

Q&A on Sports Medicine for Dancers

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Dr. Nicholas DiNubile is an orthopedic surgeon specializing in sports medicine. He is an orthopedic consultant to the Philadelphia 76ers basketball team, NovaCare, and the Pennsylvania Ballet. He has over 20 years of experience working with dancers and their injuries. We posed a set of questions to him, and his answers reveal some of the challenges and joys of working with this special group of athletes.

What are the most common injuries diagnosed in dancers?

Dancers sustain two basic types of injuries, acute traumatic injuries and the more nagging, chronic-type overuse injuries. In dance, the overuse injuries are much more common and more challenging to treat because they are often rooted in problems with technique. The most common overuse injuries include tendinitis and stress fractures. The most common acute injury involves ankle sprains. Fifty percent of dancers' injuries involve the lower leg, foot, or ankle, so health-care providers interested in treating dancers must become very familiar with foot and ankle injuries. The remainder of injuries are scattered about the rest of the body, including the knee, hip, and low back.

How might the treatment considerations (surgery, rehabilitation) differ in this population when compared with traditional athletes?

There are some differences, but one must remember that dancers are tremendous athletes. In fact, a famous study once looked in detail at the demands and performance characteristics of a wide variety of sports and found dance to be overall the most challenging and demanding "sport" of all—and that study included activities like football, basketball, and even rodeo! Dancers usually think of themselves as artists rather than athletes, but they

really need to change that focus. With dancers, just like other athletes, every effort should be made to try to, in a safe way, keep them active with their craft while their injuries heal. This is often a challenge and requires a creative rehabilitation-program design. Dancers instinctively do not like or tolerate injury "down time." They know that the road back can be tough after layoffs. Every effort should be made to treat injuries conservatively, and dancers in general try to avoid surgical intervention, more so than other athletes, and tend to embrace alternative treatments. I consider it part of my role to help them decide when alternative methods might be appropriate and when they need to stick with traditional approaches. One should be familiar with a wide variety of rehabilitation techniques, and dancers tend to like "hands-on" rather than "high-tech." Also, to be successful in treating dance injuries, one must be familiar with the technical aspects of dance. There are technical factors such as forced turnout or improper foot and ankle positioning on *pointe* that can be at the root of an injury. If that is the case, one must correct those technique flaws. Otherwise, the injury will persist or recur.

How can an athletic trainer or therapist become involved with health care for athletes in the performing arts?

The best way is to take the time to learn a little bit about dance, dance medicine, and some of the specialized needs and unique language of dancers or other artists. I would then spend some time with either a physician or therapist who is involved with this group. At that point, working with local dance schools or companies, volunteering time, would be a great way to become familiar with many of the medical and orthopedic issues. Although I never danced, I

first became interested in dance movement because of my involvement in martial arts—I saw tremendous overlap and learned a lot from dancers. When I wanted to learn more about dance injuries, I spent time with Dr. Bill Hamilton in New York. He is the father of dance medicine and a tremendous teacher.

What is the Pilates method?

The Pilates method is a unique set of exercises and equipment that was developed years ago for improving strength, endurance, posture, and movement patterns. It is quite unique and definitely useful in the rehabilitation and prevention of dance problems. Many dancers feel that this particular program simulates what they do in the studio more than any other type of exercise. Dancers first popularized this exercise and fitness method, but it has become more mainstream and is even available in many health clubs now.

What knowledge or skills are most important for health-care providers working in the performing arts?

I would say that willingness to understand the mindset of this very specialized group of artists/athletes. They need to understand that you as a provider appreciate and understand their craft and will do everything possible to try to keep them active. A willingness to have an in-depth knowledge of their craft and dance-related vocabulary is important.

What are the physical demands intrinsic to the performing arts, and how are these demands different from or similar to those of more traditional sports?

The physical demands of many of the performing arts, including dance and music, involve a tremendous amount of repetitive activity, and this results in a very high incidence of overuse-type injuries. In dance, there is a preponderance of foot and ankle injuries. In other sports one can often use orthotics or shoe modifications to relieve pain and reduce stress, but this is just not possible in dance. Also, in dance the floor surface and design are very important. These athletes/artists perform the same activities over and over on a daily basis without much rest, and this is both physically and mentally demanding. Different dance companies, depending on style and technique, have different injury rates and patterns. I have learned much over the years just by spending time in the studio during re-

hearsals and dance class and talking technique with the ballet masters and instructors. This is especially useful if a dancer has recurrent problems—I can make the diagnosis, but they can be very helpful in identifying the technical flaw that is the root of the problem. It is no different than tennis players with recurrent tennis elbow. If you just treat the ailment without correcting the backhand, they will be back.

What measures are taken in preparticipation screening to uncover structural malalignment or other orthopedic concerns predisposing dancers to injury, and what includes or excludes participation?

Unfortunately, there really is not much in terms of preparticipation screening. It's not like the 76ers, where they get a complete medical and orthopedic exam before they are signed or drafted. Occasionally, certain dance schools send their young dancers to me before they go "on *pointe*." When I am able to see a young dancer I usually do a complete biomechanical exam, including checking spine and hip alignment, as well as lower extremity strength or flexibility deficits. One must learn to measure natural turnout in dancers, because this is such a big issue; it can predispose dancers to many injuries and ailments. We basically measure femoral-neck anteversion, and this is best done with the dancer prone on the table. The knee is flexed to 90° and the pelvis stabilized. Internal and external rotation are then measured at the hip. Dancers with excellent natural turnout will have most of their hip motion in external rotation. In testing external rotation, the pelvis is stabilized, and as the hip externally rotates, natural turnout ends when the pelvis begins to lift off the table. In the studio, dancers learn to "cheat" turnout, resulting in a variety of foot, ankle, knee, hip, and even low back problems. I really would not try to exclude anyone from participation unless they have a relatively serious orthopedic ailment. I think it is more important to teach them their limitations, and perhaps they can find a type of activity that allows them to participate, even with less than ideal genetics or body type. Also, with dancers there is usually extreme hypermobility. The usual tests for flexibility that we use in athletes such as basketball players or baseball players should be thrown out. The norm for dancers is a need for extreme hypermobility. One thing that I usually look for is whether dancers have adequate strength in their