

## MASTER'S THESIS

### Study of long-term efficacy of electroacupuncture for chronic neck pain: a randomized controlled trial

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**Study of Long-term Efficacy of Electroacupuncture for  
Chronic Neck Pain: A Randomized Controlled Trial**

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**A thesis submitted in partial fulfillment of the requirements**

**for the degree of**

**Master of Philosophy**

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## ABSTRACT

### **Background and aims:**

Chronic neck pain is common in the working population, and it has become a major medical and social problem in modern societies. Recent studies suggest that acupuncture may be more effective than placebo in the immediate relief of neck pain, but controversies exist as to whether it has any long-term benefit. The aim of this study is to evaluate the long-term efficacy of acupuncture for chronic neck pain. An additional objective is to document any adverse effects of acupuncture.

### **Methods:**

**Setting and subjects:** This study was conducted in an outpatient clinic setting at Mr. and Mrs. Chan Hon Yin Modern Chinese Medicine Research and Service Centre of Hong Kong Baptist University and Queen Elizabeth Hospital.

**Interventions:** Participants were randomly allocated to either the treatment or the control group, receiving electroacupuncture or placebo (sham-laser acupuncture), respectively. Each patient received a total of nine treatments (three times per week for three weeks), with each treatment lasting for 45 minutes. To reduce bias, both the patients and practitioners were told that the purpose of the study was to evaluate the effect of stimulation given by a new machine on acupuncture points for chronic neck pain. Thus they were all blinded to the real purpose of the study and group status. **Main outcome measures:** The primary outcome measure was neck pain disability index using the Northwick Park Neck Pain Questionnaire (NPQ). Secondary outcome measures were maximum pain related to motion on a numeric pain intensity scale (NPIS), quality of life (SF-36), use of medication (Medication Quantification Scale version III, MQS-V3), and sick leave because of neck pain. Treatment-related adverse effects, such as pain, skin irritation, bleeding and fainting were assessed. The credibility of placebo treatment and blinding were also evaluated.

### **Results:**

Two hundred and six (206) subjects participated in the trial, and 175 completed all treatments and follow-up assessments. All the data were analyzed by the principle of intention-to-treat. The ratio of female to male was 7:3. The baseline NPQ was 40.7 (38.5 to 42.9) for the treatment group and 41.1 (38.7 to 43.5) for the control group (mean and 95% CI). Both the treatment and control groups showed significant improvements in NPQ and NPIS at 1, 3 and 6-month post-treatment compared to the baseline. At 1, 3 and 6-month post-treatment, the NPQ of the

treatment group improved to 35.1 (32.7 to 37.6), 32.9 (30.3 to 35.4) and 33.5 (30.7 to 36.4), and the NPQ of the control group improved to 35.7 (32.8 to 38.6), 33.3 (30.1 to 36.5) and 34.3 (31.1 to 37.6), respectively. Multivariate analysis of variance found no significant difference in treatment outcomes between the treatment and the control groups ( $p > .05$ ). The credibility of blinding was high. No severe adverse effect was observed.

**Conclusion:**

Under the current experimental condition, no long-term benefit could be demonstrated for electroacupuncture over placebo (sham laser) in the treatment of chronic neck pain. We also found that the electroacupuncture treatment was safe.

**Key words:** Chronic neck pain, electroacupuncture, sham laser, long-term effect, double-blind, randomized control trial.

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