A Guide to Understanding FOOT and ANKLE NERVE PAIN

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Why I Wrote This Book

As a podiatrist, I specialize in the care and treatment of the feet and ankles. In the last decade, I've seen firsthand that the incidence of lower extremity nerve pain has increased as our general population continues to age.

As many as 28-32 million Americans suffer from lower extremity nerve pain.

Lower extremity nerve pain is experienced by people of all ages and demographic backgrounds. It most often occurs in middle age or later, although it might be the result of injury that happened earlier in life. It is often related to an underlying metabolic disease such as diabetes.

There are a number of causes of lower leg and foot pain, and I will cover them in greater detail later in this book. What concerns me most is that often, this common problem goes undiagnosed because symptoms can be so varied and because the onset of symptoms is very slow.

So often, the people that come in to see me do so after the symptoms have become so severe that treatment options are limited. The paradox of this condition is that it often goes undiagnosed, yet early treatment is the key to successfully eliminating the problem.

After noticing all of these, I decided to create a publication for you. I wrote it so that you could understand the symptoms and causes of lower extremity nerve pain, and the treatments available to you. I'm very excited about the new treatment options for nerve pain that are available to podiatrists, including the use of minimally invasive surgery, and I want you to know that we have the very latest technologies available in our office. Dr. Craig H. Thomajan is trained to perform nerve decompression surgery.

If after reading this book you think you might be helped by seeing a podiatrist, I hope you consider Austin Foot and Ankle Specialists. My staff and I will do everything we can to treat your condition, eliminate your pain, and make you feel at home.

Dedicated to Your Health,

Craig H. Thomajan DPM, FACFAS

What Is Lower Extremity Nerve Pain?

Many of the cases of lower extremity nerve pain are classified as peripheral neuropathy. This is a disorder of the nerves that connect the spinal cord to the muscles, skin, and organs. The peripheral nerves control your sense of touch, the way you feel pain and temperature, and your muscle strength. Most of the time, it starts with a loss of feeling in the toes, and then moves into the limbs causing pain and loss of feeling in the feet and legs. Patients with peripheral neuropathy may have the same symptoms in their fingers and hands as well.

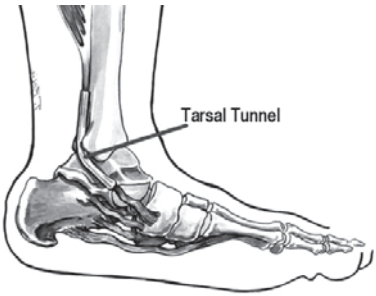
Another type of lower extremity nerve pain is caused by nerve entrapment. This is commonly known as a pinched nerve and causes burning pain, shooting or sensitivity to the top of the foot. Nerve entrapments may be caused by trauma to the foot or repetitive compression like wearing too tight shoes or running in shoes that are not properly fit.

Nerve injury is the third type of lower extremity nerve pain. Nerve injury is also caused by prolonged repetitive compression of the nerves or trauma to the foot or lower leg.

Common Nerve Conditions Affecting the Foot and Ankle

Tarsal Tunnel Syndrome

The numbness and tingling, burning or cramping you are feeling in your toes or your foot or heel is due to nerve compression, and called tarsal tunnel syndrome. A large nerve, the posterior tibial nerve, crosses behind your ankle, on the inside of your foot. Where the nerve crosses behind the ankle there is a tunnel with bone on the deep side and a fibrous roof above. Within this tunnel the large nerve divides into three branches, one to your foot, the plantar nerves. Each of the two plantar nerves, the medial and the lateral plantar nerves, have separate smaller tunnels just under the foot where compression may also occur. Even the smallest branch, the calcaneal to your heel, goes through a very tight fibrous tunnel and can become compressed.



Pressure on these nerves can come from either within the tunnel, such as occurs after a broken or badly sprained ankle, or from swelling within the nerve, such as occurs in association with medical problems like diabetes. Sometimes there may be arthritis of the ankle joint, a cyst or ganglion associated with the toe tendons or the ankle joint that causes the pressure upon the nerve. There are times when it is just not clear what has caused the problem.

When the nerves in these tunnels receive increased pressure, their blood flow decreases. When this happens, the nerve responds with alters sensations such as tingling and numbness. Sometimes this is so severe that it feels as if the foot is asleep. Often the symptoms are worse after standing or walking, when the fluid begins to collect in the foot. The small muscles may give you a cramping feeling as they begin to lose their nerve supply. If just the calcaneal branch is affected, the symptoms may seem much the same as a bone spur on the heel or of the plantar fasciitis, and inflammation along the bottom of the foot.

