



ROTHMAN
INSTITUTE

A RUNNER'S GUIDE TO FOOT & ANKLE HEALTH

Taking a Proactive Approach to Preventing,
Identifying & Addressing Pain

Overall Health and Treatment Options to Reduce Pain,
Restore Mobility and Get on Your Feet Again

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For some runners, lacing up and hitting the road, the track or the trail is a way to clear the mind and grab some precious alone time amidst a busy schedule. For others, it's a chance to meet up with friends and enjoy conversation and companionship during a casual jog. Of course, there are also those who run competitively - whether it be for the high school track team or in races like 5Ks or marathons.

Regardless of how it's done, running is an extremely effective means of exercise as it not only strengthens the body's muscles, but also works the cardiovascular system. While factors like frequency, speed, and distance vary greatly among runners, one thing remains true across the board - both the neighborhood jogger and the marathon qualifier depend on the health of their feet and ankles.



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INTRODUCTION: LACING UP & STAYING HEALTHY

We're talking to you, runners...

The average person walks **more than 100,000 miles in a lifetime, which is like walking around the Earth four times!** - and that's just necessary foot travel to get around between home, work and recreational activities. Imagine the sort of lifetime mileage that a committed runner accumulates over the years!

Now consider this: with every mile traveled, your feet absorb a force several times your bodyweight. With the constant impact that is maintained by a runner's feet, it's no surprise that the feet and ankles are some of the most frequently injured areas of the body.

Runners place high demands on their feet and ankles, and they expect them to perform each time they go out for a run.

Runners are also used to pushing through pain, which is admirable, but can also be problematic. Fortunately, over 95% of all ankle and foot pain does resolve on its own over time, but in some cases, conditions or injuries go unaddressed until the symptoms are severe and the problem is more serious than it ever should have been.

With the information in this ebook, we hope to help you avoid foot and ankle issues in the first place, but we also want to prepare you for addressing them effectively if they do arise.

OUR GOALS IN THIS EBOOK ARE TO HELP YOU:

- Learn to identify the foot and ankle issues common to runners
- Understand the symptoms that come along with certain kinds of injuries and conditions
- Be aware of the treatments available to address foot and ankle issues
- Stay healthy & avoid injury in the first place by implementing best practices for running

IDENTIFYING COMMON FOOT & ANKLE SYMPTOMS

Should I be concerned about what I am experiencing?

The best way to answer this question is to know what the most frequently cited symptoms are that would indicate an injury. Sometimes a foot or ankle may simply be bruised or “tweaked” and no significant or lasting condition is present. However, if you are experiencing one or more of the following symptoms, chances are that you do indeed have an injury that should be addressed by a [qualified foot and ankle physician](#).

- 1 PAIN:** This one might seem obvious, but many people ignore or minimize pain for far too long. Persistent foot and ankle pain is not normal and is a reason in itself to see a physician. Some pain is sharp and can even be nauseating. In other cases, the pain is more of an ache or a general weakness or tenderness in a particular area. Regardless of the type or location, if pain is extreme and persists for more than two days, it's time to see a physician.
- 2 STIFFNESS:** After a period of rest, does your foot or ankle feel stiff or rigid when you begin to move again? While stiffness is usually temporary, it can be an important indicator that something is not right. For example, this is a common symptom related to ankle sprains, arthritis, and plantar fasciitis. Stretching, new shoes, rest, or weight loss may ease stiffness, but if the symptom persists despite these efforts, you may have a more significant underlying foot or ankle condition.
- 3 INSTABILITY:** It is not uncommon after an injury (particularly an ankle sprain) to experience some instability. In fact, a sense of weakness or even a “giving out” of the ankle may occur chronically for those who have experienced multiple ankle sprains. However, this can also be an indicator of torn ligaments, in which case, an appointment with an orthopaedic foot and ankle specialist is recommended.
- 4 SWELLING:** Like instability, swelling is another symptom that is normal after a sprain or other acute injury. In these cases, swelling should go down significantly after the first 48



hours. If the swelling is ever severe and/or persistent, it is reason for concern. It may be an indicator of a foot or ankle condition that needs to be addressed by an orthopaedic physician because it will not heal on its own with just rest. Or, in rare cases, ankle swelling can be the result of an entirely unrelated issue such as a heart problem or a blood clot in the legs. For this reason, a doctor should always evaluate persistent swelling.

