That Extra Mile: Physical Therapy for Endurance Athletes

Physical therapists share ways to treat and support long-distance athletes.

Feature

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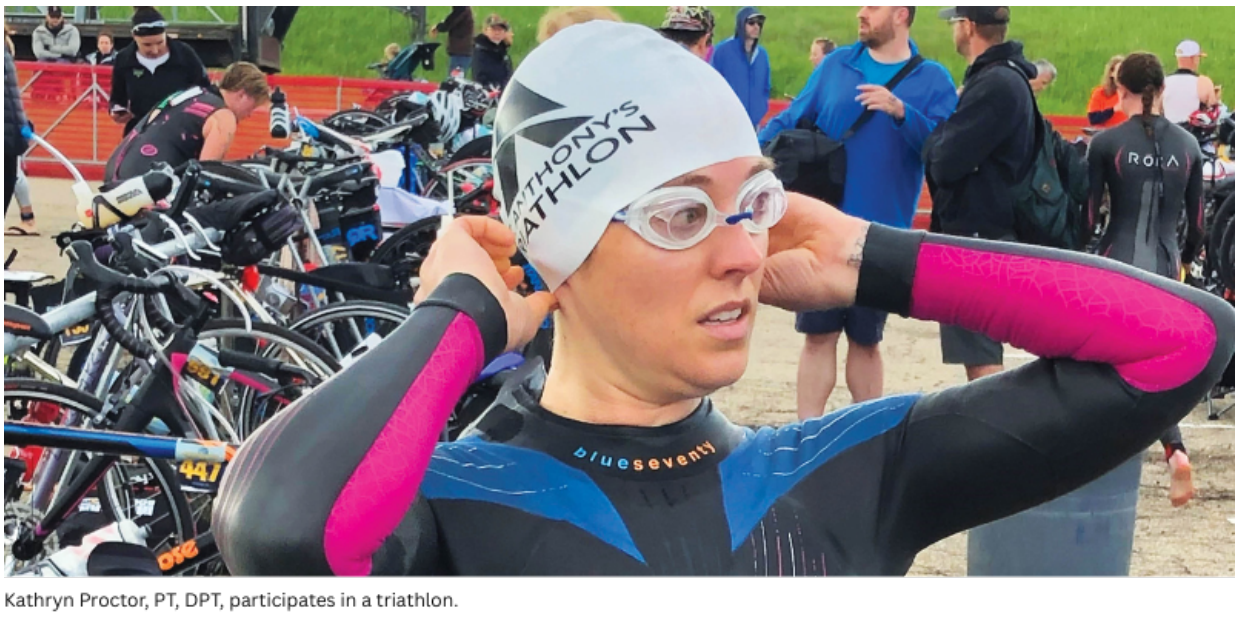


Kathryn Proctor, PT, DPT, participates in a triathlon.

From marathons to triathlons, endurance athletes — runners, swimmers, cyclists, and rowers who compete in races over long distances — push their bodies to the limit. But the cost of training and racing can be steep. Injuries, chronic pain, and mental fatigue are common pitfalls along the way. A growing number of physical therapists and physical therapist assistants are stepping up to help these athletes overcome the unique challenges they face, using innovative treatments and cutting-edge techniques to get them back in the competition.

Joel Sattgast, PT, DPT, has worked with endurance athletes since the

beginning of his career and learned early on that, at that time, a vast majority of clinicians were ill-equipped to work with this population. He says that's due to an insufficient knowledge of the performance demands of endurance sports, so athletes were being cleared for return-to-sport when their recovery was incomplete.

Chris Johnson, PT, DPT, continues to train as an endurance athlete so he can better help his patients

"I believe one of the greatest opportunities that physical therapy offers to endurance athletes is access to a profession and professionals who are holistically trained in anatomy and physiology, clinical examination and evaluation, differential diagnosis, and exercise prescription," he says. "While this may seem obvious, removing any one of these areas or domains significantly compromises the ability to provide comprehensive care to this population of athletes."

Sattgast notes the most common injuries endurance athletes face are microtraumatic injuries, including tendinopathies and bone stress injuries, which are the ones he sees most commonly in his current practice.

"For these athletes, load associated with training is rarely the issue; instead, it is their lack of capacity and preparedness for the load of training that increases the risk for injury," he says. For this reason, he advises endurance athletes to use graded exposure when training.

"We want to foster an ‘inch by inch' approach rather than a ‘yard by yard' approach," Sattgast says.

However, endurance athletes experience other physical therapy needs as well. For example, a cycling crash may result in a clavicle fracture. Runners commonly experience knee pain such as patellofemoral pain syndrome, iliotibial band syndrome, or issues related to muscle function and performance that fall outside of tendon pathology. Endurance athletes also deal with degenerative meniscal pathology or femoroacetabular impingement symptoms as they age.

Additional injuries may include swimmer's shoulder or possible neurologic complaints due to peripheral nerve compression on a poorly fitted bike.

Jason Tuori, PT, DPT, has been coaching runners for more than a decade at Mana Performance Therapy in Fairport, New York, working with a range of high school, collegiate, professional, and recreational runners and triathletes on both the rehab and performance side.