Intermetatarsal Neuroma

Compression of the intermetatarsal sensory nerve to the inner space of the toes in the foot is a very common complaint. Most people refer to the burning, numbness, cramping, and ball of foot pain as a Morton's Neuroma. Although this may be correct, a Morton's Neuroma only describes a compression of the inter-metatarsal nerve of the third inner space, affecting the third and fourth toes only. These symptoms are most common while wearing a closed toed shoe, a high heeled shoe, and during endurance exercise, like running or cycling. Nerve compression in the toe can occur in all the inner spaces, but the third inner space is the most common. A thorough history and physical examination will determine the presence of this condition, and only after a definitive diagnosis is made will a treatment regime be discussed. Treatments include patient education, shoe modification, over the counter orthotics, custom orthotics, oral anti-inflammatories, water soluble steroid injections, and surgical decompression of the inner space. Some antidotal evidence on the use of alcohol sclerosis agents may be discussed. Ultimately, if conservative and palliative therapies fail to mitigate the pain, surgical removal of the sensory nerve may be necessary.

Compression of the Deep Fibular Nerve

Another anatomic site of entrapment is at the level of the dorsum of the foot, along the distribution of the deep fibular nerve sensory branch. There is a known site of compression of the deep fibular nerve by the extensor hallucis brevis tendon at the metatarsal cuneiform joint, the joint at the peak of the arch of the foot. This is often a complaint in men and women who wear shoes that increase the pressure over this nerve. Common complaints are tingling, numbness, and burning into the first and second toes, relieved by removal of the shoe and rubbing the dorsal arch of the foot.

Compression of the Common Fibular Nerve

A nerve the thickness of a pen, the Common Peroneal Nerve, crosses from behind your knee, around the outside of your knee, to enter the muscles of the outside of your leg. This nerve gets compressed between the white covering of the muscles and the underlying bone, the fibula, in what is called the fibular tunnel. If your leg is stretched, your ankle twisted, of your knee injured, the common peroneal nerve can be compressed. This may result in complaints

that you cannot lift up your foot, or your toes, so your foot drags. Numbness or buzzing from your knee to top of toes. You may feel like your leg is going to "give out" on you. The top of your foot hurts, or your big toe does not lift up. If the bottom of your foot bothers you may also have Tarsal Tunnel Syndrome, or Neuropathy.

What Are the Symptoms of Lower Extremity Nerve Pain?

Symptoms of lower extremity nerve pain can develop slowly over time. They also vary widely from patient to patient, causing diagnosis to often go undetected. Some people with nerve damage show no symptoms at all.

Symptoms of peripheral neuropathy may include pain, burning, tingling, numbness, cramping, and tightness. Some people say they feel like they are wearing socks when they are barefoot. A feeling of heaviness in your legs can be a symptom, as well as a loss of balance. Any one of these symptoms can result in difficulty in walking, causing a wider stance and a less rhythmic or fluid gait. Other symptoms are loss of feeling in the feet, cramping in the feet, curling of the toes, weakness, and sharp, shooting pains in the legs and feet. The pain is often worse at night, and some patients find relief with walking.

Symptoms of nerve entrapment include lower back pain, continued pain after a knee replacement surgery, burning, numbness, a feeling of tightness in the leg or ankle, weakness, and in advanced cases, even drop foot, a gait abnormality due to weakness of the muscles in the anterior portion of the lower leg caused by damage to the nerve located on the outside of the knee.

What Causes Lower Extremity Nerve Pain?

Peripheral neuropathy is nerve damage that generally results from a systemic disease. However, a full 30% of peripheral neuropathy cases are referred to as idiopathic, meaning they come from unknown causes.

The most common form of neuropathy is from **diabetes**; up to 30% of the cases of peripheral neuropathy are generally caused by this disease. The fact is that having your blood sugar too high over a long time can cause nerve swelling leading to nerve damage.

There are other diseases and conditions that can cause peripheral neuropathy. Kidney problems can lead to blood toxicity which can damage nerves. Infectious and inflammatory diseases such as Guillain-Barré Syndrome or HIV can damage nerves as well. In some cases, chemotherapy, exposure to toxic substances, heavy metal toxicity, recreational drug use, leprosy, and alcoholism can all result in damage to the peripheral nerves.

Other causes include thyroid disorders, arthritis (rheumatoid and lupus), vitamin deficiencies and, heredity. Many people today are overweight, have high cholesterol, or have high blood pressures. These people have metabolic syndrome or Syndrome X, often referred to as pre-diabetic. Their neuropathy is often an early phase of diabetic peripheral neuropathy.

As stated earlier, nerve entrapment or nerve injury can be caused by trauma, compression, knee replacement surgery, and in some cases, severe ankle sprains. When a nerve gets pressed, blood flow to the nerve slows, blood flow decreases, and the nerve sends a message of numbness and tingling to the brain.

What Are the Symptoms of Nerve Compression?

If someone were squeezing your neck, choking you, you would be yelling and screaming, struggling to get air into your lungs. If your nerve gets choked, or pinched, it also does not get enough oxygen. The nerve makes you aware of this lack of oxygen by sending you a warning message. You will feel buzzing, tingling or numbness in the areas that are supplied by that nerve.

