

## Prophylactic Ankle Taping: Elastic Versus Inelastic Taping

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### ABSTRACT

**Background:** The ankle is frequently injured in sporting activities, and therefore it is frequently protected with prophylactic ankle taping. This study aimed first, to compare the mechanical fatigue of two types of prophylactic ankle taping after 30 minutes of intense exercise, one made with elastic tape (ET) and the other with inelastic tape (IT), and second, to investigate the subjects' perception on the tape restriction and comfort. **Materials and Methods:** Twenty-seven active women (mean age,  $20.6 \pm 4.1$  years), without previous ankle injuries volunteered for the study. The participants were tested on three different conditions: with elastic ankle taping, with inelastic taping, and without taping, before and after 30 minutes of intense exercise. The ankle passive ranges of movement (ROMs) were measured before and after exercise, and a subjective scale on taping comfort and restriction was completed by the subjects. **Results:** Both types of ankle taping showed less ROM restriction after 30 minutes of exercise in inversion (IT = 27% and ET = 21%), and plantarflexion (IT = 8% and ET = 6%). The IT showed more loss of restriction than the ET, with significant differences in inversion ( $p < 0.05$ ). The participants perceived the ET as more comfortable and less restrictive. **Conclusion:** We would recommend the use of ET as the first choice for prophylactic ankle taping because it produces the same restriction in the ROM as the IT with less taping fatigue, and is perceived as more comfortable and less restrictive by the users.

**Key Words:** Biomechanics; Ankle injuries; Taping; Range Of Movement

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### INTRODUCTION

The ankle is very prone to injury so it is frequently protected with prophylactic taping, especially in team sports.<sup>5,12,13,15,22</sup> Tape can be inelastic, elastic, or a mixture of both, although the most commonly used is inelastic (Table 1). We found no study comparing inelastic to elastic taping on the restriction of range of movement (ROM) or the modifications produced by the loss of restriction after exercise. The lack of studies could be due to elastic tape being used primarily for pathological conditions seen in physiotherapists offices.<sup>11</sup> Nonetheless, with new fabrics, it was believed that elastic tape could be used efficaciously for prophylactic ankle taping, with a greater comfort level for the user.

Most of the studies show an ankle taping fatigues under mechanical loading, like any other fabric. Furthermore, as the training session or competition is completed, the tape loses part of its mechanical properties, which will affect the ROM restriction.<sup>1,6,19,20,23</sup> The ankle taping effectiveness is reduced after 20 minutes of exercise; therefore, it should be replaced or reinforced periodically.<sup>11</sup>

The purpose of this study was twofold: first, to compare the mechanical fatigue of two types of prophylactic ankle taping techniques (elastic versus inelastic), used to limit inversion and plantarflexion after 30 minutes of intense exercise; second, to study subjects' perception of tape ROM restriction and comfort and its relation to ROM restrictions for each type of tape.

### METHODS

Twenty-seven young women volunteered for the study (age,  $20.6 \pm 4.1$  years; body mass,  $58.5 \pm 7.0$  kg; height,  $164.3 \pm 6.2$  cm). The participants gave their informed written consent to participate in the study. The experiment was conducted based on the guidelines of the American Physiological Society. The study protocol was approved by the local Institutional Review Board. All the subjects were physically active (at least 2 days/week), but none was engaged