

# Taping reduces pain and disability in patients with knee osteoarthritis

## Synopsis

Summary of Hinman RS, Crossley KM, McConnell J, Bennell KL (2003): Efficacy of knee tape in the management of osteoarthritis of the knee: Blinded randomised controlled trial. *BMJ* 327: 135. [Prepared by Bart Staal]

**Question** Is taping of the knee effective in improving pain and disability in patients with osteoarthritis of the knee?

**Design** Randomised controlled trial. **Setting** University and private practices in Melbourne, Australia. **Patients** Volunteers who responded to advertisements in local newspapers. Inclusion criteria were symptoms of knee osteoarthritis as defined by the American College of Rheumatology. Exclusion criteria included allergy to tape, or history of joint replacement, symptoms or signs suggestive of another cause of knee pain, physiotherapy/steroid injection/surgery for the knee (previous six months), body mass index > 38 (owing to difficulties of taping the knee effectively), history of knee taping, and fragile skin around the knee. Patients were randomised into therapeutic tape (n = 29), control tape (n = 29) or no tape (n = 29) groups.

**Interventions** Therapeutic tape provided medial glide, medial tilt, and anteroposterior tilt to the patella and either unloaded the infrapatellar fat pad or the pes anserinus. Hypoallergenic undertape was applied beneath the rigid tape

to prevent irritation of the skin. The control tape was hypoallergenic tape alone, laid over the same areas of skin as the therapeutic tape. The tapes were worn for three weeks and reapplied weekly. Participants allocated to the no tape group received no intervention. **Outcomes** Primary outcomes were pain on movement and pain on worst activity measured on a 0–10 cm scale, and participant perceived rating of change. Secondary outcomes included the pain subscale of the WOMAC osteoarthritis index, the knee pain scale, and the bodily pain domain of the SF-36. All outcomes were assessed at three and six weeks. **Main results** The therapeutic tape group reported greater pain reduction than the other two groups, e.g. at six weeks the mean difference (95% CI) for therapeutic tape versus no tape was 2.4 (1.1 to 3.7) for pain on worst activity. Intervention was significantly associated ( $p = 0.000$ ) with change in pain at three weeks: 73% (21/29) of the therapeutic tape group reported improvement compared with 49% (14/29) of the control tape group, and 10% (3/29) of the no tape group. Significantly greater improvement was observed on most secondary outcomes in the therapeutic tape group compared with the no tape group. **Conclusion** Therapeutic knee taping is an effective treatment option for the management of pain and disability in patients with knee osteoarthritis.

## Commentary

Hinman and colleagues did a study by the book; their RCT followed all recommendations of the CONSORT statement. So it can be concluded that taping for three weeks is effective in the short term in patients with osteoarthritis. Despite this positive result one critical remark should be made. Hinman and colleagues found immediately after the intervention a significantly greater reduction in pain in the therapeutic tape group than in the control tape group. Differences between the therapeutic and the control tape group were small for secondary outcome measures, such as physical functioning, but not statistically significant. At three weeks follow up both tape groups showed significant improvements from baseline compared with the no tape group. These findings suggest that part of the positive effect of taping can be explained by a placebo effect.

The findings of the study raise new research questions. The study included volunteers from the community who responded to advertisements. Apart from the classification criteria for osteoarthritis the main inclusion criterion was knee pain. The authors do not provide an explanation for the relief of pain as a result of taping. It might be interesting to know whether taping is more effective in specific subgroups of patients, for instance in patients with malalignment or patients with severe loss of cartilage. It is likely that unloading by taping is particularly effective in those patients.

In the trial by Hinman et al the tape was reapplied weekly by

skilled physiotherapists. So far, taping is not a common part of a self-management strategy. It might be worthwhile to teach patients to apply the tape themselves in periods of (severe) pain. Quilty and colleagues did a study on the efficacy of taping combined with quadriceps exercises over a 10 week period in patients with knee osteoarthritis (Quilty et al 2003). In those ten weeks, patients were taught to exercise and to apply tape. In this trial the positive effect on pain and muscle strength lasted for five months (until ten weeks after the intervention period), after 12 months there were no differences found between the control and the experimental group. These findings suggest that taping as well as exercises require involvement of a physical therapist in the long-term. A relevant future research question in the field of taping is to focus on an efficient balance between the role of the physiotherapist and the role of the patient.

**Els van den Ende**

*Netherlands Institute of Primary Health Care  
Utrecht, The Netherlands*

## Reference

Quilty B, Tucker M, Campbell R and Dieppe P (2003): Physiotherapy, including quadriceps exercises and patellar taping, for knee osteoarthritis with predominant patello-femoral joint involvement: Randomized controlled trial. *Journal of Rheumatology* 30: 1311-1317.