In the foot, the most common condition of nerve compression is called tarsal tunnel syndrome. It involves compression of the posterior Tibial nerve in the bony tunnel on the inside of the ankle. This nerve supplies the entire bottom of the foot, including the heel. Compression of the posterior Tibial nerve can result in numbness or tingling of the heel, the arch, the ball of the foot, and the bottom and tips of the toes, the loss of sensation in the feet can cause a loss of balance, a feeling of unsteadiness, and can cause you to fall. Special inserts, called orthotics, may be placed into your shoes to relieve pressure on the tarsal tunnel. Special education for the care of the foot with poor sensation will be required to teach you to minimize the dangers that can come from this impaired sensibility. You may also want to consider the use of a cane or a walker to help you get around.

What Is the Relationship Between Neuropathy and Nerve Compression?

The most common form of nerve problem in the diabetic is called diabetic neuropathy and is a change in sensation in a stocking and glove distribution. This means that for your hand, the entire hand is affected, both the top and bottom, and all of the toes in the foot. These changes can be present up to the knee. The pattern of a neuropathy is usually the same for both the left and right hand and the left and right foot. The problem usually begins in your feet. In contrast, nerve compression usually is thought of as one nerve in one arm or in one leg, and this suggests that with nerve compression, just part of one arm or of one leg would have the numbness pattern. This difference in the pattern if numbness associated with a nerve compression is one of the main reasons that doctors in the past have not considered that the symptoms of diabetic neuropathy as due to nerve compression.

The symptoms of diabetic neuropathy, of the sensorimotor polyneuropathy type, the most common type that we have been discussing thus far, are numbness and tingling, and weakness and are essentially the same as those of nerve compression.

But what if there is more than one nerve compression in the arm or leg at the same time? Knowing that diabetes makes nerves susceptible to nerve compression and knowing that there are many areas of tightness that occur normally in everyone, it is possible that the diabetic could have more than one nerve compressed in each arm or leg. If this were to be true, then multiple sites of nerve compression along the path of the nerves would give a stocking and glove pattern to the symptoms of numbness and tingling.

To most physicians a diagnosis of diabetic peripheral neuropathy is a reason not to look for other nerve problems such as compression neuropathy in the lower extremity.

Another way to think about the relationship of neuropathy according and nerve compression is that diabetes creates the neuropathy according to some metabolic process. This neuropathy then creates circumstances that allow nerve

compression to occur. It is well-known and accepted that nerve compression can cause the symptoms of numbness, tingling and weakness.

We now understand that metabolic processes cause endoneural edema from the polyol pathway (glucose to Sorbital) and Maillard reaction building Advanced Glycosylation Enzymes “AGE’s”, which thicken and stiffen external epinerium thereby compressing nerves in specific tunnels.

It is possible, then, to think that the nerve compressions are superimposed upon the underlying neuropathy. This means that at some point in time, both may be due to the sites of compression.

What Can a Podiatrist Do About Lower Extremity Nerve Pain?

Let's start at the beginning and answer the question, **"What is a Podiatrist?"**

A podiatrist is a specialist who focuses on your feet and ankles. We are quite simply "The Experts" on your feet, heels, and ankles, and should be the very first doctor you call when you experience pain or other problems with them. In addition to lower extremity nerve pain, I've also listed many of the other problems podiatrists treat in this book.

The DPM after our name stands for Doctor of Podiatric Medicine. Most people know that podiatrists deal with foot, heel, and ankle problems, and work with seniors, or diabetics, or people with poor circulation; what most people don't know is that podiatrists treat patients of all ages. A podiatrist is also well-qualified to help children and young adults with the problems that they can experience with their feet, heels, and ankles.

Podiatrists are required, just like any other doctor, to be licensed by the state in which they practice. When medically necessary, podiatrists can perform surgery to correct or remedy problems. Before we recommend surgery, we will explore the many conservative therapies and remedies that are available for our patients, and then recommend the very best course of treatment. As medical science advances and new therapies become available to the public, podiatrists are increasingly able to offer their patients some of the most state-of-the-art care available. I'm constantly amazed at the new therapies I can offer my patients and will discuss several of them now.

Diagnosis

The first step in treating lower extremity nerve pain is proper diagnosis. Due to poor localization of pain and a wide variety of symptoms, diagnosing peripheral neuropathy can be difficult. If you think you have any signs of this disease, it is important to schedule a comprehensive lower extremity exam as soon as possible. Early detection is key in the treatment of neuropathy. During the exam, your podiatrist will check for any signs of neuropathy. This begins with the doctor asking questions about your symptoms, your medical history, including use of alcohol, risk of infection, and exposure to toxic substances.

Questions will also be asked about your family's medical history related to nerve disease and diabetes.

Anyone with diabetes should get a complete foot exam every year.