5 POPPING OR SNAPPING NOISES: If your feet or ankles tend to be noisy, but you don't have an associated pain, then you're probably in the clear! However, there are two issues that occur with tendons in the ankles that can cause both popping noises and pain together. These are conditions that may require the attention of a physician:

- **Subluxation:** occurs when tendons in the ankle move or “snap” out of their normal position and then quickly move back
- **Dislocation:** occurs when tendons in the ankle move out of position and have to be pushed back into place by a physician

UNDERSTANDING COMMON FOOT & ANKLE CONDITIONS

Could I be suffering from an orthopaedic injury?

Runners can suffer from pain and immobility sourced in various parts of the body, including the back, hips, knees, hamstrings, and shins. We're going to focus on the most common conditions that occur in runners' feet and ankles.

ACHILLES TENDONITIS OR TEAR

The largest tendon in the body, the Achilles, connects the two primary calf muscles to the bone in the heel. The tendon runs longitudinally down the back of the ankle and it is particularly susceptible to inflammation caused by overuse.

Those suffering from Achilles tendonitis, which accounts for approximately 11% of all running injuries, are also more prone to an Achilles tear or full rupture



after repetitive inflammation and damage have been maintained over time. However, a tear in the Achilles tendon can also occur because of sudden trauma.

If a runner hears a popping noise or sensation and experiences heel pain after their foot makes impact with the ground, the Achilles tendon may have ruptured. An orthopaedic foot and ankle specialist can determine the nature and extent of the injury by conducting a physical examination or by ordering an MRI.

ANKLE SPRAIN

Ligaments are bands of connective tissue that provide stability and strength to joints by binding bones to other bones. In the ankle, ligaments keep the joint from rolling too far from side to side. When a sprain occurs in a runner's ankle, one or more ligaments have been stretched or torn.

While most sprains are minor and will heal with rest and ice, if swelling and pain persist, it is important to seek the help of a physician. In fact, moderate and severe sprains that are left untreated can weaken the ankle over time and even cause repeated sprains or lead to other ankle injuries. Ultimately, repeated ankle sprains can cause arthritis, which is a serious concern for those who want to continue to run for years to come.

FRACTURES OF THE ANKLE

Unlike the small stress fractures in that can develop in the feet, a fracture in one of the bones of the ankle is often the result of a traumatic injury or impact. This can happen if a runner lands on an uneven surface or trips while running.

An ankle fracture is a much different injury than an ankle sprain (although it is not uncommon for them to occur simultaneously), but sometimes runners confuse these two and wrongly self-diagnose.

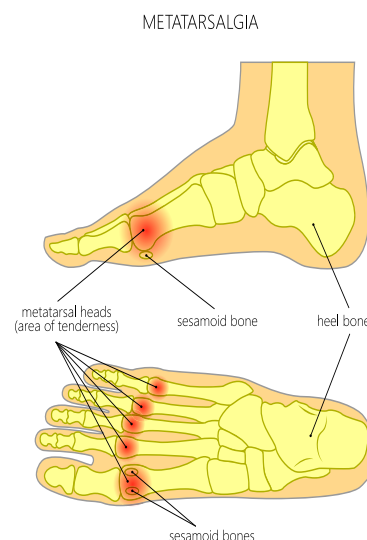
Whether an ankle fracture is in one or multiple bones and whether it occurs with pain, swelling, bruising, deformity, or other symptoms, it is a serious injury that requires care from an orthopaedic ankle specialist. If there is a bone protruding from the skin, the injury must be addressed immediately to reduce the risk of infection.



