

# **How it works? Meridians and Acupuncture**

**Tat-Leang LEE  
Professor and Senior Consultant  
Registered Acupuncturist  
Department of Anaesthesia**

**National University Health System /  
Yong Loo Lin School of Medicine,  
National University of Singapore**

# **Lecture outlines**

- **Introduction**
- **Theory of acupuncture practice**
- **Mechanisms of acupuncture analgesia**

# **Disclaimer**

- **Introduction only**
- **Acupuncture is one of the treatment modalities of Traditional Chinese Medicine**
- **Role in pain management**

# **Pain Management**

- **Self-healing (mind-body)**
- **Pharmacology**
- **Physical**
- **Psychological**
- **Interventional techniques**
- **Surgery**

# Pain Management

- **Pharmacology**
- **Non-opioids – panadol, non-steroidal anti-inflammatory drugs**
- **Opioids – tramadol, codeine, morphine, oxycontin, fentanyl etc**

## Side effects:

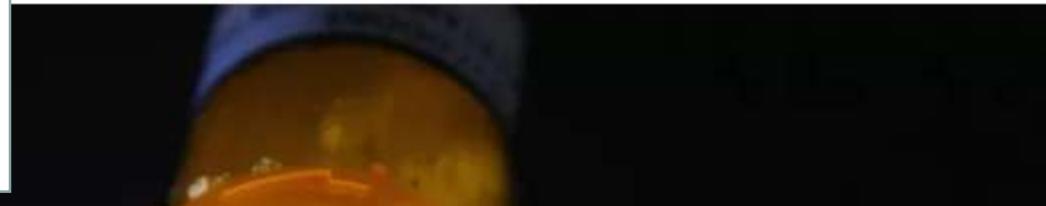
- **Allergy**
- **Organs impairment**
- **Addiction**

# The opioid epidemic, explained

2015 was the worst year for drug overdose deaths. Then 2016 came along.

By German Lopez | german.lopez@vox.com | Updated Dec 21, 2017, 9:10am EST

## Fentanyl OxyContin



### Purdue Pharma reaches tentative deal in federal, state opioid lawsuits



Co.

Chemical name	Brand Name
Celecoxib	Celebrex
Dexketoprofen	Ketesse
<u>Diclofenac</u>	Almiral, Apo-Diclo, Cataflam, Clofenac, Difenac, Difnal, Dosanac, Lesflam, Neodol, Olfen, Rhemofenax, Rhewlin, Voltaren, Voren
Etoricoxib	Arcoxia
Flurbiprofen	Froben, Strepfen
<u>Ibuprofen</u>	Advil, Ampifen, Apo-ibuprofen-FC, Brufen, Ibufen, Nurofen, Panamax, Perofen, Rafen 200, Solufen, Sugafen
Indomethacin	Apo-indomethacin, Arthrexin, Bonidon, HD-Methacin, Indecin, Indo, Indocap, Indoflam-TR, Indorem, Methacid
Ketoprofen	Apo-Keto, Ketodis, Oruvail, Pronalges
Ketolorac	Keto, Toradol
Mefenamic acid	Alfoxan, Axcel, Beafemic, Dyfenario, Fenagesic, Hostan, Medicap, Mefa, Mefenix, Mefic, Melgesic, Namic, Napan, Orcigesic, Postan, Pontacid, Pontalon, Pontyl, SP-Famic, Unifemic, Zeet
Meloxicam	Mobic, Melox
Nabumetone	Relifex
<u>Naproxen</u>	Aleve, Anax, Apo-Naproxen, Bipronyl, Gesiprox, Naprogen, Naprosyn, Noflam-N, Nuprafen, Soden, Soproxen, Sunprox, Synfelx, Zynal
Nimesulide	Nidol, Nimotas-CD, Nise, Qnim MD
Phenylbutazone	Beatazone
Piroxicam	Apo-piroxicam, Axcel, Brexin, Erazon, Feldene, Mobilis, Pirocam, Piroxicam, Piroxicap, Rosiden, Roxitan, Sotilen, Vitacam
Sulindac	Aclin, Apo-sulin, Clinoril
Tenoxicam	Analcam, Nadamen, Tilcotil



# Health and Behavior

▪ [E-MAIL THIS](#) ▪ [PRINT THIS](#) ▪ [SAVE THIS](#) ▪ [MOST POPULAR](#) ▪ [SUBSCRIBE](#)

Posted 12/20/2004 11:30 PM Updated 12/21/2004 10:00 AM

## Aleve is facing safety questions

By Rita Rubin, USA TODAY

The popular over-the-counter pain reliever Aleve has been linked to an increased risk of heart attack and stroke in a National Institutes of Health study, the agency announced Monday.



Aleve has been linked to an increased risk of heart attack and stroke.

**naproxen**

By Richard Drew, AP

Participants, some of whom had been taking the drug for nearly three years, have been told to stop taking their pills, but researchers will continue to follow them for an undetermined length of time, said lead scientist John Breitner of the University of Washington.

**Apitherapy is a branch of alternative medicine that uses honey bee products, including honey, pollen, propolis, royal jelly and bee venom.**

# Huang Di Nei Jing (黄帝内经)

(480-220 B.C.)

*(The Yellow Emperor's Inner Classic,  
The Yellow Emperor's Manual of Corporeal Medicine)*

- Su Wen 素问 (*Simple Questions*)
- Ling Shu 灵枢 (*The Spiritual Pivot*)

# 针灸 “Zhen Jiu”

## Acupuncture

*acus - a needle  
puncture - a prick*

## Moxibustion

*mogusa - herb for burning*

针灸 “Zhen Jiu”



