

SPINAL INJECTION PROCEDURES

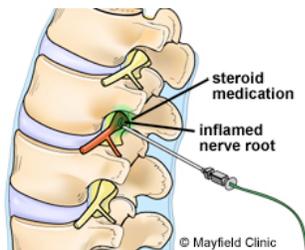


Arnold J. Weil, M.D.
Anthony R. Grasso, M.D.

Epidural Steroid Injections

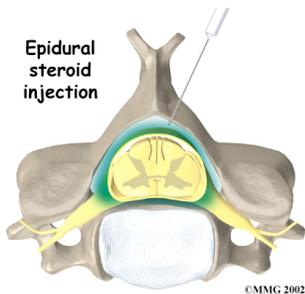
What is an epidural steroid injection?

The epidural steroid injection is the placement of cortisone, a powerful anti-inflammatory agent, into the epidural space which approximates the disc and spinal column.



What is the purpose of the procedure?

The goal of the epidural injection is to shrink the swelling in the bulging or herniated disc, and to decrease any inflammation that surrounds the disc and may be pressing on a spinal nerve.



What happens during the procedure?

The epidural is done as an outpatient procedure. The patient may be given a light sedative although most patients do not need any sedation and are able to drive themselves home. A local anesthetic is used to numb the skin. The epidural space is located and the needle is positioned appropriately. Under fluoroscopy, dye is injected into the epidural space to verify placement of the needle. The patient's blood pressure, pulse, oxygen saturation and respiration are monitored. The steroid is injected into the epidural space. The patient is monitored for 30 minutes and then discharged.



Epidural Steroid Injection under
Fluoroscopy

CERVICAL, THORACIC, AND LUMBAR EPIDURAL STEROID INJECTIONS **SAFETY / BENEFITS / RISKS**

This is a commonly performed procedure. Because of the low risk and low incidence of any significant problems or side effects, this is felt to be a reasonable procedure to follow when traditional conservative therapy for disc pain has failed to provide improvement. A large percentage of patients upon whom this procedure is performed will get complete resolution of symptoms; another percentage will get partial resolution of symptoms; and a small percentage may experience no real improvement at all. It is a generally accepted practice that this procedure may be repeated up to three times within a few months, although in some cases, additional injections may be administered. Injections may be given as single doses, or once a week for up to three weeks. Additional injections have an additive effect.

Side effects and adverse reactions are very rare. Some of these potential (uncommon) side effects include fluid retention, "puffiness," and rarely, acne. An additional risk is the possibility for the epidural needle to nick the dura (the covering of the spinal cord). Should this occur, there could be leakage of cerebrospinal fluid, which could cause a severe "spinal headache". If this should happen, bed rest and an increase in fluid and caffeine intake frequently will alleviate the headache completely. Should this not resolve the problem, it could be necessary to do what is called a "blood patch," in which (under sterile conditions) blood is removed from a vein in the arm and placed into the same epidural space. This completely resolves symptoms of the headache. The incidence of a spinal headache is approximately 1 in 1000, and occurs in a patient about once every year. As you can see, it is very rare. Since this is the most common adverse event that may occur from an epidural injection, the remaining potential complications should not scare you, but just make you more informed.

We will tell you all risks which *could potentially* occur from an epidural, which include, but are not limited to, worsening of symptoms, bleeding, infection, backache, steroid side effects, bowel or bladder dysfunction, hematoma, cord compression, paralysis, neurologic damage or impairment, or death. The most serious side effect (which is extremely rare) is the development of an epidural infection or abscess. The symptoms include redness and/or warmth about the needle puncture site, increased pain (other than expected) from the procedure, swelling, drainage, chills, night sweats, and fever above 100 degrees F (38 degrees C). In order to avoid these complications, the procedure is done under strict sterile conditions, utilizing fluoroscopy to localize the epidural space and guide the needle.

The incidence of any serious complication (as listed above) requiring treatment is very low (less than .1%). You should think of these serious risks as that of driving a car and being injured by a drunk driver. It's possible, but not likely, so you drive carefully. Your physician believes the benefits of the procedure outweigh the risks, and will use extreme care and technical expertise. It is your decision to accept or decline to have the procedure done.

If there is improvement from the steroid epidural, it likely will occur over the next several days to two weeks. The improvement should not be expected immediately. Patients are advised to rest on the day of the epidural, although bed rest, while preferable, is not required. By the next day, previous activities can be resumed. An occasional patient will feel such significant relief that they are tempted to resume various strenuous activities. They are cautioned not to do this, however. It is generally advised to pursue a course of gradual increase in activity, often coordinated with physical therapy or other training once the injections have been completed.

Patients are usually seen 3-10 days following the procedure for a follow-up exam, to evaluate their response to the steroid epidural(s).

INFORMATION FOR PATIENTS HAVING A STEROID EPIDURAL INJECTION

You are being referred for a procedure, a steroid epidural injection, by your primary treating physician. This is a procedure performed on patients who are having neck and/or back pain, who have evidence of a bulging or ruptured intervertebral disc, or who have pain radiating into one or both limbs. This procedure is also often done on patients with previous surgery in which it is felt that some of the symptoms might be from scar tissue or inflammation of the covering of the spinal cord.

The reason this procedure is performed, is in the hope that the long lasting steroid agent will be of assistance in shrinking the bulging disc, in decreasing irritation of nerve roots from inflammation or pressure, or in decreasing irritation from fluid from the disc material.

INSTRUCTIONS PRIOR TO APPOINTMENT

The entire procedure takes approximately 2 hours. Medications such as heart or blood pressure pills may also be taken the morning of the procedure. You will be able to drive home unless you have any oral sedation, in which case you must have someone drive your home after the procedure. Report to the Center for Spine Procedures thirty (30) minutes before your scheduled procedure.

THE PROCEDURE ITSELF

The epidural procedure causes very little, if any, significant discomfort to patients. Physical exam or diagnostic tests (such as myelograms, CT scans, or MRI scans) have usually established the level of the abnormal intervertebral disc(s). The corresponding anatomical level of the disc is established by palpation and skin marking of bony anatomical structures felt through the skin in the back. An I.V. is started prior to the beginning of the procedure. The neck or back is cleansed with Betadine or other antiseptic solution and draped in a sterile manner. Anesthesia of the skin is obtained by injecting a small amount of local anesthetic into the skin and underlying tissues to locate the epidural space. There should be little discomfort felt by the patient during the epidural. Should any pain be felt, more local anesthetic can be administered. Following the administration of the local block, there is a sensation of pressure as the epidural needle goes through the skin in the underlying tissues to locate the epidural space. Once the needle is in the epidural space, contrast material is injected to verify placement, after which the steroid and local anesthetic is injected. There may be a mild pressure sensation, but little discomfort is usually felt. Patients are then kept on their back or side for 30 minutes, after which they are allowed to dress and go home. Occasionally, patients may experience some numbness or soreness after the procedure. This is short-lived and should be gone by the end of the day.

The doctors have performed over 35,000 epidural procedures, and do their best to make the experience as stress-free as possible.

GUIDE FOR PATIENT PROCEDURES

You have been scheduled for a spinal injection procedure. Your physician has informed you of the type of procedure you are scheduled to have.

INSTRUCTIONS PRIOR TO APPOINTMENT

- The entire process (from check in to discharge) takes approximately 2 hours. Please be at the Center for Spine Procedures 30 minutes before your injection time.
- Medications, including pain pills, and especially heart/blood pressure/diabetic medications should be taken the morning of the procedure. Do not take any anti-inflammatory medications or aspirin for 3 days prior to your procedure. You will be given specific instructions if you are on Coumadin, Plavix, or other blood thinners.
- Insulin dependent diabetics scheduled for a morning procedure should not eat or drink after midnight and bring the insulin with them to the procedure.
- If you are to have any sedation, it is necessary to have an adult stay with you and drive you home after the procedure.
- If you have mitral valve prolapse or normally take antibiotics prior to procedures, please notify your physician

THE PROCEDURE ITSELF

The performance of this procedure causes very little, if any, significant discomfort to patients. An I.V. will be started prior to the procedure. The neck or back is cleansed with Betadine or other antiseptic solution and draped in a sterile fashion. Anesthesia is obtained by injecting a small amount of local anesthetic into the skin and underlying tissues. There should be minimal discomfort felt by the patient during the injection. Should any pain be felt, more local anesthetic can be administered. After the injection, patients may be monitored for 30 minutes, and then allowed to go home. Occasionally, patients may experience some numbness after the procedure. This is short-lived and should be gone by the end of the day.

AT HOME, AFTER YOUR EPIDURAL INJECTION:

PAIN MEDICATION: For minor discomfort, Aspirin, Tylenol or Extra Strength Tylenol, not in excess of two tablets four times per day, may be used. Medication prescribed by your physician may be taken as directed for discomfort not relieved by non-prescription medication.

ACTIVITY / DIET: You may be up and around as tolerated by your level of comfort; however, plan to take it easy the remainder of today. Intermittent use of an ice pack is acceptable. Do not use heat the day of the procedure. You may eat and drink as you desire.

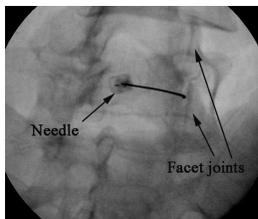
RARE POST-PROCEDURAL SYMPTOMS: You should be alert to report any signs of infection. Symptoms to be aware of include: redness and / or warmth

about the needle puncture site, increased pain other than expected from the procedure, swelling, drainage, chills, night sweats, or fever above 100 degrees F. Should you develop a headache, stay quiet with your head and body flat, drink plenty of fluids, and take aspirin or non-aspirin medication. If your headache persists beyond 12 hours or is noticeably increased by standing upright, it may be an indication of a spinal fluid leak and our office should be notified. Usually, in this event, the symptoms are self-limiting and resolve in time without additional treatment.

Facet Joint Injections

What is a Facet Joint Injection?

A facet joint injection is an injection of an anesthetic with a long lasting steroid ("cortisone") in the Facet joints. Facet joints are located in the back and neck at each vertebral level. They are paired (right and left) and are surrounded by a joint capsule like the finger joints.



What is the purpose of facet injections?

The steroid injected reduces the inflammation in the joint space. This can reduce pain, and other symptoms caused by inflammation such as nerve irritation.

How long does the injection take?

The actual injection takes only a few minutes.

What is actually injected?

The injection consists of a mixture of local anesthetic (like novocaine) and the steroid medication . Many times prior to injecting the medicine, a small volume of contrast dye is used to confirm proper needle placement.

Will the injection(s) hurt?

This procedure is done under local anesthesia. Most of the patients also receive intravenous sedation and analgesia, which makes the procedure easy to tolerate. The amount of sedation given generally depends upon the patient tolerance.

How is the injection performed?

It is done with the patient lying on the stomach with fluoroscopic (x-ray) guidance. The patients are monitored with EKG, blood pressure cuff and blood oxygen-monitoring device. The skin in the back is cleaned with antiseptic solution and then the injection is carried out. After the injection, you are placed on your back or on your side.

What should I expect after the injection?

Immediately after the injection, you may feel that your pain may be gone or quite less. This is due to the local anesthetic injected. This will last for a few hours. Your pain may return and you may have a sore back or neck for a day or two. This is due to the mechanical process of needle insertion as well as initial irritation from the steroid itself. You should start noticing pain relief starting the 3rd to 5th day.

What should I do after the procedure?

You should have a ride home. We advise patients to take it easy for the day of the procedure. You may want to apply ice to the affected area. After the first day, you can perform activity as tolerated.

Can I go to work to work the next day?

Yes. Unless there are complications, you should be able to return to your work the next day. The most common thing you may feel is soreness in the neck or back.

How long the effect of the medication lasts?

The immediate effect is usually from the local anesthetic injected. This wears off in a few hours. The cortisone starts working in about 5 to 7 days and its effect can last for several days to many months.

How many injections do I need to have?

If the first injection does not relieve your symptoms in about a week to two weeks, you may be recommended to have one more injection. If you respond to the injections and still have residual pain, you may be recommended for a third injection, or a different procedure.

Can I have more than three injections?

