

# Physical Therapists' Guide To Healthy Running



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# Table of Contents

This book is for those who are considering running and those who love to run, whether young or advancing in age. It offers insights from physical therapists and refers to some of the latest evidence on running and preventing and treating running injuries.

## Inside you'll find research-backed information on:

Life on the Run .....	3	The Starting Line .....	
.....4	Proper Training and Common Myths .....		
.....5	Race Day Advice .....	6	Your Body on a Running Regimen .....
.....7	Strategies for Preventing Injury .....		
.....9	The Sole Purpose .....	11	
What To Do if You're Injured .....	12	Resources .....	
.....13			

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# Life on the Run

Why do you run? For some, it's about setting goals or staying fit. Others love being part of the running community and enjoy the freedom running can provide. No matter the reason, the rewards are undeniable.

Developing muscle strength and aerobic capacity are benefits of running in the long term. Most runners live longer than nonrunners. One [study](#), published in Progress in Cardiovascular Diseases in 2017, reported that running was, in fact, protective against the two leading causes of death in the United States — heart disease and cancer. Another [study](#) in Health Promotion Journal of Australia in 2019 concluded that recreational running promotes weight loss and helps people maintain a healthy weight. What's more, the downsides to running aren't as bad as previously thought. Many runners think they'll pay for the wear and tear on their knees, but [research](#) in the Journal of Orthopaedic and Sports Physical Therapy in 2019 shows that most runners are no more likely to develop osteoarthritis of the knee than nonrunners. If you understand and maintain proper form, your risk diminishes even further.

Physical therapists are movement experts who improve quality of life through hands-on care, patient education, and prescribed movement. They are skilled in restoring and improving healthful movement, and can help runners improve performance, prevent injury, and get back to running after an injury. Just because you have an injury does not mean that your running days are over. Many physical therapists are runners themselves and subscribe to a runner's philosophy: It's about hard work and constant improvement.

You can contact a physical therapist directly for an evaluation. To find a physical therapist in your area, visit [Find a PT](#). The following is a physical therapist's guide for maintaining healthy running from start to finish.

## Special Considerations for New Mothers

Women experience physical and hormonal changes during pregnancy which can make returning to running a challenge. Pain, incontinence, impaired movement, and the lack of exercise tolerance are often ignored and considered the "new normal." According to studies in the [British Journal of Sports Medicine](#) and [Manual Therapy](#), some of these problems are common and can be effectively treated and may even be prevented with the help of a physical therapist and guided personalized exercise. An [article](#) in the Journal of Orthopaedic & Sports Physical Therapy recommends a comprehensive and tailored approach to care for postpartum athletes. Physical therapists can help women restore their bodies after giving birth and guide them to safely return to running.

**Find a PT near you!**



# The Starting Line

Whether you're returning to running or just beginning, it's essential to ease into a routine to allow your body to adapt. Physical therapists recommend gradually increasing your running distance to establish a base of fitness. After you have developed a base of fitness, you can gradually increase your speed and pace over time. But don't set out to win a race in your age group the first time you try! That approach could lead to an injury.

## Preparing for a Race

As you prepare for a race, listen to your body. Because your muscles are adjusting to the stresses of running, you may need to take a day or two off periodically. It's important to try to meet training program targets, but don't stick so firmly to a program that you ignore warning signs and injure yourself. Increasing your weekly running distance by more than 10% from week to week can be unsafe, according to a 2014 [study](#) in the Journal of Orthopaedic Sports Physical Therapy.

## Adjusting for Age

Runners in their mid-30s and older should consider their age when returning to running or starting a regimen for the first time. As our bodies age, changes occur. As noted in a 2019 Sports Medicine and Arthroscopy Review [study](#), it is necessary to adjust our training routines to accommodate age-related changes. Take time to adjust and build your base mileage before training for a race. Overly ambitious goals may cause you to ignore pain, which can lead to injury.



# Proper Training and Common Myths

“Train well, race well.” Physical therapist Robert Gillanders, PT, DPT, board-certified specialist in orthopaedic physical therapy, subscribes to this philosophy for himself and the runners he treats. Making purpose and intensity part of your training requires knowledge of proper training and form. Consider the following training myths:

## Myth 1: Recovery is a break from training.

Recovery time isn't just a break from training. Instead, it is a critical part of it. Runners, particularly those aged 35+, should incorporate recovery time in their weekly training plan.

Cross-training, such as using an elliptical machine or riding a bike, can substitute for short, easy-paced recovery runs to give your running muscles a break. This allows you to remain active while staying on track for a successful race.