火

火

# 针灸 “Zhen Jiu”

## Acupuncture

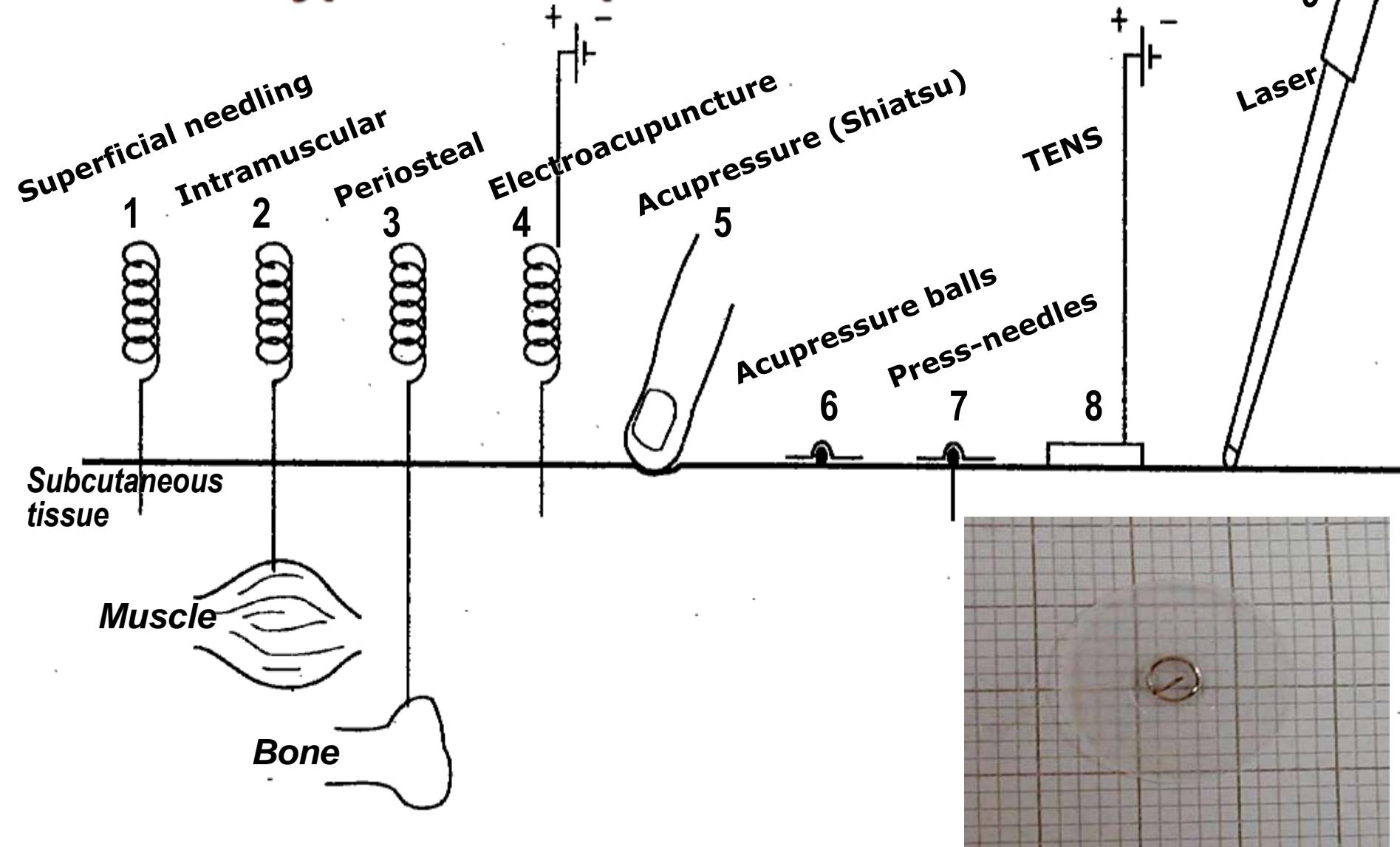
*acus - a needle  
puncture - a prick*

## Moxibustion



**Mugwort** ~ *Artemisia vulgaris*

# Types of acupuncture stimulation



**Monday, July 26, 1971**

## **Now, Let Me Tell You About My Appendectomy in Peking... by James Reston, Editor**

*PEKING, July 25--There is something a little absurd about a man publishing an obituary notice on his own appendix, but for the last 10 days this correspondent has had a chance to learn a little about the professional and political direction of a major Chinese hospital from the inside, and this is a.....*



## **Now, About My Operation in Peking**

By JAMES RESTON Special to The New York Times

New York Times (1857-Current file); Jul 26, 1971; ProQuest Historical Newspapers The New York Times (1851 - 200 pg. 1

# *Now, About My Operation in Peking*

By JAMES RESTON  
Special to The New York Times

PEKING, July 25—There is something a little absurd about a man publishing an obituary notice on his own appendix, but for the last 10 days this correspondent has had a chance to learn a little about the professional and political direction of a major Chinese hospital from the inside, and this is a report on how I got there and what I found.

In brief summary, the facts are that with the assistance of 11 of the leading medical specialists in Peking, who were asked by Premier Chou En-lai to cooperate on the case, Prof. Wu Wei-jan of the Anti-Imperialist Hospital's surgical staff removed my appendix on July 17 after a normal injection of Xylocain

and Benzocain, which anesthetized the middle of my body.

There were no complications—nausea or vomiting. I was conscious throughout following the injections of Professor Wu as he talked to me by Mr. Tu-chien of the Chinese Foreign Ministry during the operation, and was back in my bedroom in the hospital in two and a half hours.

However, I was in considerable discomfort if not pain during the second night after

the operation, and Li Chang-yuan, doctor of acupuncture at the hospital, with my approval, inserted three long, thin needles into the outer part of my right elbow and below my knees and manipulated them in order to stimulate the intestine and relieve the pressure and distension of the stomach.

That sent ripples of pain racing through my limbs and, at least, had the effect of diverting my attention from the distress in my stomach. Meanwhile, Doctor Li lit two pieces of an herb called ai, which looked like the burning stumps of a broken cheap cigar, and held them close to my abdomen while occasionally twirling the needles into action.

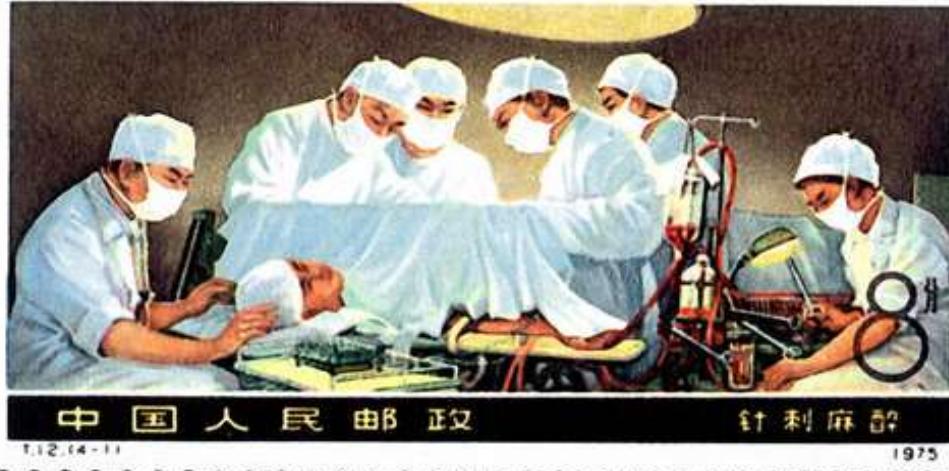
All this took about 20 minutes, during which I remem-



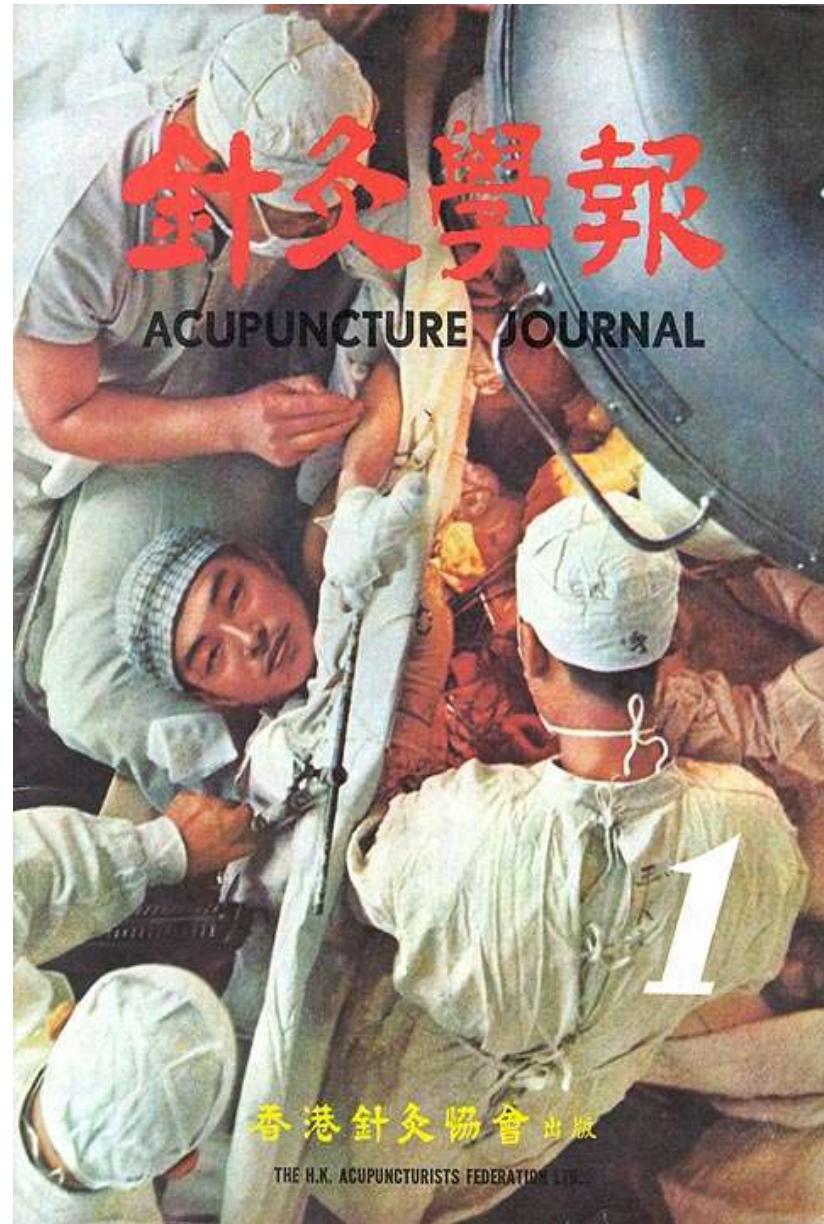
James  
Reston

Continued on Page 6, Column 3

# Seeing is believing (?)



- Dispute
- Misnomer
- Not for everyone
- Not for every surgery





REPUBLIC OF SINGAPORE

# GOVERNMENT GAZETTE

## ACTS SUPPLEMENT

*Published by Authority*

---

NO. 35]

FRIDAY, DECEMBER 22

[2000]

---

First published in the **Government Gazette**, Electronic Edition, on 18th December 2000 at 5:00 pm.

The following Act was passed by Parliament on 14th November 2000 and assented to by the President on 2nd December 2000:—

### THE TRADITIONAL CHINESE MEDICINE PRACTITIONERS ACT 2000

(No. 34 of 2000)

#### ARRANGEMENT OF SECTIONS

##### PART I

##### PRELIMINARY

###### Section

1. Short title and commencement
2. Interpretation

##### PART II

##### TRADITIONAL CHINESE MEDICINE PRACTITIONERS BOARD

3. Establishment of Traditional Chinese Medicine Practitioners Board
4. Functions of Board
5. Chairman of Board



**THE TRADITIONAL CHINESE MEDICINE  
PRACTITIONERS ACT 2000**

**(No. 34 of 2000)**

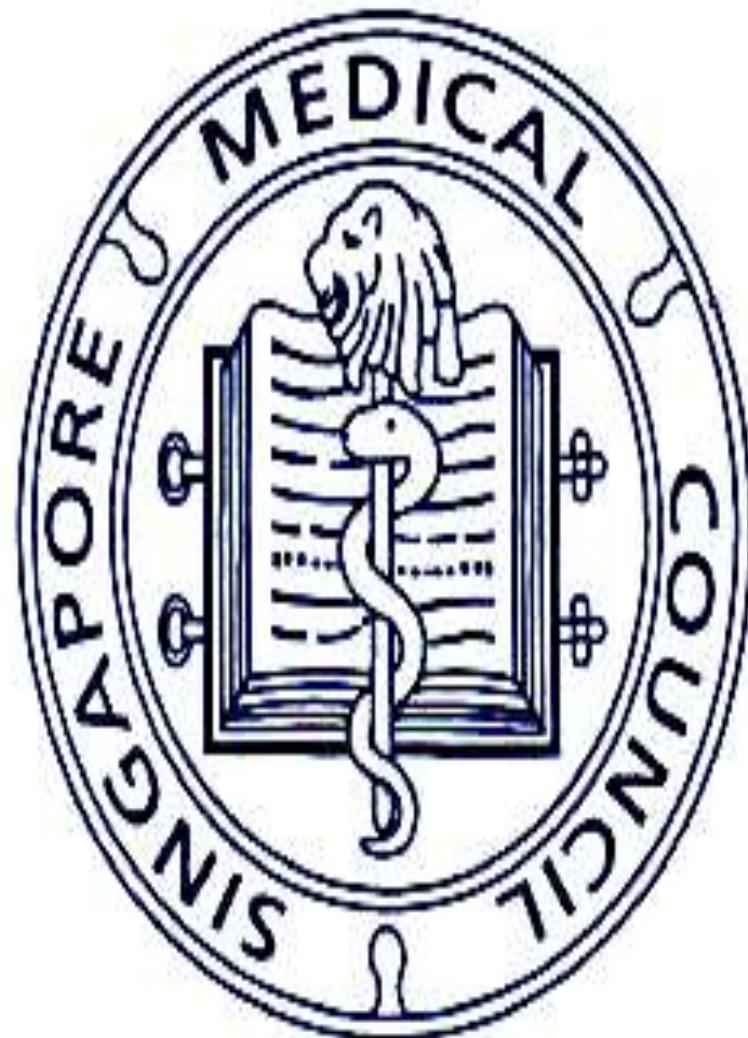
REPUBLIC OF SINGAPORE

***Acupuncture***

**“the stimulation of a certain point or points on or near the surface of the human body through any technique of point stimulation (with or without the insertion of needles), including through the use of electrical, magnetic, light and sound energy, cupping and moxibustion, to normalise physiological functions or to treat ailments or conditions of the human body”**



TRADITIONAL  
CHINESE  
MEDICINE  
PRACTITIONERS  
BOARD





- To approve or reject applications for registration.
- To accredit –
  - a) courses in the practice of TCM in Singapore for the purposes of registration; and
  - b) the institutions of higher learning in Singapore offering any of these courses.
- To make recommendations to the appropriate authorities for the continuing training and education of registered persons.
- To determine and regulate the conduct and ethics of registered persons.
- Generally to do all such acts, matters and things as are necessary or authorized to be carried out under the TCMP Act and any regulations made thereunder.

