Interventional procedures:

1. Medication management

2. Psychological counseling and support

3. Referral to other medical specialists

All of these skills and services are necessary because pain can involve many aspects of a person's daily life.

What are the basic types of pain?
There are many sources of pain. One way of dividing these sources of pain is to divide them into two groups, nociceptive pain and neuropathic pain. How pain is treated depends in large part upon what type of pain it is.

Nociceptive pain
The body's nervous system is working properly. There is a source of pain, such as a cut, a broken bone or a problem with the spine. The body's system of telling the brain that there is an injury starts working. This information is passed on to the brain and one becomes aware that they are hurting.

Neuropathic pain
The body's nervous system is not working properly. There is no obvious source of pain, but the body nonetheless tells the brain that injury is present.

What are types of nociceptive pain?
Most back, leg, and arm pain is nociceptive pain. Nociceptive pain can be divided into two parts, radicular or somatic.

Radicular pain: Radicular pain is pain that stems from irritation of the nerve roots, for example, from a disc herniation. It goes down the leg in the distribution of the nerve that exits from the nerve root at the spinal cord. Associated with radicular pain is radiculopathy, which is weakness, numbness, tingling or loss of reflexes in the distribution of the nerve.
Somatic pain: Somatic pain is pain limited to the back or thighs. The problem that doctors and patients face with back pain, is that after a patient goes to the doctor and has an appropriate history taken, a physical exam performed, and appropriate imaging studies (for example, X-rays, MRIs or CT scans), the doctor can only make an exact diagnosis a minority of the time. Research has shown that most back pain that does not go away after conservative treatment usually comes from one of three structures in the back: the facet joints, the discs, or the sacroiliac joint. The facet joints are small joints in the back of the spine that provide stability and limit how far you can bend back or twist. The discs are the "shock absorbers" that are located between each of the bony building blocks (vertebrae) of the spine. The sacroiliac joint is a joint at the buttock area that serves in normal walking and helps to transfer weight from the upper body onto the legs.
Fluoroscopically (x-ray) guided injections can help to determine where pain is coming from. Once the pain has been accurately diagnosed, it can be optimally treated.

What are types of neuropathic pain?
Neuropathic pain includes:

- Complex regional pain syndrome(CRPS), also called reflex sympathetic dystrophy;
- Sympathetically maintained pain;
- Fibromyalgia;
- Interstitial cystitis;
- Irritable bowel syndrome.

Treatment of neuropathic pain
The various neuropathic pains can be difficult to treat. However, with careful diagnosis and often a combination of methods of treatments, there is an excellent chance of improving the pain and return of function.

Medications are a mainstay of treatment of neuropathic pain. In general, they work by influencing how pain information is handled by the body. Much pain information is filtered out by the central nervous system, usually at the level of the spinal cord, so that you never need to deal with that information. For example, if you are sitting in a chair, your peripheral nerves would correctly send the response to the pressure between your body and the chair to your nervous system. But, because that information serves no usual purpose, it is filtered out in the spinal cord. Many medications to treat neuropathic pain operate on this filtering process. Amongst the types of medications are antidepressants, influencing the amount of serotonin or norepinephrine and anti-seizure medications, influencing the amount of various neurotransmitters, such as GABA and glycine.

One of the most powerful tools in treating neuropathic pain is the spinal cord stimulator, which delivers tiny amounts of electrical energy directly onto the spine. The effect of this stimulation of the spinal cord is to allow the spinal cord to function normally even during a painful condition. It works by interrupting inappropriate pain information being sent up to the brain.

What are other causes of pain?

- headaches
- facial pain
- peripheral nerve pain
- coccydynia
- compression fractures
- post-herpetic neuralgia
- myofasciitis
- torticollis,
- lateral epicondylitis
- **Headaches and facial pain, including atypical facial pain and trigeminal neuralgia.**

Headaches are a major source of discomfort and lost productivity in the workplace. Many effective treatments exist for persisting headaches, including medication, biofeedback, injections and implants, depending upon the precise type of headache. Botox also provides a useful means of effectively and safely treating headaches.

