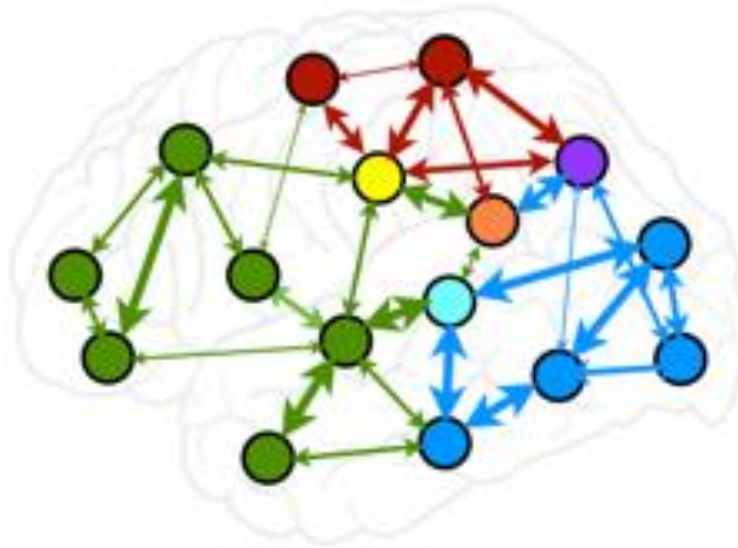


# The Case of Acupuncture and Acupressure for Chronic Pain



Richard E. Harris, PhD  
Samueli Endowed Chair and Professor  
University of California at Irvine



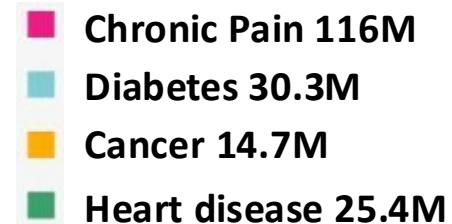
# Conflicts of Interest

- **I have no conflicts of interest to declare for the content of this presentation.**

# Chronic Pain in the United States



**MORE PEOPLE LIVE WITH CHRONIC PAIN THAN CANCER, HEART DISEASE, AND DIABETES, COMBINED.**



Sources: National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), Institute of Medicine

**...by the numbers**

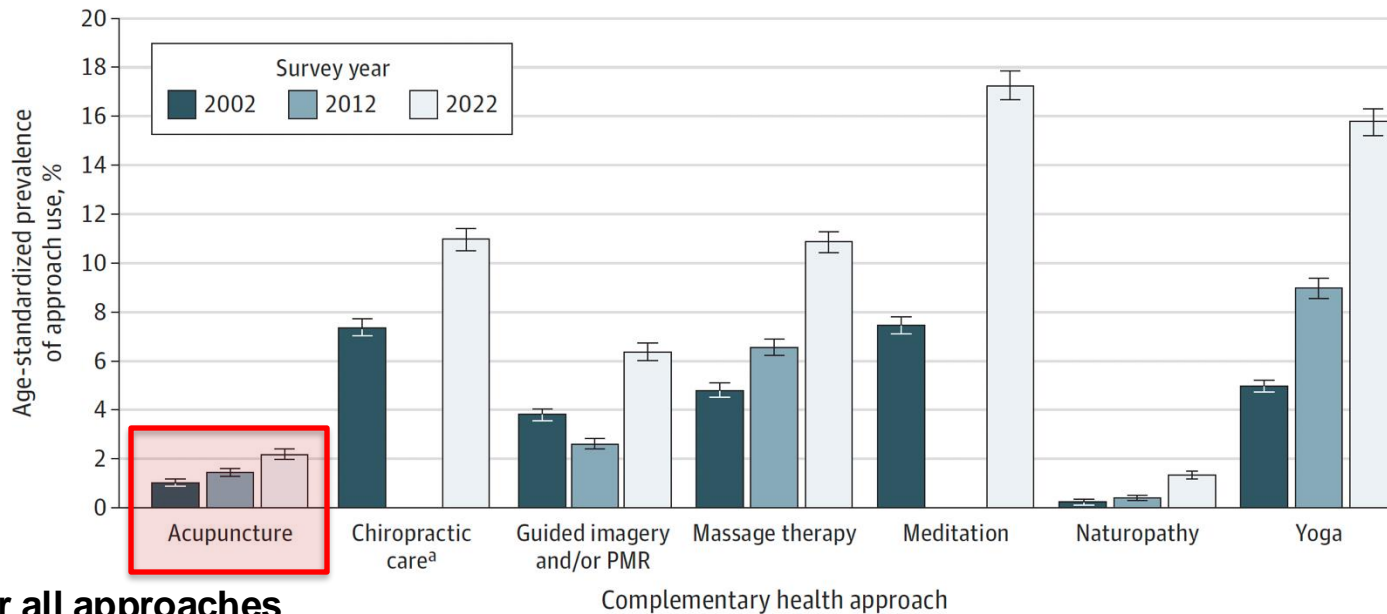
# Integrative Medicine for Pain

- **Pain is one of the major reasons for individuals to seek integrative medicine.**
  - Barnes et al. Adv Data 2004
- **Mind/body interventions are used extensively in integrative and alternative medicine.**
  - Acupuncture
  - Meditation/Qi Gong
  - T'ai Chi



# How Often are Integrative Therapies Used in the US?

Figure 1. Age-Standardized Prevalence of Use of Complementary Health Approaches by US Adults in 2002, 2012, and 2022



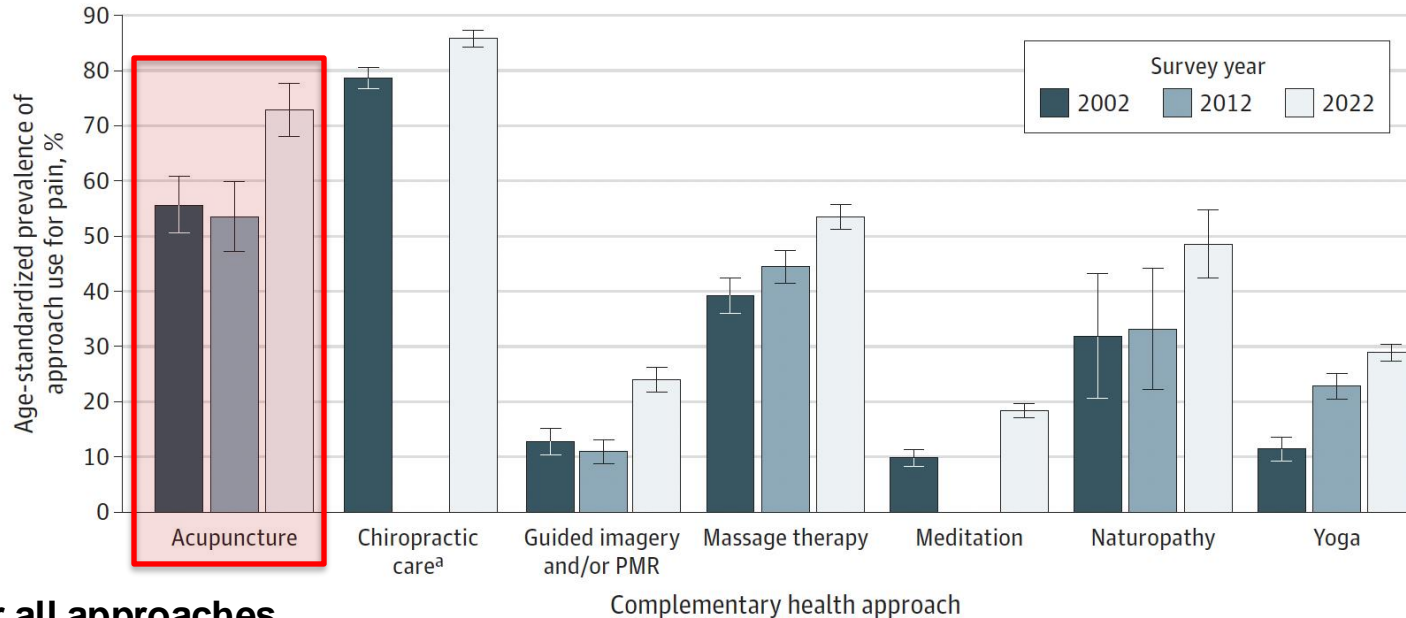
Increase from 19.2% in 2002 to 36.7% in 2022 adults used some form of integrative health therapy in the US. - Nahin et al. *JAMA* 2024

In 2012, 28.3 billion dollars were spent on “out-of-pocket” visits to integrative practitioners. **~10% of all out-of-pocket healthcare expenses.**  
- Nahin et al. *Nat Health Stat Rep* 2012



# Increased Acupuncture Use for Pain in the US

Figure 2. Age-Standardized Prevalence of Use of Complementary Health Approaches for Pain Management Among Adults Using Each Approach in 2002, 2012, and 2022



Increase from 55% in 2002 to 73% in 2022 for individuals using acupuncture for pain.

This may be because of increased insurance coverage for acupuncture and more studies showing efficacy.

# Rise of Acupuncture Research



acupuncture

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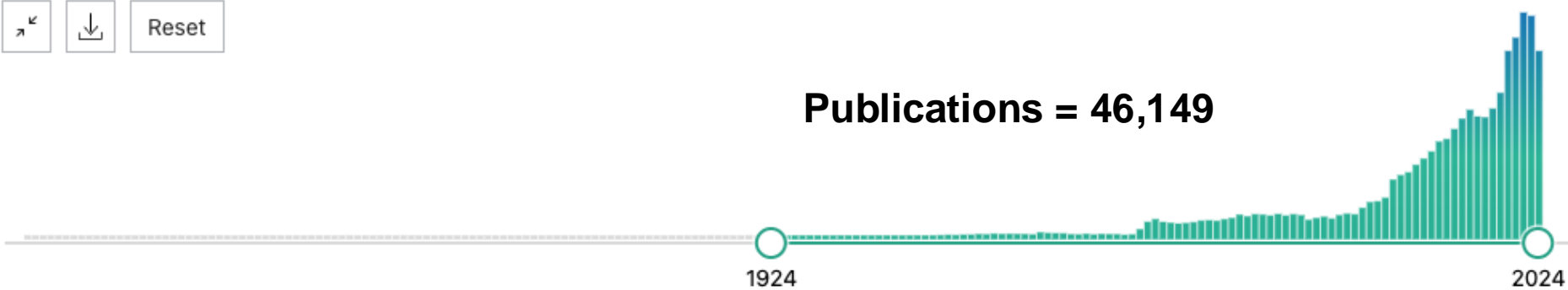
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RESULTS BY YEAR