In a six-month period, we generally do not perform more than three injections. Giving more than three injections will increase the likelihood of side effects from cortisone. Also, if three injections with fluoroscopic guidance have not helped you much, it is very unlikely that you will get any further benefit from additional injections.

Will the Facet Joint Injection help me?

It is very difficult to predict if the injection will help you or not. Usually, patients who have recent onset of pain may respond better than the ones with long standing, or chronic pain. Your physician chose this procedure for you because he/she believes that the potential benefits of an injection outweigh any potential risks.

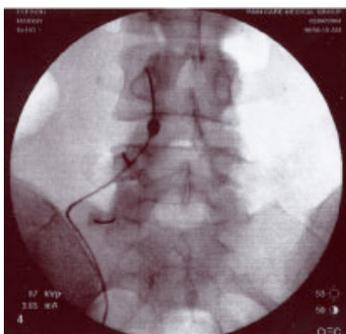
What are the risks and side effects?

This procedure is safe when performed in a controlled setting (surgical center sterile equipment, and the use of x-ray.) However, with any procedure there are risks, side effects, and possibility of complications. The most common side effect is discomfort – which is temporary. The other risks involve, infection, bleeding, worsening of symptoms. As with other types of injections, you should not have the procedure if you are currently taking blood-thinning medicine (Coumadin.) Side effects related to cortisone include: fluid retention, weight gain, increased blood sugar (mainly in diabetics,) elevated blood pressure, mood swings, irritability, insomnia, and suppression of body's own natural production of cortisone. Fortunately, the serious side effects and complications are uncommon. You should discuss any specific concerns with your physician.

Radiofrequency Lesioning

What is Radiofrequency Lesioning?

Radiofrequency (RF) Lesioning is a procedure using electrical impulses to interrupt nerve conduction on a semi-permanent basis. The nerves are usually blocked for 6 to 12 months.



What are the benefits of Radio Frequency Lesioning?

The procedure disrupts nerve conduction (especially conduction of pain signals) and it may reduce other related symptoms (numbness, tingling, or burning.) Approximately 70-80% of patients will get good block of the intended nerve. This should relieve the pain that the blocked nerve controls. Once a nerve is blocked, it sometimes becomes clear that there is also pain generated from different areas.

How long does the procedure take?

Depending upon the areas to be treated, the procedure can take from about thirty minutes to an hour.

How is it performed?

Since nerves cannot be seen on x-ray, the needles are positioned using bony landmarks that indicate where the nerves usually are. Fluoroscopy (x-ray) is used to identify those bony landmarks. A local anesthetic (like Novocaine) is injected to numb the superficial tissue. The special RF needle is then inserted under X-ray guidance. Most commonly only a dull pressure, not pain, is experienced. After confirmation of the needle tip position, a special needle tip is inserted. When the needle is in good position, as confirmed by x-ray, electrical stimulation is done before the RF lesioning. This stimulation may produce a buzzing or tingling sensation or may be like hitting your "funny bone". You may also feel your muscles jump. You need to be awake during this part of the procedure so you can report to the doctor what you feel. The tissues surrounding the needle tip are then heated when electronic current is passed using the Radio Frequency machine, for 90-120 seconds. This "numbs" the nerves semi-permanently.

Will the procedure hurt?

Nerves are protected by layers of muscle and soft tissues. The procedure involves inserting a needle through skin and those layers of muscle and soft tissues. A local anesthetic is given via a very thin needle prior to inserting the RF needle.

Will I be "put out" for this procedure?

No. This procedure is done under local anesthesia.

How is the procedure performed?

It is done with the patient lying on the stomach. The patient is monitored with EKG, blood pressure cuff, and blood oxygen-monitoring device. The skin on the back is cleaned with antiseptic solution and then the procedure is carried out. X-ray (fluoroscopy) is used to guide the needles.

What should I expect after the procedure?

Initially there will be muscle soreness for a few days after the procedure. Ice packs will usually control this discomfort. After that time, your pain may be gone or lessened significantly.

What should I do after the procedure?

You should not drive home. We advise patients to take it easy for a day after the procedure. You may want to apply ice to the affected area. You can perform activity as tolerated.

Can I go to work to work the next day?

You should be able to return to your work the next day. Your physician *may* restrict certain activities after the procedure.

Can the procedure be repeated?

If the first procedure does not relieve your symptoms

completely, your doctor *may* recommend having a repeat procedure. Because these are not permanent procedures, it may need to be repeated if the pain returns (i.e., 6-12 months).

Will Radiofrequency Lesioning help me?

It is very difficult to predict if the procedure will indeed help you or not. Generally speaking, the patients who have responded to local anesthetic blocks or cortisone injections in the facet joints have better outcomes.

What are the risks?

Generally speaking, this procedure is safe. With any procedure there are risks, side effects, and the possibility of complications. The risks and complications are dependent upon the site(s) that are lesioned. With any injection through the skin, there is a risk of infection. This is why sterile conditions are used for this procedure. The needles have to go through skin and soft tissues, which will cause soreness. The nerves to be lesioned may be near blood vessels or other nerves which can be potentially damaged. As with other types of injections, you should not have the procedure if you are currently taking blood thinning medicine (Coumadin.) Great care is taken when placing the Radiofrequency needles using X-ray, but rarely complications occur. You should discuss any specific concerns with your physician.

Sacroiliac Joint Injections

What is a Sacroiliac Joint Injection?

A sacroiliac joint injection is an injection of an anesthetic with a long lasting steroid ("cortisone") in the Sacroiliac joint(s.) The sacroiliac joints are located in the back where the lumbosacral spine joins the pelvis. They are paired (right and left) and are surrounded by a joint capsule like the finger joints.

What is the purpose of it?

The steroid injected reduces the inflammation in the joint space. This can reduce pain, and other symptoms caused by inflammation.



How long does the injection take?

The actual injection takes only a few minutes.

What is actually injected?

The injection consists of a mixture of local anesthetic (like novocaine) and the steroid medication . Many times prior to injecting the medicine, a small volume of contrast dye is used to confirm proper needle placement.

How is the injection performed?

It is done with the patient lying on the stomach with fluoroscopic (x-ray) guidance—see photo below. The patients are monitored with EKG, blood pressure cuff and blood oxygen-monitoring device. The skin in the back is cleaned with antiseptic solution and then the injection is carried out. After the injection, you are placed on your back or on your side.

What should I expect after the injection?

Immediately after the injection, you may feel that your pain may be gone or quite less. This is due to the local anesthetic injected. This will last for a few hours. Your pain may return and you may have a sore back or neck for a day or two. This is due to the mechanical process of needle insertion as well as initial irritation from the steroid itself. You should start noticing pain relief starting the 3rd to 5th day.

What should I do after the procedure?

You should have a ride home. We advise patients to take it easy for the day of the procedure. You may want to apply ice to the affected area. After the first day, you can perform activity as tolerated.

Can I go to work to work the next day?

Yes. Unless there are complications, you should be able to return to your work the next day. The most common thing you may feel is soreness in the neck or back.

How long the effect of the medication lasts?

The immediate effect is usually from the local anesthetic injected. This wears off in a few hours. The cortisone starts working in about 5 to 7 days and its effect can last for several days to many months.

How many injections do I need to have?

If the first injection does not relieve your symptoms in about a week to two weeks, you may be recommended to have one more injection.

Can I have more than three injections?

In a six-month period, we generally do not perform more than three injections. Giving more than three injections will increase the likelihood of side effects from cortisone. Also, if three injections with fluoroscopic guidance have not helped you much, it is very unlikely that you will get any further benefit from additional injections.

Will the Sacroiliac Joint Injection help me?

It is very difficult to predict if the injection will help you or not. Usually, patients who have recent onset of pain may respond better than the ones with long standing, or chronic pain. Your

physician chose this procedure for you because he/she believes that the potential benefits of an injection outweigh any potential risks.

What are the risks and side effects?

This procedure is safe when performed in a controlled setting (surgical center sterile equipment, and the use of x-ray.) However, with any procedure there are risks, side effects, and possibility of complications. The most common side effect is discomfort – which is temporary. The other risks involve, infection, bleeding, worsening of symptoms. As with other types of injections, you should not have the procedure if you are currently taking blood-thinning medicine (Coumadin.) Side effects related to cortisone include: fluid retention, weight gain, increased blood sugar (mainly in diabetics,) elevated blood pressure, mood swings, irritability, insomnia, and suppression of body's own natural production of cortisone. Fortunately, the serious side effects and complications are uncommon. You should discuss any specific concerns with your physician.

Prolotherapy

What is prolotherapy?

Prolotherapy is a non-cortisone type of injection that can treat many orthopaedic conditions. "Prolo" is short for proliferation, because the treatment causes the proliferation (growth, or formation) of new ligament or tendon tissue in areas where it has become weak.

Ligaments are bands of tissue that hold bones together. Ligaments can become weak or injured and may not heal back to their original strength or endurance. This is largely because the blood supply to ligaments is limited, and therefore healing is slow and not always complete. To further complicate this, ligaments also have many nerve endings and therefore the person will feel pain at the areas where the ligaments are damaged or loose. Tendons are the name given to tissue which connects muscles to bones. Tendons may become injured, and also cause pain.

Prolotherapy uses a dextrose (sugar water) solution, which is injected into the ligament or tendon where it attaches to the bone. This causes a localized inflammation in these weak areas which then increases the blood supply and flow of nutrients and stimulates the tissue to repair itself.

Prolotherapy is helpful for what conditions?

The treatment is useful for many different types of disorders, including neck and back pain, sports injuries, partially torn tendons or ligaments, arthritis, fibromyalgia, degenerated or herniated discs, and TMJ.

How many treatments are necessary?

The response to treatment varies from individual to individual, and depends upon one's healing ability. Some people may only need a few treatments while others may need 10 or more. The average number of treatments is 4-6, and there is not the concern of repeated injections as with cortisone. Once you begin treatment, your doctor can tell better how you are responding and make appropriate recommendations.

BOTOX INJECTIONS FOR MUSCLE SPASM

Introduction

BOTOX® is a therapeutic muscle-relaxing agent that works at motor nerve endings (nerves that lead to muscles). It is in a class of drugs called neurotoxins. When considering neurotoxin therapy, it is important to understand how the product works, the history of its use in patients, its protein content, and possible side effects. This information will help you understand more about BOTOX®: what it is, how it works, and how it can help you.

Q. What is BOTOX®?

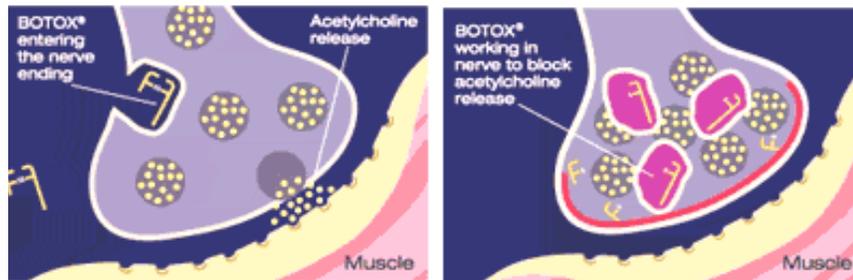
A. BOTOX® is a novel therapeutic agent derived from the bacterium, Clostridium Botulinum. Also known as Botulinum Toxin Type A, the brand BOTOX® is produced in controlled laboratory conditions and given in **extremely small** therapeutic doses.

BOTOX® is indicated for the treatment of blepharospasm associated with dystonia in patients 12 years of age and above. BOTOX® is being investigated for several conditions associated with overactive muscle activity, known as myofascial pain.

Botulinum Toxin Type A is the most studied of the seven different serotypes of botulinum toxin (A, B, C1, D, E, F, G). Each serotype has different properties and actions. No two are exactly alike.

Q. How does BOTOX® work?

A. Normally your brain sends electrical messages to your muscles so that they can contract and move. The electrical message is transmitted to the muscle by a substance called acetylcholine. BOTOX® works to block the release of acetylcholine and, as a result, the muscle doesn't receive the message to contract. This means that the muscle spasms stop or are greatly reduced after using BOTOX®, providing predictable and reliable relief from symptoms.



BOTOX® is not a cure. For many patients, however, its effects have been dramatic - symptoms usually begin to dissipate within a few days and the effects can last up to six months.