"As a competitive runner myself growing up, I always gravitated toward working with the endurance population once I became a physical therapist," he says. "It helped that I was able to speak their language in terms of training habits and recovery. They're very motivated athletes, which makes them fun to work with."

The Common Factor

Tuori notes the best way to improve endurance sport performance is to train at high volumes, frequently, for many years. Unfortunately, what's best for performance isn't always best for health.

Naturally, injuries experienced by cyclists are going to be different from those experienced by runners, which again will be unlike those who cross-country ski. The common factor across disciplines is that they're repetitive-use injuries, but the location varies.

"In general, the area of the body that has the highest loading demand for the specific endurance sport tends to be the most vulnerable," Tuori says.

Like Tuori and many other PTs who work with endurance athletes, Chris Johnson, PT, DPT, is an endurance athlete himself. He spent several years competing in triathlons, completing more than a dozen half-Ironmans and full-distance Ironmans, including the Hawaii Ironman World Championships on three occasions.

"After more than 20 years of active training, racing, and providing rehab for endurance athletes, I've gained a unique appreciation for the injury-to-performance spectrum, not to mention working with this unique demographic of athletes," Johnson says. "This allows me to quickly assess and address the needs of runners and triathletes."

He continues, "Even now, at 46, I continue to train daily and compete, which helps me stay in tune with endurance athletes' challenges because I face some of the same issues, especially as a Masters Level athlete," referring to competitive athletes who are 40 or older.

Challenges in Treatment

Johnson's clinical work focuses on helping avid runners and multisport athletes manage lower limb tendinopathy and bone stress injuries, commonly called BSIs.

"These conditions are uniquely challenging because they often require weeks or even months to resolve," Johnson says. "Mismanagement of load gets them into trouble, and sound load management gets them out of trouble."

Johnson also points to an additional contributing factor that can complicate treating endurance athletes. "Adding to the complexity is the abundance of misinformation and reductionist advice prevalent in media and online sources, which often leads to prolonged recovery or reinjury," he says.

Effective management of these injuries often involves behavioral change, which can be particularly difficult for athletes facing competitive pressures or in high-stakes situations, such as scholarships or prize money. Additionally, treating BSIs, especially high-risk cases, requires sound clinical reasoning. Mismanagement in these situations can escalate a running-related injury into a life-altering condition.

"Care for these athletes also frequently demands collaboration with other health professionals in a multidisciplinary approach," Johnson says. "This comprehensive-care model addresses every aspect of the athlete's recovery, maximizing the chances of a successful return to sport and long-term health."

Matthew Ferlindes, PT, DPT, is an endurance athlete who specializes in working with endurance athletes at BioEndurance Physical Therapy & Performance in Milwaukee, drawing on his firsthand experience.

"I became an avid runner in high school and unfortunately experienced an injury as a sophomore," he says. "The injury should have been treated with physical therapy, but my doctor at the time made the decision to just have me stop running. It was difficult being forced to stop doing the activity I truly enjoyed. This provided the motivation to become a PT and especially to help endurance athletes return to their preferred sport or activity."

Ferlindes continued running after high school and started participating in marathons. He eventually entered the world of triathlons in college and continued to train through PT school. He then completed his first Ironman the year after earning his DPT.

Most commonly, Ferlindes sees BSIs and tendinopathies, and, by far, he says, these are the result of overuse injuries or injuries that stem from the repeated stresses and trauma of endurance sports.

"The important part of specialized practice for endurance athletes is

being able to identify bone stress injuries or rule them out when appropriate," Ferlindes says. "These are by far the most serious injuries for endurance athletes, especially if they occur in high-risk areas, such as the femoral neck, sacrum, proximal fifth metatarsal, or anterior tibia."

In addition to training and treating endurance athletes, Johnson also provides mentorship and consulting for other PTs who work with this population.

Ferlindes says, "It is essential for the PT and medical team to identify these injuries, as these runners should not continue running and should receive proper care to allow bone healing."

Ferlindes explains that the nature of endurance sports, such as running, is the repetition of forces and stresses applied. On each run, the runner is exposed to thousands of steps repeatedly. Additionally, each step exerts a high level of force through the body. The patellofemoral joint experiences 4.5 times the body weight in compressive forces with every step. Similarly, the Achilles tendon experiences 3 to 5 times the body weight of forces with running.

"As a result of this, the body literally breaks down as you continue running," he says. "Our soft tissues have a certain capacity of load or force that they can tolerate. If the load we place on the tissues exceeds capacity, then we are at a much higher risk of developing pain and injuries."

While there can be biomechanical factors that lead to these breakdowns, the most important aspect in staying healthy for an endurance athlete is the training regimen.