Page 1 of 4,615

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Publications = 46,149

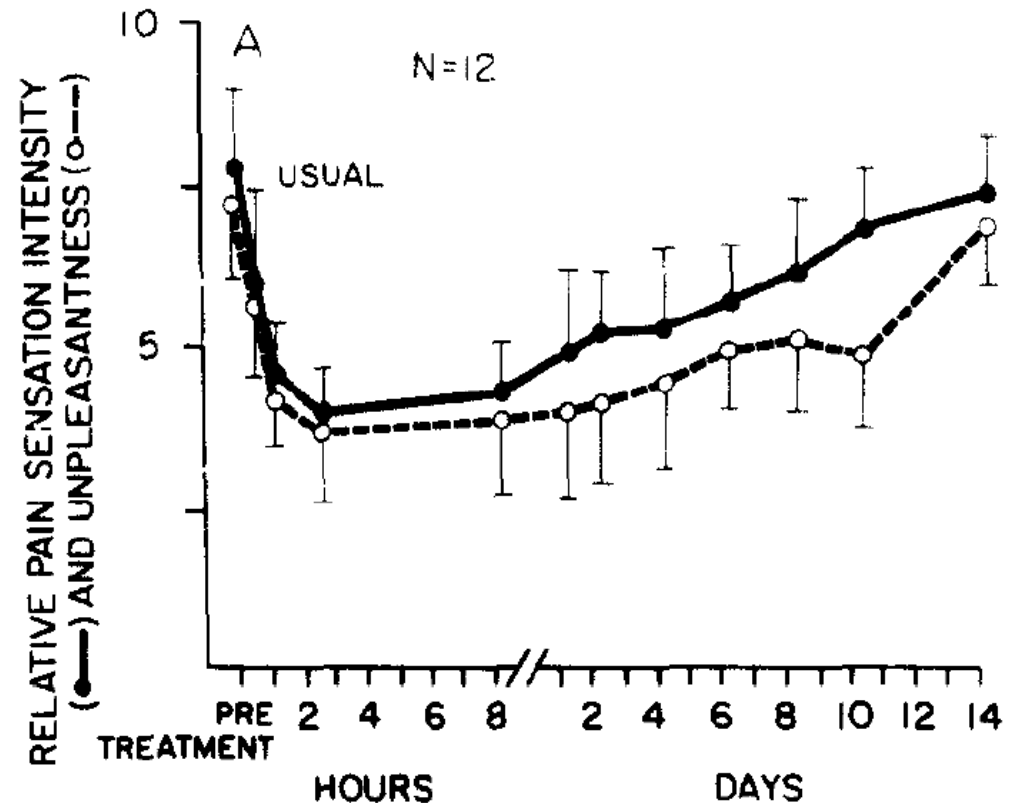


Publication Year

Ma et al *PlosOne* 2016

# Temporal Dynamics of Acupuncture

- Acupuncture analgesic effect (VAS of chronic low back pain) is maximal *several hours* to 2 days after treatment
- What are the dynamic mechanisms involved in acupuncture effects?





# Individual Patient Data Meta-Analysis

## Acupuncture vs. Non-acupuncture Controls (n= 14,597) and vs. Sham Controls (n= 5,230)

Indication	Effect size (Fixed effects)	All P-Value
<b>Acupuncture vs. Non-acupuncture controls OR vs. Sham controls</b>		
Migraine/headache	0.42 (0.46, 0.37)	<b>0.15 (0.24,0.07)</b> P<0.001
Osteoarthritis	0.57 (0.64, 0.50)	<b>0.16 (0.25,0.07)</b> P<0.001
LBP & Neck Pain	0.55 (0.58, 0.51)	<b>0.23 (0.33,0.13)</b> P<0.001