**Is acupuncture evidence-based?**

**What is acupuncture?**

**How does it work?**

**Yes (if an arrow at/around the point can bring down a mammoth 9/10)**

**How?**

**Hypotheses – based on TCM philosophy, specifically meridians & acupuncture points**

**Research/experiments**

**Existence of meridians & acupuncture points**

**Clinical efficacy trials**



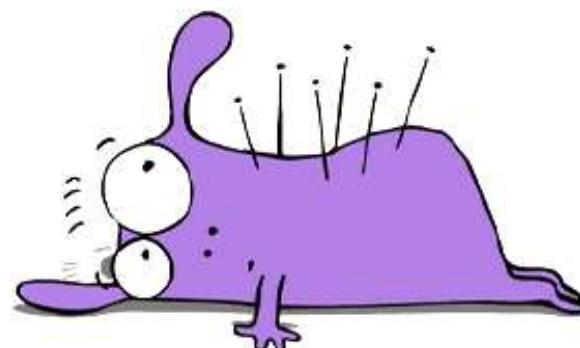
# Acupuncture in musculoskeletal disorders

## Is there a point?

**“Several surveys have identified that Australian general practitioners have largely accepted acupuncture as part of their armamentarium. About a quarter of GPs have been trained in acupuncture and the majority of those surveyed agreed that acupuncture was effective and that they had referred patients for the therapy”**

**Marie Pirotta**

MBBS, FRACGP, PhD, is Senior Lecturer, Department of General Practice, University of Melbourne, Victoria, and member, the AIMA-RACGP Joint Working Party. [m.pirotta@unimelb.edu.au](mailto:m.pirotta@unimelb.edu.au)



# Acupuncture for Chronic Pain

## Individual Patient Data Meta-analysis

Andrew J. Vickers, DPhil; Angel M. Cronin, MS; Alexandra C. Maschino, BS; George Lewith, MD; Hugh MacPherson, PhD; Nadine E. Foster, DPhil; Karen J. Sherman, PhD; Claudia M. Witt, MD; Klaus Linde, MD; for the Acupuncture Trialists' Collaboration

**Background:** Although acupuncture is widely used for chronic pain, there remains considerable controversy as to its value. We aimed to determine the effect size of acupuncture for 4 chronic pain conditions: back and neck pain, osteoarthritis, chronic headache, and shoulder pain.

### Method

tify randomization and blinding methods for each trial. The quality of each trial was determined unambiguously to be adequate. Individual patient data meta-analyses were conducted using data from 29 of 31 eligible RCTs, with a total of 17 922 patients analyzed.

**Results:** In the primary analysis, including all eligible RCTs, acupuncture was superior to both sham and no-acupuncture control for each pain condition ( $P < .001$  for all comparisons). After exclusion of an outlying set of RCTs that strongly favored acupuncture, the effect sizes were similar across pain conditions. Patients receiving acupuncture had less pain, with scores that were 0.23

(95% CI, 0.13-0.33), 0.16 (95% CI, 0.07-0.25), and 0.15 (95% CI, 0.07-0.24) SDs lower than sham controls for back and neck pain, osteoarthritis, and chronic headache, respectively; the effect sizes in comparison to no-acupuncture controls were 0.55 (95% CI, 0.51-0.58), 0.57

**"Acupuncture is effective for the treatment of chronic pain & is therefore a reasonable referral option"**

**Conclusions:** Acupuncture is effective for the treatment of chronic pain and is therefore a reasonable referral option. Significant differences between true and sham acupuncture indicate that acupuncture is more than a placebo. However, these differences are relatively modest, suggesting that factors in addition to the specific effects of needling are important contributors to the therapeutic effects of acupuncture.

Arch Intern Med. 2012;172(19):1444-1453.

Published online September 10, 2012.

doi:10.1001/archinternmed.2012.3654

# **Clinical Practice Guidelines of Acupuncture for cLBP**

- **Acupuncture is recommended as a treatment option for patients with LBP**
  - American College of Physicians
  - American Pain Society
  - U.K. National Institute for Health & Clinical Excellence
  - German Federal Committee of Physicians & Health Insurers
- **“Acupuncture provides better short term pain relief & functional improvement than no treatment & the addition of acupuncture to other treatments provides a greater benefit than other treatments alone.”**

**North American Spine Society**

# **Clinical Practice Guidelines of Acupuncture for cLBP**

**Acupuncture could be provided to a patient who has:**

- Non specific LBP**
- Not responded to conventional treatment**
- Has requested acupuncture**

# **Mechanisms of Acupuncture Analgesia**

- **Neurochemical mechanisms - endorphins, serotonin, acetylcholine, ACTH**
- **Neurological mechanisms - gate control theory, descending inhibitory mechanism, diffuse noxious inhibitory control (DNIC)**
- **Deactivation of trigger points**
- **Placebo effect**
- **Promotes the flow of “Qi” (life force energy), thereby balancing the human body system**

不通则痛

通则不痛

不通则痛

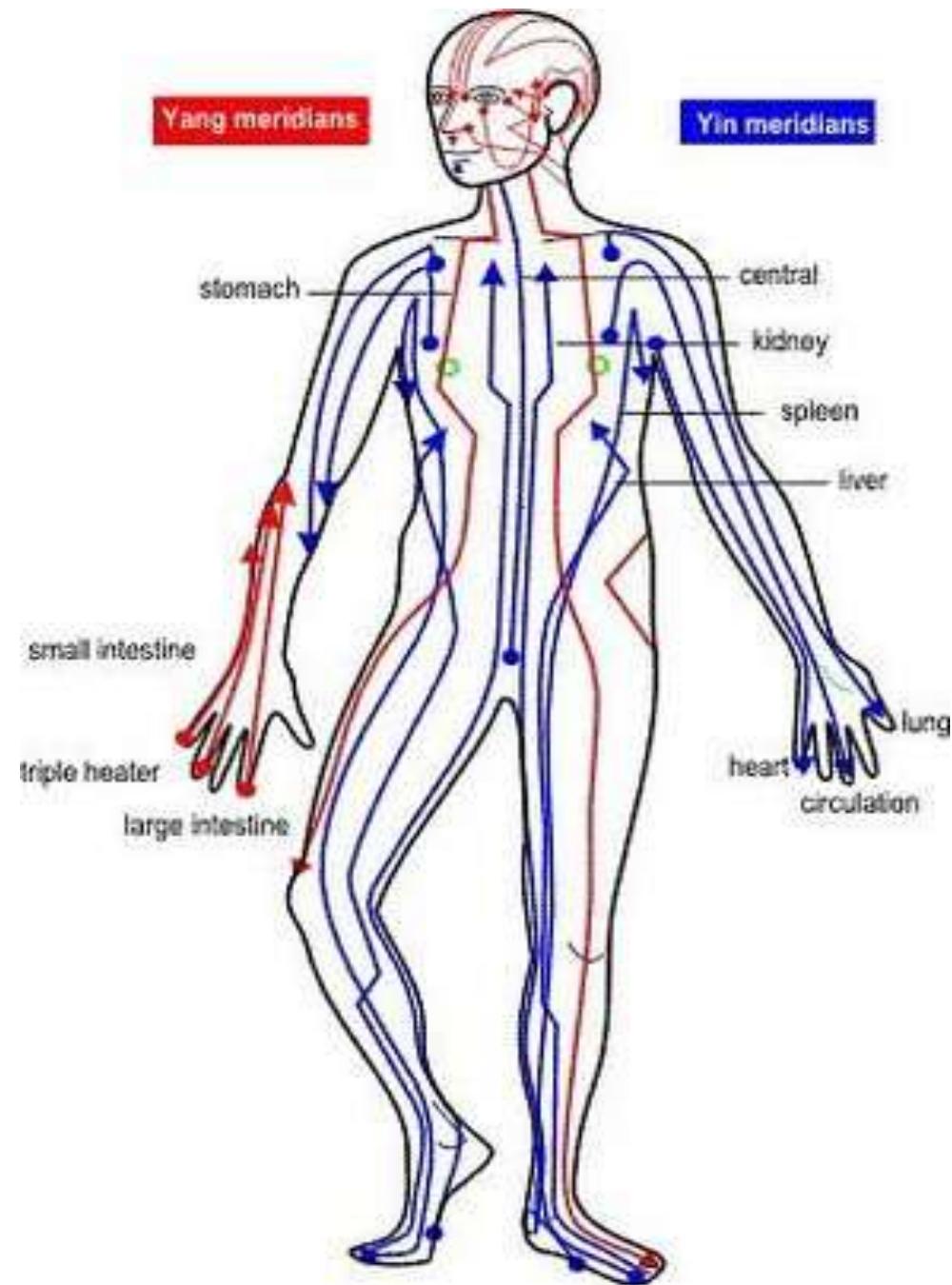
**Obstruction (to the flow of Qi  
&/or blood) leads to pain**