Atypical facial pain can be debilitating. Often times it can be treated by injections into local nerve tissue (such as the sphenopalatine ganglion).

Trigeminal neuralgia, also called tic douloureux, is a condition that most commonly causes very intense intermittent shooting pain in the face.

Peripheral nerve pain

Peripheral nerve pain, or neuropathy, can be debilitating. It can respond well to simple treatments such a trigger point injections with anesthetic medicines and cryoablation (an office based procedure which involves freezing the nerves). Examples of peripheral nerve pain include intercostal neuralgia, ilioinguinal neuroma, hypogastric neuroma, lateral femoral cutaneous nerve entrapment, interdigital neuroma and related nerve entrapments.

Coccydynia

Coccydynia is simply pain in the region on the tailbone, or coccyx. It can result from trauma or arise without apparent cause. The initial treatment is conservative, with oral pain relief medicines (analgesics). Oftentimes, the pain originates in the portion of the nervous system that we have no control of (involuntary or autonomic nervous system) and can respond to either a local anesthetic injection of the head of a nerve called Ganglion Impar, which is located by the coccyx or by medically destroying (ablating) the Ganglion Impar, usually using radiofrequency.

Compression fractures

Compression fractures of the bony building blocks (vertebral bodies) are common in the elderly as a result of osteoporosis, or loss of calcium in the bone. With less calcium, the bone becomes weak and can break. Like any fracture, compression fractures hurt. Like any fracture, they are treated by stabilization, in this case, by injecting cement into the bone in a procedure known as a Vertebroplasty. Vertebroplasty is an effective way to treat the pain of compression fractures.

Post-herpetic neuralgia

Post herpetic neuralgia (PHN) is a painful condition occurring after a bout of shingles. When we are young, we are almost all exposed to chickenpox, caused by the *Herpes Zoster* virus. Our immune system controls the virus, but it lives in a dormant state in the spinal cord. When we age, or become ill or stressed, the virus can reactivate and attack the nerve infected and adjacent skin. However, in this second attack, the body usually recognizes the H*erpes Zoster* virus and contains the pain to a localized area, along the course of one nerve. A patient may have the characteristic blisters, which normally heal. Sometimes, however, the *Herpes Zoster* virus damages the nerve, causing ongoing nerve pain that persists after the skin blisters from the shingles have healed.

The ideal way to treat the post herpetic neuralgia is to treat it before it sets in. Medications, such as acyclovir (Zovirax), steroids and injections such as sympathetic injections can help prevent the onset of PHN. After the pain is present, injections, local anesthetics, medications duloxetine (Cymbalta), amitriptyline, (Elavil, Endep) and pain medications or topical patches can be useful.

Myofasciitis and Torticollis

Myofasciitis (pain in the muscles, whether in the neck or back) often responds to conservative physical therapy treatments (for example, massage and exercise). If the pain persists, trigger point injections can be used. If the trigger point injections provide temporary relief, sometimes Botox injections can help. Botox, which is *botulinum toxin*, can relax the muscles for six or more months, with long-term relief of pain. It provides a safe, effective treatment for what can otherwise be a difficult, ongoing problem.

Torticollis is spasm of the muscles in the neck, forcing the sufferer to hold his or her neck tilted or rotated to the side. Botox is approved for treatment of this problem.

Piriformis Syndrome

The piriformis muscle goes from the hip to sacrum (tailbone). It is important in that the sciatic nerve passes through it. Piriformis syndrome is a spasm of the piriformis muscle. When the muscle goes into spasm, it can squeeze the sciatic nerve, causing pain going down the leg. Piriformis syndrome will usually respond to physical therapy. When pain persists, local anesthetic and/or steroid injection can help. If the pain persists, injecting Botox or Myobloc, which are both *botulinum* toxins, into the muscle can provide effective, safe treatment.