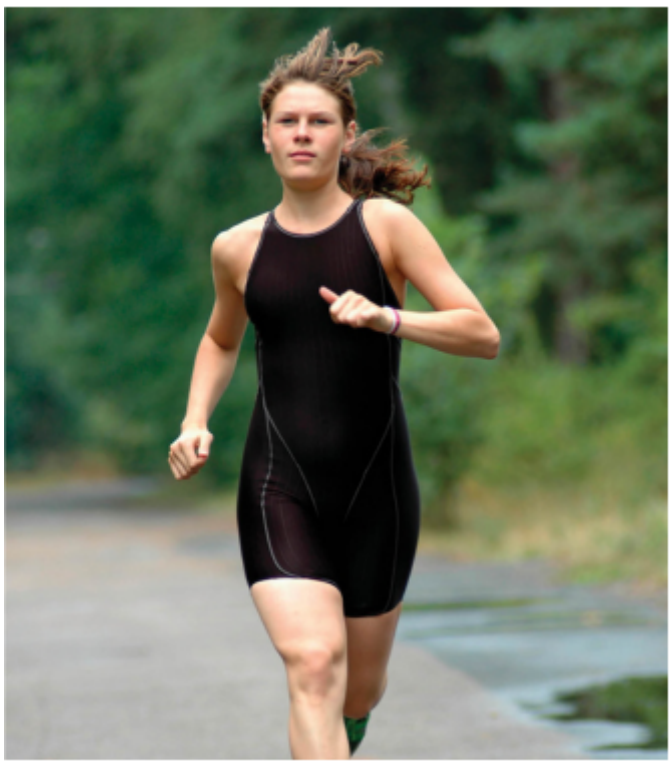
"Essentially, injuries can develop after there have been changes or fluctuations in an athlete's training or volume," Ferlindes says. "If a runner has a large increase in mileage over a few weeks or if they are running on different surfaces or terrain, such as more hill running, it can shift the balance between load and capacity and cause injuries." For more injury prevention suggestions from Ferlindes, see "An Ounce of Prevention."

Runners World

Achilles tendinopathy is a painful condition in the Achilles tendon that significantly limits one's ability to store and release energy during

each step. It's one of the most common injuries Tuori deals with.

"The very general overview of tendinopathy management is to first focus on making sure that the acute pain is settled and the patient is ready to start loading slowly," Tuori says. "At this point, we gradually increase the intensity of tendon loading with slow calf exercises. What surprises a number of individuals is how comfortable loading the tendon heavy and slow can be when it still isn't tolerating light and fast movements."



Eventually, patients are transitioned to speed-based exercise, Tuori says, "with the understanding that some pain during exercise is acceptable as long as it trends positively while we monitor it."

Once a runner is able to tolerate hopping and strength is increasing, Tuori will start them on a walk-run interval program and gradually progress this back up to their pre-injury level of training over several months.

Sattgast notes that with runners, the evidence supports a variety of predictors for incurring a running-related injury, including but not limited to sex, age, BMI, running experience, sport activities, behavior type, hip mobility, ankle mobility, and navicular drop.

"Some of these risk factors are correlated with injury, while others are more directly related," Sattgast says. "One of the main risk factors that is directly related is a previous running-related injury in the last 12 months."

The reason? "Incomplete rehabilitation or persistent training errors that have not been addressed or resolved when returning to training," says Sattgast.

Ferlindes shares an example of the importance of correct training from when he worked with a teenage cross-country runner who had been dealing with peroneal tendinopathy for months.

"She was referred to me secondary to my specialty with runners, so we performed an assessment," Ferlindes recalls. "She did have some weakness through the ankle, but her running form looked pristine, yet

she continued to experience pain. However, when we assessed her ability to perform a single-leg squat and especially double-leg and single-leg plyometrics, we found her form seriously limited."

What's more, Ferlindes says, the patient had a difficult time controlling her single-leg form with a level of dynamic instability through the frontal and transverse planes. This was exacerbated when she placed force through her legs with double- and especially single-leg hopping tasks.

"Ultimately, we worked on her dynamic stability with single-leg squatting and her plyometric form to enhance levels of dynamic stabilization," Ferlindes says. "She improved her squatting and jumping form, and, sure enough, she had less pain and was able to return to running."

Cycling, Swimming, and Rowing

Kathryn Proctor, PT, DPT, with Spiro Physical Therapy in Mauldin, South Carolina, is an endurance athlete who works with endurance athletes, including professional Ironman triathletes.

"For triathletes and cyclists, whatever the symptomatic presentation, it is often linked back to the hours spent in the saddle negatively impacting sacral, lumbar, and hip function," she says. "For swimmers, the symptoms often present as tendinitis or tendinosis but are typically the result of a muscular imbalance that develops as a result of the repetitive nature of the sport."

With swimming, she notes there is a strong connection between thoracic mobility and shoulder injury.

"Because three of the four strokes have individuals pulling into flexion, we tend to see ‘swimmer's posture' with increased thoracic kyphosis and resulting stiffness," Proctor says. "This leads to hypermobility in the shoulders and an increased risk of injury to muscles, tendons, or ligaments."

With rowers, she notes the repetitive work of the posterior chain over a stabilized pelvis will quickly lend itself to injuries at the thoracolumbar or lumbosacral junctions. If lumbar extensors are tight, it makes it challenging for scapular retractors to function appropriately, putting the shoulders at risk of injury.

Mike Rodriguez, PT, DPT, is a former NCAA Division I cross-country and track athlete who competed at Drake University and now works with endurance athletes. Rodriguez notes that while swimming,