通则不痛

**Re-establish the flow (of Qi &/or  
blood) leads to relief of pain**

## **Obstruction (to the flow of Qi & blood) leads to pain**

- **Vascular obstruction  
(thrombolytic therapy, bypass surgery, stenting)**
- **Visceral (e.g. bowels, ureters, bile duct) obstruction  
(bypass surgery, stenting)**



# 经 綱

Jing Luo

Jing - channels

Luo - collaterals

# **ZANG (Yin)**

# **FU (Yang)**

Lungs &

Large Intestine

Spleen &

Stomach

Heart &

Small Intestine

Kidneys &

Bladder

Pericardium &

Three Heater

Liver &

Gall Bladder

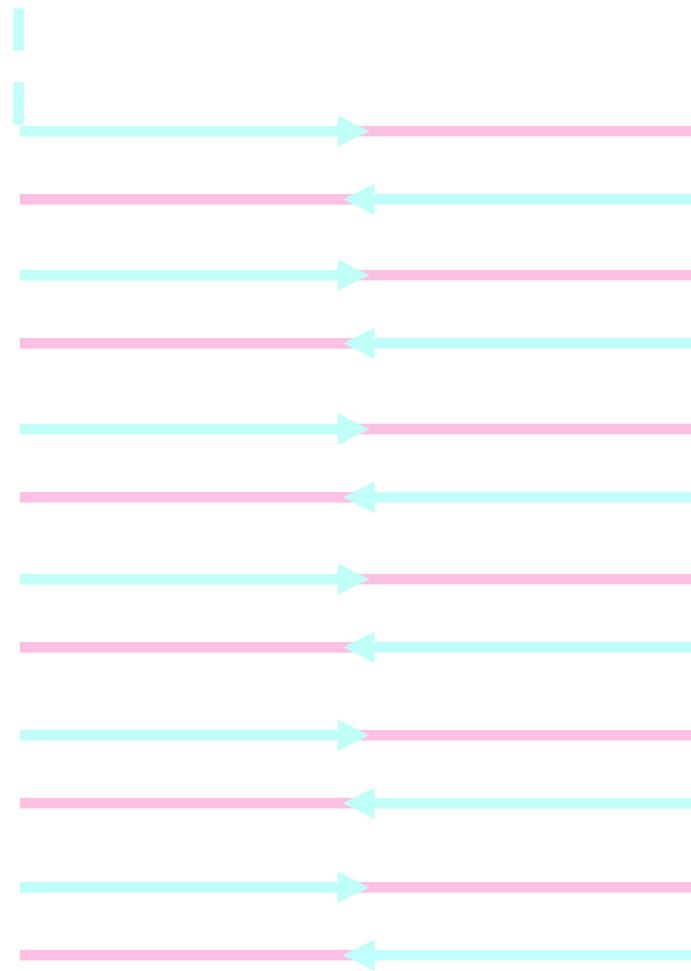
# THE MERIDIAN COMPLEX

Arm	Three Yin	Lungs Heart Pericardium	Arm Greater Yin Arm Lesser Yin Arm Absolute Yin	12 Main meridians
	Three Yang	Small intestine Large intestine Triple warmer	Arm Greater Yang Arm Yang Ming Arm Lesser Yang	
Leg	Three Yin	Spleen Kidney Liver	Leg Greater Yin Leg Lesser Yin Leg Absolute Yin	12
	Three Yang	Bladder Stomach Gall bladder	Leg Greater Yang Leg Yang Ming Leg Lesser Yang	
Great connection of Spleen			— 1	15 Connecting meridians
			— 2	
		Governing vessel Conception vessel Penetrating vessel Girdle vessel Yin heel vessel Yang heel vessel Yin linking vessel Yang linking vessel		8 Extra meridians

# MERIDIAN

Lung  
Large intestine  
Stomach  
Spleen  
Heart  
Small intestine  
Bladder  
Kidney  
Pericardium  
Triple warmer  
Gall bladder  
Liver

