

## MASTER'S THESIS

### A preliminary attempt to detect acetylcholine changes during eletro-acupuncture and moxibustion in subcutaneous tissue of the rat

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*Date of Award:*  
2011

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**A preliminary attempt to detect acetylcholine changes  
during electro-acupuncture and moxibustion  
in subcutaneous tissue of the rat**

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**June, 2011**

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# **A preliminary attempt to detect acetylcholine changes during electro-acupuncture and moxibustion in subcutaneous tissue of the rat**

## **Abstract**

This project was divided into 2 parts. The first part was to review and summarize recent studies of the relationship between acupuncture/moxibustion and acetylcholine. The second part was to perform a preliminary experiment to study the influence of electro-acupuncture and moxibustion on acetylcholine concentration in subcutaneous tissue of the rat.

In part I, by using keywords of “acetylcholine + acupuncture”, “Ach + acupuncture”, “acetylcholine + electro-acupuncture”, “Ach + electro-acupuncture”, “acetylcholinesterase + acupuncture”, “acetylcholinesterase + electro-acupuncture”, “acetylcholine + moxibustion”, “Ach + moxibustion” in Pubmed database, Medline database, Embase database respectively, 18 relevant articles were found and analyzed. Most studies were focusing on central nervous system (CNS) and none was focusing on acetylcholine (Ach) in subcutaneous tissue level. Ach, acetylcholinesterase (AChE) and acetyl-transferase (ChAT) were frequently used as measurement indicators. ST36 were the most commonly chosen acupoint. None of the study investigated moxibustion. Due to lack of understanding of acupuncture influence on acetylcholine in subcutaneous tissue, further study should be pursued.

In part II, preliminary experiment were carried out. Rats were anesthetized and a microdialysis probe was implanted into the left paws for perfusion.

Electro-acupuncture of ST36 and SP6 for 40 minutes at 0.3-0.4mA or moxibustion of KI1 for 10 minutes were supplied to the left paw. Sample perfusion with neostigmine in Hartmann's solutions was added with Ach-D9 and acetonitrile for detection by high-performance liquid chromatography / mass spectrometry (HPLC/MS). The preliminary trial show no statistical significant difference after acupuncture or moxibustion compared with baseline. Further studies with improved methodology is needed to validate the present findings.