

Shin Splints and How to Fix 'Em

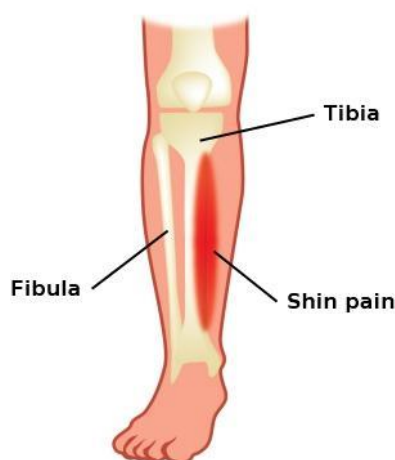
Christye Estes

The thing about runners is that we kind of like suffering. If you've ever run a marathon, you know what I mean. Nobody crosses the finish line pain-free after running 26.2 miles, not even elite athletes. But it's not just distance junkies who have this masochistic mindset: shorter-distance runners have it bad, too. Just ask our communications specialist Rob (and former sub-4-minute-miler at the University of Wisconsin), and he'll tell you that winning the 1500-m is all about who can stand the most suffering the longest. When you think about the act of running—essentially performing single-leg jumps, over and over, for as long and fast and hard as you can—it's no wonder that in running, pain is just part of the game; the price of admission.

This is an unhealthy mindset, and one that many physical therapists, trainers, and sports medicine practitioners actively discourage. In their book, "Ready to Run," co-authors T.J. Murphy and Dr. Kelly Starrett call runners out on our masochistic tendency to ignore pain, run through pain, and even kind of enjoy pain. "What's tremendous about runners is their task-completion mindset. It can also be their undoing" (Ready to Run, 32). But as coaches (and responsible adults), we should know better. Especially when it comes to our young athletes.

As the cross country in-season ramps up, many coaches are seeking advice on treating their athletes' shin splints. And shin splints are not unique to runners; many athletes experience shin splint pain, especially at the beginning of a season or while playing stop-and-start sports like tennis and soccer. Here in my latest edition of Body Talk with Christye, let's talk shin splints: what are they, how do they happen, and what you can do to fix—AND PREVENT!—them, for good.

WHAT ARE SHIN SPLINTS?

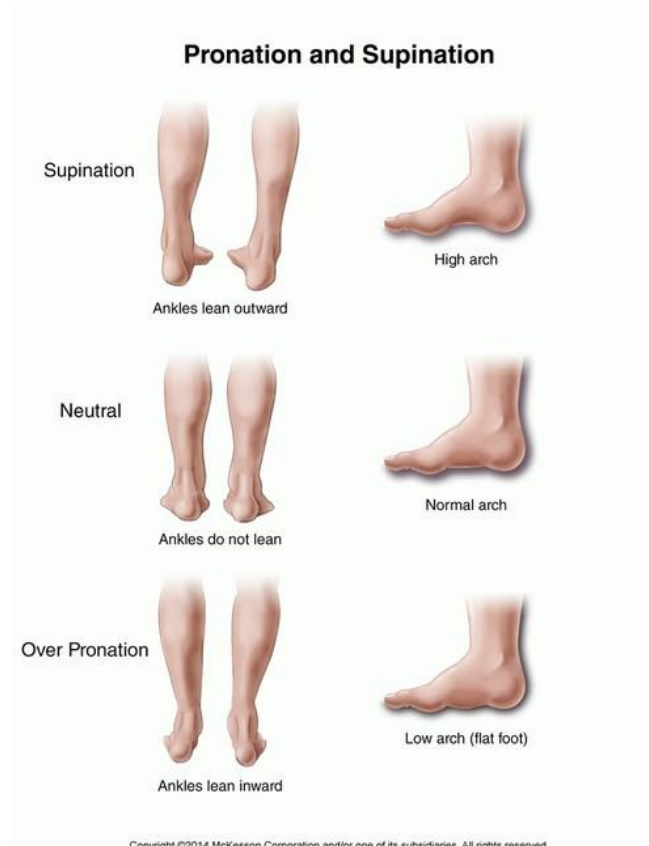


“Shin splints” is the catch-all term for pain along the front and inside of your biggest shin bone, the tibia. It is more accurately called Medial Tibial Stress Syndrome, or MTSS, as the pain felt is caused by repeated stress to the connective tissues surrounding the inner tibia. Shin splints usually present as recurring dull, achey pain in the lower $\frac{2}{3}$ of the tibia that starts at the onset of running and decreases afterward, but may also present as sharp, razor-like pain and be sore to the touch. In some cases, shin splints presents as pain in the muscles on the outside of the shin, but this is less common than MTSS.