## First point

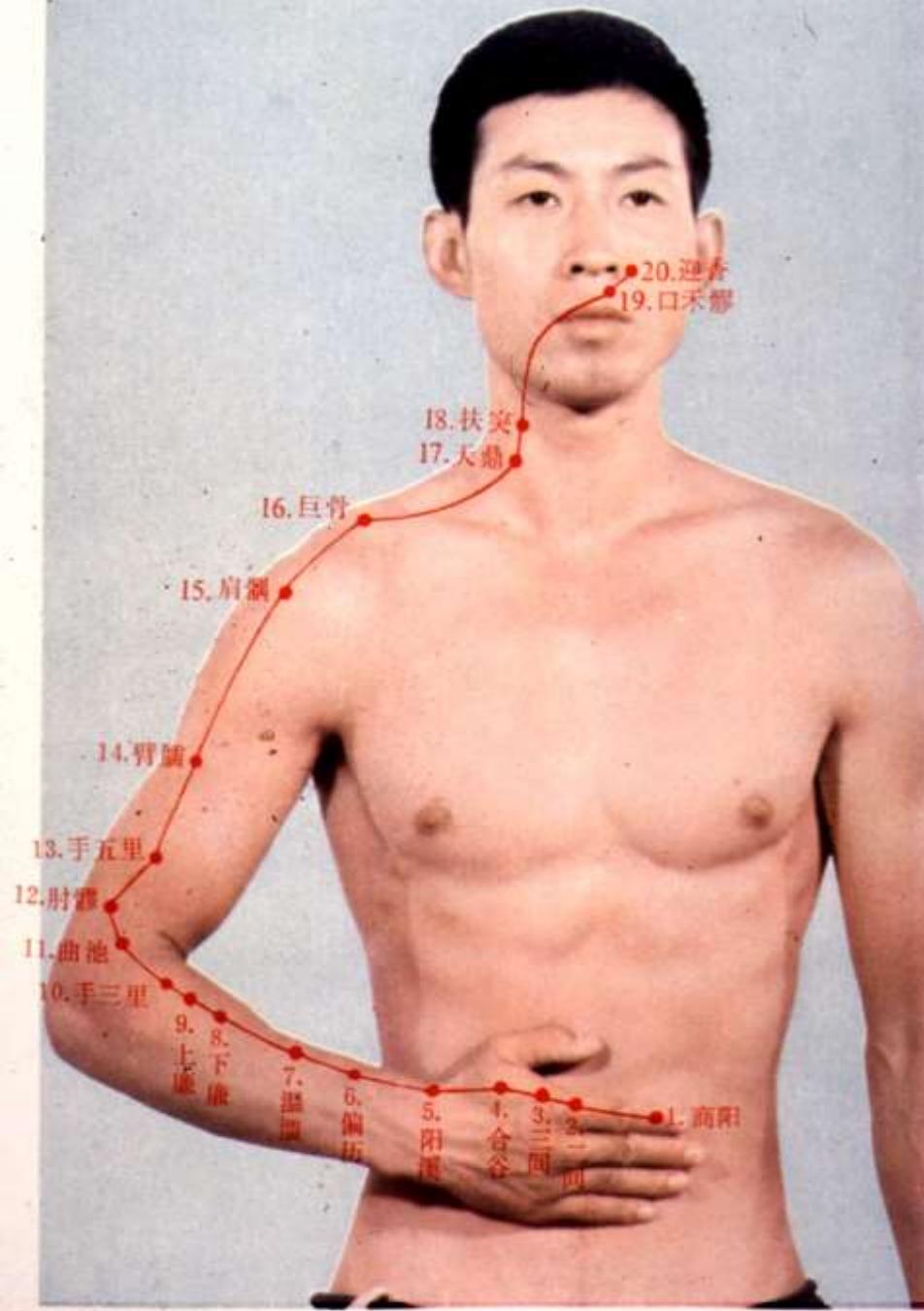


## Last point

First Point

<b>Meridian</b>	<b>Number of points*</b>
Lung	11
Large Intestine	20
Stomach	45
Spleen	21
Heart	9
Small Intestine	19
Bladder	67
Kidney	27
Pericardium	9
Three Heater	23
Gall Bladder	44
Liver	14
Governor Vessel	28
Conception Vessel	24

\* on  
one  
side  
only

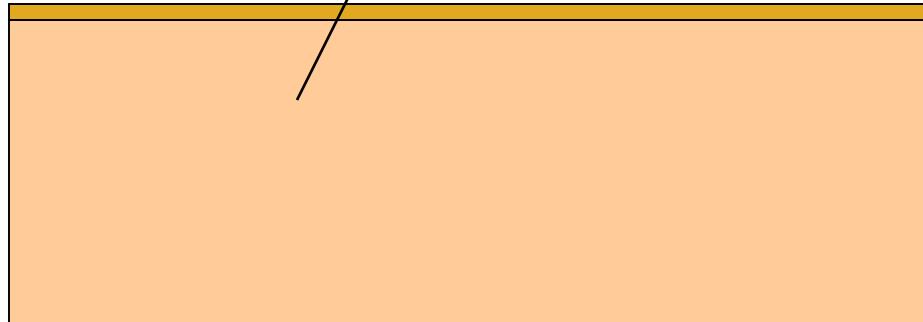


彩图 2 手阳明大肠经输穴图

**Skin**

**Subcutaneous  
Tissue**

**Acupuncture  
Needle**



# ***What does acupuncture do ?***

- **General modulatory effect**
  - strengthening the body's own negative feedback mechanism
- **Specific target effect**

# **What does acupuncture do ?**

- **General modulatory effect**
  - **strengthening the body's own negative feedback mechanism**
- **Specific target effect**
  - **site specific (acupoint) manipulation**
  - **parameter (frequency) specific stimulation**

# ***Site Specificity***

- **Meridian / Channel (morphological evidence?)**
- **Acupoints (precise to mm level?)**
- **Body points (Chinese original) or Ear points (French scholars)**
- **Bio-electrically sensitive sites, or densely innervated sites**
- **Relative rather than absolute specificity**

- **Acupoint specificity is only relative.  
Effects of different acupoints often overlap.**

同病异治， 异病同治

*“Treating the Same Disorder with Different Techniques;  
treating Different Disorders with the Same Technique”*

# ***Parameter Specificity***

## **Mechanical stimulation**

- Manual manipulation vs. no manipulation**

# **Parameter Specificity**

## **Electrical stimulation**

- **Via needles (electroacupuncture)(0.5-3 mA)**
- **Via skin electrodes (5-15 mA)**
- **Frequency (Hz, 1 – 100)**
- **Intensity (mA, 0.5 – 3)**
- **Pulse width (ms, 0.1 – 0.6)**

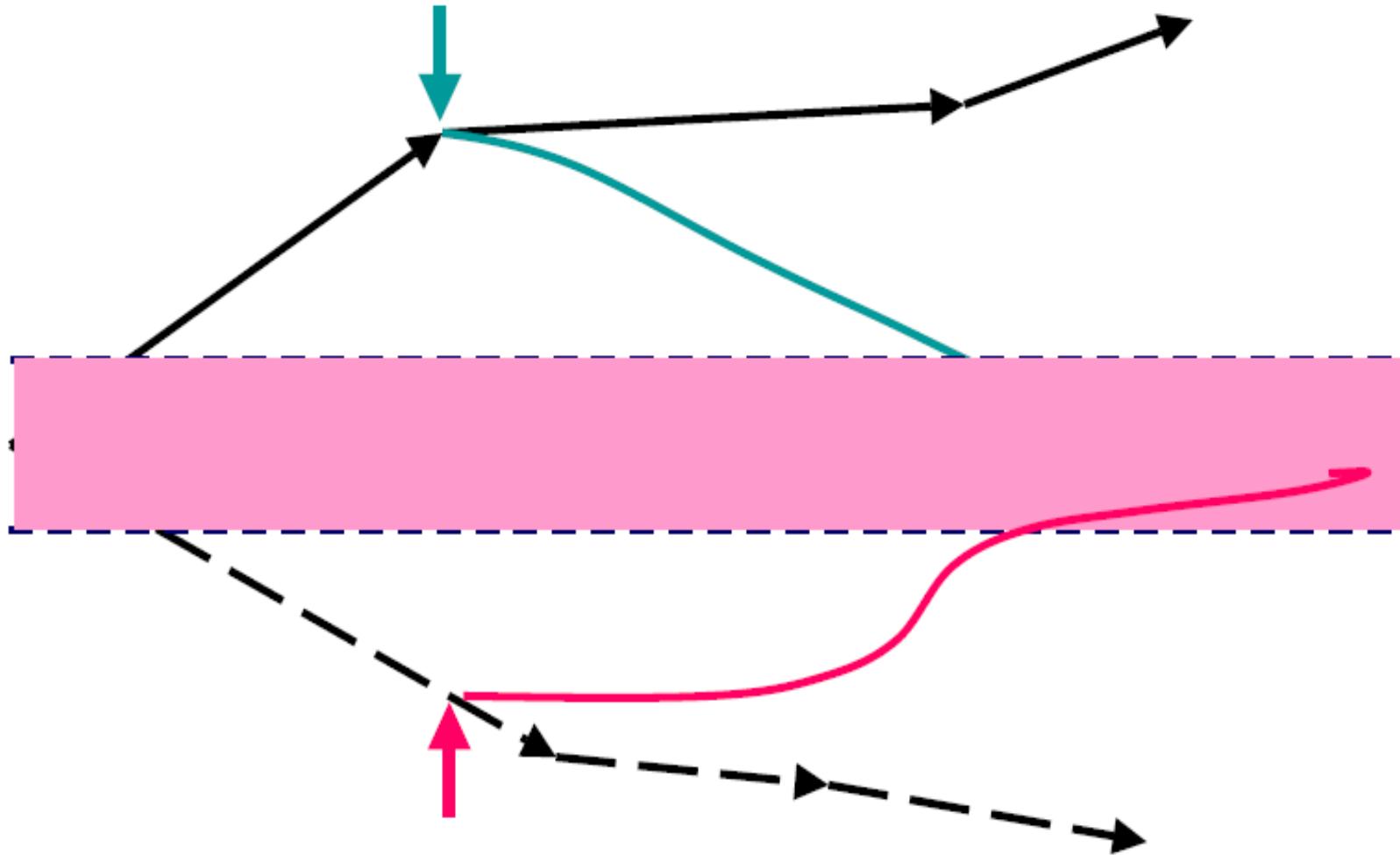
# **Cumulative Effects**

- **Effect of acupuncture can be seen after several sessions of treatment (cumulative effect)**
- **Possible mechanism: acceleration of the gene expression (e.g. endorphins) which peaks 48 – 72 hours after the acupuncture**

# ***Models suitable for the study of acupuncture effect***

- **Normal subjects** is in a well balanced status. Acupuncture produces only minor effect.
- In patients, homeostasis is unbalanced. Acupuncture can play a major role in bringing body function back to a physiological state.

