Reviewer's report

**Title:** The effect of taping versus semi-rigid bracing on patient outcome and satisfaction in ankle sprains: a prospective, randomized controlled trial

**Version:** 2 **Date:** 22 October 2011

**Reviewer:** Eamonn Delahunt

**Reviewer's report:**

LINE: Acute ankle sprain is one of the most common musculoskeletal injuries, accounting for an estimated 600,000 persons per year in the Netherlands [1].

COMMENT: The opening paragraph provides some nice epidemiological data pertaining to ankle joint injury.

LINE: The most common functional treatment methods used in the Netherlands are taping or bracing having superior functional results compared to plaster immobilization and elastic bandage [4,5].

COMMENT: SHOULD BE - The most common functional treatment methods used in the Netherlands are taping or bracing WHICH HAVE superior functional results compared to plaster immobilization and elastic bandage [4,5].

LINE: A meta-analysis comparing the different functional treatment options could not make definitive conclusions

COMMENT: The authors are encouraged to provide more details here. What is meant by functional treatment?

LINE: In addition, tape treatment resulted in significantly more complications, the majority being skin irritations, when compared with treatment with an elastic bandage [5,8].

COMMENT: After this line the authors need to insert a paragraph relating to the rationale for using bracing and taping as a treatment choice. Why not just conservative management with a well designed neuromuscular training protocol?

COMMENT: The authors I believe have excluded some important recent papers. Running a Pubmed search with: acute AND ankle AND sprain; a number of potentially important papers were identified as follows:


LINE: Taping was performed by a select group of experienced and skilled healthcare professionals of the outpatient clinic.
COMMENT: The authors need to provide figures which show the taping mechanism. It is impossible from the description to determine the method for replication.

Did the participants wear the taping all day, and in the interest of hygiene, how frequently was the tape re-applied?

LINE: Supervised proprioceptive exercises were given, starting one week after trauma.
COMMENT: More details are needed. What was the composition of these sessions. How frequently were participants to undertake these? Were the sessions supervised or done at home?

If it is the case that they were undertaking a homogenous training protocol, then is the study more about the addition of bracing or taping to a supervised exercise protocol?

LINE: As outcome measure patient satisfaction was assessed by verbal rating scale: poor (5), moderate (4), sufficient (3), good (2) and excellent (1) both at 2 and 4 weeks after start of the study treatment.
COMMENT: This seems a very subjective scale. What is the definition of each numeric value? Has the reliability of such a scale been determined for a similar study?

LINE: In addition, the ankle joint function was assessed using the validated Karlsson scoring scale[11], range of motion and proprioception at 2, 4, 8 and 12 weeks after start of the study treatment.
COMMENT: I don’t think that the authors can say proprioception was measured: the quantification of this is through force-sense; threshold to detection of movement or joint position sense.

LINE: The minimum sample size is calculated for 90% power of testing and a 5% level of significance (# = 0.05, # = 0.10) a minimum of 36 patients per group is required for this study.
COMMENT: Is the sample size based on pilot data or another study?

SECTION: STATISTICS
SECTION: RESULTS

COMMENT: The authors should report the statistics in more detail including there was a group*time interaction; a significant main effect for time; main effect for intervention. The values for Wilk’s Lambda; F vlaues and partial eta squared values should be provided.

LINE: These results were also reflected by the experienced hygiene during treatment. At all measured time-points the reported hygiene was significantly higher in the patients treated with brace (PG<0.0001, PT<0.0001, PTxG<0.0001).

COMMENT: I may be mistaken but do not recall the authors mentioning the quantification of hygiene in the outcome measures section?

LINE: The passive and active range of motion, expressed as the difference between the uninjured and injured ankle improved similarly in both the patients treated with a brace and the patients treated with taping (Table 4).

COMMENT: Should this be Table 3? (Patient characteristics = Table 1; Karlsson Score = Table 2).

LINE: Functional treatment is a widely used and generally accepted treatment for ankle sprain.

COMMENT: Need to provide a definition of functional treatment:

LINE: The treatment of tape in our study was also cheaper mainly due to material costs than treatment with a semi-rigid brace (total costs: $224 versus $ 273, respectively). A higher level of comfort therefore comes at the expense at higher treatment costs.

COMMENT: Can the authors provide specific data relating to the individual cost of the braces as well as the cost of the tape and how much tape was needed per participant? It is unclear from the aforementioned line.

LINE: In line with previous studies there is no difference regarding functional outcome and pain, so based upon our primary study objective we consider a semi-rigid brace the preferred functional treatment for ankle sprain.

COMMENT: I would raise caution here. In the short-term only percieved satisfaction was different between both groups. Actual function as quantified on the Karlsson Score did not differ. Furthermore, no data pertaining to long term follow-up is provided.
**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests'