MINIMALLY INVASIVE ROBOTIC ASSISTED SPINE SURGERY

PRESENTED BY: ANTHONY LEONE, MD, ADD, OCD

“Less Is Better”
Low Back Pain

- 2\textsuperscript{nd} 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

Examples of Disc Problems
- Normal Disc
- Degenerated Disc
- Bulging Disc
- Herniated Disc
- Thinning Disc
- Disc Degeneration with Osteophyte Formation
Sources of Back Pain
Treatment Categories

- Conservative Modalities
- Pain Management and Injections
- Surgery
Conservative Modalities

- Physical Therapy
- Chiropractic Adjustments
- Acupuncture
- Massage Therapy
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.
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

1 mm scar for screws
2 mm scar for entry portal
How It Works – Step 1

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

Benefits for Patients

Reduced Post-operative Pain
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.