## Myth 2: Push through the pain.

It's not always wise to push through pain. Muscle soreness that eases as you run can be normal. However, there is a [difference between soreness and pain](#). How do you determine if your pain is cause for alarm? Some types of pain [should not be ignored](#). Seek the help of a physical therapist or other health care provider if you are experiencing pain. Pay particular attention to pain that:

- Does not go away within several hours after running.
- Exceeds a score of three on a pain scale of one to 10 (10 being the worst pain) while running.
- Is sharp.
- Wakes you up at night.
- Persists and worsens when you run.
- Occurs and continues in the same area every time you run.

A physical therapist will perform a thorough evaluation to assess your pain and determine how best to treat your symptoms. They also can identify when poor form may be contributing to your pain and prescribe necessary changes in training to allow your body to repair itself. Read more about dealing with an injury on page 12.

## Myth 3: You can safely “zone out” on a run.

Running can clear your mind and provide stress relief. But you don't want to zone out entirely while you run. Thinking about your form while running can help you make subtle improvements.

“Listen to how you run,” Gillanders advises. “Notice how your feet strike the ground. Does it sound the same on both sides, or does one foot strike louder? Notice where your feet land relative to your body. Do they land far in front of you, or relatively underneath you? Striking the ground closer to your body is often less stressful. Recognize that as you fatigue, your form is more likely to be compromised.” When a runner's form is compromised, mechanical stress increases, and injury can potentially follow.

# Race Day Advice

Race day is exciting, and sometimes nervousness and even nausea can set in. The race route is not just 3.1, 13.1, or 26.2 miles straight ahead of you. You're likely running a new course with unfamiliar curves, and there will be a pack of competing runners around you. Here are some tips for the week of the race that can help you do your best:

## Leading Up to the Race

Wear your race day shoes for one to two weeks ahead to break them in and avoid blisters. Many runners successfully switch to lighter shoes for race day, but a shoe that changes your running style too much can result in unexpected pain.

If you can, survey the course a day or so before the race. Identify turns and hills ahead of time. Doing so will enable you to visualize your effort on race day and plan how to pace yourself based on the terrain.

Even though you're tapering off your training two to three weeks before the race, it is important to do a warmup and acceptable to go for a shorter, less challenging run than what you plan to run on race day, to keep your body loose.

## On Race Day

Races can be so energizing that many runners get out of the gate too quickly. Watch your splits (total race miles divided into smaller segments) to make sure that your planned 7:30-mile pace isn't a 6, and you aren't expending too much energy during the excitement of the start of the race.

Dodging people and avoiding the ones who are cutting in front of you during the first mile of the race can be frustrating and a waste of energy. Be sure that you're running at the right pace for you.

Be conscious of how you are running. Hills can be especially taxing.

Remember that protecting your body is more important than competing in one race. Pay attention to warning signs, such as sharp or unusual pain. Signal for help if you need it. Trying to run through pain often leads to compensations that can strain other parts of the body and cause injury. No limping allowed. Remember, if your pain is too great it is best not to push it. Focus on getting better, and plan to run in a future race.

Good luck out there!

# Your Body on a Running Regimen

A running regimen — whether you are training for a race or not — often reveals the body's weaknesses or a misalignment. For example, improper foot alignment may cause hip pain. And improper hip alignment may cause knee pain. Physical therapists identify imbalances regarding strength and flexibility and help runners adjust their running technique, which reduces the risk of injury and improves race performance.

Here are some common injuries, pain points, and form issues runners may experience and for which a physical therapist can help:

- **Hip alignment.** Improper hip alignment can cause hip and knee problems. Applying proper running techniques that suit your unique physical profile can improve hip alignment and control. Imbalances at the hip also can cause iliotibial band syndrome, which presents as pain on the outside of the knee. Female runners are more likely to experience hip pain and should speak with their physical therapist about their running technique.
- **Knees.** Knees are the number one site of injury for runners. A 2019 Journal of Sports Science & Medicine [study](#) found that injuries to the knee make up 28% of all runner injuries.
- **Overuse and overloading.** A running injury is often a result of overuse or the overloading of the musculoskeletal system, according to a 2018 [article](#) in the Journal of Orthopaedic Surgery and Research. The most common reason for a running injury is a previous injury. It is therefore important to take time to recover and rehabilitate from any form of injury. A physical therapist can design a treatment plan to address your specific needs and goals.
- **Achilles tendon and calf muscles.** For runners over age 40, the most common sites of injury are the Achilles tendon and calf muscles. These are soft tissues that are more vulnerable to injury with advancing age. Physical therapists treat these injuries by addressing issues such as pain or swelling, range of motion, and muscle strength, flexibility, or body control. They can prescribe a personalized exercise program and teach you proper form for a safe return to running.



- **Stress fractures.** In runners under age 30, stress fractures are common, according to a 2010 [study](#) in the Journal of Orthopaedic Sports Physical Therapy. They are often the cause of pain in the second metatarsal – the longest bone in the foot that leads to the second toe. A 2018 [study](#) by physical therapist Irene Davis, PT, PhD, in Medicine and Science in Sports and Exercise, found that when cued to “run softly,” runners significantly reduced force to their legs and greatly decreased the likelihood of a stress fracture. Several studies, including a 2016 [article](#) published in the British Journal of Sports Medicine, showed that running retraining – adjusting how someone runs by increasing cadence, changing landing mechanics, or increasing trunk lean – may help. And a 2016 [study](#) published in the Journal of Orthopaedic Sports Physical Therapy found that real-time feedback (both visual and sound-based) may help address poor running mechanics.
- **[Achilles tendinopathy](#), [plantar fasciitis](#), and overpronation (turning the sole outward so that the inner edge of the foot bears the weight when walking or running).** Feet are complex and can be the source of discomfort for many runners. Wearing the correct footwear can help, but it isn’t a cure-all. A physical therapist can prescribe targeted exercises that have been shown to benefit people with common running injuries of the foot.

If you experience any of these problems, consider seeing a physical therapist who can evaluate your strength, flexibility, and movement patterns, and, specifically, assess how you run. A physical therapist can help you recover from most running injuries and learn how to continue to train safely. They can help you become a smarter, stronger runner, which, in the long term, can help you prevent injury.





# Strategies for Preventing Injury

Learning to run with proper form can prevent injury and improve your performance. According to physical therapist Bryan Heiderscheit, PT, PhD, increasing your body's strength may improve your form and control, which can improve your movement patterns and keep you running without injury. Every runner — beginner or advanced — should take the following injury-prevention strategies to heart.

## Start Right

A [systematic review of seven studies](#) published in Research in Sports Medicine, suggests that static stretching before exercise does not reduce the risk of overall injury rates, but may reduce some specific injuries. It is recommended, however, that you adequately warm up before running or beginning a more rigorous workout. A brisk walk or light running drills for five to 10 minutes can activate your muscles and help prevent injury. Stretching is recommended after your run to improve flexibility according to [a 2016 study](#) published in Physiotherapy Theory and Practice and [a 2014 study](#) published in the Journal of Strength and Conditioning Research respectively.

If you're just starting a running regimen, your routine should include stretching after running. If you've already been stretching before running, however, don't choose race day to switch. Stick with your old routine for the race, and consider gradually shifting to stretching after running before your next race.

## Identify Any Weakness

"All runners have inefficiencies in their form," says Bryan Heiderscheit. "They may be subtle, but finding them uncovers opportunities to make the body stronger and more tolerant of rigorous training."

Physical therapists identify weak points through a gait analysis. By filming you running on a treadmill and examining your alignment with advanced software, they can see where you need to strengthen muscles, adjust form, improve your footwear, or reduce impact. They can help you address issues and make adjustments to your form so you can become a more efficient runner. For example, when runners can see exactly how their knee drifts inward, it helps them visualize their movement while running, so they can make a correction and activate muscles to offset their poor form.

A physical therapist also can help noninjured runners identify areas to target to help them run more efficiently. For example, endurance runners may have underdeveloped hamstrings. Targeted leg-strengthening exercises may help. In addition, a single-leg balance or single-leg squat exercise is a low-impact exercise that pushes the body to build strength, balance, and coordination in the muscle groups most used while running. A physical therapist can teach you how to safely do these exercises.

## Beginner Strategies

Starting a new running regimen? Go for it! But be careful because novice runners will have to adjust to the impact on their joints. A beginner shouldn't start with five to seven runs per week. Instead, it is best to replace several of these runs with biking, swimming, or time on the elliptical. Each of these activities builds cardiovascular endurance and strength without stressing the joints too much too soon.

## Big-Picture Training

Running shouldn't be the end of your exercise regimen. Weight-bearing exercises and resistance training can improve overall strength and ultimately improve your running. Strength in your core and hips, flexibility, and coordination all factor into your performance. Improving these areas should be a part of your training, too.

Whether you devote hours each week to running or occasionally run to maintain a basic level of fitness, a physical therapist can make sure you do so safely.

Additional Resources:

- [30-Minute Home Stretching Program](#)
- [30-Minute Home Strengthening Program](#)



# The Sole Purpose

Successful runners know their feet and their shoes.

When choosing a pair of shoes, there are a few things to know, such as whether you pronate excessively. Runners should understand that some pronation, which is when the heel angles inward, is perfectly normal. The foot should assume a flexible posture when it hits the ground; when the foot stays in a pronated or flat position too long, it can lead to pain or injury.