STRESS FRACTURES OF THE FOOT

The impact of excessive and repetitive force can cause microscopic damage to the bones in a runner's foot. While acute fractures usually occur because of a particular traumatic injury, stress fractures are the result of repetitive impact, accumulating over time (the kind of impact sustained by runners).

When the bones and their supporting muscles do not have time to heal, tiny cracks in the bones can occur. Stress fractures also can occur when a runner changes their usual activity. For example, a sudden increase in mileage or a change in surface could contribute to this type of injury.

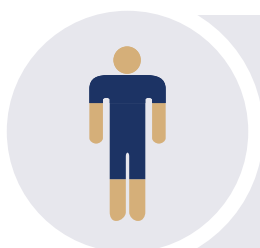


PLANTAR FASCIITIS

One of the most common foot and ankle injuries in adult runners is Plantar Fasciitis. In fact, nearly two million patients are treated for this problem each year. It occurs when the Fascia band of tissue in the arch of the foot becomes inflamed, causing sharp pain in the heel of the foot. Runners with very high or very low arches are especially vulnerable.

Most runners suffering from this condition complain of pain with the first few steps they take after waking up or after resting for a prolonged period of time. Once the band has time to stretch, the pain will often subside significantly but will continue to flare up again after each time that it is rested.

Most cases of Plantar Fasciitis can be resolved simply with rest, ice and stretching, while others will need to take anti-inflammatory medication and wear a heel pad before finding relief.



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HEEL SPURS

Unfortunately, Plantar Fasciitis is often closely tied to yet another nagging condition that is common among runners: heel spurs. When the Fascia ligament is misaligned and weak, the body tries to compensate by propping the ligament with a buildup of calcium below the heel pad.

The piece of sharp bone (spur) that develops over time can cause anything from sharp, jabbing pain in the heel to a dull aching feeling. As the condition progresses, runners often complain of nearly constant pain whenever weight is put on the foot, as the heel spur is constantly irritating the soft, fatty tissue of the heel pad.

POSTERIOR TIBIAL TENDON ISSUES

Although the bulk of this important tendon passes down the back of the leg and inside the ankle, it does stretch all the way down to the base of the foot and it plays a significant role in supporting the arch. For this reason, a problem with the Posterior Tibial Tendon will usually first show up as pain along the inside of the ankle.

The tendon's job is to connect the calf muscle to the bones on the inside of the foot, support the arch, and provide strength to the foot during the running motion. For runners who are experiencing tendonitis in the Posterior Tibial Tendon, inflammation causes two distinct problems. The first, of course, is pain. The second is the resulting flatfoot condition that occurs when the tendon can no longer sufficiently hold up the arch.

ADDRESSING THE PROBLEM

What treatments are available for my foot and ankle issue?

If you've been dealing with consistent pain, swelling, instability or a combination of symptoms, it's time to make an appointment with a foot and ankle specialist. A qualified orthopaedic physician will be able to conduct a thorough physical exam, order any necessary testing, and then accurately diagnose your condition.



At that point, you'll want to have a conversation with your doctor about the options for treatment. In most cases, there will be a variety of approaches, ranging from more conservative all the way through surgical solutions.

Some of the more common, conservative treatments for the kind of foot and ankle conditions seen in runners include:

- RICE: Rest, ice, compression, and elevation
- Physical therapy or special exercises/stretchers
- Anti-inflammatory medication
- Wearing a heel pad, shoe insert, brace or custom orthotic

A Note About Rest:

Depending on the severity of your condition and the length of time it persists prior to being treated, the rest period required for healing will vary. A good rule of thumb is to give your injury a true break (no running!) until you are completely pain-free while walking. At that point, begin jogging to test the progress of your healing before jumping back into a full running routine.

While giving yourself a rest period from running, there are plenty of helpful things to do to facilitate faster recovery and stay active. Try stretching your feet and legs with a foam roller or even rolling the bottoms of your feet over a frozen water bottle several times a day for a soothing, at-home treatment. Pool workouts, the elliptical machine or cycling can provide a great cardiovascular workout while giving your feet and ankles the break they need.