**Effect sizes:**

**0.8 = LARGE**

**0.5 = MODERATE**

**0.3 = SMALL**

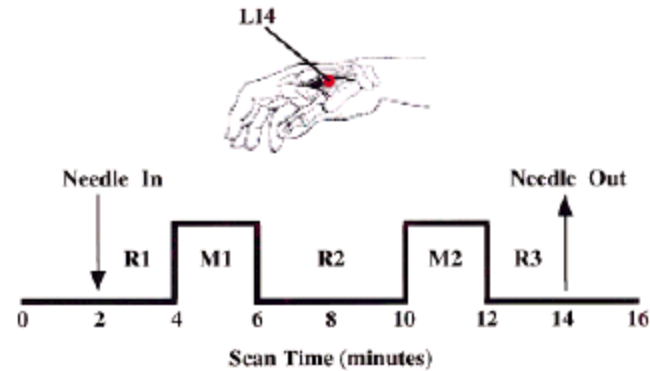
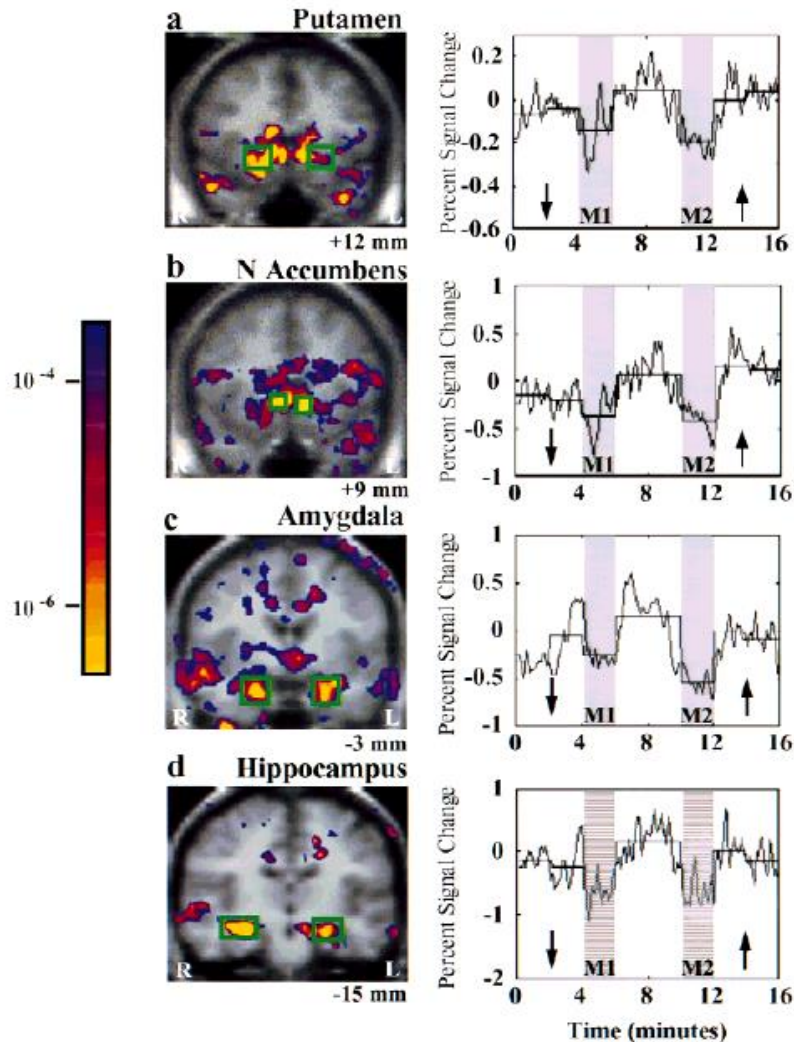
**NSAIDS for KOA = 0.15-0.20**

Zhang et al. *Arth Rheum Dis* 2004

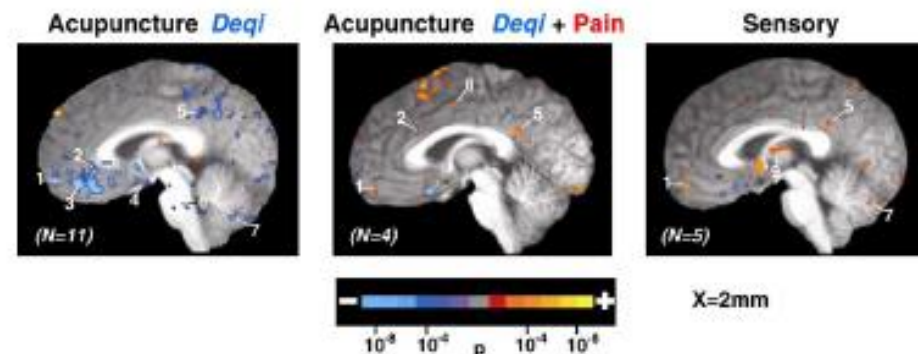
**Pregabalin for FM = 0.25-0.30**

Hauser et al. *Pain* 2009

# Acupuncture Needle Manipulation Deactivates the Limbic System

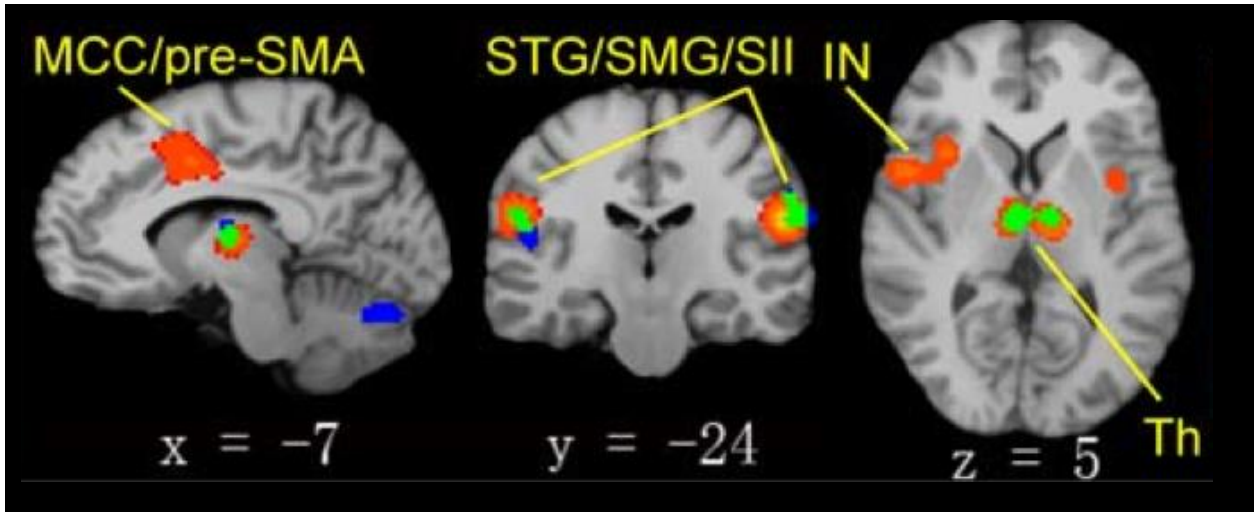


Subsequent work then shows that this deactivation is during *De Qi* only and is not seen during pain.



Hui et al *HumBrainMapping* 2000  
 Hui et al *Neuroimage* 2005

# Acupuncture and Sham Acupuncture Share Partially Overlapping Brain Activations

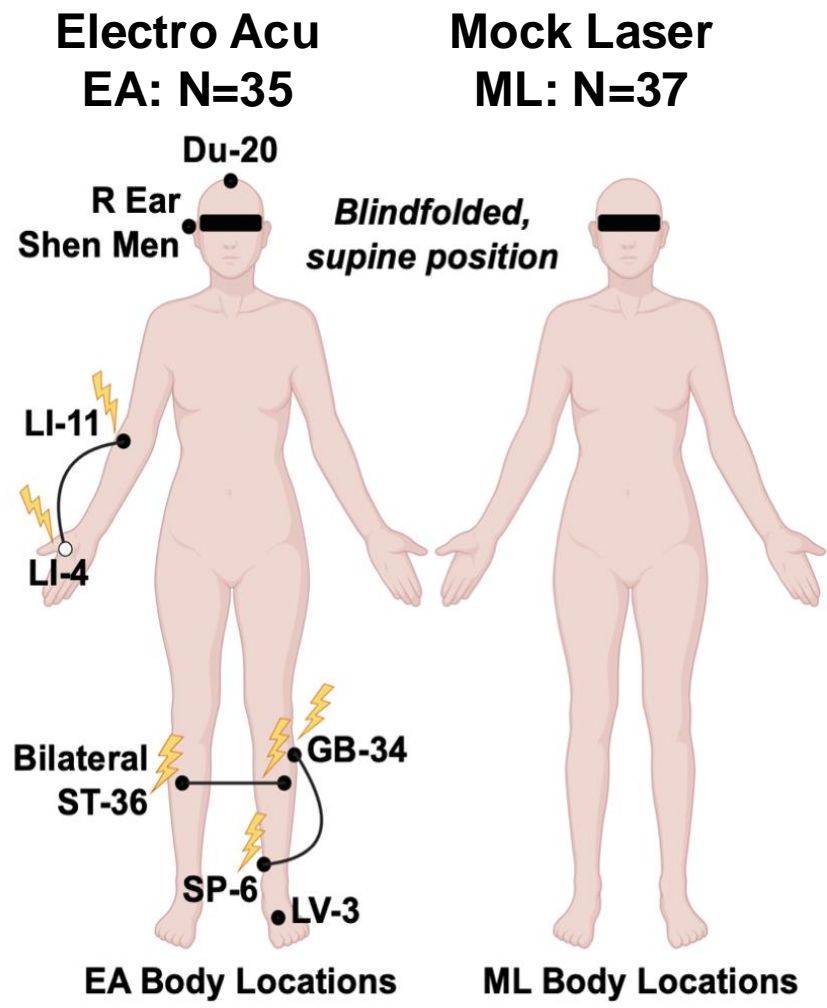
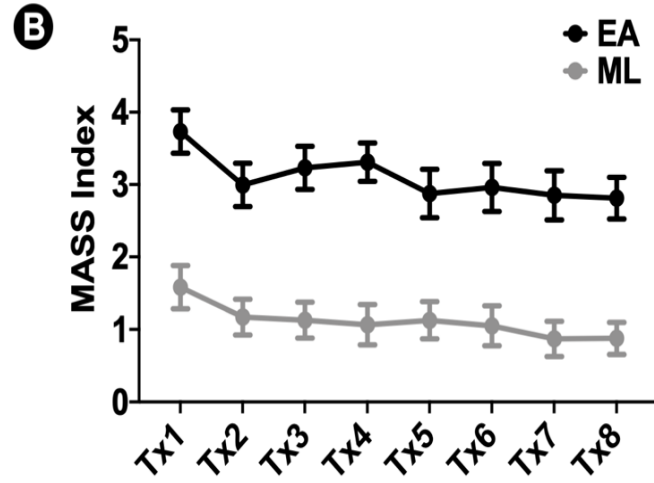
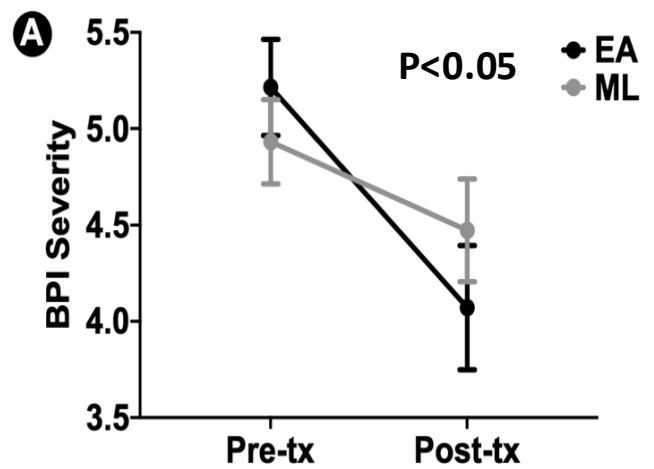


- verum acupuncture stimulation > rest
- sham acupuncture stimulation > rest
- overlap

Meta Analysis of 34 fMRI studies of acupuncture needle stimulation finds overlapping yet distinct regions of brain activation between acupuncture and sham acupuncture.

