

# MINIMALLY INVASIVE ROBOTIC ASSISTED SPINE SURGERY

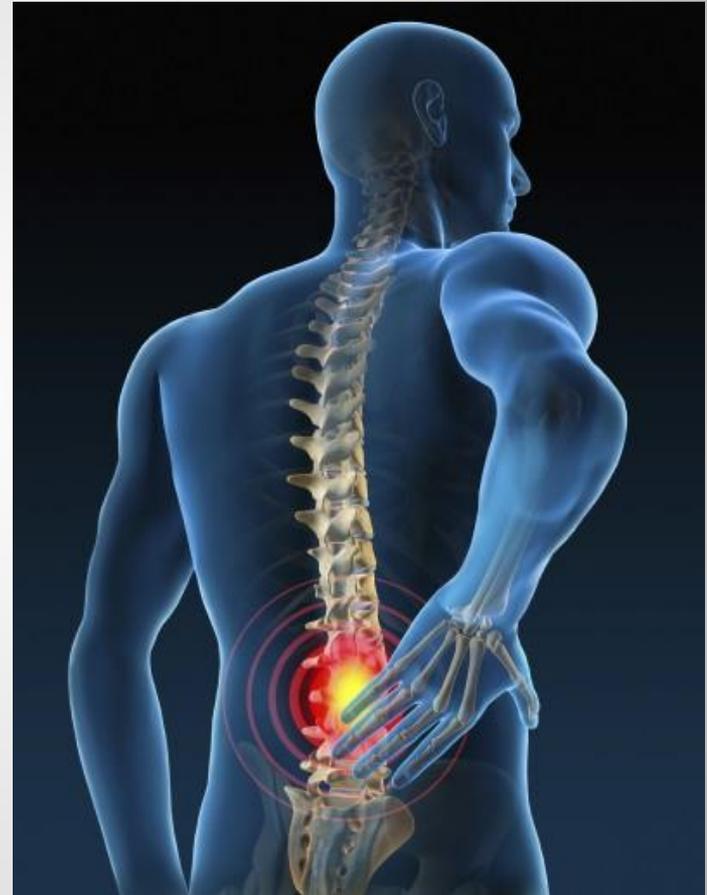
PRESENTED BY: ANTHONY LEONE, MD, ADD, OCD



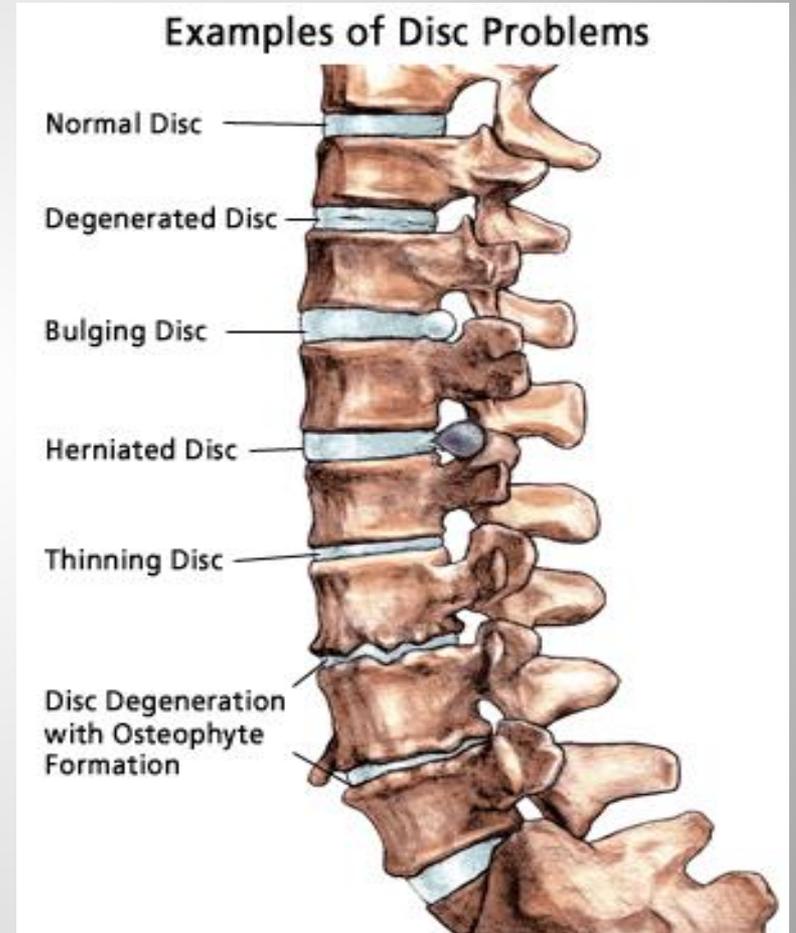
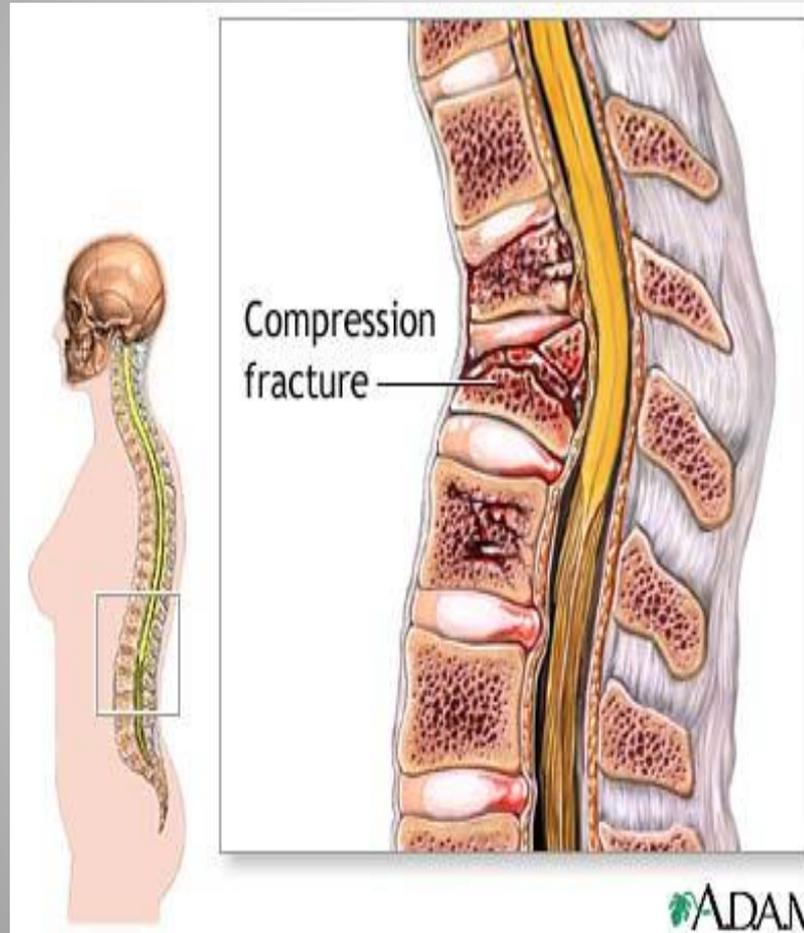
“Less Is Better”

# Low Back Pain

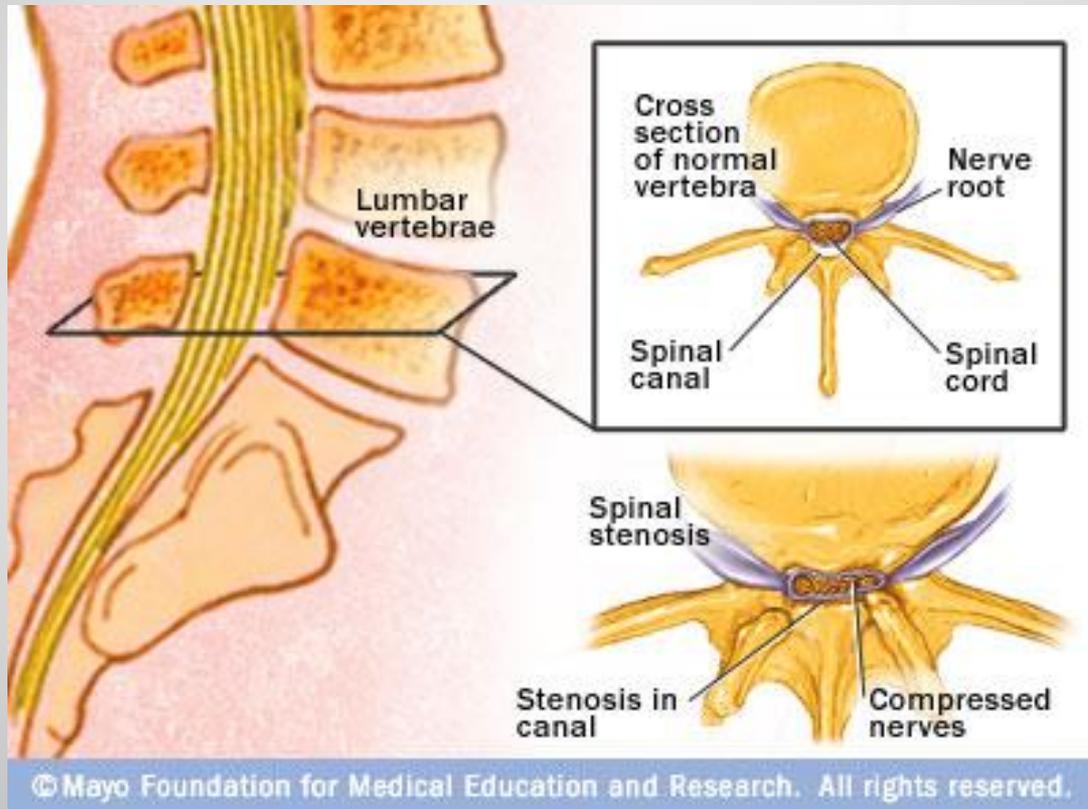
- 2<sup>nd</sup> most common reason for medical visits
- Most often due to a sprain or strain
- Cause of pain in chronic cases is often difficult to identify



