

VOLUME 26, NUMBER 1 - WINTER 2014

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Posterior Tibial Tendon Dysfunction PAINFUL ADULT FLATFOOT

If you develop pain and swelling on the medial, or inside, of the ankle and hindfoot, and have loss of the arch, you may have a condition called posterior tibial tendon dysfunction, or adult flatfoot. The dysfunction can be caused by progressive failure of the posterior tibial tendon, the primary foot and ankle tendon that maintains arch height and allows you to come up onto your toes. The problem is more common in women than in men and in people who were born with flatfeet. An injury to the inside of the ankle and midfoot can cause the problem to occur, as well. Often, wear and tear causes the posterior tibial tendon to fail; however, any condition, such as obesity, poor supportive shoes, or tight calf muscles, that increases stress on the tendon can play a role.

Symptoms

The most common symptoms of posterior tibial tendon dysfunction are pain and swelling on the inside of the ankle and foot that often increases during activity. Standing or walking for extended periods and high impact and high intensity activity, such as running, can become difficult. As the



Normal foot arch



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B. Torn posterior tibial tendon

With posterior tibial tendon tears, flattening of the arch and turning out of the forefoot and the heel often occur.



posterior tibial tendon tears, swelling and tenderness occur along the tendon below the inside of the ankle. Flattening of the arch and the turning out of the forefoot and the heel often mean the tendon has ruptured (**Fig. 1**).

Posterior tibial tendon dysfunction often occurs slowly as the tendon progressively stretches. If left untreated, the tearing progresses causing deformity that affects other structures of the foot. Because the tendon supports and protects several joints of the hindfoot and midfoot, the ligaments around the joints can also tear and cause the joints to drift out of place. The rupture of the tendon causes a classic deformity—the arch collapses, the heel bone shifts outward putting pressure on the outside of the ankle, and the front of the foot turns outward. If the joints stay out of place over a long period of time, you can develop arthritis and stiffness in the deformed flat position.

Diagnosis

During your office visit, your physician will take your medical history and examine your foot for swelling and any change in the shape of your foot. Examining your foot from the heel, the doctor will note how many toes can be seen. Usually, the 5th toe and half of the 4th toe can be seen; however, in a flatfoot deformity, more toes can be seen (Fig. 2). Often, a singlelimb heel-rise test can determine whether your posterior tibial tendon is healthy or injured. The inability to stand on 1 leg and come up on your tiptoes suggests a problem with the posterior tibial tendon (Fig. 3).

Diagnosis can be made by examining the foot; however, x-rays and an MRI taken of the foot and ankle while standing can help to determine the severity of the problem and help to guide treatment. If detected early, before the tendon begins to tear, treatment can be simple and effective.

Nonsurgical treatment

Treatment for a painful, intact tendon can be as easy as wearing good supportive shoes, arch supports, or heel wedges; stretching the calf muscles; and standing and walking less. Rest, by stopping activities or switching to low-impact exercise, can help relieve pain. Ice applied 3 or 4 times a day and nonsteroidal anti-inflammatory **Fig. 2.** Top view of the foot shows the front of the foot points outward.

Viewing the foot from the back, more than the 4th and 5th (small toe) toes are visible.



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medication can help reduce pain and swelling. If these treatments do not work within a reasonable period of time, usually 6 to 12 weeks, then your doctor can try casting or bracing the foot and ankle. When nonsurgical treatments fail, it often means that the tendon has started to tear and cannot heal on its own. Often, a custom-made brace can help control the pain during daily activities; however, wearing the brace does not heal the tendon.

Surgical treatment

If nonsurgical treatment fails and the pain and deformity continue, surgery may be needed. Surgical treatment can involve repairing, lengthening, or replacing the posterior tibial tendon. The type of surgery depends on the severity of the torn tendon and the foot deformity. If you have no foot deformity, surgery to repair the torn tendon is often successful. If the tendon cannot be repaired, then another tendon close by can be rerouted to rebuild the torn

tendon.

