Chronic Achilles Tendonitis in Ballet Dancers: More Than Just Tendons

By Jack Giangiulio, DC

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All too often, ballet dancers are diagnosed with chronic tendonitis. They are given NSAIDS and instructed to rest, or they may be instructed to ice and rest, or even given injections and told to rest. In all of these cases, the tendonitis reoccurs as soon as the dancer returns to the dance floor.

The problem: These are short term treatments to a nondiagnosis. By itself, Achilles tendonitis is not a true diagnosis; it is really a result of a muscle injury (spasm or strain) of the involved tendon’s muscle, and of biomechanical joint malfunctions (subluxations) of the foot and/or ankle. Manual care and therapies will help the strains, spasms and subluxations; however, the problem will still reoccur. To cure the problem of chronic Achilles tendonitis in ballet dancers, you must search even deeper for the cause of the biomechanical malfunctions. You must look for hyperpronation of the foot, also known in the dance world as a "sickled-in" foot. The sickled-in position indicates that the dancer is unable to maintain foot control during ballet techniques. This loss of foot control will not only lead to Achilles tendonitis; it will also lead to a multitude of other injuries, as well as affecting the dancer’s ability to properly perform all fundamental ballet techniques.

There are four reasons for the loss of foot control in dancers:

1. The dancer has structural hyperpronation due to genetics.
2. There is a loss of stability from prior traumatic or overuse injuries.
3. The ballet dancer was improperly trained by his or her early ballet teachers.
4. In the dancer’s quest to learn more advanced ballet techniques, he or she has forgotten to practice his or her basic techniques.
When a ballet dancer presents with Achilles tendonitis, you must check for hyperpronation and evaluate the dancer’s foot control. A quick postural examination of the foot is inadequate and may lead to a missed diagnosis. Ballet dancers have strong feet and upon standing analysis, their arches may not drop. A thorough functional examination of the feet is necessary. The examination must be aimed at evaluating the dancer’s ability to maintain the "subtalar neutral" position. Gait analysis is helpful, but once again, it may require a more physically demanding position to elicit the hyperpronation.

If none of the above tests causes the ballet dancer’s foot to sickle-in, have the dancer perform and hold an arabesque, bilaterally, both in the parallel position and the turned-out position (These positions are described later in this article.). This will elicit any clinically significant hyperpronation. It is also clinically positive if the dancer’s foot struggles to maintain any of these positions. If you do not have an understanding of arabesque, don’t worry - every dancer knows it. Just keep your eyes on the weight-bearing foot.

Once you establish that the dancer has Achilles tendonitis and hyperpronation, the initial treatment should consist of palliative therapies and manipulation. When the Achilles tendonitis is minimally painful, it is time to address the issue of loss of foot control. Therapeutic exercises are unnecessary. Remember, the muscles of dancers’ feet and lower legs are extremely strong, by the very nature of their profession. Their problem is not due to a lack of muscular strength, but due to the loss of proprioceptive control of the subtalar neutral position; this calls for neuromuscular re-education exercises.

I know there are numerous styles of proprioceptive exercise devices on the market (the majority of them are based on the notion of the less stable the device and the more planes of motion, the better), but I consider them to be proprioceptive overkill - unless of course, your patients need the ability to walk on balls for the rest of their lives. I recommend using the old standard rocker board. The standard rocker board allows for controlled instability in only two planes of motion. This will let you provide safe, dance-specific, proprioceptive exercises for your dancers. To describe every progressively building exercise would be beyond the scope of this article, so here are some parameters to follow and change if necessary.

First and foremost, dancers are intense people, especially when it comes to getting body motions correct. If they feel they are not performing an exercise correctly, they will stress out, with the tendency to tighten their bodies, thus inhibiting their proprioceptive abilities. Remind them to relax, so they can feel and react to their body motions.
In all of the exercises, the dancer should hold the foot in the subtalar neutral position. In this position, the dancer’s weight should be on the ball and heel of the foot, with a visibly high arch.

To start, all exercises should be performed in the parallel position. The parallel position indicates that the foot points forward in alignment with the knee and hip. Mix up the exercises; from bilateral to unilateral, from static to dynamic, and from perpendicular board/foot placement to parallel board/foot placement. Then move on to unilateral exercises requiring the dancer to change positions of the non-dependent leg (e.g., knee and/or leg forward, out to the side, and back in arabesque).

Once the dancer is able to properly perform all of the above exercises, it’s time to change from the parallel position to the turned-out position. In the turned-out position, the hip is at maximal external rotation, with the knee aligned perfectly over the foot. Be aware that incorrectly trained dancers will overrotate from the knee or foot in an attempt to obtain the maximal turned-out position. This incorrect position of the foot being externally rotated further than the knee will lead to many injuries throughout the dancer’s career.

If the dancer overrotates from the knee or the foot, reposition the dancer with less turnout of the hip and properly align the knee over the foot. To assure a correct unilateral turned-out position, it is best to start the dancer in the parallel position, and then have the dancer pivot his or her body around the weight-bearing hip, without moving the dependent foot or knee. This will ensure the correct recruitment and firing order of the muscles necessary to perform the turned-out position, and create an eye-opening moment for the dancer. Most dancers will state that for the first time in their career, they can actually feel the hip opening up during turnout.

To accelerate your in-office proprioceptive training, give the dancer home care instructions. Instruct the dancer to practice holding the basic ballet positions while maintaining the subtalar neutral position. This combination of in-office proprioceptive training with manipulation and home care instructions will reduce the dancer’s rehabilitation program to an average length of three weeks. After completion of the program, the dancer will be able to return to dance with a newfound confidence. Their chronic Achilles tendonitis will be painless and resolved, they will have great foot control and less "sickling," and their ballet techniques will improve and require less effort. Overall, they will dance better and with a bigger smile, all thanks to chiropractic.
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Editor's note: Dr. Giangiulio has written about his clinical experiences working with dancers in a previous article, "Anterior Hip Pain in Young Dancers: Don’t Be Fooled," published in the May 7, 2005 issue. For more information, visit www.chiroweb.com/archives/23/10/04.html.

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