

# A Systematic Review and a Meta-Analysis of Using Acupuncture for the Treatment of Nocturnal Enuresis

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## Abstract

**Background:** Acupuncture has been an interesting portion of Traditional Chinese Medicine. Many studies have shown that pediatric acupuncture is also acceptable and feasible. Nocturnal enuresis (NE) is defined as evacuating the bladder during sleep in a child older than five years old. Acupuncture and laser acupuncture may be more effective than sham procedures at reducing enuresis and relapse rates; however, the evidence is weak. The purpose of this study is to evaluate the effect of acupuncture therapy in the treatment of nocturnal enuresis on randomized controlled trials (RCTs).

**Method:** An electronic literature search was conducted to identify appropriated trial studies. The outcomes were presented as relative risk, with 95% confidence intervals (CI).

**Results:** We found only seven trials that fulfilled our inclusion criteria. Only seven trials from five studies were included in meta-analysis. Final relative risk (RR) was not statistically significant (RR (range) = 1.312(0.939-1.832)) but evidences from independent review of each study suggested effective roll of acupuncture in treatment of NE.

**Conclusion:** In summary, the results of this study show that acupuncture seems to be an effective treatment for NE, but further large randomized trials are suggested.

**Keywords:** Meta-analysis; Acupuncture; Nocturnal enuresis

## Introduction

Acupuncture has been an interesting portion of traditional Chinese medicine (TCM) for over 2000 years [1]. Acupuncture and its connected therapies, such as laser acupuncture, acupressure and electro-acupuncture, are used throughout East Asia to treat and prevent a great array of diseases. Acupuncture has been adopted by the Western world as complementary treatments for many diseases. Many studies have shown that pediatric acupuncture is acceptable and feasible [1,2]. Nocturnal enuresis (NE) is defined as evacuation of bladder during sleep in a child older than five years old [3]. It has two types: monosymptomatic nocturnal enuresis (MNE) with no urinary symptoms in daytime, and nonmonosymptomatic nocturnal enuresis (NMNE) which includes daytime urinary symptoms [4]. Nocturnal enuresis (NE) occurs in 15% to 20% of 5-year-old children, 5% of 10-year-old children, and 1% to 2% of persons aged 15 years and older. Each year, 15% of children suffering from NE are cured without any treatment. Nocturnal enuresis can cause significant distress for parents and children [1]. Three mechanisms were imaged for NE including: bladder over-activity, failure to awaken in response to bladder sensations, and excessive nocturnal urine production [5]. The current acceptable treatments for NE are oral pharmacological therapies, including desmopressin, tricyclics, and oxybutynin, and behavioral

therapies [6]. Desmopressin has been proven to have reliable effects on one third of the unselected enuretic children. However, when the medication is not taken anymore, the clinical drug effects cannot be continued, and the side effects of drugs may cause the patients to oppose taking them for a long time [7]. Complementary and alternative medicine (CAM) widely helped to encounter the increasing demand for nonpharmacological approaches [6].

Acupuncture and laser acupuncture may be more effective than sham procedures at reducing enuresis and relapse rates; however, the evidence is weak [8]. Compared to formal treatment, safety and cost effectiveness of acupuncture cause the maintenance of patients' compliance [6]. The purpose of this study is to evaluate the effect of acupuncture therapy in the treatment of nocturnal enuresis on randomized controlled trials (RCTs).

## Literature Survey

Alsharnoubi designed a RCT studies including 45 children with NE, patients were randomized into three equal groups (Table 1). A statistically significant higher cure rate was reported in laser acupuncture group 73.3%, than other two groups. This study concluded that laser acupuncture is noninvasive, painless, with no side effects and its recurrence rate is very low which can be used as an alternative therapy for patients with NE [11].