the entire disc is removed. The bone edges are roughed up to create some light bleeding, and then a contoured block of bone or synthetic cage is fit into the disc space. This helps lift the bones apart and remove pressure from the nerves. Screws can be used to fix the cage in place. An ALIF is often followed by a surgery through the back of the spine to put in screws and rods and decompress the nerves.

## TRANSFORAMINAL LUMBAR INTERBODY FUSION (TLIF)

The spine is approached from the back. During a TLIF, the disc is removed from the back of the spine. The disc space is then packed with bone graft and a synthetic cage. The cage acts to lift the bones apart and can help restore alignment, provide additional surface area for fusion, and help to decompress nerves. Over time, bone will heal through the disc space to fuse the bones together. Titanium screws and rods are placed similar to a PSF.

### ○ ADVANTAGES

- + addresses the structural issues responsible for the pain
- + return to quality-of-life-improving activities
- + better enables health-promoting activity
- + improved pain and function
- + prevention/reversal of neurology issues
- + correction of deformity and prevention of deformity progression

### ✗ DISADVANTAGES AND SIDE EFFECTS

- high cost
- longer recovery time for patient and caregivers
- standard surgical and anesthesia risks
- decreased ability for rotation



# SPINAL DEFORMITY SURGERY PATIENT RESULTS

## EXPECTED OUTCOMES OF SPINE SURGICAL TREATMENT

Improved 1- and 4- year outcomes with surgery compared with nonsurgical intervention in terms of pain, function, and overall quality of life.

1- to 2- year outcomes are rarely affected by complications, unless these are major neurological complications.

Patients treated with surgery are less likely to experience deterioration of the spine or have their symptoms worsen compared to patients treated without surgery.

## SURGERY RISKS FOR ADULT SPINAL DEFORMITY\*

2.9% of patients have a dural tear (tear in the covering of the spinal cord)

1.6% of patients experience an implant-related complication

1% of patients experience acute nerve damage and 0.5% experience delayed nerve damage, causing numbness, weakness, or pain

20% to 40% of patients experience failure of the next level of vertebrae

4% to 24% of patients experience failure to fuse (pseudoarthrosis)

16% to 40% of patients require a need for further surgery

1.5% deep tissue / 0.9% skin and subcutaneous tissue risk of infection following surgery

Risks listed above are common. There are many more risks associated with surgery; speak with your surgeon.

## MAKING A TREATMENT DECISION—DETERMINING YOUR VALUES

Your personal values are just as important as the medical facts. Think about what matters most to you in this decision, and place an “x” in the box for each row below that indicates which goal is more important to you.

○ REASONS TO HAVE SPINE SURGERY	« MORE IMPORTANT	EQUAL	MORE IMPORTANT »	✕ REASONS NOT TO HAVE SPINE SURGERY
I understand that surgery has risks. But I am comfortable with the idea of having back surgery, because there is a chance that it might help.				I don't like the idea of surgery at all, because of the risks and the chance that it might not help.
I've tried exercises, medicines, and working with a physical therapist, and I don't think they have helped me.				I think the exercises I've been doing or the medicines I'm taking are starting to help.
I'm in a lot of pain and I don't see how I can stand it much longer.				My pain isn't bad enough that I need to have surgery right now.
It is very important that I get my pain under control so that I can go back to work as soon as possible.				Time is not a problem for me. If I get better slowly using exercises and/or medicine, that's OK with me.
I'm not worried about how much this surgery will cost.				I don't have insurance and I don't see how I can afford this surgery.
Other:				Other:

### GETTING TO A DECISION

After reading and completing the above, which way are you leaning regarding your treatment options for your condition? A. Leaning toward having spine surgery B. Leaning toward <i>not</i> having spine surgery C. Undecided	Do you feel you know enough about your condition and the treatment options available, including surgery, to make a decision? A. Yes B. No	Do you feel you have enough support, advice, and resources to make the best decision for you? A. Yes B. No
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### NEXT STEPS

Use your responses above to help guide the discussion during your next appointment with your provider.

\*To view the complete list of sources cited for patient surgical result statistics, please visit <https://www.summitortho.com/back-surgery-patient-results/>