Q. How is BOTOX® administered?

A. BOTOX® is injected into the muscle. Your physician will determine the muscle(s) in need of treatment.

Q. Does the treatment hurt?

A. A very fine needle is used for the one to three injections that are usually given per muscle. Some patients report minor and temporary discomfort from treatment.

Q. When does BOTOX® start to work?

A. Usually, you will see the effects of BOTOX® within three days. The maximum benefit is reached in one to two weeks.

Q. How long does the effect last?

A. Given its unique mechanism of action, BOTOX® offers sustained relief, dose after dose over the course of long-term treatment. The relief you will feel from a single treatment of BOTOX® will normally be sustained for approximately three to six months. You may notice a gradual fading of its effects. At this point you will return to your physician for additional evaluation and treatment. BOTOX® injections can be repeated in three to six months. Symptoms may vary throughout the course of the condition, and so the degree of relief and duration of effect varies from person to person. Consult your physician, who has special knowledge about how to achieve the best possible results with BOTOX® for your individual case.

Q. How long can I be treated with BOTOX®?

A. Treatment with BOTOX® can typically be repeated indefinitely. BOTOX® has been used for over 10 years worldwide. Acceptable safety in long-term treatment has been well established. There are a number of factors that can impact the long-term usage of BOTOX®. These include:

1. **Setting appropriate expectations** - Changes occurring with subsequent BOTOX® injections may be less dramatic than the first injection.
2. **Appropriate muscle selection** - Identifying and injecting the affected muscle can be difficult, complicated by the changing pattern of muscle involvement and progression of the disorder.
3. **Adequate dosing** - Changes in response may require dose adjustment.
4. **Minimizing exposure to neurotoxin complex proteins¹** - Botulinum toxins contain proteins. In certain circumstances, when foreign proteins enter the body, the natural response is to form antibodies to the protein. When antibodies are formed, the effect may be that one is no longer able to respond to the therapy. High doses and frequent injections of botulinum toxin have been linked to the formation of antibodies.^{1,2} Antibody formation with BOTOX® is rare. The likelihood of forming antibodies is reduced by having treatment no more frequently than about every three months. BOTOX® has approximately 5 ng of neurotoxin complex proteins per 100 unit vial, a relatively low amount of protein, which may help to further minimize the potential to form antibodies.

Q. Is BOTOX® a new treatment?

A. No. BOTOX® has been used for over 10 years in hundreds of thousands of patients worldwide. The American Academy of Neurology, American Academy of Ophthalmology, and National Institutes of Health have recognized BOTOX® (Botulinum Toxin Type A) as a valuable treatment.

Q. Is BOTOX® right for me?

A. Ask your physician if BOTOX® is the right treatment for you. BOTOX® should not be used during pregnancy, if you are nursing, or if you are taking certain medications. Only your physician can determine the best course of therapy.

The effects of BOTOX® may be increased with the use of certain antibiotics or other drugs that interfere with neuromuscular transmission. Ensure that your physician is aware of any current medications you are taking.

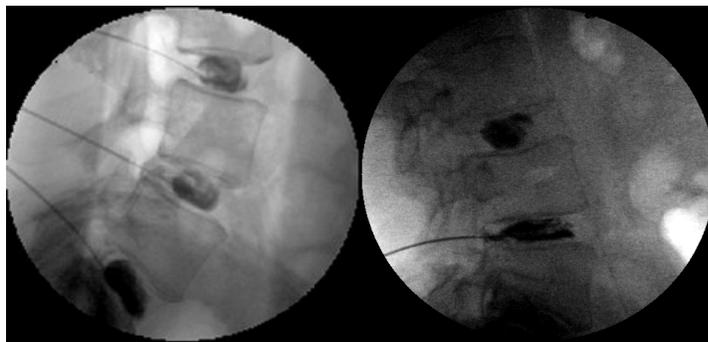
Q. What side effects may be experienced when using BOTOX®?

A. All medications have some side effects. With BOTOX®, side effects are usually transient and mild to moderate in nature. Some people notice temporary weakness of muscles or discomfort at the injection site. Other less common side effects may include low grade fever, or flu-like symptoms for the first 24 hours. If you have any questions regarding the use of BOTOX® treatment, please consult your physician.

Discography

What is Discography?

Discography is a diagnostic procedure, not a treatment. X-ray dye is injected into the spinal disc(s) and an x-ray (called a "discogram") is taken. The discogram may be normal or may show tears (fissures) in the lining of the disc. The results of discography can be used to plan spinal surgery, disc decompression, or IDET (IntraDiscal ElectroThermal Therapy).



Normal Discogram

Abnormal Discogram

How do I know if my pain is from a damaged disc?

With age or from an injury, the wall of the spinal discs can become damaged (such as a fissure.) This condition is called Internal Disc Disruption or Degenerative Disc Disease. The wall of the disc can weaken and protrude out (a herniated disc). When the disc causes pain, the pain is usually felt as a deep ache in the back and sometimes in the buttocks and into the thigh. Pain from facet joints in the back and from the sacroiliac (SI joints) can be in the same location and feel the same. The best way to tell if the pain is from a damaged disc is with discography.

How is Discography performed?

The procedure is done in a surgical center with fluoroscopic (x-ray) guidance. For lumbar discography it is done with you lying on your stomach. You are watched closely with an EKG monitor, blood pressure cuff and blood oxygen-monitoring device. The skin over the injection site(s) is cleaned with an antiseptic solution and then the injections are performed.

What will I feel during the injection?

When a normal disc is injected, you will feel a sense of pressure, not pain. When an abnormal disc is injected, you will feel pain. It is important to try to determine if the pain you are feeling is your “typical pain” or not. When each disc is injected, you will be asked if it is painful, where you feel the pain and whether it is in the same area as your usual pain.

How many discs will be injected?

Based on your symptoms and your MRI, your doctor will determine which disc(s) may be causing your pain. These disc(s) will be injected and evaluated. In addition, a normal disc is injected to serve as a reference point.

How long does Discography take?

Discography takes about 30 to 45 minutes, depending on how many levels are injected.

What is actually injected?

The injection consists of x-ray dye. Saline is also injected to reproduce the patient's symptoms.

Will the injections hurt?