Somatosensory areas (as well as affective and cognitive regions) are altered.

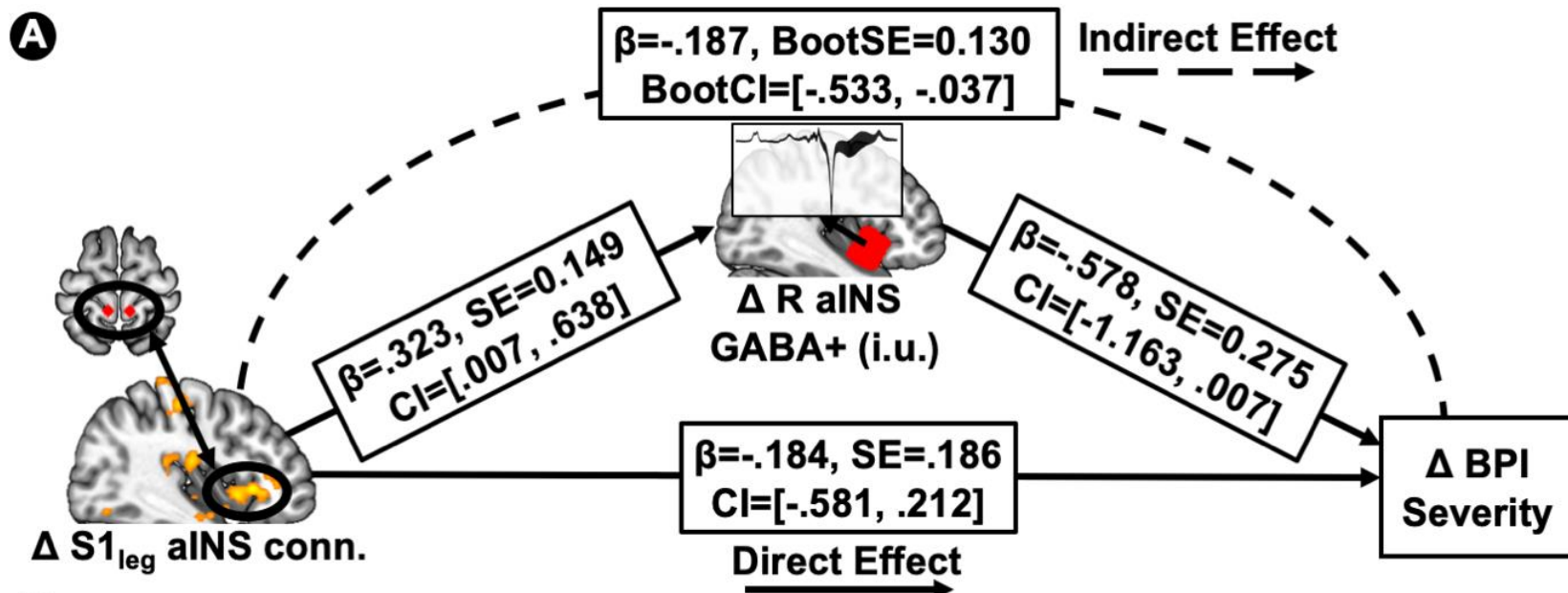
# Acupuncture Somatosensory Afference in Chronic Pain Treatment



Ishtiaq Mawla



# Anterior Insula GABA Mediates S1<sub>leg</sub> Connectivity Action to Reduce Clinical Pain



# Acupuncture Barriers

- **Increased access to acupuncture is needed.**
- **Implementation science on the rise at NIH.**
- **Physicians need to know how to refer patients for acupuncture.**