# Sources of Back Pain



# Sources of Back Pain

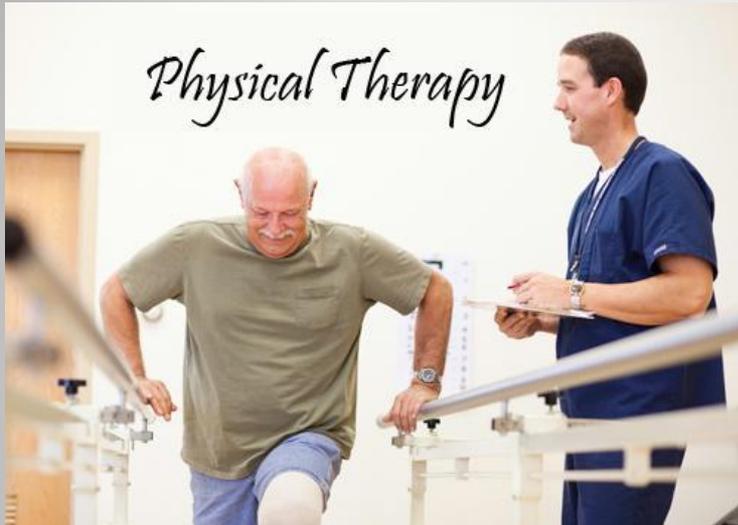


# Treatment Categories

- Conservative Modalities
- Pain Management and Injections
- Surgery



# Conservative Modalities



# Injections

- Epidural Steroid Injections
- Facet Injections
- Sacroiliac Injections
- Trigger Point Injections
- Facet Rhizotomy
- Occipital Nerve Blocks

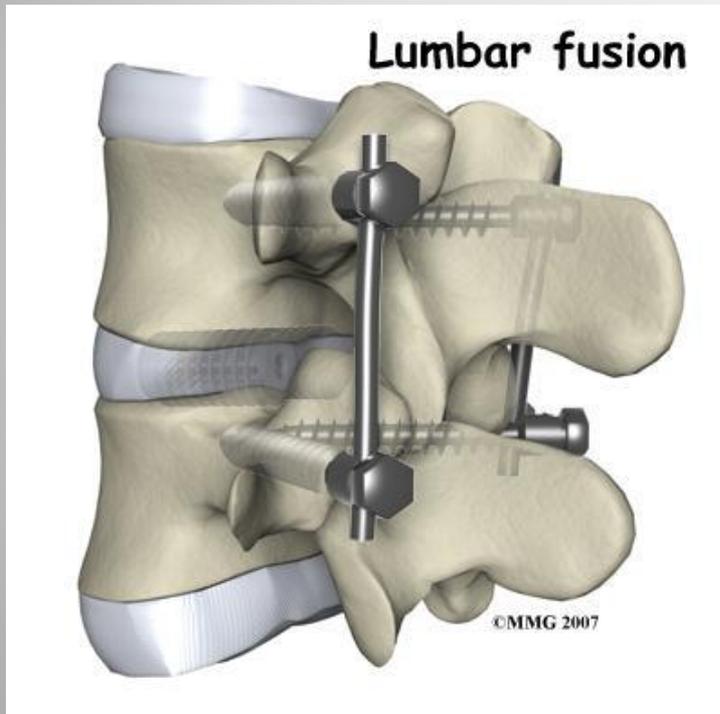


# Surgery



When all conservative measures have failed

# What is a Spinal Fusion?



Spinal fusion is the process of two or more vertebrae fusing together, immobilizing them to create a single continuous bone.

