

Dance Health

Star Treatment: Sports Medicine Keeps Performers Alive

By Dr. Richard T. Braver

Quite often a dancer or theatrical performer gets injured in the weeks prior to showtime or during the actual performance engagement. What does this professional do, (besides panic)? Some might resort to home remedies of elastic wraps, hot rubs, etc. Fortunately, with the advent of specialization in treating dance/sports injuries there are advanced medical methods of treatment available to enable the injured performer to continue his/her activity. In addition, attention is focused on eliminating the cause of the problem, not just the symptoms.

There are two possible types of injuries, overuse and acute, which may affect the performer. The overuse injury takes days, weeks or longer to develop and starts with an ache or moderate pain that progressively gets worse. These injuries tend to show up more frequently in the pre-show week(s) than do acute injuries. This is because the performer increases his/her time of physical activity prior to the opening of a show. About 80 percent of the normal population has a structural malalignment which is greatly exaggerated during intense and repetitious activity periods. These malalignment problems may include uneven leg lengths, lack of hip turn out, swayback, knock knees, bow legs, flat feet and bunions, etc.

I commonly see patients with hip and low back pain and, after a thorough examination of the joint and muscle movement, as well as measurement of limb lengths, the actual cause of the problem is determined. Extremely often, the cause of back or hip ache stems from a leg length shortage of as little of $\frac{1}{4}$ " on one side, or a forward dropping of the pelvis (sway back) caused by a flat foot deformity. One treatment method utilizes heel lifts to equalize the leg lengths, and another incorporates in-shoe devices to prevent the foot from flattening. In addition to biomechanical treatment, it may be necessary to include muscle therapy to restore normal alignment and function.

Commonly, a patient who never before had knee pain or buckling may develop such problems as a result of the increased amounts of activity which exaggerates any pre-existing unequal pressures at the knee. If there are knock knees present, there are increased forces compressing the outside of the knee and stretching the tendons and ligaments at the inside of the knee. In addition, the foot responds by collapsing and toeing out. When analyzing movement technique, I often look to see that the knee cap is centered over the second toe in all positions of movement. Deviations from this alignment increase the risk of injury. Recently, I have developed an in-shoe orthotic correction to be worn on the foot which helps to maintain the proper alignment so critical in dance and performance.

Lately, there have been a high number of foot and ankle fractures in the office that are a direct result of overuse. Almost all of the muscles of the leg attach via tendons to the bones of the foot. In addition, there are a dozen muscles that are entirely within the sole of the foot attached firmly to the bones. Due to a structural or flexibility problem, or an activity that constantly uses certain movements, some muscles must bear more work than others. After a prolonged rehearsal these muscles fatigue and are subject to strain. Excessive forces and pulling are then transmitted to the bone, exposing it to overuse injuries. Unfortunately, this is a common cause of shin splints, stress (fatigue) fractures, and avulsion or chip fractures in which the tendon pulls a portion of the bone off. Often, the professional performer ends up at the emergency room and receives x-rays, a cast, and crutches. I rarely use hard casts for these types of injuries; this prolongs healing. These casts cause the foot to remain inactive and therefore, the muscles do not function to reduce swelling, which normally would occur. This is magnified by the use of crutches which maintains the leg in an inactive, lowered position during walking which further increases swelling in the foot and leg and thus slows healing. It takes 2 - 3 weeks of rehabilitation for every week in a cast due to muscle atrophy, weakness and stiffness that occurs.

To treat overuse types of injuries and fractures, the key is to determine the cause of the problem and then be specific in the treatment plan. Certain bones in the foot are non-weight bearing and therefore, do not require casting if fractured. If the injury is the result of the tendon attachment to the bone, the fracture must be restored into corrected position and held in this position. I utilize an individually fabricated flexible cast to eliminate the destructive motion and forces. This is used along with various pads on the bottom of the foot to hold the joints in corrective position as well as to take weight off the fracture or injury site. The advantage of this treatment method is that movement in all other directions is maintained, which allows the injured person to continue to participate in his/her activity of expertise. Furthermore, the treatment is followed by the use of specific in-shoe orthotic devices designed to prevent the stresses, pains and injuries from returning.

Many injuries or fractures appear acutely, but are actually due to overuse. If the injury is truly acute such as an ankle twist, mis-step, bruise, or fall, then attention should first be aimed at reducing the swelling. The more swelling present the longer the recovery period. Twenty minute periods of ice and compression several times a day are necessary within the first 48 hours. When swelling is severe a prescription medication may be needed to decrease the swelling. Recent advances have been

made in acute injury care with the advent of the compression air splint. This device allows for stability of the ankle, reduction of swelling through compression and a restricted, but important, ability to utilize muscles. Typically, I follow up the first few days by maintaining the injured part in a flexible cast, positioned to facilitate healing and to take weight and stress off the area, yet allow for return to activity. This must then be followed by a strengthening program to prevent the injury from lingering on or recurring.

Theatrical performers and dancers obtain constant irritation to their feet from the specific footwear they must wear. The large bump on the inside ball of the foot, called a bunion, often gets acutely swollen after just a single performance. The same goes for the bump at the back of the heel (Haglund's) or on the top of the toes (hammertoes). These can become extremely painful and are far more common than thought by the general public. I make removable cushions for these areas that can be worn repeatedly and removed after each performance. These often alleviate the source of the irritation. However, the deformity and pain may be so pronounced that the bump must be surgically removed. Often the bones must be realigned so that the problem does not recur. With today's advances in podiatric medicine, the surgical patient experiences minimal pain and is allowed immediate, but limited walking. Choosing the correct week or season to have the correction performed is vital, so that the performer will be able to return to his/her busy performance schedule.

Many of the sudden types of injuries discussed are actually hidden overuse injuries. The cause of the problem must be determined to eliminate the pain from returning. This is accomplished through examination, correct realignment of the injured area or joints, rehabilitation of the muscles and prevention of recurrence through the use of corrective devices worn in the shoe or on the foot. In addition, through the special field of dance/sports medicine, quicker healing methods have been developed resulting in fewer missed rehearsals and cancelled performances. After all, the show must go on.

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