The procedure involves inserting a needle through skin and deeper tissues, so there is some discomfort involved. However, your doctor will numb the skin and deeper tissues with a local anesthetic using a very thin needle prior to inserting the needle into the disc.

You may have a flare-up of your back pain after the injection, but this gets better in a day or two and can usually be managed with ice packs and oral pain medication.

Will I be "put out" for this procedure?

No. This procedure is done under local anesthesia. During the discogram injections, you need to be awake enough to tell the doctor what you are feeling.

Will my pain be better after the injection?

No. Discography does not treat your condition. It is a diagnostic test that allows your doctors to plan your therapy.

What should I do after the procedure?

We advise patients to take it easy the day after the procedure. You may need to apply ice to the affected area for 20-30 minutes

at a time for the next day. You can then perform activities as tolerated. Your doctor will provide specific activity restrictions if indicated.

What are the risks and side effects of discography?

Generally speaking, this procedure is safe. However, with any procedure there are risks, side effects, and possibility of complications. The most common side effect is discomfort, which is temporary. Sometimes, the discogram needle brushes past a nerve root and the nerve root is irritated. This pain gets better quickly. The other risks involve infection, bleeding, and worsening of symptoms. Fortunately, because the procedure is performed with X-ray in a controlled environment, serious side effects and complications are rare.

Percutaneous Lumbar Discectomy

Percutaneous Lumbar Discectomy is a non-surgical option to treat back and leg pain. It is designed to treat contained disc herniations. The probe removes disc tissue and reduces the amount of disc material that causes nerve irritation.

This is a minimally invasive procedure performed in an outpatient surgical center. The procedure uses a special probe which is guided into your disc through a spinal needle. An x-ray is used to confirm the catheter placement in the disc. The probe is activated and rotates creating suction and removal of nucleus pulposus through the cannula. The probe and needle are removed, and you will be discharged home with specific instructions.

Pre-Operative Preparation

One week before the procedure:

- Stop all NSAID's, aspirin and aspirin containing compounds.
- Do NOT discontinue heart, blood pressure or diabetes medications, or other medications prescribed by your physician.

Be sure to tell your physician if:

- you are taking blood thinners or have a history of a bleeding disorder
- you are allergic to iodine (shellfish or IVP dye)

- you have fevers, or signs of infection

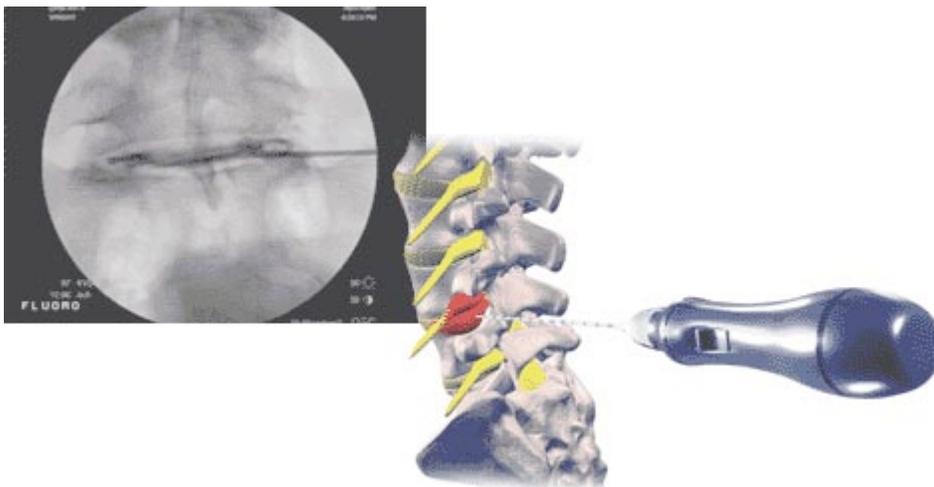
You should not eat the day of your procedure. Small amounts of clear liquids are permitted. Arrange to have someone drive you to and from the surgical center.

The Procedure

An I.V. will be placed in your arm. After you are in position on the table, x-ray equipment will identify the disc level(s). Your lower back skin and muscle tissue will then be numbed with local anesthetic.

Your physician will place a needle into your disc under x-ray guidance. You may experience pressure during this part of the procedure. Once the needle is in the proper position, your physician may inject dye into the disc for diagnostic purposes.

Patients typically do not feel any discomfort during this step. However, some patients feel pressure in their back when the catheter moves through the disc.



Percutaneous discectomy probe in a lumbar disc

When the catheter position is confirmed by x-ray, the probe is activated, and the disc material is removed. Your physician will monitor your responses during the procedure to ensure that any discomfort you feel is well controlled.

At the end of the procedure, a bandage will be placed on your back, and you will rest in a recovery area until you are ready to go home.

Post-operative Management

In the first three days after your procedure (the immediate postoperative period), you may experience a moderate increase in your normal back pain. Rest, ice, pain medication and anti-inflammatories will minimize possible discomfort during this time. Any unusual or new symptoms (i.e., fever, chills, rash, increased numbness or weakness) should be reported to your physician. Do not expect your usual pre-procedure symptoms to immediately disappear.

You should not exert yourself during this time, even if you experience a marked reduction in your usual pre-procedure pain. No housework, lifting or bending should be done. After the first week, short walks (15 to 20 minutes) are okay. You should discuss with your physician your plan to return to work. If your work is sedentary, you can typically return within a week after the procedure. A follow-up appointment will be made with your physician for additional treatment recommendations.

For the few weeks following the procedure as your disc(s) heal, you should begin to feel a reduction in pain. However, pain reduction may occur over 3 months. During the first month, you must treat your back carefully. Restrict bending twisting or heavy lifting. You may resume back exercises under your physician's guidance. Anti-inflammatory medications and/or pain medication may be prescribed if needed to control discomfort associated with your normal back pain. Icing 1-2 times per day (10-15 minutes) is advisable to reduce any low back discomfort.

