



Mountain Land
PHYSICAL THERAPY

A woman in athletic wear is running on a dirt trail. The image is overlaid with a semi-transparent blue filter. The woman is in mid-stride, with her right leg forward and arms pumping. The background shows a hazy, mountainous landscape.

RUNNING ANALYSIS AND TREATMENT

Brynne Gerrard, PT, DPT

RUNNING THERAPY

Our Physical Therapists are passionate about treating and preventing running injuries. We are committed to continual study and learning about running medicine. Through the use of specialized tools such as high frame rate video running analysis, we are able to analyze your gait and formulate an individualized plan to help you take your run to the next level.

Our passion for running doesn't stop in the clinic. Mountain Land therapists are an active part of the running community. Since its inception in 2004, we have been providing race support to runners in the Ragnar Relay, as well as many other running events and marathons. We work with high school athletic programs, track teams and running clubs to provide insight and expertise to keep runners running. Regardless of whether you are a novice runner, an ultra marathoner or a running professional, Mountain Land has the skills and expertise to keep you running.

PHASES OF TREATMENT

PHASE 1

Education regarding running injury. Running modification as needed (volume, speed, cadence, etc). Isolating exercises to improve flexibility and strength of impaired/involved muscles.

PHASE 2

Education regarding running injury. Running modification as needed (volume, speed, cadence, etc). Isolating exercises to improve flexibility and strength of impaired/involved muscles.

PHASE 3

Plyometrics and increasing running volume to return to pre-injury running.

LEARN MORE FROM OUR PODCAST

The Mountain Land Running Medicine Podcast is an invaluable resource for anyone interested in running medicine. Bryan Heiderscheit, PT, PhD, is the host of the Mountain Land Running Medicine Podcast, and is widely accepted as one of the world's foremost experts in running mechanics and injury management. During each episode, Dr. Heiderscheit and co-host Jeremy Stoker, PT, DPT, OCS delve into a specific running medicine topic while applying real world experience and research to give listeners a comprehensive take on the subject.



www.mlpt.com/podcasts

MEET OUR PELVIC HEALTH THERAPIST



BRYNNE GERRARD, PT, DPT **Clinic Director, Physical Therapist**

Running is a great a way to address physical, emotional, spiritual, and mental health. That “runner’s high” feeling is so fulfilling, and it’s a great exercise that has so many health benefits.

I first experienced the joys of running when I got involved in track and field in high school. Since then, I have competed in various races from 5K’s to marathons.

I have also had seasons which I enjoy purely for recreation without a specific race time to focus on. I have dealt with various running injuries myself and understand how debilitating these can be, especially when trying to shoot for different goals in my training.

These injuries have led me to become the physical therapist I am today. As I have been in these shoes (quite literally), I have gained a deeper understanding of these injuries. My philosophy is to help runners create a holistic approach in targeting these injuries. From recreational running to competing in races, I want to help runners reach their goals from obtaining a thorough diagnosis, providing the best available treatments to target their symptoms, and offering education on additional factors from sleep to adequate hydration to further aid in the healing process. No matter if it’s the trail or the road, I’ll incorporate all I can to get these runners back doing what they love as safely and quickly as possible.

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RUNNING ANALYSIS

At Mountain Land, we're passionate about helping runners improve their running mechanics and avoid injuries. That's why we offer our Running Video Analysis as well as training in proper running mechanics. Our therapists are experienced in working with both competitive and recreational runners and have the skills and knowledge to help you run your best.

Our running video analysis is helpful for all runners, whether you're in pain or injured, or you're looking to improve your overall running performance.

The Running Video Analysis begins with a therapist reviewing your running mechanics and motion as you run on a treadmill. They will record your run using a high frame rate camera and use this video to provide visual feedback of your running motion.

Once you've completed the test, your therapist will review their findings with you based on the video analysis and offer some feedback about your running style, posture and motion. An in-depth physical evaluation will identify areas of weakness, tightness, and other asymmetries that result in mechanical dysfunction. Your therapist will work with you on stretching and strengthening your core, hips, knees, legs, and ankles so that your body can better handle the stresses of running.

Your therapist will also help you develop a personalized treatment program for you based on the results of your running video analysis and your specific needs and goals. They may also recommend follow-up visits to help you achieve your goals and make necessary changes to your running motion.

RUNNING VIDEO ANALYSIS EXAMPLE

Below are freeze frame shots during different phases of running during the video gait analysis. The images show knee flexion angle, lateral pelvic tilt, and foot-ground angle from left to right.



RUNNING ANALYSIS CHECKLIST FORM

Patient Name:			Dx/Sympstoms:					
Self-Selected cadence:			Date:					
Running Speed:								
Parameters		Norms & Notes	Limited	Normal	Excessive	Right	Left	Bilat
PHASE 3	Mid-STANCE	Foot Pronation	<i>Rearfoot/shoe alignment</i>					
		Toe Out	<i>Shouldn't change with speed</i>					
		Step Width-Crossover	<i>Compare foot placement to COM - will decrease with increased speed</i>					
		Knee Medial Collapse	<i>Align hip, knee, & ankle joint centers</i>					
		Knee Separation	<i>Should see a little daylight</i>					
		Lateral Pelvic Tilt	<i>Men < 8 deg Women < 10 deg</i>					
	Trunk Side Bend	<i>Normal is vertical T1-S1</i>						
	SWING	Heel Height Max	<i>Normal is symmetrical</i>					
SAGITTAL	Initial Contact	Foot-Ground Angle	<i>Less than 10 deg is ideal</i>					
		Foot-Strike Pattern: type is based on foot ground angle	<i>Heel-strike (>10), Rear-foot (1-10), Mid-foot (0) Forefoot (forefoot then heel), Toe-strike (forefoot, never heel)</i>					
		Tibial Inclination	<i>Vertical or mid inclination</i>					
		Knee Flexion Angle	<i>18-22 deg is ideal</i>					
	Mid-STANCE	Max Knee Flexion Angle	<i>Should be about 40 deg</i>					
		Ankle Dorsiflexion Angle	<i>5-20 deg; relative to WB DF</i>					
	Push-Off	Hip Extension	<i>0-5 deg extension</i>					
		Pelvic Tilt	<i>5-10 deg forward</i>					
		Lumbar Lordosis	<i>Slight extension</i>					
	General	Forward Trunk Lean	<i>5-10 deg forward</i>					
		Trunk Rotation	<i>Symmetrical</i>					
		COM Vertical Displacement	<i>Norm 6-8cm; Mild 8-12cm; Excessive 12+cm</i>					
		Arm Swing	<i>Symmetrical</i>					

DIAGRAMS

PROXIMAL HAMSTRING TENDINOSIS

Pain: Irritation and scarring of the proximal hamstring in the back of the upper leg.

Causes: Overstriders are prone to this. Their legs can be too straight when they land, forcing the hip and hamstrings to absorb excessive force.

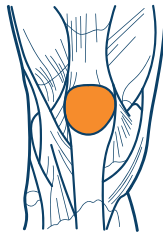


HAMSTRING
AREA

RUNNER'S KNEE

Pain: Soreness at the connection point between the kneecap and the thigh bone, also known as patellofemoral pain syndrome (PFPS).

Causes: This often happens because the gluteal muscles are not strong enough to keep the knee in line. As a result, they bend too far in or out. This places the leg at an awkward angle and puts undue stress on the knee.

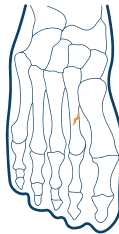


PATELLA

STRESS FRACTURES

Pain: A stabbing pain in feet or shins.

Causes: Knees swinging outward can lead to stress fractures in the foot. When they swing inward, it can lead to stress fractures in the shins. Overstriding increases the force felt up the leg, literally the equivalent of slamming the breaks every step.

