Heat is a common modality to use for low back pain (LBP). But how well does it work? How long does it last? If low-level heat reduces pain and promotes relaxation, how does it do this?

In this study, the effect of continuous low-level heatwrap therapy on the nervous system is measured. Specifically, the effect of heat on mental alertness and central nervous system arousal is measured.

Two groups of people participated in the study. All patients had acute low back pain. The pain was rated between one and five on a scale from zero (no pain) to 10 (most pain). The control group was not treated with heat. Instead they took an antiinflammatory drug when needed.

The treatment group received the same medication. They were also treated with a heatwrap. The heatwrap was placed like a belt around the belly with heat delivered to the low back area. Each patient in the treatment group wore the heatwrap daily for at least four hours.

Using EEG measurements, the effect of the heatwrap on stress was assessed. EEG measures the electrical activity in the brain. Higher EEG frequencies occur with increased states of arousal and vice versa. Each subject was given a timed computer test of math and word problem solving.

Other tests and measures used to assess the outcome of the heatwrap therapy included sleep, self-reported levels of stress at home and at work, and relaxation. The need for naps, time to fall asleep, and quality of sleep were examined.

The results of this study showed that heatwrap therapy reduced pain and improved sleep after the first day. Patients in the treatment group were better able to tolerate the pain they did have. They reported taking fewer daytime naps and an increased ability to concentrate on daily tasks.

At the same time, EEG activity changed to a lower frequency, which means there was a decrease in central nervous system arousal. Heatwrap therapy for LBP decreases muscle tension and promotes relaxation. Less pain means less anxiety and stress. Further study is needed to understand the exact nerve pathways that lead to this therapeutic effect.