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# Chronic Tension-Type Headache

## Treatment with acupuncture, physical training and relaxation training

Akademisk avhandling

för avläggande av medicine doktorexamen  
vid Sahlgrenska akademien vid Göteborgs Universitet

Avhandlingen kommer att offentligens försvaras i hörsal Arvid Carlsson  
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Av

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Avhandlingen baseras på följande delarbeten:

- I. **Söderberg E**, Stener-Victorin E, Carlsson J. Daytime headache frequency and symptom characteristics in patients with chronic tension-type headache. Submitted.
- II. **Söderberg E**, Stener-Victorin E, Carlsson J. Chronic tension-type headache treated with acupuncture, physical training and relaxation training. Between group differences. *Cephalalgia*. 2006; 26:1320–1329.
- III. **Söderberg E**, Stener-Victorin E, Carlsson J. Muscle tenderness in patients with chronic tension-type headache: Effects of acupuncture, physical training and relaxation training: A randomized controlled study. Submitted.
- IV. **Söderberg E**, Carlsson J, Stener-Victorin E, Dahlöf C. Subjective well-being in patients with chronic tension-type headache: effects of acupuncture, physical training, and relaxation training. *Clin J Pain*. 2011;27(5):448-456.



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## ABSTRACT

The overall aim of this thesis was to compare the effect of acupuncture, physical training and relaxation training on chronic tension-type headache (CTTH) and related symptoms through measurements of headache intensity, headache frequency, symptom characteristics associated with daily headache, muscle tenderness and subjective well-being.

There are four studies that underpin this thesis:

In study 2 and 4, the study cohort comprised 90 consecutive patients with CTTH. Study 1 is cross-sectional determining the symptom characteristics and the daytime headache frequency in 74 of the 90 patients with CTTH compared with controls. Measures in study 3 included 75 out of the 90 patients with CTTH. In studies 2, 3 and 4, patients with CTTH were randomly allocated to one of the three intervention groups.

The main findings were: The daytime headache intensity was lowest in the morning and worsening throughout the day. Headache-free periods were few but occurred most commonly in the morning and became less common as the day progressed. Neck mobility was lower in all movements ( $p < 0.001$ ), and tenderness was higher in all pericranial muscles ( $p < 0.001$ ) when compared to the control group. The pain location was most pronounced in the temporal region and the pain character was described mostly as 'pressing' or 'tightening'. Stress, ergonomic factors and workload were cited as the most common triggering factors.

When determined the effect of acupuncture, physical training and relaxation training, all groups improved although the number of headache-free periods ( $p < 0.03$ ) and headache-free days ( $p < 0.01$ ) was higher in the relaxation group compared with the acupuncture group immediately after the last treatment.

Total Tenderness Score (TTS) decreased in all treatment groups after treatment with no group differences. Three months after treatment, TTS decreased in the physical training group and differed from the acupuncture group ( $p < 0.001$ ). Six months after treatment, TTS decreased in the physical training group ( $p < 0.001$ ) and the relaxation training group ( $p < 0.008$ ) compared to the acupuncture group.

Central nervous system (CNS)-related symptoms and Minor Symptom Evaluation Profile in total score and in the three dimensions were significantly lower in patients with CTTH compared with a reference group. At the three-month follow-up the total score was improved in the physical training group compared with the acupuncture group ( $p < 0.036$ ). At the six-month follow-up, the vitality and sleep dimension was significantly improved in the relaxation training group compared with the acupuncture group ( $p < 0.04$ ).

**Conclusions:** In patients with CTTH, headache symptoms increase during the day and stress, poor ergonomic factors and workload are the strongest triggering factors. All treatments reduced headache symptoms. Relaxation training and physical training are more effective treatments compared to acupuncture for patients with CTTH. A novelty of this study is that physical training has a good effect on CTTH.

**Key words:** chronic tension-type headache, acupuncture, physical, training, relaxation training, muscle tenderness, CNS-related symptoms, symptom characteristics

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