Some runners need more support, but others seek lighter, minimalist shoes. How does your form change with more lightweight shoes and barefoot running? You will likely decrease your

stride length, increase your cadence, and hit the ground more softly. These effects also can be achieved with a traditional running shoe if the runner is deliberate and focused on proper technique. If you choose a significantly different shoe than you are used to (more cushion or minimal cushion), make sure to transition into its full use gradually. An abrupt change can overwhelm the foot and lead to pain and injury. And sometimes even though a new pair of running shoes is the same as your old pair, manufacturers might change the components of the shoe. Make sure the shoe fits, functions, and supports the same as the previous one did.

Be conscious of the onset of new pain in the foot, even when you aren't switching shoes. Stress to the foot adds up in training, leading to stress fractures and pain. Stretching the toes and soft tissue massage may provide some relief for plantar fasciitis and Achilles tendinitis. Taping techniques also can shield sensitive tissue and ease stress. A physical therapist can advise you on the best strategies to protect your feet based on your unique gait and symptoms. They also may prescribe specific exercises to help you prevent or heal from injury.

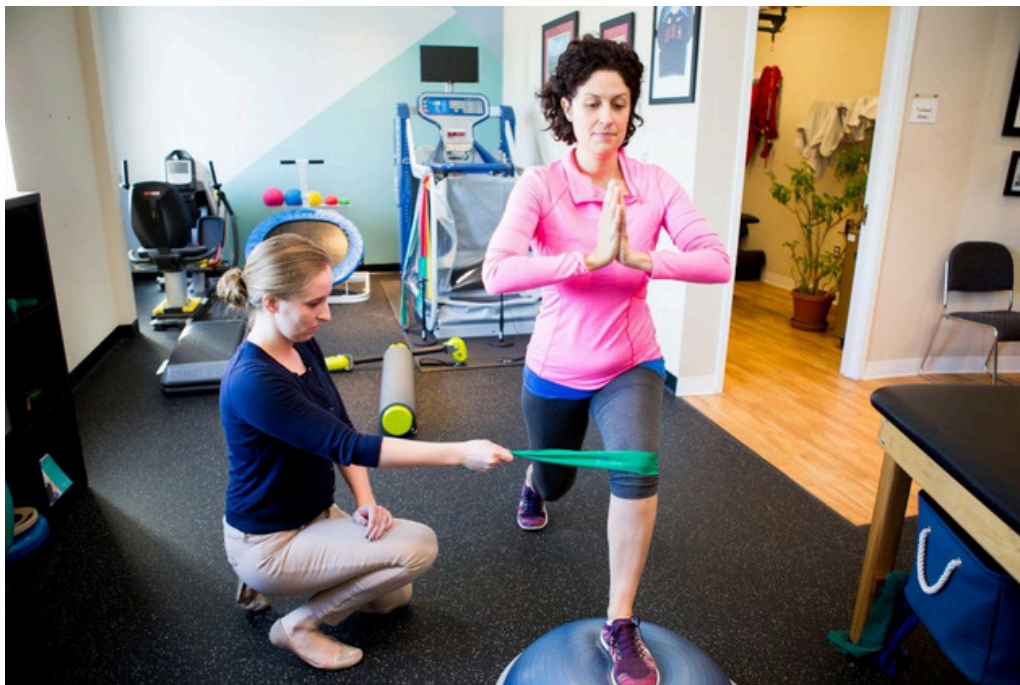


# What To Do if You're Injured

For many running injuries, a break from running can give your tissue time to heal. During a rest from running, inflammation will be reduced, which is needed for the tissue to repair itself. As the tissue repairs, your injury will feel better, but it's important to recognize that until you regain your full strength, you are more vulnerable to reinjury. [Previous injury](#) is a leading risk factor for additional injury in runners, according to research published in PLoS One in 2015. Running as soon as your pain subsides can result in aggravating the injury or causing a new one.

Exercises help restore the body when it is injured. Every person and injury is unique; consider being evaluated by a physical therapist who can tailor training and treatment to your specific needs. A physical therapist will give you a roadmap to return to running with a healthy form. They also may recommend cross-training to help you increase and maintain your level of fitness. According to Mark Harrast, author of ["Critical Care of the Runner,"](#) some common methods for cross-training that have been studied for performance and fitness maintenance include aqua jogging and running on an anti-gravity treadmill. Be open-minded about new ways to exercise, especially while recovering from injury.

Physical therapists are movement experts who help improve quality of life through hands-on care, patient education, and prescribed movement. You can contact a physical therapist directly for an evaluation. To find a physical therapist in your area, visit [Find a PT](#).





# Resources

Visit [ChoosePT.com](https://ChoosePT.com) to [Find a PT](#) in your area and learn more about the many ways in which a physical therapist can help you to:

- Significantly improve your movement and ability to perform daily activities, including running.
- Postpone or avoid painful and expensive surgery, in many cases.
- Manage pain safely without the use or risk of prescribed opioids.

## Additional Resources:

[Health Center for Runners](#)