It is used to treat broken vertebra, a spinal deformity, spinal weakness, spinal instability, or chronic low back pain.

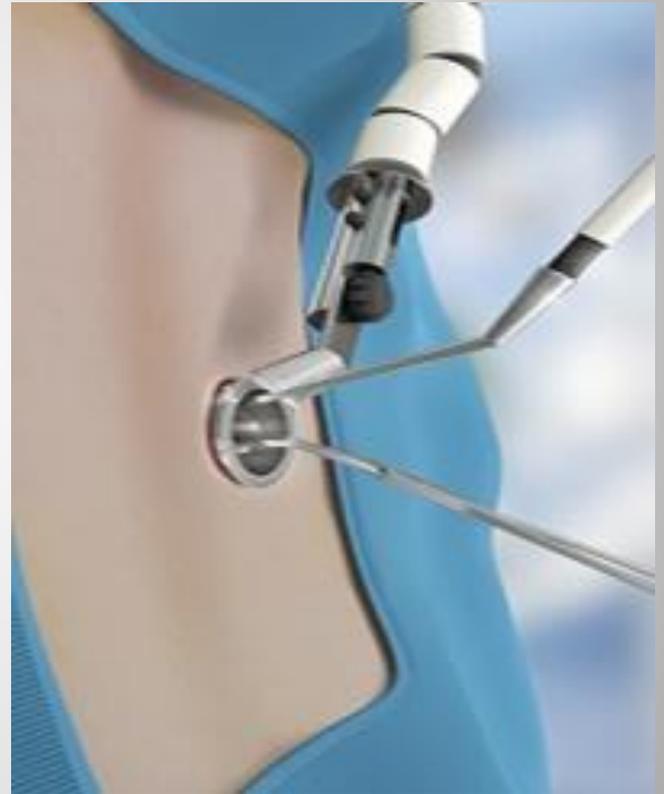
# Traditional Surgery

- Performing spinal fusion in an open surgery allows direct line of sight, but can result in damage to surrounding healthy tissue, larger scars, and substantial postoperative pain.
- Most of the postoperative pain associated with traditional surgery is due to the muscle dissection.



# Minimally Invasive Surgery

- MIS uses smaller incisions and studies have shown patients may experience less postoperative pain and a faster recovery.
- Muscle dissection, the leading cause of post operative pain, is spared in minimally-invasive spine surgery.



# Traditional vs. Minimally Invasive Surgery



# How It Works – Step 1



Step 1:  
Preoperative  
Plan



Step 2:  
Mount



Step 3:  
3D Sync



Step 4:  
Operate



Preoperative blueprint of the ideal surgery is created in a virtual 3D environment.

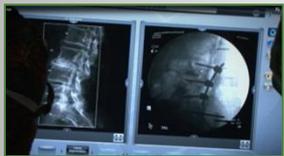
# How It Works – Step 2



Step 1:  
Preoperative  
plan



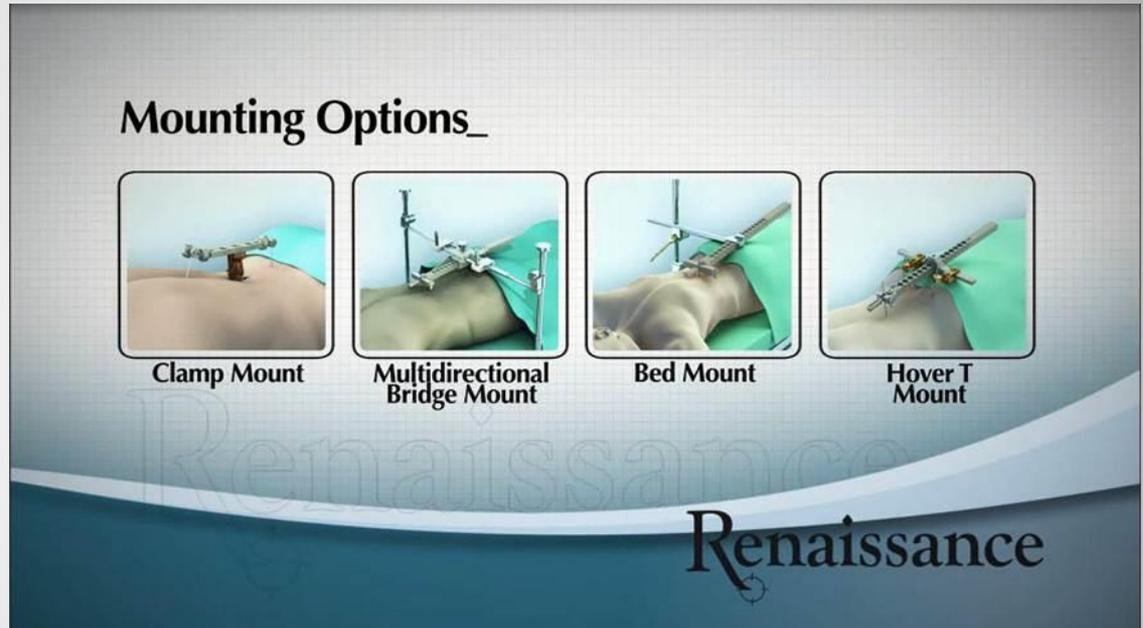
**Step 2:  
Mount**



Step 3:  
3D Sync



Step 4:  
Operate



Rigid attachment to the patient ensures maximum surgical accuracy throughout the procedure.

# How It Works – Step 3



Step 1:  
Preoperative  
plan



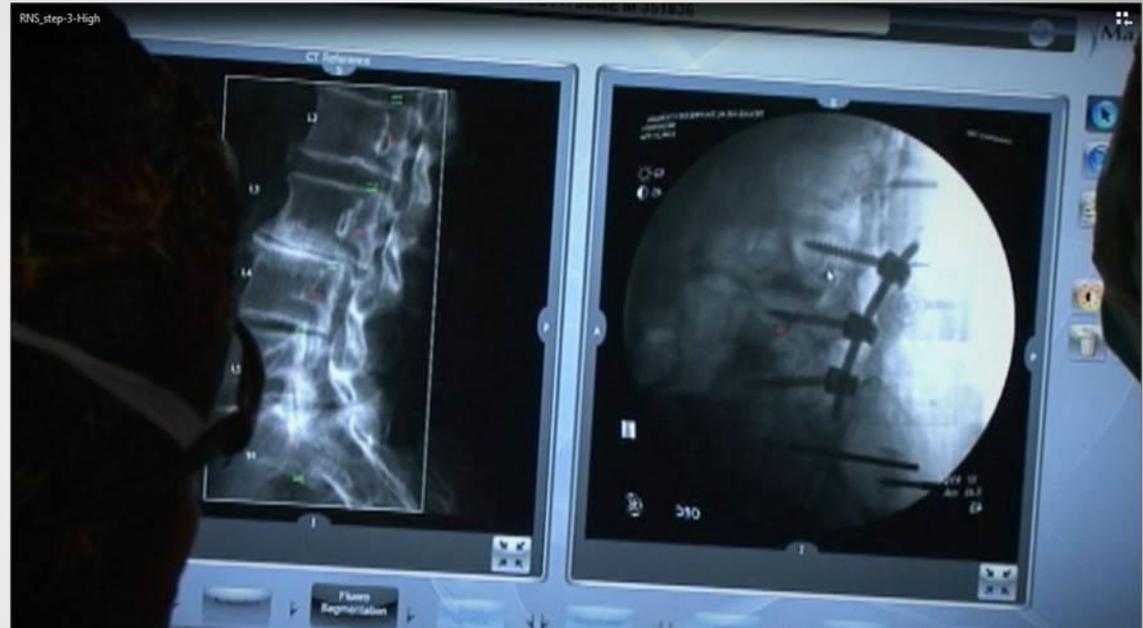
Step 2:  
Mount



Step 3:  
3D Sync



Step 4:  
Operate



Two fluoroscopy images are automatically synchronized with the CT-based surgical blueprint (independent of anatomy).

# How It Works – Step 4



Step 1:  
Preoperative  
plan



Step 2:  
Mount



Step 3:  
3D Sync



Step 4:  
Operate



Tools and implants are guided to the planned trajectory with 1.5mm accuracy.