# Acupuncture can resume the homeostasis



# **How long dose acupuncture effect last?**

- **In normal persons, acupuncture produces only a transient fluctuation of physiological function (< 1 hr).**
- **In diseased condition, acupuncture can produce a longer lasting effect for hours or even days.**

# Mechanisms of Acupuncture Analgesia

- **Neurochemical mechanisms** - endorphins, serotonin, acetylcholine, ACTH
- ***Neurological mechanisms*** - *gate control theory, descending inhibitory mechanism, diffuse noxious inhibitory control (DNIC)*
- ***Deactivation of trigger points***
- ***Placebo effect***
- ***Promotes the flow of “Qi” (life force energy), thereby balancing the human body system***

- **Naloxone blocks acupuncture analgesia and causes hyperalgesia : Endorphin is implicated.**

Pomeranz B, Chiu D. *Life science* 1976; 19:1757-2.

- **Antagonism of acupuncture analgesia in man by the narcotic antagonist naloxone.**

Mayer DJ, Price DD et al. *Brain Res.* 1977; 121: 368-72.

# **Evidence For Mediation of Acupuncture Analgesia (AA) By Endorphins**

**Pomeranz B. *The J of Alt and Compl Med.*. 1996; 2: 53-60.**

- 1. Four different opiate antagonists are able to block AA**
- 2. Naloxone has a stereospecific effect - I-naloxone. blocks AA but d-naloxone does not.**
- 3. Microinjection of naloxone blocks AA only if given directly into analgesic sites in the CNS.**
- 4. Microinjection of endorphin antibodies blocks AA.**
- 5. Mice, genetically deficient in opiate receptors, show poor AA.**

# **Evidence For Mediation of Acupuncture Analgesia (AA) By Endorphins**

*Pomeranz B. The J of Alt and Compl Med.. 1996; 2: 53-60.*

- 6. Rats, deficient in endorphin production, show poor AA.**
- 7. Endorphin levels rise in blood and CSF and fall in specific brain regions during AA.**
- 8. AA is enhanced by protecting endorphins from enzyme degradation, which prolongs their action.**
- 9. AA can be transmitted to a second animal by transfer of CSF or by cross-circulation, and this effect is blocked by naloxone.**
- 10. Reduction of pituitary endorphins suppresses AA.**

J.S.HAN

THE NEUROCHEMICAL  
BASIS OF PAIN RELIEF  
BY ACUPUNCTURE

针刺镇痛的神经化学基础

Vol.2





Opinion

*TRENDS in Neurosciences* Vol.26 No.1 January 2003

# Acupuncture: neuropeptide release produced by electrical stimulation of different frequencies

Ji-Sheng Han

Neuroscience Research Institute, Peking University, 38 Xue Yuan Road, Beijing 100083, China

# **Mechanisms of Acupuncture Analgesia**

- Neurochemical mechanisms
- Neurological mechanisms
- Deactivation of trigger points
- Placebo effect
- Promotes the flow of “Qi” (life force energy), thereby balancing the human body system

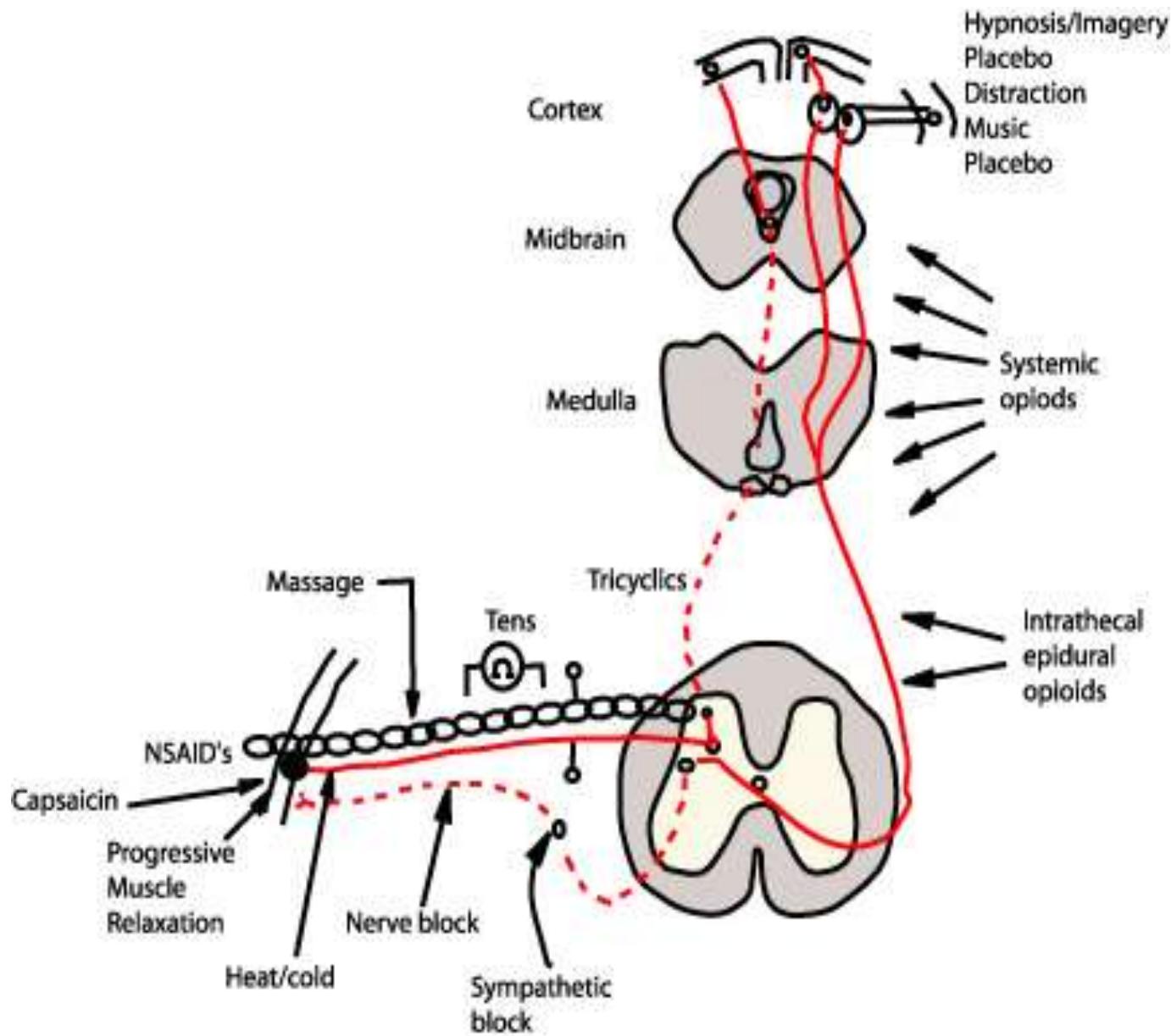
**Peripheral afferent pathway for acupuncture analgesia**

