


Get ready for Minimally Invasive Spine Surgery



Best practices for your approach

A vertical illustration of a human spine, showing the vertebrae and intervertebral discs, is positioned on the left side of the page. The spine is rendered in a light blue color and is slightly curved, following the natural S-curve of the human back.

4 tips on how to get started from renowned spine surgeons



Dr. Kris Radcliff
Professor of Orthopedic and Neurological Surgery
Thomas Jefferson University Philadelphia, PA, USA



Dr. Andreas Korge
Head of Spine Centre and Back Institute
Schoen Clinic Munich, Germany



Dr. Arvind Kulkarni
Head of Spine Scoliosis and Disc Replacement
Centre Bombay Hospital Mumbai, India



Dr. Shanmuganathan Rajasekaran
Head of Orthopedic and Spine Surgery
Ganga Medical Centre & Hospitals
Coimbatore, India

The advantages of Minimally Invasive Surgeries (MIS) are quite convincing, but learning a new technique may seem like quite a challenge to tackle. However, it's not that complicated either, and the benefits and prospects for the future will most likely overcome any reservations you might have.

To help you get started, we have gathered best practices and advice from surgeons from all around the world who are already practicing Minimally Invasive Spine Surgery (MISS).

1. Get trained in microsurgical techniques



Dr. Rajasekaran's advice:

The most important thing is: Do not start off by yourself. Do a small fellowship, a short period of training, or a course where microsurgical techniques are taught. When operating open, you need to bend forwards for a direct view; whereas with a microscope, you're operating at a different angle, and you have to put the instruments into your field of vision without changing your focus.

Dr. Radcliff's advice:

If you're not fortunate enough to do your residency or fellowship where someone uses the microscope a lot, it is worth finding a lab where you get advanced microscope exposure. Work with a surgeon who is comfortable using microscopes to get hands-on experience and helpful tips.

Dr. Kulkarni's advice:

Work with an experienced MIS surgeon. Watching how they handle the microscope and how they operate within the confines of a small keyhole is something you can't learn by reading books. The ability to use a microscope is a must, and using instruments within a limited area is something you need to practice.

Dr. Korge's advice:

Always train a situation before you go to a patient's live surgery. Cadaver courses and hospitation workshops provide good opportunities to get trained and to get some insights on microscope-assisted surgeries.

Recommended trainings:

Germany: The Schoen Clinic in Munich offers annual spinal microsurgery courses.

USA: At its practical anatomy lab, Saint Louis University (SLU) offers weekly courses on cervical spine surgery, plastic surgery, and more.

India: The Ganga Medical Centre & Hospitals in Coimbatore offers regular training courses in microsurgery.

“Always train a situation before you go to a patient's live surgery.”

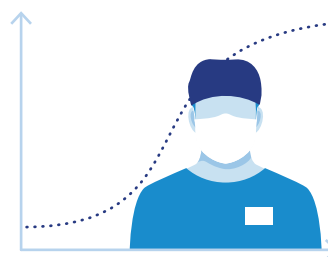


Dr. Korge, Schoen Clinic, Munich, Germany

2. Accept the learning curve

Dr. Korge's advice:

One important thing is that you have to accept the learning curve. You have to accept that if you start a new technology, you will have a couple complications in the beginning. This is not because you are not as good a surgeon as usual, but because you are learning a new technique. With adequate training from at least 50 cases of a pathology per year, the results will reassure you that MIS strategies are worth going for.



Dr. Radcliff's experience:

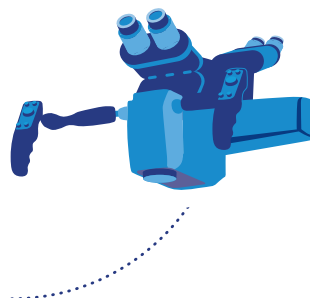
It definitely was a learning curve at first. I struggled with taking the instruments from the field and bringing them into the microscope's field of view. But it's one of those things where you build muscle memory. The trick is not to work zoomed in too close at first: The more of the operative field you can see, the easier it is to introduce instruments into the field. It's also helpful to tell your staff that you want them to put the instruments in your hand. After a handful of cases, I got comfortable with it.

“The results will reassure you that MIS strategies are worth going for.”

