Ankle exercises in combination with intermittent ice and compression following an ankle sprain improves function in the short term

Synopsis


**Question:** What is the effect of an accelerated intervention incorporating early therapeutic exercise as compared to a standard intervention of protection, rest, ice, compression, and elevation after acute ankle sprain? **Design:** Randomised, controlled trial with blinded outcome assessment and intention-to-treat analysis. **Setting:** An emergency department and sports injury clinic in Northern Ireland. **Participants:** Men and women 16–65 years, with acute (<7 days) grade 1 or 2 ankle sprain. Key exclusion criteria were complete (grade 3) rupture, bony ankle injury, and multiple injuries. Randomisation allocated 101 participants to an accelerated intervention incorporating early therapeutic exercises (exercise group) or a standard protection, rest, ice, compression, and elevation intervention (standard group). **Interventions:** During the first week after baseline both groups received written advice on using ice and compression. The exercise group also undertook 20 minutes of exercises three times a day focused on increasing ankle range of movement, activation and strengthening of ankle musculature, and restoring sensorimotor control. In the following four weeks a standardised treatment consisting of ankle rehabilitation exercises was provided to both groups. **Outcome measures:** The primary outcome was subjective ankle function assessed by the lower extremity functional scale (0–80) at weeks 1 to 4. Secondary outcomes assessed were: pain at rest and pain with activity with 10-cm visual analogue scales, swelling by a modified version of the figure of eight method, and physical activity by a physical activity logger. Ankle function by the Karlsson score and rate of reinjury were also assessed at 16 week follow-up. **Results:** 15 of the 101 patients dropped out during the trial, 11 in the exercise group and 4 in the standard group. An effect was found in favour of the exercise group with the lower extremity functional scale (0–80) at week 1 (MD 5.3, 98.75% CI 0.3 to 10.3) and week 2 (MD 4.9, 95% CI 0.3 to 9.6). In addition, the exercise group was more active in the first week as measured by time spent walking (0.4 hours per day, 95% CI 0.2 to 0.6). No between-group differences were observed for pain at rest, pain with activity, or swelling. At 16 weeks there were no significant differences between the groups in the Karlsson score or reinjury rate (2 in each group). **Conclusion:** An accelerated exercise protocol during the first week after ankle sprain improved ankle function and early return to weight bearing activity. [Between-group difference in time spent walking per day calculated by CAP editors]

Commentary

This study is the first to describe the effect of early mobilisation in combination with the standard PRICE (Protection, Rest, Ice, Compression, Elevation) treatment after an acute ankle sprain using a randomised controlled trial where, instead of rest, the intervention group performed therapeutic exercises aimed at increasing ankle movement, as well as static strengthening and stretching exercises (Knight 1995). The main finding was a significant improvement in short-term ankle function for those completing the exercise protocol during the first week following an ankle sprain. It is worth noting that the size of the effect (expressed as change in the lower extremity functional score from baseline to week 1) was smaller than the change of 9 points nominated as the clinically important change. However, as the adherence rate to the prescribed treatment was higher in the standard group compared to the exercise group (77.9% versus 67.8%), the effect for those adhering to the exercise protocol might have been higher than confirmed by the published results. The authors did not describe in detail how often the exercises should be performed during the first week (‘20 min, 3 times a day’). However, based on the study protocol previously published (Bleakley et al 2007) we assume that the exercises were prescribed daily during the first week. For general practitioners, as well as sports physicians and physiotherapists, seeing patients with acute ankle sprains in the clinic, these findings emphasise the importance of prescribing exercises in combination with the PRICE protocol in the first week after injury to optimise rehabilitation. However, the optimal dosage of treatment, including PRICE, choice of exercises, intensity and frequency of the exercise protocol, requires further investigation.

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References