

PPMA Update



PENNSYLVANIA PODIATRIC MEDICAL ASSOCIATION

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Prevention Key to Building Sports Medicine in Your Practice **Helping Your Patients Prevent Running Injuries**

—By Alicia Canzanese, DPM, ATC, Fellow-AAPSM

Now that the weather is improving, many of our patients will start increasing their time outdoors. With everybody itching to get back outside to enjoy the change in weather as they prepare for early summer 5Ks or build distance for fall marathons, it is important that we play a key role in helping our patients prevent overuse injuries. For many, those running shoes may have gathered some cobwebs during the long-winter months and the unprecedented quarantine.

Sports medicine is one of the primary focuses in my practice, and one of the pillars of sports medicine is injury prevention! A sports medicine practice is composed of a lot more than just college athletes; the majority of our sports med patients are distance runners with various levels of experience.

A great way to help build sports medicine in your practice is to start discussing injury prevention, either individually with patients or by offering lectures and seminars to local fitness clubs or running groups. Whether the runner is on his fifth Iron Man

or training for her first 5K the same general principles apply to prevent injuries.

1.) Training Errors: This is one of the biggest issues with many runners, especially those just starting out or returning after an injury or illness. Is the patient doing too much, too fast, too soon, and/or with too little rest? Asking some quick yet thorough running history questions can help you determine if there is an error in the runner's training plan. For example, you could ask:

- What is your average weekly mileage?
- Has your weekly mileage recently changed?
- How long and how often are your runs?
- How many days per week are you running?
- How often do you take rest days?
- What are you doing for cross-training?
- Are you currently training for any races?

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Preventing Running Injuries

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a.) It is important to educate runners on the importance of gradually easing into or back into running. For new runners, I typically recommend walk-run-walk-run interval programs where they start with an interval—such as five minutes walking to two minutes running—and then gradually increase the amount of time running and decrease the amount of time walking each week.

The general rule of thumb is not to increase intensity or time by more than 10 percent each week. I always say that if your goal is to run a half-marathon, you wouldn't run a half-marathon on your first day of training; so similarly, if your patient has never been a runner and their goal is to run a mile, they should not start out by running a mile on their first day.

For those who are getting into running for the first time or getting back after a long period off due to injury, I usually recommend gradually increasing their cardio capacity by:

- First increasing time on a stationary bike (if they have access to a gym);
- Then progressing to either the elliptical or walking only.

Once they can comfortably walk for 30-45 minutes, they can start their walk/run/walk/run intervals. Gradually increasing activity level is key for any type of physical activity from an exercise physiological standpoint to allow time for anatomical adaptation, recovery time, and balancing load with load-bearing capacity of the musculoskeletal system.

b.) It is also important to talk to runners about overtraining. One of my favorite injury-prevention sayings is, "The key to healthy running for a long time is not running every day!" This is especially important for preventing injuries like stress fractures. It is imperative to make sure your runners are including low-impact, cross-training (such as biking) instead of running, at least once per week. They should also be including strength-training days and at least one rest day per week to prevent overuse injuries.

2) **Footwear:** One of the most important questions to ask your patients is: How old are your running shoes? We have all seen patients who say, "Oh my shoes aren't that old," only to find out

they have been wearing the same sneakers for five years. If someone isn't already tracking the amount of mileage or time on their shoes, I normally recommend they record the date when they start using a new pair of shoes on their smartphone or calendar.

Running shoes typically last for about 300–500 miles, so helping your patient track their footwear usage can be a simple step in preventing injury. When it comes to footwear selection, for both running shoes and orthotics, there are obviously many criteria involved for each individual's needs. It is important to stress with the patient that shoe selection should not be based

solely on foot type. Patients should also take into consideration factors such as running surface, foot strike pattern, body type, and injury history.

3.) Flexibility:

Believe it or not, there has actually been some controversy in running circles over the past couple of years about whether or not runners should stretch. In addition, there are multiple schools of thought around when to stretch and how to stretch. Personally, I believe it is imperative to stress with patients the importance of

working flexibility training into their exercise regimen. Static stretching is the type of flexibility exercise that some runners are resistant to, with some published data to support their claims. Therefore, it is important to educate runners on other types of flexibility exercises, namely dynamic flexibility exercises.

It is important to note that dynamic flexibility exercises are NOT the same as ballistic stretching. Both dynamic and ballistic stretching involve stretching while the body is in motion. However, ballistic stretching involves more fast, uncontrolled, and jerky motions that have a greater risk of leading to muscle overload and injury if not done properly. Dynamic stretching is much safer as it involves more controlled and coordinated motions within a defined range of motion.

Compared to static stretching, dynamic stretching can better increase local vascularity to musculature and serve as a beneficial warmup before exercise. I am a firm believer in the importance of flexibility and tell patients that muscle tightness can lead to muscle/joint imbalance, and imbalance can lead to overuse injuries. Static stretching still has a role in the treatment of overuse injuries, but in the absence of pathology, I typically



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recommend a dynamic flexibility warmup before running and static stretching after activity.

4) Lower Extremity Strength: Another important question I ask patients is what their strength-training routine looks like. I like to emphasize to them that just like inflexibility, muscle weakness can also lead to imbalance and injury. Just like any other sport, running requires the strength of certain muscle groups for better performance and injury prevention.

Many runners, especially novice runners, don’t often think of strengthening as part of running. The best training programs will include 1–2 days per week of strength-training. When working with patients who don’t like going to the gym, it is important to educate them on body-weight exercises they can do at home such as squats, lunges, lateral walking, leg lifts, and Theraband-ankle strengthening.

5) Core and Hip Stability: There is a growing body of evidence to support the importance of core stability in the prevention, treatment, and rehabilitation of lower-extremity injuries. Core stability was defined by Wilkerson et al in a 2015 *Journal of Athletic Training* article as, “the ability to control the position and motion of the trunk over the pelvis and leg to allow optimum production, transfer, and control of force and motion to the terminal segment in integrated kinetic chain activities.”

EMG studies show us that there is coupled motion between the core and the lower-extremity muscles. The muscles of the hip and pelvis need to be activated before the initiation of

lower-extremity muscles can occur. If there is proximal instability and the muscles aren’t being activated properly, this causes excess translation and rotation being passed down the limb, leading to increased injury risk.

It is important to educate our patients that the core is a lot more than just what people picture as six-pack abs. The core is defined as the entire lumbo-pelvic-hip complex. To truly work the core, one needs to do more than just crunches. I recommend putting together a program of exercise that addresses all the major muscle groups such as planks, side planks, side lying leg raises, and bridges.

6.) Nutrition and Hydration: We all know proper nutrition is imperative for bone health, building muscle, and recovery from exercise. Talking with runners about nutrition can be key to injury prevention and recovery, especially if that patient has a history of stress fractures. It is also important not to miss the signs of Athletic Anorexia or the Female Athlete Triad and make appropriate referrals.

As sports medicine practitioners, we should be encouraging a well-balanced diet with an increase in caloric intake to balance an increased activity level. Over the past decade, there has been an increase in studies evaluating the importance of Vitamin D for overall health, chronic disease states, and athletic performance. For those with chronic overuse injuries, one should consider checking their Vitamin D levels.

In conclusion, as sports medicine podiatrists, it is imperative that we help our patients both treat and prevent running injuries. It starts with taking a thorough history to learn your patients experience levels, establish their goals, and identify training errors. Preventing training errors is key! Educating your patients on the importance of proper shoe-gear selection, flexibility, strength, core stability, nutrition, and hydration will help set you apart from other practitioners. **UPDATE**