The exam will continue with the doctor checking your muscle strength and sensation – the ability to feel touch, temperature, and pain. Palpation and percussion techniques at key locations of known compressions and entrapments will be tested first to determine the overt signs of compression and neuropathy symptoms. Further tests may include a Nerve Conduction Velocities (NCV) test. In this test, the doctor can measure how well individual nerves send electrical signals from the spinal cord to the muscles. This non-painful test is very useful in diagnosing both peripheral neuropathy and nerve entrapment. Another test that may be done is called an electromyography (EMG). This is a test to measure electrical discharges made by the muscles. It helps to determine if there is any muscle weakness present due to nerve damage. A third test, called the Pressure-Specified Sensory Device, may be run. This painless test measures how hard the skin must be pressed to determine if there are one or two rounded probes moving or touching the skin. This can help the doctor determine the very subtle symptoms that are due to nerve entrapment, injury, or neuropathy. Radiographs (X-Rays), Ultrasound, or Magnetic Resonance Images (MRI) may be ordered to determine if there are space occupying or biomechanical structures affecting the nerve. Finally, blood tests may be run to find out if there are any underlying causes of neuropathy such as diabetes, thyroid disease, kidney disease, or vitamin deficiencies.

Treating the Cause

The first step in treating lower extremity leg pain is treating the cause. If peripheral neuropathy is caused by diabetes, it is important to get the blood glucose levels under control. If it is caused by alcohol, the patient should stop using alcohol. If the neuropathy is determined to be caused by vitamin deficiency, it can be treated by eating a healthy diet and taking vitamin supplements. In cases of nerve entrapment, the recommendation will be a stabilization of impaired biomechanics, a change in lifestyle, or a decrease in activities to give the nerve the chance to recover and restore itself.

Relieving the Pain

The next step that the doctor will take is to try to relieve the pain that you are experiencing. This might be done by over-the-counter pain medicine or oral

prescription medications to help with more severe pain, numbness, tingling, and weakness. There are topical treatments available too that can bring some relief of lower extremity nerve pain.

Physical Therapy

Formal physical therapy might be prescribed to help increase muscle strength, build muscle control, and mobilize the nerve through a technique called "nerve gliding" or NeuroMobilization.

Diagnostic Nerve Blocks

A Diagnostic Nerve Block involves numbing a specific nerve or group of nerves that may be involved in carrying a patient's pain. The podiatrist performing the nerve block should be expert in anatomy so that he/she knows the location of various pain-carrying nerves. A local anesthetic is injected in very small amounts onto target nerves, and the patient is then assessed for any change in pain symptoms. If a particular pain-carrying nerve or group of nerves is/are numbed and a patient notes significant improvement in pain symptoms, the location of the pain generator is likely confirmed. If a patient notes no change or limited change in pain symptoms following a diagnostic nerve block, the treating physician may conclude that a patient's pain is originating from a different area.

Multiwave Locked System (MLS) Therapy Laser

MLS Laser Therapy uses specific wavelengths of light that have a strong anti-inflammatory, anti-edema effect on tissues that are exposed to the laser. Painful conditions accompanied by swelling or inflammation benefit from this technology.

Photons of laser energy penetrate deeply into tissue and accelerate cellular reproduction and growth. As a result of exposure to the MLS Laser, the cells of tendons, ligaments and muscles repair themselves faster. As inflammation is reduced pain subsides very quickly. In simple terms, laser energy kick-starts the healing process, thereby speeding recovery.

There are no known side-effects! Laser therapy is cleared by the FDA and is safe and effective.

Neurogenx 4000 Pro Nerve Simulator

ELECTRONIC SIGNAL TREATMENT (EST) and the INTEGRATED NERVE BLOCK THERAPY

The NEUROGENX 4000PRO 2-Channel System is clinically indicated for the symptomatic relief and management of chronic intractable pain; and as an adjunctive treatment in the management of post-surgical and post-traumatic acute pain. The NEUROGENX 4000PRO is a portable, patient-controlled, non-invasive pain management system that relies on the patented Neuropro Technology for reduction and management of pain.

Electronic Signal Treatment (EST) Technology are patented and FDA cleared medical devices capable of administering and bio-electrically triggering various known and desired physiological mechanisms of action effective in the treatment of many neurogenic conditions. The EST technology produces and delivers electronic biologically effective signals that can be used to heal the nerves that carry the pain signals and the muscles and other tissues which are often the source of the pain signals. Specific electrical parameters including frequencies, modulation of amplitudes, and modulation of frequencies are employed to influence the target tissue at the cellular level. EST can bring about a potent analgesic pain relieving effect by calming down nerve pain (neuropathy/neuralgia) directly. Effective nerve pain treatments can be administered to reduce the hyper-irritated state of the nerves. This is accomplished by placing specific surface electrodes on the skin and introducing very specific signal impulses to produce a nerve signal interruption procedure. Long-term relief is also accomplished by stimulating the body's own chemical messengers within the cells to correct or normalize their function.

EST also boosts the immune system, in contrast to steroids, which suppress the immune system. The Integrated Nerve Block (INB) offers the additional benefit of accelerating the quality and speed of pain reduction in most cases. The Integrated Nerve Block (INB) involves the utilization of standard interventional pain management injections such as epidurals, medial branch blocks, and peripheral nerve blocks in conjunction with EST. The interaction of the electric signaling enhances the local anesthetic chemical block. In this way, the patient benefits from a modern-day interaction of physics and chemistry. As an illustration, steroids are never used; the anti-inflammatory effect is the direct results of electronic signaling. It is my belief that very soon much

of pain management will utilize the principles of physics as an alternative to relying so much on chemistry and pharmaceuticals.