# Benefits for Patients

## Promotes Faster Recovery



Patients who have surgery performed with the robot can experience faster recovery time, allowing them to return to their normal daily activities in less time than those who received surgeries via traditional methods.

# Benefits for Patients

## Reduced Post-operative Pain



Clinical studies have shown patients may experience less pain following spine procedures performed with the assistance of the Robotic Systems.

# Benefits for Patients

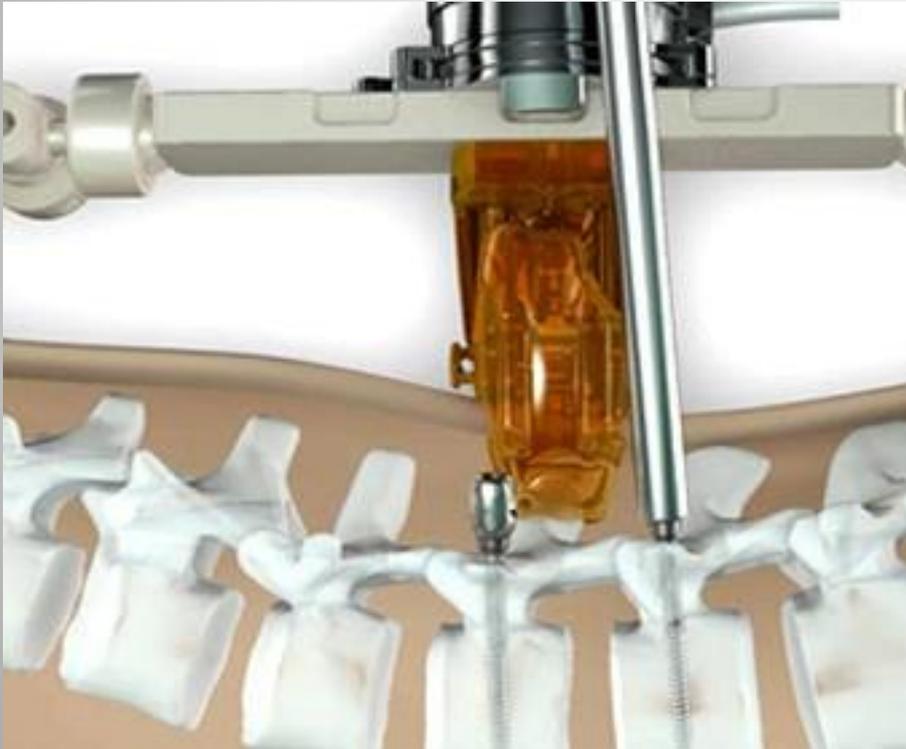
## Lowered Complication Rates



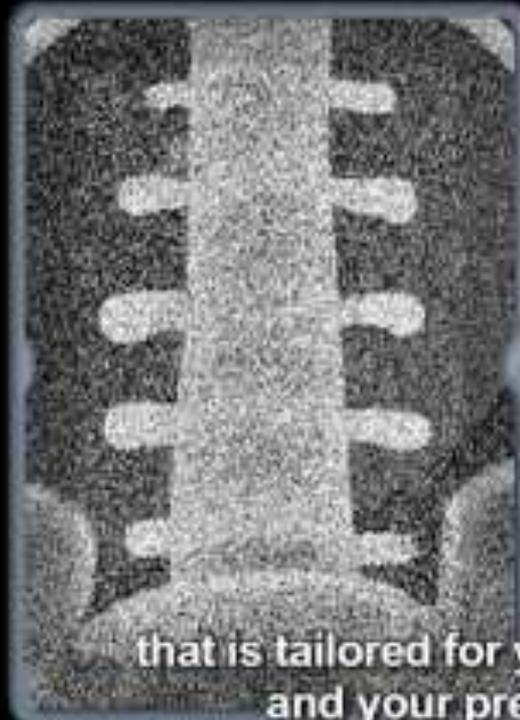
Clinical studies based on surgeries performed with the Robotic System have shown increased favorable patient outcomes, including lowered surgery complication rates.

# Benefits for Patients

## Increased Accuracy



With the help of the Robotic System, spine surgery accuracy is increased. 3D planning software maps out the procedure, while the robot guides the surgeon's tools within 1.5mm accuracy.



that is tailored for your specific anatomy  
and your precise diagnosis.



Questions?

Thank you.