**National Certification Commission for  
Acupuncture and Oriental Medicine**

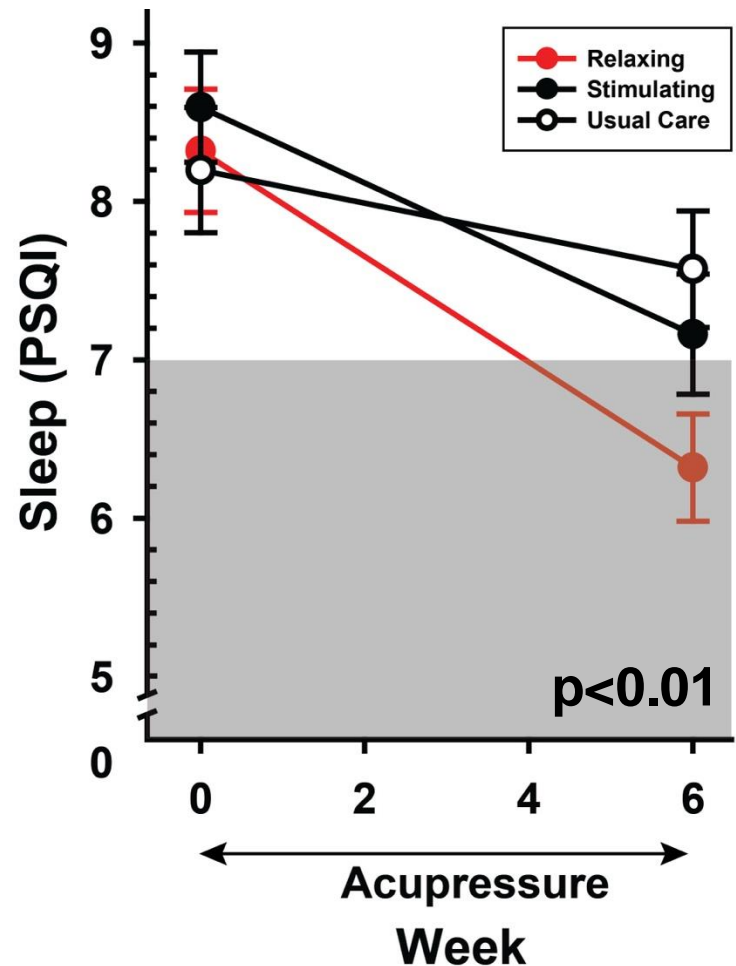
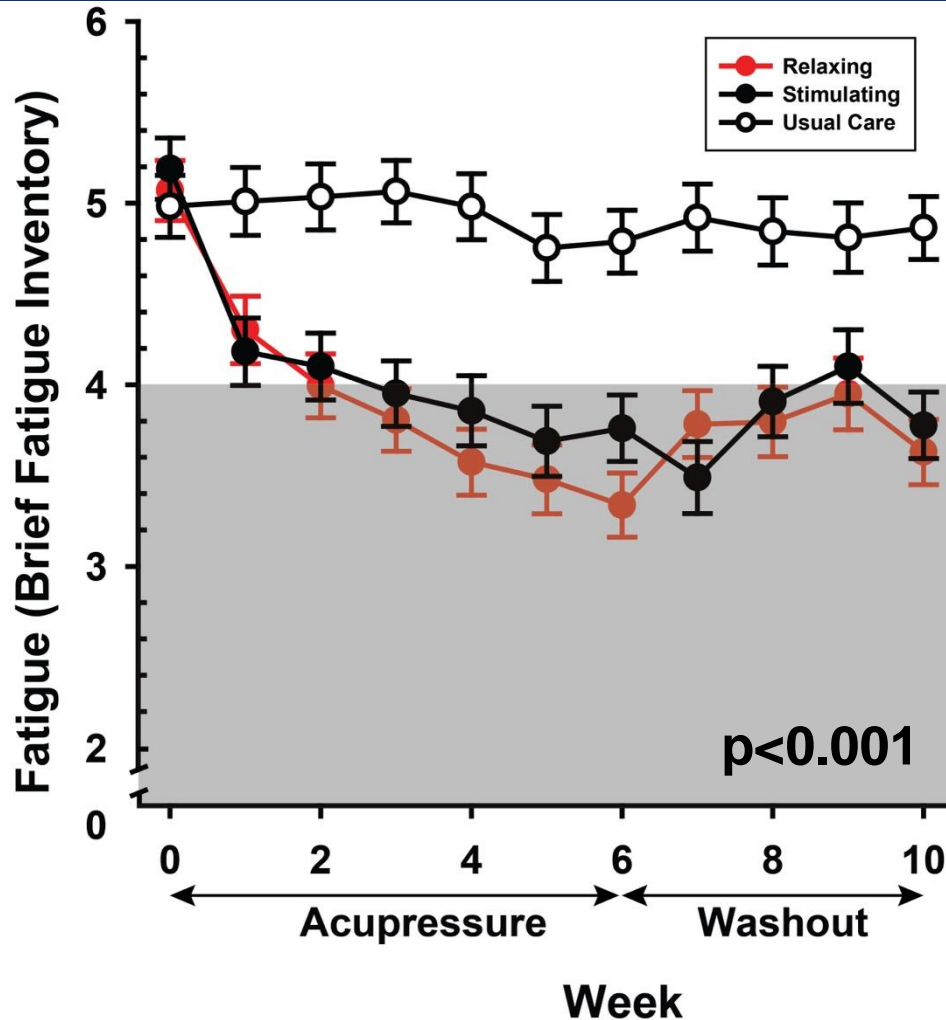
- [www.nccaom.org](http://www.nccaom.org)

# Self-Acupressure...an Alternative

- **Stimulation of acupuncture points with pressure from fingers or device**
  - **Advantages**
    - **Low cost**
    - **Requires minimal instruction (15mins)**
    - **Patient controls dose and timing**
    - **Empowers patient**
    - **Reduces practitioner burden**
    - **Applicable in areas with few or no practitioners (AcuApp)**
    - **Vulnerable groups elderly and children**