Think about the act of running: in an ideal or biomechanically proper gait pattern, feet should strike the ground at midfoot, with the muscles surrounding the ankle contracting eccentrically to absorb the impact of landing and then concentrically to help propel the body forward—and this happens over and over and over again. These muscle contractions, combined with the force of ground impact, pull on the tibia, causing it to bow or bend with each step (over a thousand per mile for fast runners). All that repeated pulling on the tibia, and the repeated bowing of the bone, can create some serious pain.

(Note: some symptoms of shin splints overlap with other, more serious injuries such as tendinitis, stress fractures, and compartment syndrome. If you are experiencing severe shin pain, consult with your doctor.)

WHAT CAUSES SHIN SPLINTS?

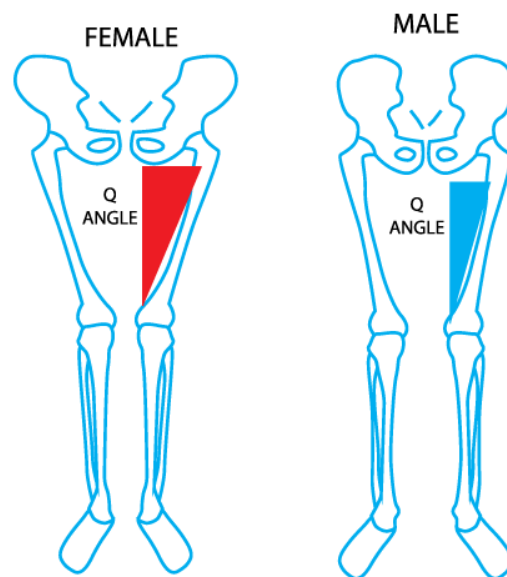


Shin splints are most often caused by overuse: either ramping up your running mileage too quickly (volume), increasing your weekly training sessions abruptly (frequency), and/or running too hard and fast too soon (intensity). Any sudden increase in one or more of these factors can overstress the muscles, bones, and connective tissues of the lower leg and lead to shin splint pain. This is why shin splints are commonly experienced by runners who are either new to the sport, or out of shape.

Shin splints can also be caused by over-pronation, a biomechanical abnormality in which the ankle collapses inward during the running stride. Over-pronation itself can have many underlying factors, but based on my training experience it is commonly due to poor strength and mobility in the calves, hips, and core musculature; excessively flat feet (no arch); and improper running form.

Running uphill or downhill, on uneven terrain, on hard surfaces, or in ill-fitting or worn-out shoes can also contribute to symptoms of shin splints. Along with over-pronation, heel-striking is another biomechanical contributor to shin splint pain: as the heel strikes the ground first, the ankle is forced into greater dorsiflexion than during a midfoot strike.

WHO GETS SHIN SPLINTS?



A greater Q angle places more stress on the patella, as the muscles of the hip and thigh pull at a more oblique angle.

Most people experiencing shin splints are those involved in repetitive aerobic activities, like runners, dancers, military personnel, and athletes across all sports. Any athlete involved in repeated vigorous activity is at risk for developing shin splints if he or she increases the volume, frequency, or intensity of exercise too quickly. Novice athletes or athletes returning to a sport

after an injury are also at risk for shin splints if training is ramped up too quickly for their abilities.

Female athletes are also at greater risk of developing shin splints than their male peers, due to a greater hip-to-knee angle. Generally speaking, females have wider hips than males (just as males have wider shoulders), so the angle formed from the hip to the knee is more pronounced. This angle—called the Q angle—puts female athletes at a greater biomechanical disadvantage when it comes to running/sprinting/jumping/landing, as the knees fault valgus and the mechanics of the running stride are compromised. As a result, girls typically experience shin splints (as well as other form-related injuries like patellofemoral tendonitis and iliotibial tract band syndrome, among others).

HOW DO I GET RID OF SHIN SPLINTS?

This is the real reason I wrote that introduction about how runners like pain. When runners—and really, most athletes in general—feel pain during a practice or game, they do not want to stop. (Can I get an amen, coaches?!) But while softball or football athletes play in short bursts of power, endurance athletes will continue to play through pain longer. This long exposure to the same movement, over and over, is what gets runners into shin splint battles in the first place.

Here's what happens when a runner pushes through shin splints: they finish the run no matter how much it hurts, go home, do some half-hearted stretching and pop a few Advil, then lace up their running shoes again the next day. I know, because I have been that athlete. But by not letting an overuse injury heal fully before exposing it to the same stress that caused it in the first place, you are only creating a vicious cycle of chronic, recurring injury.

Athletes who get shin splints are very likely to get them again, unless strategic measures are taken to TREAT the acute inflammation and pain of the initial injury, and PREVENT further injury by putting good habits into practice.

Got shin splints? Know someone who does? Follow these three easy tips to first TREAT the pain and inflammation of shin splints.

