



# PTs Help Runners Go for *Gold*

By Keith Loria

Olympic and world-class runners who raced prior to 1990 will tell you that not much emphasis was placed on the value of physical therapy.

“It just wasn’t something you did. The idea of going to a physical therapist (PT) to help you get stronger for a race or to fix a problem wasn’t in the consciousness of the runners of my time,” says Billy Mills, who won a gold medal at the 1964 Olympics in the 10,000 meter run—the only American ever to have won a gold in that event.

Peter Kitto, PT, agrees: “Back 25-30 years ago, it was very uncommon for a physical therapist to be at an Olympic running event or major championship.”

But times have changed.

Today, runners and their coaches understand that physical therapists can help runners stay in better condition and help them with their form.

Kitto has worked with runners—including some of America’s top elite runners—for more than 20 years. They include professional miler Paul McMullen, 2008 Olympic silver medalist Nick Willis, and Alan Webb, who holds the American mile record at 3:49.91.

Kitto is with Michigan-based MRS (Michigan Rehabilitation Specialists), providing services for orthopedic sports conditions, sports fitness services, and strength and conditioning training.

In addition, he regularly travels to national and world track meets, as well as serving at Olympic trials and races. “At the events, you see all sorts of things. With sprinters, there are a lot of hamstring problems. Distance guys have posterior tibial tendinitis problems or Achilles tendonitis—generally tight muscles from running so many miles in the course of a



week. We'll work with them on muscle energy and try to manage them through the rest of their racing rounds," Kitto says.

Kitto performs an evaluation on any nagging injuries and relies extensively on manual therapy to keep the athlete's legs in shape and ready to go.

Of course, these on-site interventions primarily are designed to get these human Ferraris through their race week. Afterwards, Kitto stresses strengthening exercises tailored to each runner's needs.

"I recommend Bulgarian squats, common core exercises, and planks. We'll do some high-rep low-weight upper body work for arm swing and tons of core," he says. "With weights, we do a little bit of leg work and some upper body work to help with arms during speed work. The idea is to stay small and be strong."

## Making a Difference

World-class runner Ian Boyle was a star athlete at Michigan State but couldn't stay healthy during the indoor season.

"During my sophomore year I was injured in cross-country with a stress reaction in my

tibia. I was unable to compete in indoor track due to a lack of fitness—the result of the stress reaction," Boyle says. "In outdoor track, my fitness was back up and I was healthy. I ran personal best times of 3:45 for the 1500 meter and 1:49.8 in the 800 meter and qualified for the regional championship."

During his junior year, Boyle developed an Achilles tendinitis injury while running track. That ended his season. "I was unable to run for 13 weeks because of the injury and missed out on the entire indoor season," he says. "During outdoor track I was able to qualify for the regional championships in the 800 meter where I ran a personal best time of 1:49.2."

In his senior year, he ran 25:11 in cross-country. Then,

halfway through the season, he experienced another injury. Once more, he had a successful outdoor track campaign, qualifying for the regional championships in the 1500 meter.

"After college I started working with Pete to rehab my Achilles and find out why I had so many injuries in college. From August 2010 to June 2011, I was mostly off of running," Boyle says.

Last year, Boyle went to Kitto for help. Kitto first performed a pinch test on Boyle's Achilles and noticed there wasn't much swelling. Further testing and observation showed that, as Boyle ran, he was crossing midline, thus causing torsion of the Achilles.

"We had to do form running to get his arms moving more. I

Peter Kitto, PT, works with 2008 Olympic silver medalist Nick Willis.



used Caremedics' Extracorporeal Shock Wave weekly and evaluated his pelvic muscles for strength," Kitto says. "I had to shut him down to allow his Achilles to heal, and strengthen him until he was totally pain free. I waited 14 days after that point. Then we slowly reintroduced the stresses with a corrective gait and brought him back slowly."

MRS has a number of sophisticated pieces of exercise and rehabilitation equipment, including an AlterG AntiGravity treadmill. When rehabilitating an injured runner, a PT can adjust the percent of body weight to 50, then 60, then 70, and upward until the athlete can run at full strength.