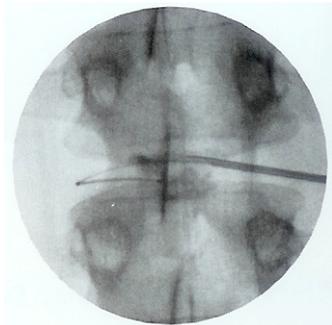
Rehabilitation Exercises and Therapy

Your physician will guide you regarding rehabilitation exercises after your procedure. Formal physical therapy usually begins four weeks post-op. Your physician will help you advance your exercise program to improve your strength and flexibility. Your physician may allow you to resume sporting activity 3-4 months after the procedure and may allow you to resume traveling for work or pleasure during this time as well.

ElectroThermal Disc Decompression

ElectroThermal Disc Decompression is a non-surgical option to treat back and leg pain. It is designed to treat a bulging or contained herniated disc. A heating element is used to modify the protein wall of the disc and reduces the amount of disc material that causes nerve irritation.

This is a minimally invasive procedure performed in an outpatient surgical center. The procedure involves a special wire (decompression heating element) which is guided into your disc through a spinal needle. An x-ray is used to confirm the catheter placement in the disc. The disc is heated for a short period of time determined by the physician. The catheter and needle are removed, and you will be discharged home with specific instructions.



Electrothermal catheter in a lumbar disc

Pre-Operative Preparation

One week before the procedure:

- Stop all NSAID's, aspirin and aspirin containing

compounds.

- Do NOT discontinue heart, blood pressure or diabetes medications, or other medications prescribed by your physician.

Be sure to tell your physician if:

- you are taking blood thinners or have a history of a bleeding disorder
- you are allergic to iodine (for example, shellfish or IVP dye)
- you have fevers, or signs of infection

You should not eat the day of your procedure. Small amounts of clear liquids are permitted. Arrange to have someone drive you to and from the surgical center.

The Procedure

An I.V. will be placed in your arm. After you are in position on the table, x-ray equipment will identify the disc level(s). Your lower back skin and muscle tissue will then be numbed with local anesthetic.

Your physician will place a needle into your disc under x-ray guidance. You may experience pressure during this part of the procedure. Once the needle is in the proper position, your physician may inject dye into the disc for diagnostic purposes.

The electrothermal catheter is then inserted through the needle. Patients typically do not feel any pain , however, some patients feel pressure in their back when the catheter moves through the disc.



Electrothermal catheter heating a lumbar disc

When the catheter position is confirmed by x-ray, the heating element is activated. As the heat increases into the treatment range, you might experience your typical disc-related symptoms. Your physician will monitor your responses during the procedure to ensure that any discomfort you feel is well controlled.

At the end of the procedure, a bandage will be placed on your back, and you will rest in a recovery area until you are ready to go home.

Post-operative Management

In the first three days after your procedure (the immediate postoperative period), you may experience a moderate increase in your normal back pain. Rest, ice, pain medication and anti-inflammatories will minimize possible discomfort during this time. Any unusual or new symptoms (i.e., fever, chills, rash, increased numbness or weakness) should be reported to your physician. Do not expect your usual pre-procedure symptoms to immediately disappear.

You should not exert yourself during this time, even if you experience a marked reduction in your usual pre-procedure pain. No housework, lifting or bending should be done. After the first week, short walks (15 to 20 minutes) are okay. You should discuss with your physician your plan to return to work. If your work is sedentary, you can typically return one week after the procedure. A follow-up appointment will be made with your physician for additional treatment recommendations.

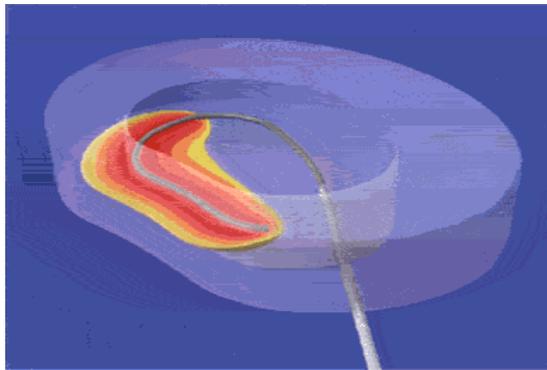
For the few weeks following the procedure as your disc(s) heal, you should begin to feel a reduction in pain. However, pain reduction may occur over 3 months. During the first month, you must treat your back carefully. Restrict bending twisting or heavy lifting. You may resume back exercises under your physician's guidance. Anti-inflammatory medications and/or pain medication may be prescribed if needed to control discomfort associated with your normal back pain. Icing 1-2 times per day (10-15 minutes) is advisable to reduce any low back discomfort.

Rehabilitation Exercises and Therapy

Your physician will guide you regarding rehabilitation exercises after your procedure. Formal physical therapy usually begins four weeks post-op. Your physician will help you advance your exercise program to improve your strength and flexibility. Your physician may allow you to resume sporting activity 3-4 months after the procedure and may allow you to resume traveling for work or pleasure during this time as well.

IntraDiscal ElectroThermal Therapy (IDET)

You have been diagnosed with a disc problem in your lower back. Your physician has selected this procedure because it offers you a **non-surgical** option to treat your back pain. A catheter that uses *heat* modifies the protein wall of your disc and reduces the amount of disc material that causes nerve irritation. Your physician feels this procedure could improve your back pain.



This is a minimally invasive procedure performed in an outpatient surgical center. The procedure involves a special wire (the catheter) which is guided into your disc through a spinal needle and is heated for about 15-20 minutes. One or multiple disc levels can be treated with IDET. The catheter and needle are removed, and you will be discharged home with specific instructions.

Pre-Operative Preparation

One week before the procedure:

- Stop all NSAID's, aspirin and aspirin containing compounds.

- Do NOT discontinue heart, blood pressure or diabetes medications, or other medications prescribed by your physician.

Be sure to tell your physician if:

- you are taking blood thinners or have a history of a bleeding disorder
- you are allergic to iodine (for example, shellfish or IVP dye)
- you have fevers, or signs of infection

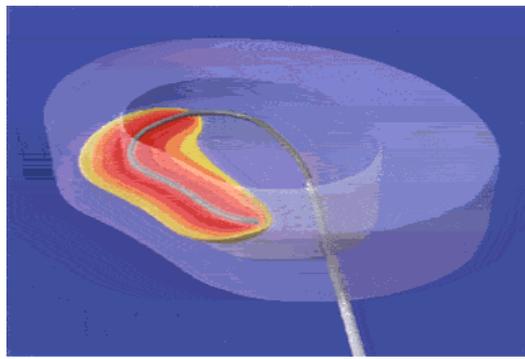
You should not eat the day of your procedure. Small amounts of clear liquids are permitted. Arrange to have someone drive you to and from the surgical center.