Our clinical experience has shown that the application of EST, when combined with the low-dose local anesthetic in the integrated block, favorably influences the peripheral vasculature and promotes nerve and cell nutrition. Many forms of neuropathy can be reversed. Since the local anesthetic and EST have opposite effects on the nerve cell membrane, some of the beneficial physiologic changes are thought to be due to changing localized depolarization-repolarization cycles in the cell membranes.

Radio Frequency Ablation

The destruction of nerves is a method that may be used to reduce certain kinds of chronic pain by preventing transmission of pain signals. It is a safe procedure in which a portion of nerve tissue is destroyed or removed to cause an interruption in pain signals and reduce pain in that area. Nerve ablation can be done in different ways. For example, it can be done using heat, cold, or chemicals. What the procedure is called depends on how it is done. For example, it may be called radiofrequency ablation, cryoablation, neurotomy.

Surgery

When other non-operative treatments fail to get the desired results, surgery may be the best option. Nerve decompression (neurolysis) surgery allows the surgeon to open the tight area through which the nerves pass by dividing the anatomical structures that crosses the nerve. As a result, damaged nerves are able to regenerate after they are able to move more freely and glide and slide within the body to start receiving proper blood flow.

This surgery is a minimally invasive procedure and is generally done on an outpatient basis, and most patients are able to walk the same day. Results can include significant pain relief, increased sensation, and improvement in balance and gait.

It is very important that nerve decompression surgery only be performed by an experienced and formally trained nerve surgeon. When performed by a well-trained surgeon, this procedure can be very gratifying and provide significant relief of lower extremity pain. Podiatrists who are trained to do nerve decompression surgery are also skilled at diagnosing the problem through physical examination, diagnostic studies, diagnostic imaging, and sensory nerve studies.

How Does This Type of Surgery Help the Nerve in Diabetics?

Decompression of a peripheral nerve in a person with diabetes can alter the natural course or history of diabetic neuropathy by removing the tight areas along the length of the nerve that are the symptom producing regions of friction.

The surgery to decompress the nerve does not change the basic, underlying metabolic (diabetic) neuropathy that made the nerve susceptible to compression in the first place. When the surgical decompression is done early in the course of nerve compression, restoration of blood flow to the nerve will stop the numbness and tingling, and permit strength to recover. When the decompression is done later in the course of nerve compression, and nerve fibers have begun to die, decompression of the nerve will permit the diabetic nerve to regenerate.

Complications

The risk and complications from the operation include a permanent scar. The scar may become painful. Bleeding may occur as well as infection. Wound healing may be unpredictable in the foot and ankle area, especially if you have medical problems such as diabetes or arthritis, or are taking medications such as steroids that slow down the healing process. Even if your stitches have been left in for three weeks, your incision may open up as you begin walking or if your foot swells. This open wound will heal but may take two to eight weeks, during which time you will need dressing changes to prevent infection and dressing changes to promote healing. Rarely the wound may not close, and a skin graft may be required.

After the surgery as the sensation returns, there may be pain in the arch of the foot and the toes. This may last just a few days but may continue for up to three months. Especially if the nerve had degenerated (died), the regenerating nerve fibers may create shooting pains, hot or cold sensations all of which may feel worse than the condition for which you were treated. These disturbing regenerative phenomena are to be expected, may require additional or special medication, but are signs of healing within the nerve. As the regeneration returns to the small muscles of the foot, you may experience cramps, which, although disturbing, is also a good sign, and will stop in time.

These are not the only complications. Rarely the main nerves or their branches may be injured, and pain, swelling and stiffness may persist in your foot.

How Does a Podiatrist Treat Other Conditions?

Now that we know what a podiatrist is and some of the treatments available for lower extremity nerve pain, let's take a look at some other foot problems and the treatments we can offer to reduce or eliminate your pain. It is impossible to discuss all the potential problems that can affect the health of your feet in a book of this size, but what I want to tell you about here, are the problems we see most often at our offices.

Arthritis

Over 30 million American adults report being told by a doctor that they have some type of arthritis. It is a major cause of lost work time and serious disability for many people. Although arthritis is mainly a disease of adults, children may also have it. When a patient has arthritis, it means that the cartilage, and even the lining of their joints, has become swollen and inflamed.

There are numerous types of arthritis. The reason that your feet seem to be more susceptible to arthritis than other parts of your body is that your feet have so many joints that can be affected. The odds are just stacked against your feet. In addition, your feet and ankles bear the full weight of your entire body every single day.

While there are dozens of types of arthritis, I want to point out two of the most common.

Osteoarthritis – The most common type of arthritis is osteoarthritis. It is seen in many people as they age, although it may begin when they are younger as a result of injury or overuse. It is often more painful in weight bearing joints such as the knee, hip, and spine than in the wrist, elbow, and shoulder joints. All joints may

be affected if they are used extensively in work or sports, or if they have been damaged from fractures or other injuries.

