Cohesive Bandage Taping and Short Leg Casting in Acute Low-type Ankle Sprains in Physically Active Patients

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I have a potential conflict with this presentation due to:
It has been accepted for publication in the Journal of the American Podiatric Medical Association on May 7 after I sent it to you.
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**Background**: To determine the clinical efficacy and anti-edema effects of cohesive-bandage taping and short-leg-cast immobilization in acute low-type ankle sprains of physically active patients.
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Introduction:
Ankle sprains are one of the most common injury patterns resulting in delay in returning to work. The swelling secondary to the inflammation is the greatest barrier to healing (1).

The recovery rate for ankle function after a sprain injury may be related to the control of edema at the injury site (2).

Ankle support is needed to decrease swelling and range of motion in the early stage, and to provide stability to the ligaments and joint in the later stage, after returning to daily activities. Functional and non-functional treatment options are available. Functional treatment methods include taping and bracing, and non-functional methods include casting and splinting.
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Materials-methods:
59 physically active patients with acute low-type ankle sprains (grade I and II) within 12 h were included: 32 in the bandage group and 27 in the short-leg-cast group, prospectively.

Grade I ankle sprain was determined as the absence of a hematoma and tenderness at the anterior lateral ligament. Patients with the presence of a lateral hematoma and tenderness at the anterior lateral ligament without instability were defined as grade II (3).

In the case of a sprain, if it was moderate (grade II) or mild (grade I), we used a functional bandage or short-leg-cast immobilization for 10 days. Before bandaging or casting, we measured ankle circumference (from lateral malleolus to medial) of the two feet with a tape to determine the degree of ankle edema at that time. We evaluated the functional scores of the injured ankle using the AOFAS Clinical Rating System.

Weight-bearing was forbidden for the first 10 days. After 10 days, we saw the patients again and repeated the examination. We repeated the ankle circumference measurements and AOFAS Clinical Rating System scoring. Another bandage and cast were applied for another 10 days with controlled weight-bearing. After 20 days, full weight-bearing was allowed. At the end of the 40 days, the treatment was considered over. We called the patients at 100 days after the injury and determined AOFAS Clinical Rating System scores one more time.
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Results:

The relationship of edema and time in the treatment groups

The relationship of AAFOS scores in the treatment groups
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Discussion:
Both taping and bracing methods are used to treat and prevent acute ankle sprains by clinicians and athletic trainers; there is no consensus algorithm for choosing the optimal method. Both treatment methods were effective in decreasing edema and increasing functional scores. The use of immobilization in the management of acute ankle injuries in adults is generally well-tolerated (4).

It has been reported that a below-knee cast for 10 days resulted in more rapid resolution of symptoms and pain and greatest recovery of self-reported ankle function at the 3-month follow-up compared with three other treatments (compression bandage, Bledsoe boot, AirCast brace) (5).

It has been reported that patients with an initial ankle sprain may develop chronic ankle instability (6). Severe and repetitive ankle sprains increase the risk of ankle osteoarthritis (7). The goal in early treatment is not only to slow down acute symptoms, but also to prevent tonicity of the injury (8).
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Discussion:
The treatment trend has clearly shifted in favor of functional treatment in recent years (9). Early mobilization speeds healing and reduces pain more effectively than prolonged rest (10). Taping and semi-rigid bracing play an acceptable role in preventing injury or rehabilitation of the injured ankle by improving coordination and proprioception while decreasing vertical jump performance (11).
Taping has also become an alternative treatment option in the clinical and sporting arenas (12). Other soft tissue pathologies, such as scar tissue of the synovium, meniscoid lesions associated with localized synovitis, and scar formation due to a distal fascicle of the anterior inferior tibiofibular ligaments are causes of persistent complaints after ankle sprains. Thus, clinical examination and functional ankle scores may be more valuable than edema alone in assessing ankle sprains.
If the tape is applied too tightly, blood flow can be impeded, leading to tissue damage and even necrosis. For this reason, an alternative taping technique using an elastic adhesive bandage taping has been developed. This alternative technique involves the use of three zinc-oxide stirrups for primary restriction, followed by figure-of-eight wraps using an elastic adhesive bandage. This technique not only provides adequate support but also allows functional movement without restricting blood flow to and from the tissues distal to the taping. With the newly developed techniques, taping is becoming more popular than other treatment methods.
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Conclusions:
With the numbers available, no significant difference could be detected between adhesive bandage taping and short leg casting in the treatment of acute low-type ankle sprains in this randomized study. Both treatment methods were effective in decreasing edema and increasing functional scores in the ankle. At the beginning of the treatment, not only the degree of edema, but also the initial functional scores of the ankle and examinations are important in making decisions regarding optimal treatment options.
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References: