

In a randomized controlled trial, Mayer¹¹ et al investigated the effect of combining continuous low-level heat wrap therapy with directional preference-based exercises on functional outcomes in patients with acute LBP. Patients with LBP for less than 3 months were randomized to receive 5 consecutive days of heat wrap therapy alone (n=25), exercise alone (n=25), heat wrap plus exercise (n=24) or a control group booklet (n=26). Functional improvement (0–200 Rating of Perceived Capacity–Spine), disability (Roland Morris Disability Questionnaire) and pain (6-point verbal rating scale) were recorded at baseline and day 2, 3 and 7 follow-ups. The combination of heat wrap plus exercise resulted in significantly greater improvements in function, disability and pain relief compared to each individual treatment or control. The authors concluded that a combination of heat wrap therapy with directional preference-based exercise is more effective for the treatment of LBP compared to either intervention alone or control treatment (booklet). This study provides Level II evidence that heat and exercise together result in better pain scores than heat or exercise alone in patients with acute back pain at 7-day follow-up.

Nadler et al¹² aimed to determine the efficacy of continuous low-level heat wrap therapy for the treatment of acute nonspecific LBP in a randomized, parallel, single-blind, placebo-controlled, multicenter clinical trial. Patients with acute LBP for less than 3 months were randomized to receive 3 consecutive days of heat wrap therapy for 8 consecutive hours per day (n=95), oral placebo (n=96), oral ibuprofen (n=12) or unheated back wrap (n=16) after being stratified by baseline pain and gender. Pain (0–5-point verbal response scale), muscle stiffness (numeric rating scale), lateral trunk flexibility and disability (Roland-Morris Disability Questionnaire) were recorded over the course of the 3-day treatment and 2 days of follow-up. The patients in the heat wrap group had significantly greater pain relief, less muscle stiffness, increased flexibility and reduced disability. The authors concluded that continuous low-level heat wrap therapy was effective for the treatment of acute, nonspecific LBP. This study provides Level II evidence that heat wrap results in better pain and disability scores as compared to oral placebo in patients with acute back pain. Heat wrap results in better pain scores than placebo heat wrap or NSAIDs.

Nadler et al¹³ studied the safety and efficacy of eight hours of continuous overnight low-level heat wrap therapy for the treatment of LBP in a randomized, single-blind, placebo-controlled, multicenter clinical

trial. Patients with LBP for less than 3 months were randomized to receive 3 consecutive days of heat wrap therapy (n=33), oral placebo (n=34), unheated wrap (n=5) or oral ibuprofen (n=4) after being stratified for baseline pain and gender. Morning pain relief (0–5-point verbal response scale), daytime pain relief, extended pain relief, muscle stiffness, lateral trunk flexibility, and disability (Roland-Morris Disability Questionnaire) were recorded on days 2 through 4. All outcomes were significantly improved in the heat wrap group. The authors concluded that use of a heat wrap overnight resulted in improved pain relief, less muscle stiffness and disability and improved flexibility sustained more than 48 hours after treatment completion. This study provides Level II evidence that overnight heat wrap results in better pain and disability scores as compared to oral placebo in patients with acute back pain.

Shakoor et al¹⁴ investigated the effects of deep heat therapy for the treatment of patients with chronic LBP. Patients with LBP for more than 3 months were randomized to receive nonsteroidal anti-inflammatory drugs (NSAIDs) and short-wave diathermy (n=50) or NSAIDs and placebo short-wave diathermy (n=52). Pain intensity, disability and physical impairment were assessed using the Lettinen Test Scores and VAS. Both groups experienced improvements, with significantly greater improvements in the short wave diathermy group compared to the placebo group at weeks 3 and 6. The authors concluded that although both interventions may be beneficial for the treatment of LBP, treatment with short wave diathermy added to NSAID use may be more beneficial than NSAID use alone. This study provides Level II evidence that diathermy, exercise and NSAIDs results in nonsignificant improvement in VAS scores at 6 weeks relative to sham, exercise and NSAIDs for treatment of chronic LBP.

Tao et al¹⁵ conducted a randomized controlled trial to study the effects of an education program with or without heat wrap therapy in patients with acute LBP. Patients with work-related LBP for less than 3 months were randomized to receive back therapy education and pain management (n=18) or back therapy education, pain management and 3 consecutive days of 8-hour heat therapy (n=25). Pain intensity, pain relief and disability were recorded at baseline, 4 times per day for the 3-day treatment period and 4 and 14 days after enrollment. The patients in the heat wrap group had significantly reduced pain intensity, increased pain relief and improved disability scores during and after treatment. In critique, the work group down-