If you have developed a foot deformity or if you have a pre-existing flatfoot deformity, ligament repairs and realignment of the bones may be needed. A surgical fusion procedure, or arthrodesis, may be needed to correct the deformity, stabilize the foot in a normal position, and alleviate the arthritis pain.

Recovery from surgery can take up to 6 months or longer, and it often includes 6 to 12 weeks in a cast. The less severe your flatfoot is, the less complicated your surgery will be, which means the faster you will recover. Good results can be achieved from surgery; however, some patients never achieve complete pain-free activity.

If diagnosed early, posterior tibial tendon dysfunction can be treated without surgery; however, if the condition becomes severe, treatment can become difficult and prolonged. Good outcomes are common after surgery, however, excellent outcomes are rare with a severe deformity. If you have the symptoms of posterior tibial tendon dysfunction, see your orthopaedic surgeon for a consultation and evaluation. Don't wait!

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Downhill Skiing and Snowboarding Injuries

The winter season brings with it icy mornings, runny noses, and increased heating bills; but, for the outdoor enthusiast, it brings opportunities for downhill skiing and snowboarding. Snow sports are enjoyed by people of all ages, and the key to keeping them enjoyable is to avoid injuries. Although skiers and snowboarders share the same slopes, each sport has its own risks and types of injuries.

Riding a single board down a ski slope was once considered a teenage fad; however, snowboarding has grown into a multimillion dollar enterprise. Unfortunately, a recent study in the *American Journal of Sports Medicine* reported that snowboarders are 3 to 4 times more likely than skiers to sustain an injury. Often, the injuries involve the upper extremities—specifically the wrist and elbow. While snowboarding, the lower extremities are often planted into the board and, therefore, are secured. During a fall, snowboaders often reflexively reach out to catch themselves, causing injuries to their wrist or elbow.

Downhill skiers are also prone to specific injuries. Although they also reflexively reach out to catch themselves as they fall resulting in upper extremity injuries, lower extremities are more likely to be injured. Often, the skier will lose control of 1 or both skis, and the ski will then get caught in the snow leading to a twisting injury of the knee. Collisions with other skiers or trees can also lead to severe injuries, such as fractured bones and head injuries.

Whether you are a novice snowboarder who goes once or twice a year or the expert skier who has a season pass to the local ski resort, precautions are necessary to Elbow limit your time in the emergency room and injuries maximize your time on the slopes. Included in the box are some tips to keep you safe no matter what device you use to get down a mountain slope. Shoulder dislocations Wrist Skier's fractures thumb Twisting knee injuries Ankle fractures Lower leg Ankle strains fractures and sprains

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Winter sport safety tips

• Precondition and stretch, stretch, stretch. There is nothing worse than planning a big ski trip or buying a single (but expensive) day pass and then pulling a muscle or fatiguing your legs after the first or second run. Before your trip, build up your leg strength with some simple squats on a regular basis. Work on a daily routine of stretching multiple times a day before, during, and after your day on the slopes to minimize your injury risk.

• Wear sunscreen. Protect your skin from the concentrated rays from the sun and those being reflected from the snow. The last thing you want as a souvenir of your ski trip is a sunburn.

• Stay hydrated. It is easy to get dehydrated while on the slopes. Bring some water with you, and save the alcoholic libations until you are kicking off your boots at the ski lodge at the end of the day.

• Use proper safety gear. You should wear a protective helmet. A single rock hiding under a thin layer of snow can lead to a life changing brain injury. It's not worth the risk. Strap on your helmet before hitting the slopes.

• Wear protective eyewear. The glare from the snow on a sunny day can make it difficult to see at times and the ultraviolet rays can cause permanent damage to your eyes.

• Wear wrist guards. Snowboarders, especially while they are learning the sport, should wear protective wrist guards. Research has shown that wearing wrist guards has cut wrist injuries in half in snowboarders.

• Do not overtighten ski bindings. As you become more advanced and experienced, you can tighten your bindings to limit your skis' breakaway ability. However, novice or intermediate skiers should keep their bindings fairly loose to allow the ski to free itself from the leg during a fall and a tumble down the mountain. If the ski doesn't break away, the force can tear your knee ligaments, causing severe pain and difficulty walking.

If you do suffer an injury, most resorts have a wellequipped facility to determine if you can be treated there or later at a facility closer to home. Now pack up your skis or strap on that snowboard and hit the slopes! See you out there!

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The Role of Spinal Decompression Traction Therapy in Managing Low Back Pain

After the common cold, low back pain is the primary reason for a visit to the doctor's office. It is the primary musculoskeletal condition leading to limited physical activity among young adults, and it is a leading cause of abnormal neurological symptoms. Eighty percent of adults over the age of 30 will experience a significant episode of low back pain, and among those individuals, 30% will have recurring episodes of pain. It is a global problem and ranks as the third most common medical ailment in the industrialized world. In the work place, injuries to the lower back account for 25% of all injuries and are a leading cause of time lost from work and medical expense.

Posterior facet joint (a joint located between and behind 2 vertebrae) and sacroiliac joint (the joint that connects the spine and the pelvis) syndromes are the leading causes of low back pain, followed by various disorders of the lumbar disc (**Fig. 1**). In most instances, the paired facet joints and disc are responsible for symptoms of back pain. In addition, there is a reflex relationship between the facet joints and the overlying paraspinal muscles: a muscle dysfunction can affect the underlying facet joints, and a joint dysfunction can affect the overlying muscles. This complex relationship makes diagnosis and treatment difficult.



Treatment options for lumbar disc disease

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- Anti-inflammatory medications
- Oral steroids
- Physical therapy
- Spinal manipulation
- Supports and braces
- Spinal injections
- Exercise
- Surgery
- Traction

With regard to the lumbar disc, it can become a source of pain when the disc undergoes the natural degenerative process of dehydration. Loss of disc space height can lead to disc bulging which can entrap a traversing or exiting spinal nerve. When the soft material of the nucleus of the disc herniates through the tough protective outer ligamentous annulus fibrosus, either the mechanical pressure from the disc material against a spinal nerve or the chemical irritation from the inner nucleus pulposus stimulates pain receptors.

Among the many treatments available for patients with symptomatic lumbar disc disease, no one treatment is always predictably effective (**Box**). In this article, we will discuss one of those treatments—spinal disc

decompression traction. Traditional forms of spinal traction used in patients with symptomatic low back pain have a low acceptance rate because of discomfort during the traction caused by tightness of the chest harness and the inability to alter the traction vector, or directional force of the traction. Such problems with in-line pelvic traction have led to the development of alternative traction devices that provide more control over the traction vector and the amount of force applied to the spine. In the 1980s, the Vertebral Axial Decompression System (VAX-D) was developed to satisfy the need for a traction system with more precise control of the traction vector, force of traction, and duration of treatment, and for increased patient comfort.

Advocates of this new form of traction claimed that pain is reduced or relieved by lowering intradiscal pressure, thereby allowing a positive diffusion gradient across the vertebral endplates and an inflow of nutrients and oxygen into the disc. When the term "spinal decompression" was introduced with regard to this treatment, there was some misunderstanding. Unsubstantiated claims that disc herniation has been reduced and the size of disc bulges had been diminished gave support to the belief that spinal traction caused demonstrable "decompression" of the neural structures. This claim led some critics of this procedure to question its efficacy because pre- and post-treatment lumbar magnetic resonance imaging (MRI) scans were reported to show a reduction in disc bulge after treatments. However there have been good results among patients in whom there was no significant change in pre- and post-treatment MRI scans. Thus far, the exact mechanism of pain relief from types of lumbar traction have not been identified clearly. Theoretically, traction reduces intradiscal pressure which stabilizes nociceptive pain receptors in the disc annulus and facet joint capsules.

The Spinal Decompression DRX9000 system is one of the newer spinal traction devices that allow patients to be treated supine, or face up, rather than prone, or face down, as required for treatment with the VAX-D (**Fig. 2**). In general terms, the scientific literature on spinal traction systems reports a 71% success rate. The treatment protocol varies, but most patients receive traction treatments 2 to 3 times per week for a total of 20 treatments over a 4 to 6 week period with daily treatments for the first 2 weeks, if possible. Traction begins at approximately 20 to 24 pounds and is increased slowly to 60 to 80 pounds, or more with sessions lasting 20 to 45 minutes.

Patients with degenerative lumbar disc disease, facet joint syndrome, and protruding lumbar disc herniation stand to benefit the most from spinal decompression traction. Patients with osteoporosis, known abdominal aneurysm, spinal fracture, ankylosing spondylitis, spinal malignancy, spondylolisthesis, and previous lumbar surgery in which internal fixation was used are not considered candidates for this treatment.

Unfortunately, there is no one treatment for low back pain that is uniformly successful, and the role of spinal decompression traction in the management of low back pain is still being determined. What is generally accepted as a beneficial approach for patients with low back pain is a combined approach that includes a program of regular exercise and continued physical conditioning and treatment regimens, such as physical therapy, spinal manipulation, spinal decompression traction, or surgical treatment when nonsurgical treatment is unsuccessful.

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Vitamins and Supplements: WHICH SHOULD YOU TAKE?



If you consume a balanced diet that includes foods from the 5 food groups, you should get the essential nutrients needed to support good health. Most Americans get the vitamins they need from the food they eat. Even so, the billion-dollar dietary supplement industry

markets thousands of products aimed at giving you a nutritional edge if your consumption falls short.

Estimates show that more than half of American adults take vitamins, minerals, herbals and botanicals, and other nutritional supplements. In addition to typical supplements that come in the form of tablets, capsules, powders, energy drinks, and energy bars, other products, such as bottled water, gum, candy, cereal, milk, and a wide range of processed foods are fortified with vitamins and minerals. Vitamins C, D, and E; minerals calcium and iron; and probiotics, are popular dietary supplements that are often added to food products.

Regulations

Vitamins are regulated by the Food and Drug Administration (FDA) as dietary supplements; however, they do not undergo the same scrutiny required of prescription or over-the-counter drugs. Drugs must be approved by the FDA before they can be sold to consumers, however, dietary supplements are not reviewed or approved before they are marketed. The supplement manufacturer is responsible for providing evidence that the product is safe and that the label claims are true and not misleading. Dietary supplement labels can carry some health-related claims; however, they must also include a disclaimer that the product has not been evaluated by the FDA. When making a health-related claim, the FDA requires that the claim is followed by this statement: "This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease." Supplement manufacturers must also follow good manufacturing practices, which means, the FDA can take legal action if false or deceptive statements about the product are made.

Dietary supplements must also carry a Supplement Facts Panel. The facts panel lists the contents, active ingredients per serving, and any additives. The serving size is determined by the manufacturer and can be more or less than the Recommended Dietary Allowances established by the United States Department of Agriculture (USDA).

The right balance

Dietary supplements are being added to a growing number of foods, including beverages and breakfast cereals. Ingesting more than needed of a supplement can increase the risk of experiencing side effects. For example, excessive fat-soluble vitamins can cause headaches and liver damage, and can reduce bone strength. Excess iron can cause nausea, vomiting, and liver damage. Also, be cautious of taking supplements during pregnancy and lactation. If you suspect a serious reaction from a dietary supplement, contact your health care provider. You can also submit a report to the FDA by calling 800 FDA-1088 or on online at <u>http://www.fda.gov/Safety/MedWatch/ HowToReport/ucm085568.htm.</u>

Supplements may contain active ingredients that can have adverse effects on the body. Taking a variety of supplements or taking supplements with prescription medications can cause health problems or make your medication ineffective. For example, vitamin K can reduce the blood-thinning effect of Coumadin. Antioxidants, like vitamins C and E, can reduce the effectiveness of some cancer medications. Be sure to tell your physician that you are taking a supplement, especially if you take prescription medications.

There is mounting evidence that taking megadoses of vitamins can have harmful effects. Researchers have shown that individuals who took supplemental vitamins died at rates higher than those who did not take them. Megadoses of vitamin A, E, and beta carotene have been cited as possibly causing higher cancer mortality rates. Too much retinol (vitamin A) can cause birth defects, liver abnormalities, and can also harm bones. Vitamin C can enhance iron absorption, so individuals with hemochromatosis, a condition in which the body absorbs and stores too much iron, should beware. Vitamin E can inhibit blood clotting, so it should not be taken with blood thinners.