The Procedure

An I.V. will be placed in your arm . After you are in position on the table, x-ray equipment will identify the disc level(s). Your lower back skin and muscle tissue will then be numbed with local anesthetic.

Your physician will place a needle into your disc under x-ray guidance. You may experience pressure during this part of the procedure. Once the needle is in the proper position, your physician may inject dye into the disc for diagnostic purposes.

The electrothermal catheter is then inserted through the needle. Patients typically do not feel any discomfort during this step. However, some patients feel pressure in their back when the catheter moves through the disc.



IDET Catheter in a lumbar disc

When the catheter position is confirmed by x-ray, the heating element is activated. The heat is slowly increased and will last for 15 to 18 minutes. As the heat increases into the treatment range, you might experience your typical disc-related symptoms. Your physician will monitor your responses during the procedure to ensure that any discomfort you feel is well controlled.

At the end of the procedure, a bandage will be placed on your back, and you will rest in a recovery area until you are ready to go home.

Post-operative Management

In the first three days after your procedure (the immediate postoperative period), you may experience a moderate increase in your normal back pain. Rest, ice, pain medication and anti-inflammatories will minimize possible discomfort during this time. Any unusual or new symptoms (i.e., fever, chills, rash, increased numbness or weakness) should be reported to your physician. Do not expect your usual pre-procedure symptoms to immediately disappear.

You should not exert yourself during this time, even if you experience a marked reduction in your usual pre-procedure

pain, because exertion may negatively affect the overall outcome. No housework, lifting or bending should be done. Short walks (15 to 20 minutes) are okay, but generally the first few days should be spent resting. You should discuss with your physician your plan to return to work. If your work is sedentary, you can typically return 1 to 5 days after the procedure. A follow-up appointment will be made with your physician for additional treatment recommendations.

For the few weeks following the procedure as your disc(s) heal, you should begin to feel a reduction in pain. However, pain reduction may occur over 3 months. During the first month, you must treat your back carefully. Restrict bending twisting or heavy lifting. You will be instructed to wear a soft lumbar brace for several months following the procedure. No sports will be allowed.

You may resume back exercises under your physician's guidance. Anti-inflammatory medications and/or pain medication may be prescribed if needed to control discomfort associated with your normal back pain. Icing 1-2 times per day (10-15 minutes) is advisable to reduce any low back discomfort.

Rehabilitation Exercises and Therapy

Your physician will guide you regarding rehabilitation exercises after your procedure. If you have been performing strenuous rehabilitation exercises before the procedure, you will not immediately return to that level of exercise, but to a more moderate level that will be gradually increased as you improve.

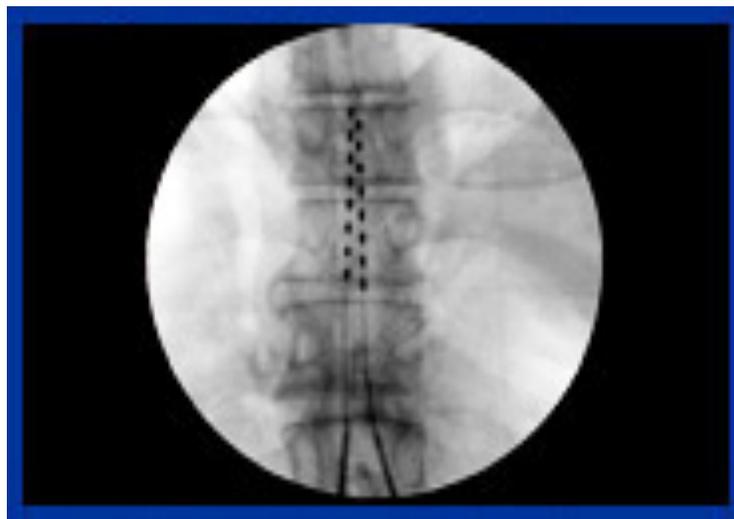
Your physician will help you advance your exercise program to improve your strength and flexibility. Your physician may allow you to resume sporting activity 3-4 months after the procedure and may allow you to resume traveling for work or pleasure during this time as well.

Spinal Cord Stimulation

Spinal cord stimulation (SCS) is a type of electrotherapy approved by the Food and Drug Administration (FDA) as a treatment for certain types of chronic pain. The therapy involves applying very small amounts of electricity directly to selected nerves or anatomic structures. The electricity triggers a neurological response that interferes with the transmission of unwanted pain signals to the brain.

SCS involves the stimulation of nerves in the spinal cord by placing electrodes in the space above the spinal cord (epidural space). Spinal cord stimulation is sometimes referred to by its older name, dorsal column stimulation. Spinal cord stimulation is indicated for the treatment of chronic pain of the trunk and/or limbs.

Spinal cord stimulators consist of three components designed to work together as a system: a power source, electrode leads, and an external controller. The power source generates electrical pulses, which are carried to electrodes at the end of the lead inserted into the epidural space (shown below.) The external controller allows the doctor to “program” the power source to generate pulses customized for the individual receiving the therapy.



A relatively short noninvasive surgical procedure is required to place the electrodes in the space above of the spinal column (epidural space). When the power source is turned on, the electrodes will stimulate the nerves that are associated with the areas of the body affected by pain. For many people, this stimulation of the targeted nerves effectively changes pain messages and some patients describe the feeling that replaces the pain as a tingling or massaging sensation called paresthesia. For many patients, paresthesia is much more pleasant than the pain. In this case, spinal cord stimulation is a good option. However, for some patients paresthesia is not a pleasant sensation. A temporary, or trial stimulator, is normally inserted for one week to determine a patient's response to spinal cord stimulation.

Typically, SCS is performed after less invasive treatment options such as medications, physical therapy, epidural steroid or nerve blocks have been attempted. Your physician will be able to evaluate whether SCS is a potential treatment option for your specific condition.