Dr. Korge, Schoen Clinic, Munich, Germany



3. Choose the right equipment



Dr. Korge's advice:

Microsurgery and the minimalized approach can only be performed when using a visual aid and an optical system which allows you to work in a very narrow working corridor. Choose a microscope that meets your needs and daily requirements.

Dr. Radcliff's advice:

The microscope is the perfect tool for allowing the surgeon and the assistant to see the anatomy through a small opening – both from a lighting and from a visualization perspective. The focal length and the ability to angle the binoculars are the two most important disruptive features that I have incorporated into my practice.

Dr. Rajasekaran's advice:

To take full advantage of the microscope, you'll need one which is specific to your specialty. Be sure that it suits your operating theatre, and ensure that its mobility and positioning are good. You'll also need a microscope with an appropriate focal length to easily adjust patients in different positions during surgery and for different procedures.

Dr. Kulkarni's advice:

Buy a microscope which suits your practice, and get your training on the kind of microscope you will be using in the operating room. It shouldn't be a small microscope with a short working length during training.

Recommended visualization systems:

Advanced Visualization System:

ZEISS TIVATO 700

Surgical Microscope:

ZEISS OPMI PENTERO 800

Robotic Visualization System:

ZEISS KINEVO 900

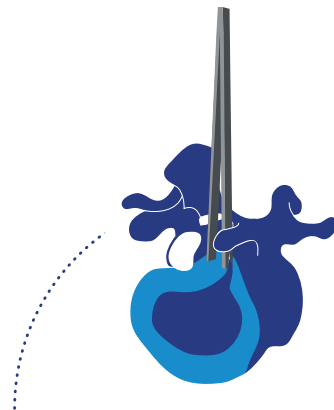
“The microscope is the perfect tool for allowing the surgeon and the assistant to see the anatomy through a small opening.”



Dr. Radcliff, Thomas Jefferson University, Philadelphia, PA, USA



4. Pick appropriate cases



Dr. Korge’s advice:

Don’t start with difficult cases. Start with easy cases which are part of your daily routine and where you can concentrate on manual changes. Accept that in the beginning you might have one or the other complication more than usual – until you get used to this new procedure.

Dr. Radcliff’s advice:

Pick a relatively straightforward and easy open case such as a single level microdiscectomy. Get in to do a laminoforaminotomy, find the nerve, and get out the disc as much as you can. Then remove the scope and put on your loupes to check your work.

Dr. Rajasekaran’s advice:

Our spine fellows start with discectomies and decompressions and single level fusions through the microscope.

Dr. Kulkarni’s advice:

Most MIS surgeries are done through tubular retractors. Initially, you can do an open exposure and use tubular retractors where you are going to operate. If you’re not able to go ahead with the microsurgical approach during the procedure, you can always convert into an open surgery.

Recommended cases to start with:

Single level microdiscectomy

Disc herniations

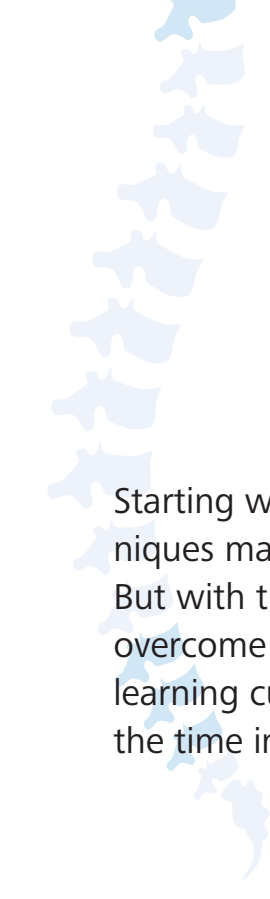
Single level anterior cervical discectomy and fusion (ACDF)

Decompression

“Have your loupes in the room as a backup option.”



Dr. Radcliff, Thomas Jefferson University, Philadelphia, PA, USA



Starting with minimally invasive techniques may seem like quite a challenge. But with the right support you will overcome the challenges of the steep learning curve. And it will be well worth the time in terms of your health¹, your

patients' health²⁻⁵, digitalization, collaboration¹, and education¹ within your team as well as improvements to the general surgical workflow. Take on the challenge and prepare for your future today.

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