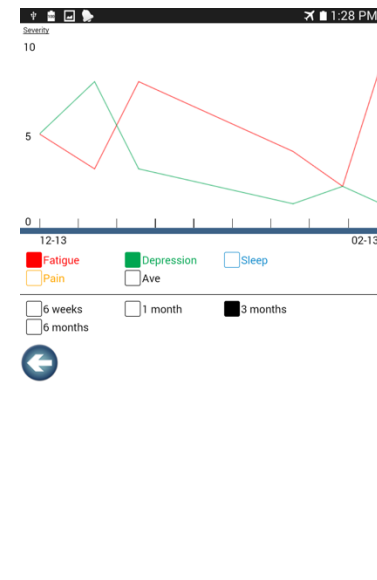
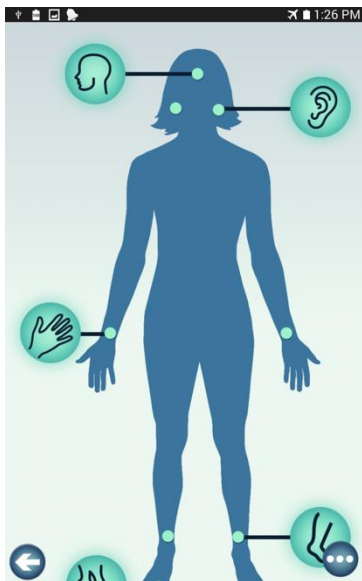
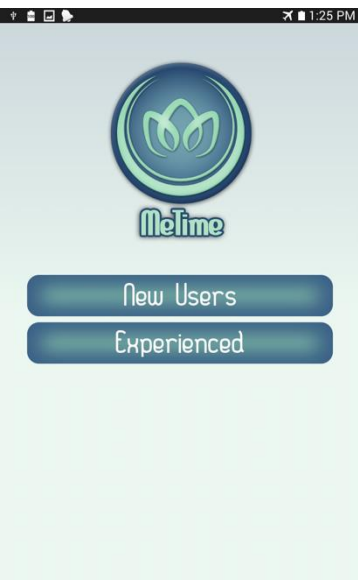
# Acupressure Reduces Fatigue and Improves Sleep



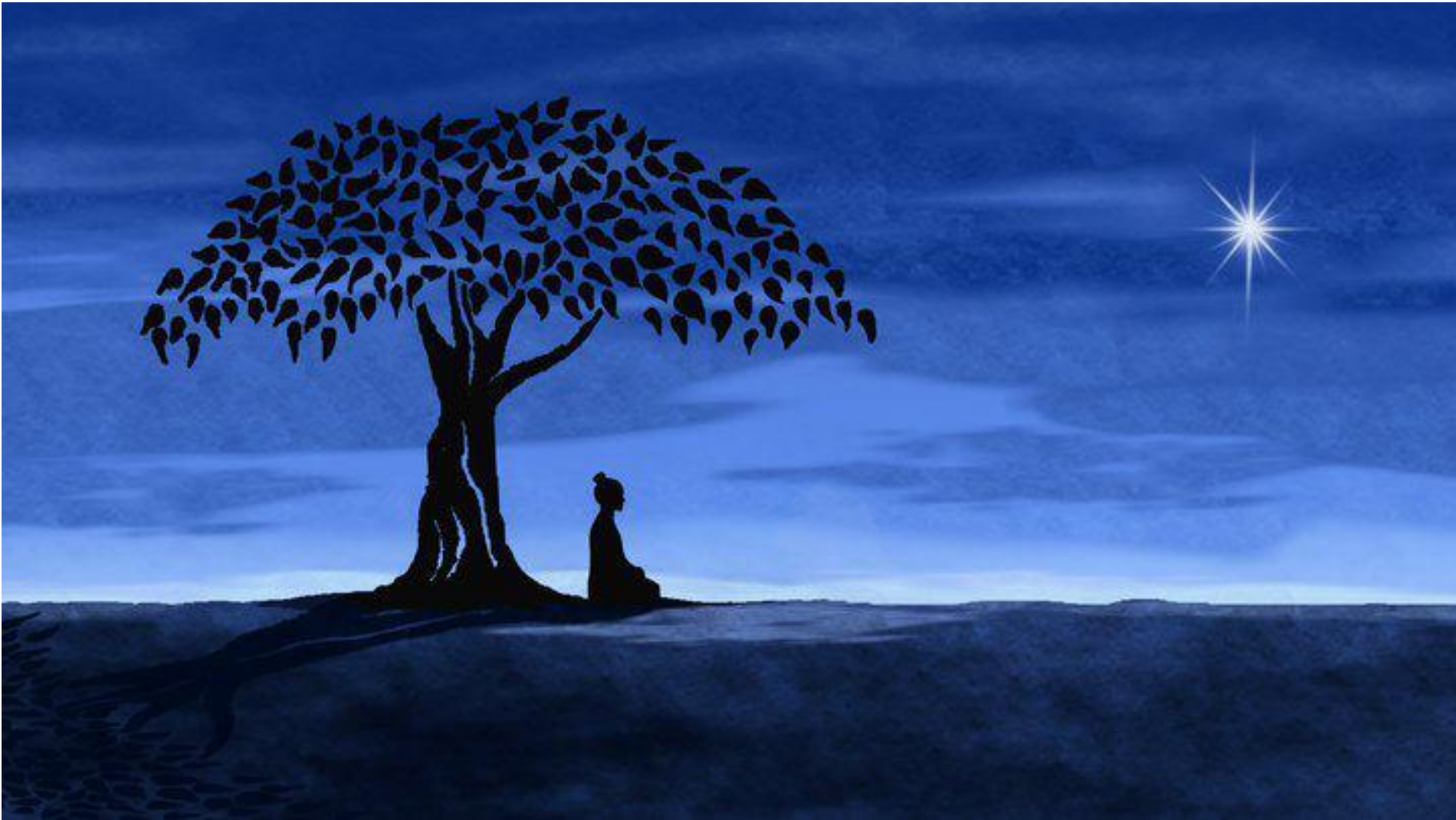


# Acupressure Smartphone App

- Many individuals with pain and fatigue have little access to medical care.
- To reach more patients, we developed a smartphone app that is widely accessible.
- 6 Focus group meetings with 8 breast cancer survivors.
- Available now in Apple and Android app stores.



# Thank You For Listening



**Tongva** and **Acjachemen** tribes that lived on the land of Orange County for many years before the present day.