CLASSICAL AND MODERN dancers withstand considerable biomechanical and physiological stresses to maintain an optimal balance between rigorous dance maneuvers and aesthetic appearance. Dancers in all disciplines are constantly challenged to perform at higher levels in order to succeed in the field. Often, these challenges compound, resulting in dance-related injuries.

As with any sport, injury prevention should be top priority for allied health-care providers. Like many sports, dancing involves powerful movements combined with flexibility, which leads to a potential for injury. Preventing dance injuries is a multifaceted concept addressing both intrinsic and extrinsic factors. Intrinsically, carefully designed stretching programs emphasizing all muscle groups (specifically the internal rotators of the hip, iliotibial band, Achilles, and lumbar region) help prevent injuries. In addition, thoroughly evaluating and screening all dancers for predisposing conditions that might contribute to injuries is critical. Finally, prompt and appropriate treatment and rehabilitation for injuries are paramount.

There have been numerous epidemiologic studies of dance injuries showing a lifetime reported incidence of approximately 90% for all dancers. Although approximately 40–50% are acute injuries, over half are chronic injuries that continue to plague the dancers. Therefore, it is critically important for health-care providers to be integrally involved in all aspects of dance medicine to identify predisposing conditions, manage and treat existing injuries, and provide rehabilitation for both acute and chronic conditions to facilitate an optimal outcome.

**Intrinsic Factors**

Discussed extensively in Part 1 in the November issue, intrinsic factors play a significant role in dance injuries. Abnormal biomechanical stressors caused by dance maneuvers and inappropriate or deficient stretching activities can potentially cause injury. Classical dancers reach extremes in ranges of motion during many techniques that cause excessive load throughout the biomechanical chain. Modern dancers use many leaping and carrying maneuvers that compound the stressors placed on the body. In addition, many stretching maneuvers advocated by dance instructors and dancers place the athletes in positions that exceed normal joint range of motion (Figures 1–3).

Physiologically, nutritional status and fatigue also play roles in dance injuries. Proper nutritional counseling including body-image consultation should be provided to all dancers. Proper screening for preexisting conditions, as well as maturity levels, should be performed to ensure appropriate intensities of work sessions for young and old dancers alike. Although not widely used at this point, bone-density screening using dual-energy X-ray absorptiometry can provide valuable information regarding the bone health of dance athletes and their predisposition to bone-related conditions such as osteopenia or osteoporosis. Equally important, proper rest—both physical and psychological—is critical to prevent fatigue-related injuries in all disciplines of dance.
Extrinsic Factors

Several extrinsic factors can influence the prevention of dance injuries. Dance-floor surfaces have a significant impact on the dancer. Many dancers, particularly college dancers, are exposed to different surfaces in their training. The studio might have one type of floor and the classrooms another. Hard surfaces such as concrete and tile cause dancers to internally shift their body weight to compensate. Furthermore, wood floors might be suspended or laid over concrete, often times confusing a dancer’s estimation of the amount of spring potential in the floor and potentially causing dynamic overload throughout the kinetic chain.

The amount of traction provided from various surface finishes on dance floors also contributes to dance injuries. Constant changes in surfaces and minimal footwear have the potential to exacerbate underlying conditions. Although one cannot alter floor surfaces, proper education regarding the various surfaces and proper compensatory actions might help prevent many injuries.

Overtraining and performance schedules are additional extrinsic factors related to dance injuries. Because of the limited number of performers, dancers typically are not provided adequate rest time between rehearsals and performances, resulting in overtraining. As an individual sport, dance promotes individual practice to master many skills. Regularly scheduled practice and performances combined with excessive individual workouts for routine mastery or maintenance of a lean body can have a profound effect on the body, increasing the risk for musculoskeletal injuries.

Proper coaching and teaching to ensure appropriate technique are also important in preventing injuries. Although skill training is critical, it is important to emphasize sound preventive measures to ensure optimal performance. Dance athletes often rely on self-care techniques that they learned as they progressed through the dance ranks to treat injuries. Rudimentary taping and wrapping techniques (Figures 4–5), inappropriate stretching techniques, and the lack of proper rehabilitation postinjury all predispose dance athletes to injury and reinjury. Education on technique and ancillary topics such as nutrition, eating disorders, proper stretching, proper treatment, and injury rehabilitation must all be incorporated into the dance program.
Summary

As athletic trainers and athletic therapists continue to expand their scope to encompass unique venues for employment, opportunities to care for dancers will clearly evolve. A thorough understanding of the mechanisms of injury, specific types of injury, and intrinsic and extrinsic factors contributing to injury is critical in providing appropriate athletic training services to this population. Although dance is considered a “nontraditional” arena, athletic trainers and athletic therapists are appropriately trained to care for and prevent injuries to dance students and professionals.

Through proper education of employers and academic personnel, athletic trainers can create another exciting avenue in the provision of athletic health-care services. Not only can professionals benefit from exposure to dance-medicine opportunities, but also athletic health-care students can benefit through relationships with university dance programs as part of their clinical experience. With careful cultivation of a strong relationship with dance academies and academic programs, new opportunities will evolve. More important, an underserved, highly athletic population will have increased access to appropriate health-care services.

References


Kimberly Peer is the athletic training education program coordinator at Kent State University.

Karlene Dubois is a certified athletic trainer currently completing a doctor of physical therapy degree at Slippery Rock University.