In osteoarthritis, the cartilage covering the ends of the bones gradually wears away. In many cases, bone growths called "spurs" can develop in osteoarthritis joints. The joint inflammation causes pain and swelling. Continued use of the joint produces pain. Some relief may be possible through rest or modified activity.

Rheumatoid Arthritis – Rheumatoid arthritis is a long-lasting disease that can affect many parts of the body, including the joints. Rheumatoid arthritis can affect people of all ages, even children. However, more than 70 percent of people with this disease are over 30 years old. Many joints of the body may be involved at the same time. Arthritis cannot be cured but it can be treated. The goals of treatment are to provide pain relief, increase motion, and improve strength.

Bunions

Bunions are caused by your big toe joints becoming incorrectly aligned. This causes the first joint on your big toe to slant outward and the second joint then angles toward your other toes. Your joints then begin to swell. It causes a bump of bone on the foot that can become very painful if left untreated.

Bunions can be hereditary, but also can be aggravated by shoes that aren't a good fit. Surgery is often recommended to correct the problem. Most bunions can be treated without surgery by wearing protective pads to cushion the painful area, and of course, avoiding ill-fitting shoes in the first place.

Diabetes

Diabetes can affect many parts of the body, especially the feet and heels. According to the American Diabetes Association, about 15.7 million Americans (5.9 percent of the United States population) have diabetes. It is very important that a diabetic gives the feet very special care. A small problem in a healthy person could become a severe one to a diabetic.

Diabetes can affect the feet in a number of different ways. The first is infection, which is one of the most common complications of the diabetic foot. Because diabetes causes reduced immune response, a diabetic patient's ability

to fight infection is decreased. Early treatment of infection is a critical component to success. If neglected, infection of the foot can cause gangrene, ulceration, osteomyelitis, and even amputation.

With a diabetic foot, a wound as small as a blister from wearing a shoe that is too tight can cause a lot of damage. Diabetes decreases blood flow, so injuries are slow to heal. When your wound is not healing, it's at risk for infection. As a diabetic, your infections spread quickly. If you have diabetes, you should inspect your feet every day. Look for puncture wounds, bruises, pressure areas, redness, warmth, blisters, ulcers, scratches, and cuts. Get someone to help you, or use a mirror. Diabetic foot care can be very complicated, and good podiatric care is an essential component of managing diabetes.

Here are some basic tips for the care of diabetic feet:

- Inspect your feet every day.
- Keep your feet clean and dry.
- Always keep your feet warm.
- Take extra care drying your feet and toes after showering. Pay special attention to the space between your toes.
- Be sure to exercise. Walking is one of the best exercises for diabetics unless you have complications. If you struggle with balance, use a cane.
- Always protect your feet and legs. Never walk barefoot. Avoid hot water bottles and heating pads.
- Do not overexpose skin to the sun.
- Never use razor blades, knives, scissors, or medicated corn/wart removers.
- Look for redness, blisters, scratches, cracks between the toes, discoloration, or any other change.
- Avoid all actions that diminish circulation such as tobacco use, sitting with legs crossed, and circular elastic garters.
- Change your shoes and socks daily.
- Wear soft leather shoes that conform to the shape of your overall foot.
- Gradually "break in" new shoes to avoid blisters.
- Call us immediately if you see any changes in your feet.

Fungal Nails

Fungal infections of the nail bed, matrix, or nail plate are responsible for about 50% of all cases of thick, discolored toenails. There are four different types of fungal nail infections classified by the part of the nail involved. Fungal nails

can be caused by tight footwear, minor trauma caused by exercise, communal showers, improper nail care, and diseases that influence the immune system.

Treatment for fungal nails varies by the nature of the infection and the severity. A podiatrist can detect a fungal infection early and formulate a suitable treatment plan. This can include topical or oral medication, debridement, laser therapy, and in extreme cases, surgery. Trying to solve any nail infection without the help of a podiatrist can lead to more problems.

Hammertoe

Hammertoe is a flexible or rigid contraction usually affecting the second, third, fourth, or fifth toe. In this condition, the toe is bent at the middle joint, resembling a hammer. Muscle imbalance leads to a bending or "buckling" of the toe joints. These buckled or contracted positions create any number of problems within and on top of the toe deformity. It is important to treat hammertoes early. As they advance and lose flexibility, the only option for correction may be surgery. Hammertoes can cause complications such as corns or calluses at the point where they come into contact with the shoes. As with many foot problems, one of the causes of hammertoes can be improperly fitted shoes.

Podiatrists have a variety of ways to treat hammertoes, including surgery, better shoes designed with extra room for toes, corn pads, straps, and cushions.

Metatarsalgia

Metatarsalgia is foot pain in the ball of your foot which is the area between your arch and your toes. It gets its name because the pain experienced is located in the metatarsals located in this part of the foot.

