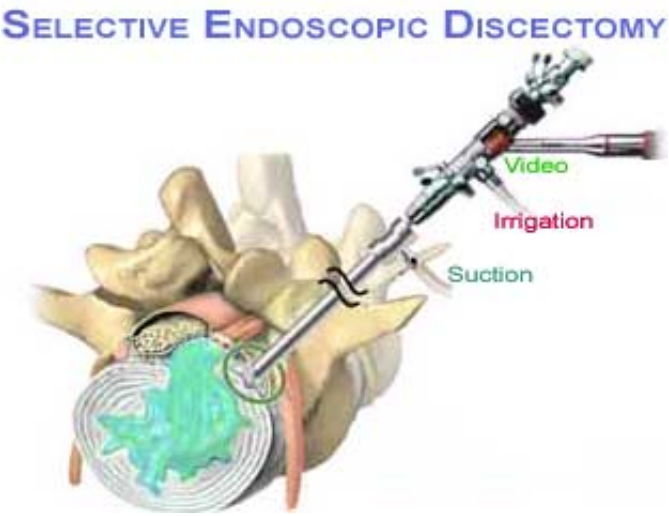
What Is SED?

Selective Endoscopic Discectomy™ or **Selective Arthroscopic Discectomy**(or Percutaneous Endoscopic Lumbar Discectomy with Laser Thermodiskoplasty) is a new **back surgery** procedure to shrink and remove a herniated disc thereby alleviating **lower back pain** and **sciatica**. Using local anesthesia and the help of flouroscopic x-rays for guidance, specially designed YESS spine endoscope, micro-instruments, the Endius shaver, the Ellman RF and a laser probe are inserted into the herniated disc space. **Only** the damaged part of the disc is removed with graspers, shavers, and then the annular restraining ring of tissue is shrunk by the very safe Ellman radio frequency probe and/or laser. **Selective Endoscopic Discectomy™** or**Selective Arthroscopic Discectomy** is different from standard open lumbar disc surgery because there is no cutting muscle or bone removal with this **back surgery** to resolve **back pain** and **sciatica** . There is only one tiny incision to accommodate the micro-instruments inserted into the herniated disc. Most complications that occur with **back surgery** are eliminated with **selective lumbar endoscopic discectomy™**. (Illustration by David Azarello and Christopher Yeung http://www.spineuniverse.com/displayarticle.php/article2221.html)



The Procedure

The **back surgery** procedure to relieve and **sciatica** is performed under local anesthesia with the patient awake and in the prone position on special pillows. A small needle is inserted into the disc space after local anesthesia has been administered. A 7mm (1/4 inch) skin incision is made. Over the needle a slightly larger probe is slipped into the disc itself. The YESS spine endoscope is then inserted through a 7mm canula. Under x-ray and fluoroscopic control, the micro-instruments (mini forceps, mini curettes, trephines, rasps, burrs, and mini cutters), Ellman RF, Endius shaver and the laser probe are used for removal of only the damaged disc material. The laser is used for further removal and shrinkage of the disc for the purpose of disc decompression. The annular ring of tissue around the disc is then treated with a radio frequency electrode used to help control bleeding, shrink the disc tissue or shrink the annulus, and ablate ingrown inflammatory/granulation tissue. Heat from the radio frequency probe may also help depopulate and ablate the pain fibers in the annulus thus relieving the **back pain** and **sciatica**.

The **back surgery** procedure takes about 30 minutes to an hour per disc, on the average. X-ray exposures are minimal. The amount of disc removed and shrinkage by the laser varies, but includes only the herniated and damaged portion. The supporting structure of the disc is not affected. Upon completion of the **back surgery, the scope is removed and a small Band-Aid is applied over the tiny incision.**

