

# Efficacy of Acupuncture vs. Pharmacological Treatment for Type II Diabetes Mellitus

## Introduction

- T2DM is characterized as a combination of insulin resistance or relative impairment of insulin secretion
- Pharmacologic treatments enhance secretion of insulin or interfere with absorption of glucose .
- Acupuncture has been used in traditional Chinese medicine to treat T2DM by reducing inflammation and improving lipid metabolism and adipokine expression

## PICOT

In adult patients with T2DM resistant to pharmacologic intervention, how does treatment with acupuncture compared to a traditional medication regimen predict a patient's ability to later maintain HbA1c and BGL with diet and exercise alone?

## Design/Sample

- Comprehensive literature review driven by PICOT question
- Various databases searched
- Manipulation with pressure points were included, moxibustion was excluded.
- Single oral antihyperglycemic intervention studies included

## Analysis

- 45% of patients with T2DM do not reach glycemic control due to poor adherence to medication
- RCTs show acupuncture has statistically significant reduction of HbA1c and BGL
- Many studies acupuncture was adjunct to oral pharmacologic therapy.

## Results

Study	Findings	Strength of Evidence
Effectiveness of acupressure at the zusanli (ST-36) Acupoint as a comfortable treatment for diabetes mellitus	Average reduction of random blood glucose in the experimental group was 240.47 +/- 155.211 mg/dL whereas in the control group it was 35.80 +/- 82.82 mg/dL	Randomized controlled trial
Therapeutic effects of acupuncture on blood glucose level among patients with type-2 diabetes mellitus	FBG in experimental decreased from 170.4 to 152.2 mg/dL and A1C drop from 7.14% to 6.8% after 12 weeks of treatment  FBG in the sham group decreased from 170.5 to 161 mg/dL after 3 month follow up	Prospective, double-blind randomized controlled trial with an equal randomization ration of 1:1
The Effect of Acupressure on Fasting Blood Glucose and Glycosylated Hemoglobin Levels in Diabetic Patients	The study revealed acupressure at the ST36 point was effective in the intervention group but not across the board with the control and placebo group	Randomized controlled trial, double blind
Herbal acupuncture for type 2 diabetes	Herbal acupuncture is associated with statistically significant reduction in the level of fasting blood glucose compared to the control group	Systematic review with meta-synthesis reviewing RCT
The Effectiveness of Acupressure Pen Active Stretching (Acupenas) on Fasting Blood Sugar Levels among Type 2 Diabetes Mellitus Patients	The results revealed that there in fact was a statistically significant decrease in blood sugar levels before and after treatment. After just three weeks of intervention, the value of the blood sugar level went from 154 mg/dl to 112.53 md/dl	Randomized controlled trial
Effect of self-acupressure on fasting blood sugar (FBS) and insulin level in type 2 diabetes patients	Acupressure was able to decrease FBS and increase insulin compared to control group	Randomized controlled trial
An integrated systematic approach for investigating microcurrent electrical nerve stimulation (mens) efficacy in STZ-induced diabetes mellitus	Finding: MENS, a non-invasive therapy, could decrease the blood glucose level, without obvious side effects in control mice - may work similarly to metformin	Randomized controlled trial
Association of acupuncture treatment with mortality of type 2 diabetes in China	The difference in mortality rate was not found to be statistically significant	Cohort Study
Clinical observation of abdominal acupuncture in patients with type 2 diabetes insulin resistance	- significant decrease in blood glucose (P < 0.01)  - increase in insulin release level (P < 0.01)	Randomized controlled trial
Review of systematic reviews and meta-analyses investigating traditional Chinese medicine treatment for type 2 diabetes mellitus	Main results implied that treatment of T2DM with traditional Chinese medicine has certain advantages when compared with conventional Western medicine	Systematic review and meta-analysis

## Summary

- Efficacy of acupuncture intervention adjunctive to metformin and exercise (6 RCTs. 1 meta-analysis)
- Pain mentioned as barrier to care but did not affect outcomes. No other adverse effects noted.
- Acupuncture had favorable outcome compared to traditional medicine alone; however, the reduction was negligible

## Conclusions/Further Study

- Based on the literature reviewed, PICOT question cannot be definitively answered at this time.
- The current literature does not support a change in current practice guidelines to favor acupuncture in place of pharmacologic treatment in maintaining HbA1c levels
- Research lacks sufficient evidence to recommend replacing traditional pharmacotherapy with acupuncture
- Further replicative studies with specific regimens needed
- Moderate evidence to support acupuncture as an adjunctive therapy
- Can recommended as an option due to low risk
- Due to variation in study methods studies with specific comparison of acupuncture monotherapy and pharmacologic therapy needed