The clinic also uses a computerized camera system to record runners. The video then is imported into biomechanical analysis software, allowing the PTs to analyze the athlete's unique running form to help determine what may have caused an injury.

"I went through physical therapy interventions and then worked with [Kitto] to assess the way I ran. After video analysis, we determined that my form needed correcting," Boyle says. "I have spent a lot of time working on changing my form to become more efficient and put less stress on my body when I run. I am now getting ready for the 2012 track season."

## Equipment Wonder

Brian Pilcher was named "Runner of the Year" in 2009 in his age division (50-54) by both *The Running Times* and USA Track and Field. His 15:46 5k time that year was the second fastest in the world for men over 50.

"I had run a great deal in high school but didn't really run competitively again until I was over 50," Pilcher says. "I established myself pretty quickly as one of the top runners in my age bracket."

However, in June 2009, Pilcher tore

his labrum and destroyed most of the cartilage in his hip—an injury that forced him to stop running. He had surgery to resolve the hip injury, but also experienced microtears in the patella tendon in his knee.

He began training on the ElliptiGO in early 2010 as part of his rehabilitation program to build cardiovascular fitness while allowing his injuries to recover. ElliptiGO is an outdoor elliptical bicycle resembling, logically, a cross between an elliptical machine and a bicycle with small wheels. It can be used by runners who are recovering from surgery or acute conditions as well as those who are coping with chronic issues that affect their training.

"I couldn't run 5 minutes without having pain but I could put in a 3-hour workout on the ElliptiGo," he says. "A lot

of people do pool running, but this is a lot closer to real running for me. Three weeks later, I ran a 5k and 10 weeks later I did a 10k," Pilcher says.

Not that his recovery was attributable only to the equipment. Working with a physical therapist, Pilcher learned that his hip flexor was not doing its job. Because of that, the patella tendon was taking on all the effort when he was running off the quad and lifting his leg.

"[My PT] gave me an exercise to do—basically lifting a straight leg while lying down. I eventually did it with a 5-pound weight and strengthened that flexor. I started running short periods of time and built it up. I credit that with fixing it and allowing it to heal itself," he says. "I get body work done twice a week. It's really important to

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see a PT to get the right exercises, fix things, and strengthen things you are weak on. To go in regularly to a physical therapist and have the PT supervise your exercises is productive.”

This past June, Pilcher competed in the legendary Dipsea Trail Race in Northern California, a 7.4 mile course that its organizers describe as “grueling and treacherous.” Pilcher finished in third place. A month later, he ran the World Masters and took the bronze in 3 separate events, re-establishing himself as one of the world’s top senior runners.

Another proponent of the ElliptiGO is Simon Gutierrez, PT, MSPT, ATC, a champion ascent runner and 3-time winner of the Mt Washington Auto Road Race. The race organizers describe the course: “The race pits 1,000 runners against one of the most challenging obsta-

cles in road-racing anywhere in the world. In its 7.6 miles, the Mt Washington Auto Road gains 4,727 feet in altitude with no downhill break. The final 70 yards rises at a 22% grade to the finish line beside the old weather station, where a wind speed of 231 mph was recorded in 1934.”

When he’s not running, Gutierrez is a physical therapist, working with runners at Adams College in Alamosa, Colorado.

“I work a lot with the Division II collegiate runners. When they come in, they already are injured. I get them on core stability, which is so important for everybody,” Gutierrez says. “We work on core stability with abdominal exercises first, followed by coordination exercises to make everything neutral. I do a lot of glut and back exercises. If I see other areas that are weak,

we work on that. A lot of balance training goes into it as well.”

Back in 1983, Gutierrez set the American record for the 10 kilometer by a 17-year-old in a time of 29:45, a mark that still stands today. He is a 3-time USA World Cross Country Team member and has been a member of the U.S. national team in mountain running 7 during the last decade.

In December of 2009, however, Gutierrez suffered a torn meniscus in his left knee and spent most of the summer of 2010 dealing with post-surgical complications.

“As it improved, I started doing ‘comfort’ biking outdoors and eventually started venturing into some incline rides. As long as I didn’t push too hard, I was OK in low gear. It was important to get a lot of circulation without pounding the knee,” he says. “Once you start running, you start to notice your weakness. I had to work on a lot of stability exercises, a lot of core work, and hip strengthening exercises to make sure I was not creating any new issues with my leg.”