Advantages of SED

The Advantages of (Selective Endoscopic Discectomy) SED™

The primary advantage of SED (**selective endoscopic discectomy™**) **back surgery** is that there is no interference with the muscles, bones, joints or manipulation of the nerves in the low back area. Since insertion of the instruments through the skin is the only wound, there is no scarring in or around the nerves and muscles postoperatively. Additionally, it is an outpatient **back surgery** procedure performed entirely with local anesthesia. Also, the laser and Ellman RF can further shrink the bulging disc. All patients can not be guaranteed relief of their **back pain** and**sciatica** with this procedure. According to Dr. Anthony Yeung who perfected this procedure and who has performed this procedure on over 4000 patients, most **lower back pain** and **sciatica**pain is relieved, but some residual pain may persist because of arthritis or other sources of **lower back pain** not coming from the disc. Success rates are similar to the published results of standard open microscopic discectomy **back surgery**, but with less recovery time and quicker rehabilitation due to the more minimally invasive nature of SED™. Patients who do not obtain relief within three to six weeks may be considered for a more aggressive microsurgical disc removal, depending on the circumstances. There does not appear to be permanent detrimental side effects from performing **Selective Endoscopic Discectomy™**.

Results with **Selective Endoscopic Discectomy™** indicate satisfaction with local anesthesia, no hospitalization requirement, earlier return to work and earlier return to previous daily activities. Rare patient complications include transient muscle spasms of lower back and temporary nerve root irritation. A small percentage of patients do not get relief of symptoms. Patients who initially have obtained good results appear to remain pain free.

Potential Complications

Although complications are rare, they can occur. Complications are similar to traditional surgery, which may include nerve injury, dysesthesia, complex regional pain syndrome, infection, dural tears, bowel injury, psoas hematoma, epidural hematoma, and segmental instability are complications that have occurred and may require additional treatment or surgery to resolve. You may have anomalous nerves in the foramen that can cause increased pain before your original pain subsides. We all have a deteriorating spine and the degenerative and aging process cannot be reversed. While our goal is to make the degenerative process less painful, time will cause further wear and tear. One unavoidable consequence after any **back surgery** is scar tissue. Although it is minimized in Selective Endoscopic Discectomy, its presence is variable and may be responsible for residual leg pain. The overall serious complication rate causing permanent residual is less than 1-2%.

The most common side effect that may not be deemed a complication is the feeling of numbness or hypersensitivity (dysesthesia) in your leg after surgery. It can occur immediately after surgery or days and weeks later. Dysesthesia cannot be completely eliminated and its causes are still not completely understood. It is sometimes explained by a nerve that has been numb for a long time

from prolonged pressure suddenly becoming decompressed and receiving new blood supply. Since one of the goals of surgery is to depopulate and ablate the sensitized nerves in the disc to relieve pain, the process of thermal modulation may cause dysesthesia. The actual cause is still speculative, as it can occur even when neuromonitoring does not demonstrate any irritation of the nerve during surgery. When this occurs, it is almost always temporary, but may need nerve blocks and medication such as Neurontin to desensitize the nerves.

When your disc becomes hypersensitive to everyday stresses, this can be due to new nerves and blood vessels growing into your degenerating discs. An inflammatory membrane forms, along with a process called angiogenesis and neurogenesis. Ablation of this inflammatiory membrane is associated with an increased incidence of dysesthesia, but ablation also increases the chance of pain relief. There are also anomalous nerve branches that connect spinal nerves to each other and form in the fat over the annulus. These nerves are called furcal nerves. They are not usually seen by traditional spine surgeon, but can be visualized endoscopically in the area of the foramen and in the triangular zone where the endoscopic instruments must pass. Removal of some of these tiny nerves that are not part of the normal nerve may not be able to be avoided, and can even be found in the surgical specimen. Usually their removal produces not lasting side effects.

Communication is very important. Your decision to have SED must be made only after you assure yourself that you are fully informed, and any concerns you have must be brought to your surgeon's attention and discussed in detail to your satisfaction. Because this is a relatively new procedure, non-endoscopic surgeons and endoscopic surgeons not familiar with SED technique may give you a different opinion that is based on their own experience or with their familiarity with the literature. Any concerns brought up by a second opinion should be brought to Dr Gross's attention so he can communicate with your surgeon if you or he desires.