What Happens If I Need Surgery?

It's every runner's fear... that potential injury that may jeopardize your running regimen and require orthopaedic surgery.



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In a minority of cases, when pain persists despite conservative attempts to remedy the problem, surgery may be required. For example, runners with severe Achilles tendon ruptures may benefit from surgery to repair damaged portions of the tendon. Some foot and ankle fractures also require surgical treatment. However, surgery is not often prescribed for average running injuries, and runners can rest assured that when they are needed, modern foot and ankle surgeries are considered to be both safe and effective.

FOOT AND ANKLE HEALTH

How can I be proactive to avoid injury and still be running for years to come?

As is the case with many sports-related health issues, preventative care is half the battle. With proper care and a proactive mindset, runners can keep their feet and ankles healthy and strong despite the physical demands that are placed on them. Whether you're taking up running as a hobby or you're racing at a competitive level, this next section will educate you on:

- Best practices for running in general
- Tips for foot health
- Tips for ankle health

BEST PRACTICES FOR RUNNERS:

- **CHECK YOUR SHOE FIT:** This is more important than you may imagine! Finding the right shoe and the right fit can prevent injury and keep your arches and ankles well-supported. Visit a running store for a need analysis and then double check with a podiatrist or physical therapist.
- **DON'T NEGLECT GOOD NUTRITION:** Running requires calories, so be sure you're getting enough! When you're fueling your body with good quality calories (nutrient-rich), you'll have more energy to train and recover well. Staying sufficiently hydrated is also an important step toward injury prevention.
- **INCORPORATE WEIGHT LIFTING:** While running may be your first love, weight training will strengthen your muscles, which is a key component of injury prevention. When you hit the gym, remember that it's not all about your legs. Focus on full body strength training with a primary emphasis on your core.

- **AVOID COMMON TRAINING MISTAKES:** Training errors are the most common source of injury in runners. Here are some ideas on how to avoid these mistakes:
 - Stretch thoroughly before each run and stretch afterward during a cool down
 - Implement changes to your regular routine (in terms of distance, speed and surface) gradually over time
 - Get adequate rest between training sessions
 - When returning to running after an injury, follow the 10% rule by limiting the increase in weekly mileage or pace by 10% per week

FOOT HEALTH:

- Always trim toenails straight across to avoid ingrown nails and prevent irritation inside of the shoe.
- Be sure that your shoes fit properly (have your arches checked) and commit to replacing worn-out shoes regularly. When a shoe's mileage exceeds 500–600 miles, it should be replaced.
- When shopping for new shoes, try them on later in the day (feet tend to be a bit larger after being on them, so this will give you the best representation of how the shoe will actually fit when you're running).
- Try to always keep two pairs of running shoes that you can alternate regularly.
- Avoid injury and infection by choosing not to walk barefoot. Most sandals do not provide good support for feet, so wear them sparingly. When you do wear sandals, remember to apply sunscreen to the top of your feet.

ANKLE HEALTH:

- Avoid wearing flip-flops and high heels, both of which can irritate the Achilles.
- Use a resistance band to do range of motion and strength training for your ankles.
- Engage in plyometric training in order to build flexibility and strength through jumping movements.
- Talk to an athletic training or physical therapist about a balance training program to prevent ankle sprains.
- Ask your doctor about supporting weak ankles with bracing or taping as an injury prevention strategy. Prophylactic ankle supports help to limit injurious motions while you're running.
- Do not let chronic ankle sprains go unaddressed. Talk to an orthopaedic foot and ankle doctor about how to correct damage and protect your ankles from future injury.



WHY ROTHMAN?

A Note From the Rothman Institute Foot & Ankle Team

If your desire is to overcome injury and keep running, the foot and ankle team at Rothman Institute is here to help. We firmly believe that you have many miles left to run, and we hope this ebook has helped you feel better equipped to take on those miles with confidence!

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<http://www.runnersworld.com/health/the-big-7-body-breakdowns>
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