

Bracing vs. Tape

By Matthew J. Comeau, PhD, ATC, LAT, CSCS

A comparison of ankle bracing and taping in their efficacy for treating sports-induced ankle injuries.

Ankle joint injuries are among the most common that occur in sports and recreational activities. In 2001, 6 million high school youth participated in local sports programs.¹ Of those students participating in sports, approximately 33% incurred some type of injury.²

The National Athletic Trainers' Association (NATA) completed an injury surveillance study in 1998 showing the injury trends in high school sports.³ Ten sports were surveyed with the highest prevalence of injuries to the foot/ankle, accounting for 38.3% and 36% in boy's and girl's basketball, 30.2% and 30.5% in boy's and girl's soccer, and 35.6% in volleyball (no gender identified).³

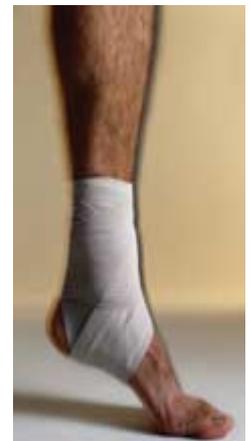
The National Collegiate Athletic Association (NCAA) published the latest results from the spring 2001 sports season with injuries to the ankle being in the top three most prevalent in softball, spring football, and men's and women's lacrosse.⁴ However, injuries to the ankle are no fault of the sport, but rather due to the structural properties of the ankle mortise, which make it more susceptible to injury.⁵

Due to the ankle's proneness to injury, an emphasis has been placed on prevention for quite some time⁶ with several million dollars spent on athletic tape and prophylactic devices each year. Providing a majority of the support along the lateral aspect of the ankle has become a priority.⁷ However, with all of the money spent along with the time-honored tradition of taping, there is still some debate as to whether ankle support, through the use of athletic tape or ankle bracing, is effective in reducing injury.

To tape or not to tape

A current practice in today's colleges and high schools is the use of athletic tape prior to practice and competition in an effort to provide support to the ankle. Rarick et al⁸ were the first to note that athletic tape lost 40% of its initial support after 10 minutes of exercise. Ferguson⁹ noted that the mobile nature of the skin as it moves over the subcutaneous tissue that covers the bones and ligaments limits the effectiveness of taping. Perspiration also can limit the effectiveness of athletic tape.⁹ These two studies alone raise the question of whether the traditional practice of applying athletic tape to the ankle has any place in athletic or recreational activities.

However, Gehlsen et al¹⁰ and Greene and Hillman¹¹ have shown that athletic tape is an effective method of external support for the prevention of ankle sprains. However, Greene and Hillman¹¹ noted that the athletic tape failed to maintain a consistent amount of support for extended periods of activity. Gross et al¹² raised important factors in athletic taping that are often overlooked: the experience of the person applying the athletic tape and the quantity of tape used on the ankle. Wilkerson¹³ showed that when extra athletic tape was applied to specifically combat unwanted motion, its protective function was greatly enhanced.



Ankle Brace Logistics

Prophylactic ankle braces are often thought of as superior to athletic tape due to the material it is made from, which offers more rigidity. The material used in ankle braces is often enhanced with additional supports and is much thicker than athletic tape. Sharpe et al¹⁴ reported no recurrence of ankle injury during a competitive season in female soccer players with a history of ankle injuries who wore ankle braces in comparison to athletic tape.

However, prophylactic braces incur some of the same changes as athletic tape. Gross et al¹² and Greene and Wight¹⁵ reported a decrease in the support offered by prophylactic ankle braces after activity. Shapiro et al¹⁶ demonstrated ankle braces were not as effective as freshly applied athletic tape in reducing the amount of inversion that occurred at the ankle. Nevertheless, ankle braces retained the advantage over tape in that they can be easily readjusted and their effectiveness restored.¹⁶ Recommendations for the proper use of ankle braces include the use of a relatively vigorous activity during the break-in period, and periodic adjustment of the lacing system.¹² Due to the nature of athletic tape, these recommendations are not possible.

Long-Term Use

There is some concern that the continual support of the ankle with prophylaxis may decrease the effectiveness of the surrounding musculature. Cordova et al¹⁷ determined that the duration of the peroneus longus stretch reflex is neither facilitated nor inhibited with extended use of an external ankle support. They also reported that the proprioceptive information from the muscle spindles within the peroneus longus muscle is not compromised.¹⁷ Karlsson and Andreasson¹⁸ demonstrated that external support improves the reaction time of the peroneal muscle in chronically unstable ankles. Heit et al¹⁹ reported that ankle bracing and taping improve joint position sense in the stable ankle. With this said, any concern about negative effects of ankle support is unwarranted.

Cost Analysis

Currently, one case of athletic tape (32 rolls) can cost as much as \$50, which averages out to approximately \$1.50 per roll. It takes approximately two thirds of a roll per ankle to apply a standard Gibney tape job or approximately \$1.20. If both ankles are taped 5 days per week for 16 weeks (equal to one college semester), that equates to \$192 per person. An ankle brace can range from \$20 to \$60. If the most expensive brace were chosen for both ankles, the savings speak for themselves. Not to mention the fact that adhesive spray, underwrap, heel and lace pads (used to reduce friction), and a certified athletic trainer to apply the tape must also be available, which only adds to the cost.

In conclusion, I believe that prophylactic support is warranted whether it be via athletic tape or ankle braces. Many trainers believe that taping or external bracing may offer a false sense of security and, in actuality, puts the athlete at greater risk for injury. I am unaware of any data that supports this hypothesis. The question that needs to be addressed is not whether ankle braces or athletic tape prevents injury, but whether ankle prophylaxis reduces the severity of those injuries that are inevitable.

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Matthew J. Comeau, PhD, ATC, LAT, CSCS, is assistant professor in the Commission on Accreditation of Allied Health Education Programs-accredited Athletic Training Program at Arkansas State University, Jonesboro. He can be reached via email at: mcomeau@mail.astate.edu.