On the other hand, supplementation can be warranted in some instances. Postmenopausal women may benefit from calcium and vitamin D supplementation to maintain optimum bone health. And all older adults should seriously consider taking multivitamins, vitamin D, calcium, and fish oil. Young women of childbearing age and pregnant women may need folate or iron. Vegetarians might benefit from extra vitamin B12, which is found in animal products. Often, people who are on a low calorie diet can benefit from supplements.

Vitamins are not a substitute for a healthy diet; however, they can be useful for a specific nutrient gap. If you feel you are a candidate for dietary supplementation, contact your health care provider for recommendations.

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Hemorrhoids and Exercise

If you suffer from hemorrhoids, you are not alone. Research shows that more than half of the US population suffers from hemorrhoids. Anyone can develop hemorrhoids; however, pregnant women, and people who are overweight, over 50 years of age, and who sit for long periods of time are at the greatest risk of developing hemorrhoids. To prevent hemorrhoids you should avoid straining during a bowel movement, drink plenty of water, eat a high-fiber diet, and exercise. Certain types of exercise can decrease your risk for hemorrhoids, while other forms can make hemorrhoids worse. Choosing the right exercise can help relieve your symptoms and keep flare-ups from returning.

What are hemorrhoids?

Hemorrhoids develop when too much pressure is placed on the veins in the pelvic and rectal area. Pressure can be caused by straining during a bowel movement as a result of constipation, holding stool or waiting a significant amount of time before defecating, having diarrhea, and sitting on the toilet for prolonged periods of time. Veins can swell inside the anal canal to form internal hemorrhoids or they can swell near the opening of the anus to form external hemorrhoids or you can have both types at the same time. Other hemorrhoid symptoms include, anal itching and burning, swelling and pain during bowel movements, and sensitive lumps of various sizes around the anus.

Exercise

Exercise increases blood flow to the affected area, delivering nutrients and oxygen that helps reduce inflammation in the swollen veins. Cardiovascular exercise,



Treatments to relieve hemorrhoid symptoms

- Avoid straining during bowel movements
- Eat a high fiber diet
- Drink plenty of water
- Exercise regularly
- Do not overuse laxatives
- (as diarrhea can cause hemorrhoids)
- Take a stool softener
- Empty bowels soon after the urge occurs
- Use an over-the-counter hemorrhoid medication
- Soak in a warm bath for 15 to 20 minutes
- Apply an ice pack to the area
- Avoid sitting or standing for extended periods of time

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• Sit on a donut shaped pillow to relieve pressure

such as walking, running, and swimming can help reduce symptoms and also decrease the risk of developing hemorrhoids by improving your vascular health. Moderate aerobic exercise can help stimulate bowel function, as well.

If you have developed hemorrhoids in the past, you can reduce your risk of flare-ups by strengthening the anal sphincter, which is the muscle that surrounds the anal canal. While standing or sitting, you can do buttocks-press exercises by tightening and then relaxing your buttocks to help strengthen the muscles.

If you suffer from hemorrhoids, avoid activities that cause you pain or discomfort. Horseback riding, cycling, or rowing can place extra pressure on sensitive areas. Avoid activities during flare-ups that put pressure on your lower back and lower abdomen, such as weightlifting or resistance training.

Treatment

To relieve hemorrhoid symptoms you can try over the counter medications, use a stool softener, or soak in a warm bath. If conservative treatments do not relieve your symptoms, you may need to see your physician for a more aggressive treatment. Non-surgical procedures such as rubber band ligation, cryotherapy or coagulation are available. If non-surgical treatments do not alleviate your symptoms, your doctor may suggest a hemorrhoidectomy to surgically remove the hemorrhoids.

Most hemorrhoids symptoms resolve within 3 to 5 days. However, some hemorrhoids can take between 2 and 3 weeks to improve. If your symptoms do not resolve or if the hemorrhoids recur often, you should see your doctor.

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2002-2013

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