In this condition, one or more of the metatarsal joints becomes inflamed and possibly painful. People often develop a callus under the affected joint. There are many causes of Metatarsalgia including injuries, arthritis, poorly fitting shoes, and working on very hard surfaces. Sometimes, changing your shoes will fix the problem. We may also recommend orthotics or implants.

P.A.D.

Peripheral Arterial Disease, known as P.A.D., is the narrowing or blockage of arteries in the legs that result in poor blood flow. Just like clogged arteries in your heart, clogged arteries in your legs mean you are at higher risk of getting

a heart attack or stroke. Plaque buildup in the legs does not always cause symptoms, so many people can have P.A.D. and not know it. Symptoms, when they are present, can include pain and cramping in the legs.

Podiatrists can perform P.A.D. screening during a foot exam using a variety of methods and tests. Treatment goals are to reduce symptoms and prevent heart attack and stroke. Treatments include making lifestyle changes such as quitting smoking, exercising, lowering blood pressure, cholesterol, and blood glucose levels, and achieving a healthy weight. Medications may be prescribed to lower blood pressure and cholesterol, to prevent the formation of blood clots that could cause a heart attack or stroke, or to reduce leg pain while walking. In some advanced cases, surgery may be recommended to improve blood circulation to the legs and the ability to walk.

Plantar Fasciitis (Heel Pain)

Heel pain is the most common complaint that we see in our office. Plantar Fasciitis is an inflammation in the band of tissue (the plantar fascia) that runs from the heel to the toes. This condition is most often caused by poor foot structure such as overly flat feet or high arches. It can also be caused by wearing non-supportive footwear on hard surfaces, spending long hours on your feet, or obesity. The pain from plantar fasciitis is usually a sharp, stabbing pain on the inside of the bottom of the heel that can feel like a knife sticking into your heel. Pain from plantar fasciitis is usually most severe when you first stand on your feet in the morning. It will usually subside, but can return with prolonged standing or walking, or getting up after long periods of sitting.

We offer a variety of treatments for heel pain including stretching, ice, anti-inflammatories, and orthotics. There are always advances being made in the way that heel pain is treated so you should seek the advice of a podiatrist if you are experiencing pain for longer than 4-5 days.

Sprains

An ankle sprain occurs by stretching or tearing one or more ligaments on either or both sides of the ankle. Ignoring a sprain won't help it heal any faster. Ankle injuries that are serious enough to cause disabling pain should be treated by a podiatrist. Further examination may even reveal a torn ligament or bone fracture. Common treatments for sprains include rest, elevation, compression, and ice. More serious sprains may call for crutches or other walking devices.

Stress Fractures

An incomplete break in the bone caused by overuse is known as a stress fracture. Symptoms can include pain, swelling, and redness. Up to 15% of all sports injuries are stress fractures. A podiatrist needs to perform an examination and look at X-rays of the injury in order to diagnose a stress fracture. Treatments include immobilization of the foot with the use of a cast, medications, and in some cases, orthotic devices to prevent further injury.

Warts

Warts are caused by a virus that generally enters the body through small nicks or abrasions in the skin. When they occur on the soles of the feet, they are known as plantar warts. Due to the amount of pressure that is put on the feet in the course of a day, plantar warts can become quite painful. Teenagers between the ages of 12–16 are most commonly infected by warts, but they can occur at any age. Warts are often contracted by walking barefoot on dirty surfaces or ground. The virus thrives in warm, moist environments like showers and swimming pools.

If you suspect that you or a family member has a plantar wart, see a podiatrist to get a correct diagnosis and treatment plan. Treatments may include the use of a wart-removal preparation or CO2 laser cautery performed under local anesthesia to safely remove the wart.

Wounds and Ulcers

Foot ulcerations or open wounds are a condition where there is a breakdown in many layers of skin and tissue, sometimes going all the way to the bone. They can be caused by pressure to a weight bearing point on the foot, but they can occur on top of the foot due to pressure from shoes or a bony spur. The risk of ulcer formation is higher in patients with decreased circulation or impaired blood supply to the legs and feet. Diabetics are prone to heel ulcerations, but they can be found in patients with high blood pressure, blood clots, varicose veins, and phlebitis as well.

Treatment for foot ulcerations varies according to the cause of the wound. The goal of the treatment is to close the wound from the inside out as quickly as possible. In cases where there is adequate circulation, debridement (removal of dead tissue) may be used around the edges and within the ulcer itself to promote healing. Other treatments include oral medications, compression, and bed rest. New advances have been made in wound care in recent years, including the use of a platelet-derived growth factor as a way to promote healing.

What Can You Do to Keep Your Feet Healthy?

The first step in dealing with foot pain is to care for your feet. Your feet are the hardest working part of your body. They carry you wherever you need to go, whenever you need to go there, and they do it for years and years. In fact, during your lifetime, you will have traveled on your feet the equivalent of three trips around the entire world. You take, on average, 8,000 steps a day, and will walk or run well over 75,000 miles in your lifetime. Caring for your precious feet is the best step to avoid pain, and is a critical component in eliminating it as well.