Gutierrez worked on symmetric hamstring sets, building muscle in his calves by doing 40%-50% of his weight with calf raises, performing gentle mini squats to work on quadriceps control, and eventually moving into balance training to help his stability.

“When I was injured, I used the ElliptiGO 5 times a week. It was amazing to be outdoors and not having to be inside on a bike,” he says. The machine also can be useful for patients who are unable to ride a conventional bicycle.

Simon Gutierrez, PT, MSPT, ATC, is both a physical therapist and a world-class runner.



This past June, Gutierrez placed fifth in the Mt. Washington Auto Road Race with a time comparable to his performances before his injury in 2009.

“I tell all runners I deal with: Even if you think you are doing well after an injury, you need to work with a physical therapist the first couple of months to make sure you don’t go down the path of abusing your injury,” Gutierrez says. “It’s good to find [a PT] before you need one and develop a relationship with someone who knows how to work with runners. You may get advice on correcting or improving something you’re doing so that you keep you from getting hurt and help your running. You can avoid a lot of overuse injuries that way.”

## Managing Injuries, Addressing Mechanics

APTA’s Sports Physical Therapy section offers a running special interest group (Running SIG) to further the knowledge of members who have a particular interest in running-related issues. Running SIG also serves as a facilitator for research on various aspects of running performance, injury prevention, and the physical therapy management of running-related injuries.

Chairing the Running SIG is Bryan Heiderscheit, PT, PhD, director of the Runner’s Clinic at the University of Wisconsin.

“Our clinic was developed 10 years ago to address all aspects that runners were after,” Heiderscheit says. “Our research showed that they didn’t feel they

were getting enough time dealing with their running mechanics during a typical visit, so we had time set aside to address that concern.”

The most common injuries that runners deal with is anterior knee pain or patellar femoral pain, which Heiderscheit estimates occurs in 20% of his track patients.

The pain can come on in 2 ways: either when the foot strikes the ground or mid-swing of a gait cycle. Depending on where the pain presents, different interventions are necessary.

“In the swing phase, we have had good success with soft tissue issues. We will work on increasing flexibility to the anterior region, in particular the rectus femoris, quadriceps, and hip flexor muscles,” he says. “We may incorporate some anterior capsule of the hip as well. Often if that’s where the pain is present, that treatment works well.”

More common is pain when the foot actually touches the ground. That normally is a strength issue and neuromuscular timing or stride form issue, Heiderscheit explains.

“For those individuals, we look at running mechanics and often part of the treatment is to shorten their stride length by 5%, which will reduce the load to the knee joint by 20%. If we shorten the stride length by 10%, we can reduce the load by 38%. Even that subtle change will drop pain immediately by 50%.”

Heiderscheit says that once a runner’s technique is altered, he will incorporate therapeutic exercises into the mix, working on neuromuscular reduction exercises for posterolateral hip

muscles, gluteus maximus, and maybe some quadriceps work.

## Something’s a Foot

Footwear marketers try to persuade runners that they’re offering the best and safest product. But they all can’t be the best or the safest.

“There is a lot of misinformation out there. I tell all my runners that when it comes to certain footwear, or the lack thereof, there isn’t any real data on what is better,” Heiderscheit says. “There are differences in biomechanics but we don’t know if there are any short-term or clinical benefits. I tell runners: ‘If you do change [your footwear], you need do so in a safe manner. Don’t make a rapid transition from one to the other.’ It needs to be a gradual process or it could bring on injuries.”

That careful approach also holds true when a PT detects an elite athlete doing some incorrectly.

“[Elite runners] have been running for so long and for so many miles that trying to change their form becomes very difficult,” Kitto says. “They self-selected and optimized their form on their own. A sudden tweak can create issues, so we are somewhat more cautious about making changes to their form.”

Billy Mills, the 1964 Olympics gold medal winner, says, “Looking back, physical therapy is probably something that could have helped a great number of my fellow racers. Certainly I know I could have benefited from it.” **PT**

*Keith Loria is a freelance writer.*



Heiderscheit