TREAT:

1. **REST.** This is the “R” in the “R-I-C-E” acronym, and is arguably the single most important thing you can do to treat shin splints and prevent them from coming back. Pain is your body's way of telling you something; the pain from shin splints is caused from overuse, and is signaling to you that your muscles, tendons, joints, and connective tissues need a break from all that volume. Rest means no running with pain. Period. If you feel even the slightest tinge of shin pain during your warm-up, you should not run. This concept is simple in theory, difficult in practice. **Physical therapists recommend that you be pain-free for 2 full weeks before easing back into a running program.**

2. **Decrease inflammation.** This captures the “I,” “C,” and “E” of the acronym above: Ice, Compression, and Elevation. These techniques are recommended for treating most injuries because they work to reduce inflammation. Icing the injured area (which can be tricky with shin splints, as the shin pain will often go away post-run, making it easy to forget there is inflammation in the first place), compressing the tissues with a compression sleeve or sock (Ace bandages work just fine, too) to increase local circulation, and elevating the feet will all help to reduce inflammation to the medial shin. Anti-inflammatory medications like ibuprofen are also recommended in treating acute bouts of shin splints.
3. **Stretch.** Stretching the calf muscles (especially the soleus and Achilles tendon area) can help to relieve some of the pain caused by shin splints. I also recommend self myofascial release by rolling the sole of the foot on a lacrosse ball (ouch), or if you’re brave, try digging the lax ball into the muscles around the shin (double ouch). Hold each stretch for 1-2 minutes for maximum benefit, and check out my post on calf muscles and the best ways to stretch them.

But it is not enough to simply treat the pain caused by shin splints. Once you have rehabbed your shin splint injury and are ready to return to activity, you must take active steps to help prevent any future shin splint troubles.

PREVENT:

- **Increase your volume, frequency, and intensity slowly.** We recommend increasing your weekly mileage by no more than 10% each week in order to prevent chronic injuries. And on your initial return to activity, start at a conservative mileage: if you lace up for too many miles too fast or too soon, all you will succeed in doing is resurrecting your injury. Worse, you also risk your shin splints becoming a chronic injury instead of a one-off acute injury, meaning they will return regularly and potentially sideline your entire season instead of just a few weeks. Self-discipline and good coaching are critical tools for ensuring a conservative increase in mileage and intensity.
- **Strengthen your hips and legs.** This is especially true for female athletes dealing with shin splints, as weak hip musculature can augment already disadvantaged biomechanics. For these athletes, strengthening the glute max and glute med can go a long way in preventing any future shin splint injuries, as these muscles help to correct the valgus knee fault that can occur during a running stride. Strengthening the muscles of the foot, ankle, and lower leg will also help ensure proper running mechanics, as will integrating core strengthening work. Strength training on a good periodized program (like Volt’s Track-Distance program) should cover 90-100% of these imbalances, and its importance in injury prevention cannot be overstated.

- **Pay attention!** Check in with your body before, during, and after your runs. (Or, if you're a coach, check in with your athletes coming back from injury.) Any shin pain? Hot spots? Nagging pain in the knee, hip, ankle? Hamstrings feel tight? These are all signals your body sends you when something is out of balance -- and if you listen for these signals, you can work to correct them BEFORE a dull ache in the shins turns into the stabbing pain of stress fractures. If your quads feel tight after a run, stretch them. If your shins feel achy, rest them. If your calves feel ropey, roll them out on a foam roller. You have the tools to first notice what your body is telling you, and then do something about it.

THE TAKEAWAY

Some injuries you can prevent, some you can't—breaking a bone is likely unpreventable; but shin splints (and other overuse injuries) are. What does it take to prevent these issues from becoming chronic injuries? It takes a new mindset. If you follow the same pain-loving protocols as many runners and athletes, you may win the race—but by ignoring the body's pain responses you risk future seasons of healthy running. What if, instead, we pay better attention to our bodies? What if we stop to ask ourselves, "Why are my shins hurting? What could be causing this?" instead of plodding through tortuous miles of burning pain? I leave you with my favorite paragraph in *Ready to Run*, where the authors offer athletes and coaches a new way of treating—and preventing—overuse injuries like shin splints:

"I want you to explore a new way of thinking about those signal flares that the various tissues and structures of your body send up. If you find yourself trying to bury nagging chronic pain through common interventions, like new shoes, inserts, ice, and ibuprofen, I want you to find a new appreciation for the signals you're receiving from your body, whether it's arch pain, back pain, a dull ache in your hamstring, or a sharp pain under your knee. Each of these signals is a clue to how you can unleash more performance. By solving the underlying problem, you will [...] extinguish the pain and prevent the injury that is rising to the surface" (*Ready to Run*, 21-22).