Here are some steps you can take to keep your feet healthy and functioning:

First and foremost, do not ignore pain in your feet and ankles. Healthy feet don't have persistent pain or skin that looks unusual. If your pain doesn't subside quickly, please contact our office right away. The sooner we can see you and examine your feet, the quicker we can begin to make the corrections needed to get your feet healthy again. So often we see people who have waited a very long time and suffered needlessly – sometimes for years.

Try to develop a habit of always checking your feet. A great time to do this is right after a shower or during a bath. If you start a habit of carefully drying your feet after bathing (pay special attention to the skin between your toes), you can quickly check your feet to see if you notice any changes. If you see nails that look unusual, you might be seeing a potential fungus developing. If your skin is broken, cracked, or an unusual color, you are noticing abnormalities. Finally, if your foot is changing shape, or you observe new growth, you should make an appointment to see us so we can treat these conditions before they progress and become worse.

If you have diabetes, it is especially important to check your feet very regularly and often. In fact, we recommend that you have someone else help you check your feet, because you may not be able to see or, most importantly, feel problems. Early detection and treatment may avoid potentially serious complications later.

See a podiatrist if you have a problem with your feet. Treating yourself can often cause problems or exacerbate existing problems. If you are diabetic, you are at greater risk for foot problems so be sure to make an appointment to see us at least once a year. We'd love to see you. We are here to help!

When to Call a Podiatrist

Podiatrists are the experts on feet and ankles, and should be the first doctor you call when you experience any of the symptoms or pains described in this book. Remember that foot, ankle, or heel pain is never normal regardless of age or activity.

Podiatrists treat foot problems for patients of all ages. You should call a podiatrist when you have pain in your feet or in your heels. If you notice that there is any change at all to your heels or the skin on your feet and ankles, you should see the "expert" on your feet. If you suspect you may have lower extremity nerve pain, you should see your podiatrist right away. The sooner you get treatment for this type of condition, the better the outcome.

If you have diabetes or poor circulation, and you develop any abnormal symptoms, you should see us immediately. You are at much greater risk for serious complications. And if you have diabetes, you should see us at least once a year whether or not you have symptoms or pain. Regular checkups are a great way to help keep your feet healthy.

Most importantly, you should **call us first** when you have pain or any issue that affects your feet.

What to Do if You Are in Severe Pain

Pain is our body's way of telling us that something is wrong. And it is usually true that the more severe the pain, the more serious the problem. If you are experiencing severe foot pain, seek treatment from a podiatrist immediately. Podiatrists specialize in dealing with foot problems and are experts in helping treat your symptoms. You can reach our offices at:

Austin Foot and Ankle Specialists
5000 Bee Cave Road, Suite 202
Austin, TX 78746

If you are experiencing an emergency, call 911.

Final Thoughts

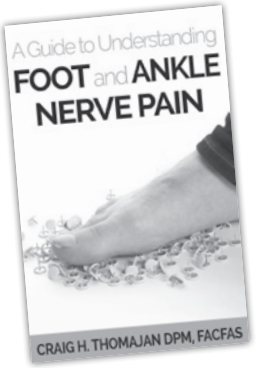
I hope the information in this publication has been helpful. My purpose in sharing it with you is to give you the information you need to take the appropriate actions to care for your feet. I hope it helps you understand lower extremity nerve pain and what can be done to treat it and to keep it from returning. I also wrote it to help you see that podiatric medicine has benefited greatly from the advances medical science is making in the treatment of lower extremity nerve pain and overall foot conditions.

I know that making an appointment to see a doctor isn't always the easiest thing to do, but with knowledge and understanding, you can see that, we, podiatrists can offer you many treatments that can greatly improve the quality of your life. Please make an appointment to come see us to discuss how we can help you with any foot problems you may be experiencing.

Dedicated to Your Health,

Craig H. Thomajan DPM, FACFAS

Free Copy of A Guide to Understanding Foot and Ankle Nerve Pain



If you have any friends or family members who might benefit from the information provided in this book, we would be happy to provide them with their own copy free of charge. Just tell them to:

1: call us at 512-328-8900

2: visit our website at www.AustinFootAndAnkle.com

3: return this form to us
(Photocopy this page and give it to your friend)

Send to: 5000 Bee Cave Road, Suite 202, Austin, TX 78746.
Fax to: 512-328-8903

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ABOUT THE DOCTOR

Craig H. Thomajan DPM, FACFAS is the founder and managing partner of Austin Foot and Ankle Specialists. He is Board Certified in Foot Surgery by the American Board of Podiatric Surgery, Board Certified in Reconstructive Rearfoot/Ankle Surgery by the American Board of Podiatric Surgery, Board Certified by the American Board of Podiatric Medicine and is a Fellow, of the American College of Foot and Ankle Surgeons and a Qualified Fellow of The Association of Extremity Nerve Surgeons.

Craig H. Thomajan DPM, FACFAS is a Podiatric Physician, Surgeon and Specialist of the foot and ankle dedicated to providing state of the art medical and surgical care to patients of all ages.

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