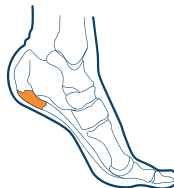


FRACTURE

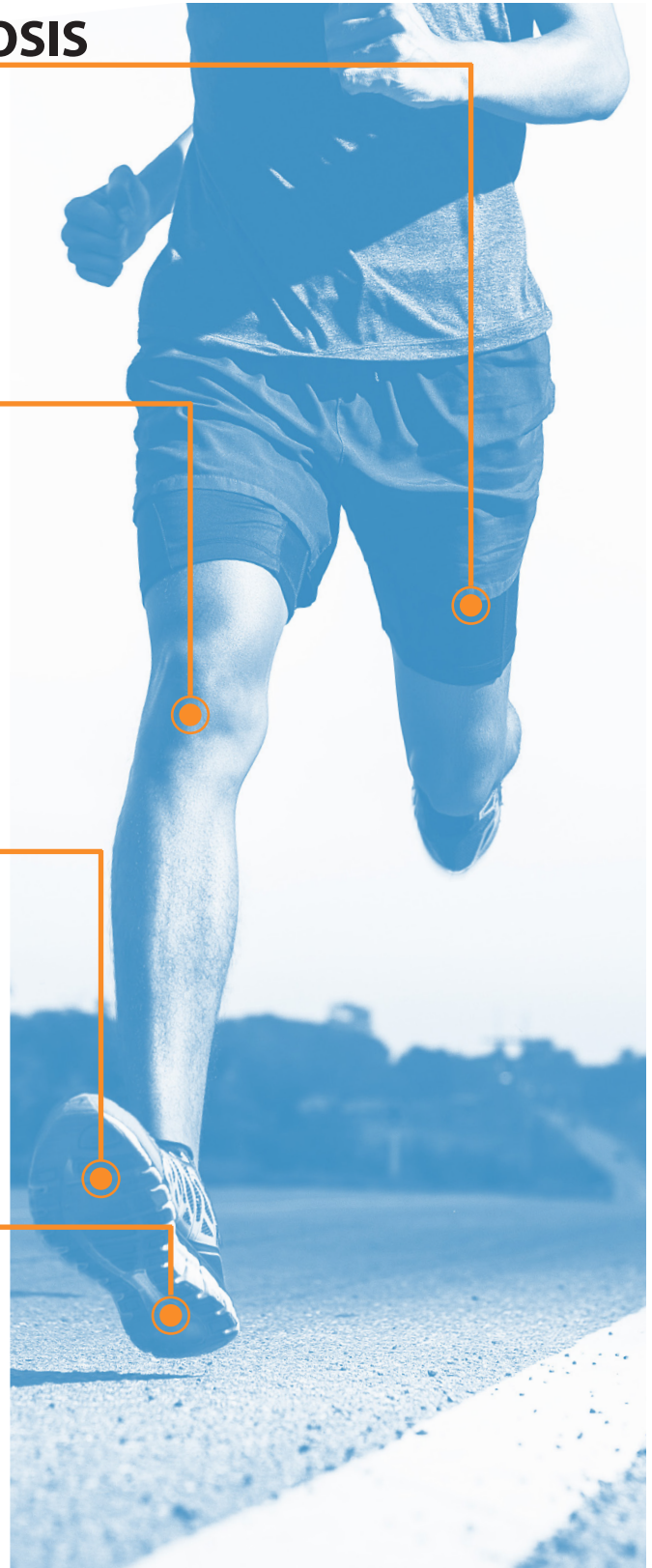
PLANTAR FASCIITIS

Pain: Discomfort in the bottom of the foot, in the arch area closer to the heel.

Causes: Tightness in the calf causes the muscle to pull on the heel bone awkwardly. This often can happen to people who begin landing on the front of their feet after switching to minimalist shoes that have little protection in the heel. Overtraining with a sudden uptick in miles can cause the same problem.



PLANTAR
FASCIITIS



FREQUENTLY ASKED QUESTIONS

Q: Does foot strike matter?

A: We find that foot strike tells us most about which areas of the lower body may be subject to injury. Forefoot foot strike places more loads on the feet, Achilles/calf, and shin therefore putting people at higher risk of bone stress injuries in the feet or shin as well as Achilles issues. Rear-foot foot strike places more stress on the knees, hips, and low back therefore subjecting these areas to more injury. Typically, I don't worry about changing someone's foot strike because doing so can increase their risk of injury as their body won't be used to bearing the weight in these new areas. However, sometimes a temporary modification can be very helpful in keeping someone running while managing an injury.



Q: Is running bad for my knees?

A: Research has shown us that running is not inherently bad for the knees but this depends on how much a person is running. On one end of the spectrum, we have the casual runner that runs only 1-2 times per week. This is not enough frequency to gain the benefits of running. On the other end, is the very competitive or professional runner. These individuals run a high volume and run speed workouts which is very taxing on the body. The sweet spot is the regular recreational runners, those that run 4-5 times per week perhaps training for a half marathon. These runners actually have shown to have a protective mechanism against developing knee arthritis.



Q: Is running on cement worse than running on trails?

A: Contrary to popular belief, the loads placed on the lower body with running on cement vs trail is equal. This is thanks to the fact that our bodies are very intelligent. When we run on a firmer surface such as cement, our body realizes that we have to do more work to absorb shock. On the contrary, when we run on trails, our body knows that we are landing on softer surfaces and therefore does not need to do as much work to absorb shock. These leaves us with similar loads through the lower body when running on either surface.



Q: How long will therapy take?

A: Recent studies have shown that runners can achieve the muscle memory necessary to run with proper mechanics in as little as 8 training visits. During those 8 visits we provide you with the tools and training tips to continue to run without pain. An in-depth physical evaluation will identify areas of weakness, tightness, and other asymmetries that result in mechanical dysfunction. We work with you on stretching and strengthening your core, hips, knees, legs, and ankles so that your body can better handle the stresses of running. We show you how small changes to your running mechanics will make a huge difference in how you feel. We work with runners, creating a personalized plan to improve running mechanics and decrease the risk of injury.



SCAN OR VISIT TO LEARN MORE



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