**Electroacupuncture hyperalgesia is mediated by afferent nerve impulses : an electrophysiological study in mice**

**Characteristics of afferent fiber innervation on acupuncture points zusanli**

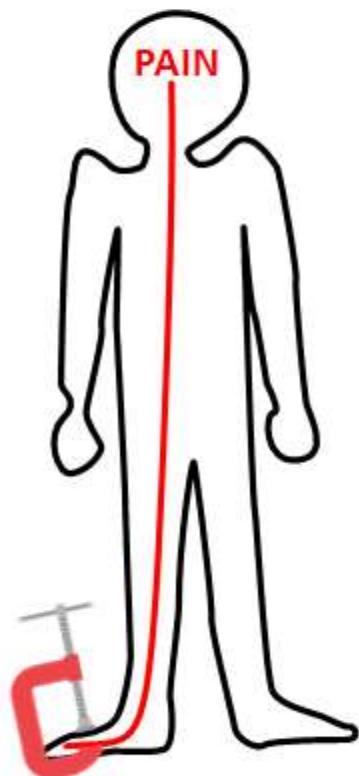
**A study on the receptive field of acupoints and the relationship between characteristics of needling sensation and groups of afferent fibres**

**Local anaesthesia blocks the antiemetic action of P6 acupuncture**

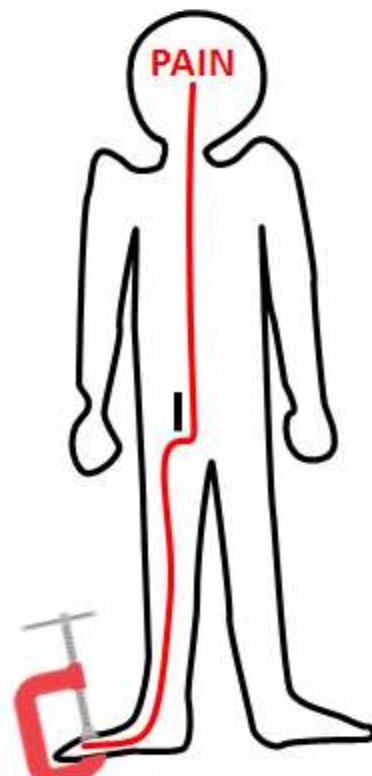


# Changing Paradigms

Descartes

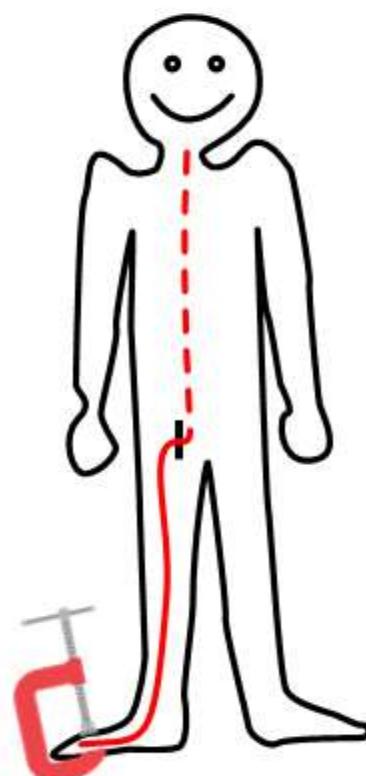


Gate Control Theory



A direct connection

Gate open

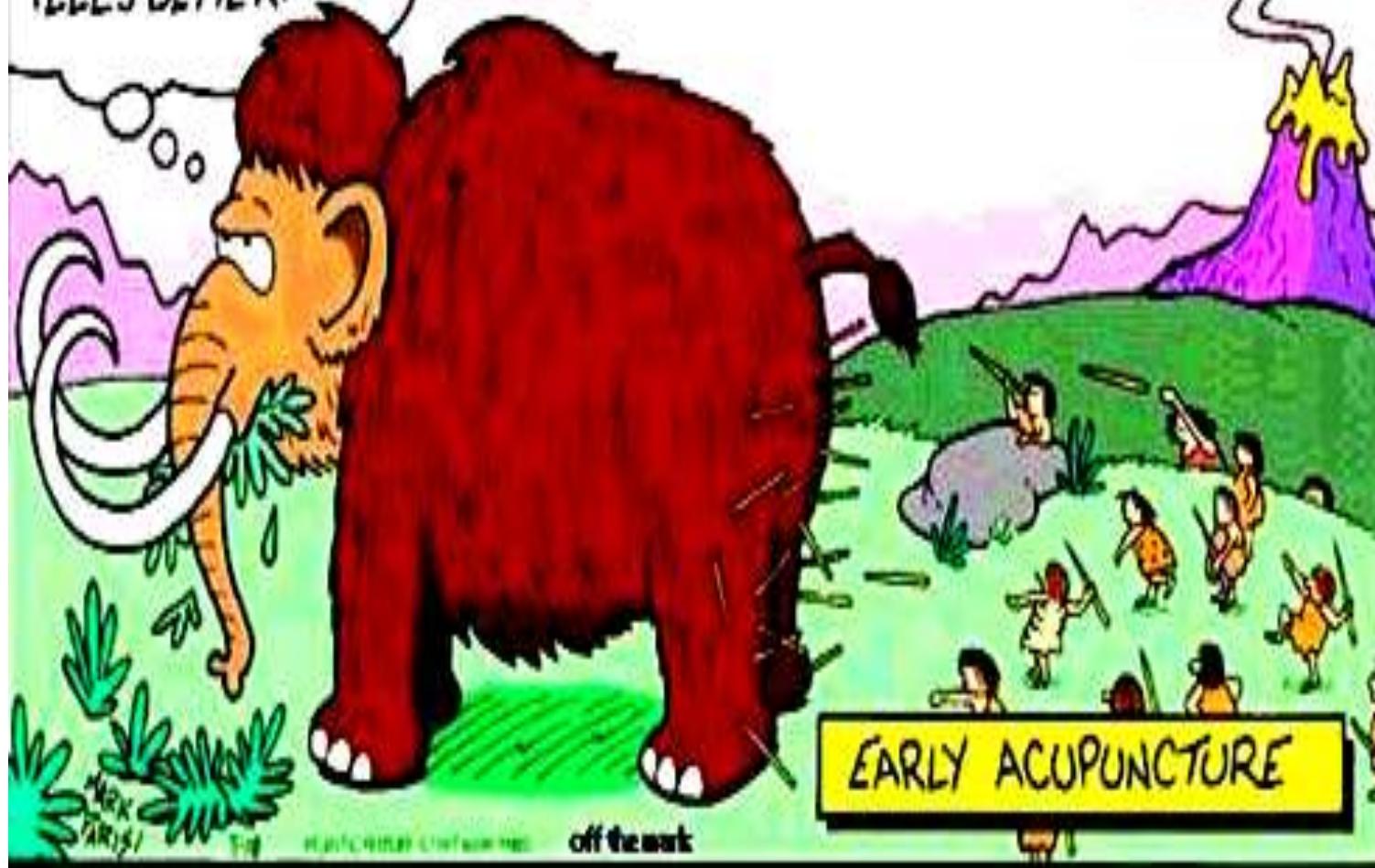


Gate closed

**Segmental Acupuncture**

**Heterosegmental Acupuncture**

THAT'S ODD... MY NECK SUDDENLY  
FEELS BETTER...



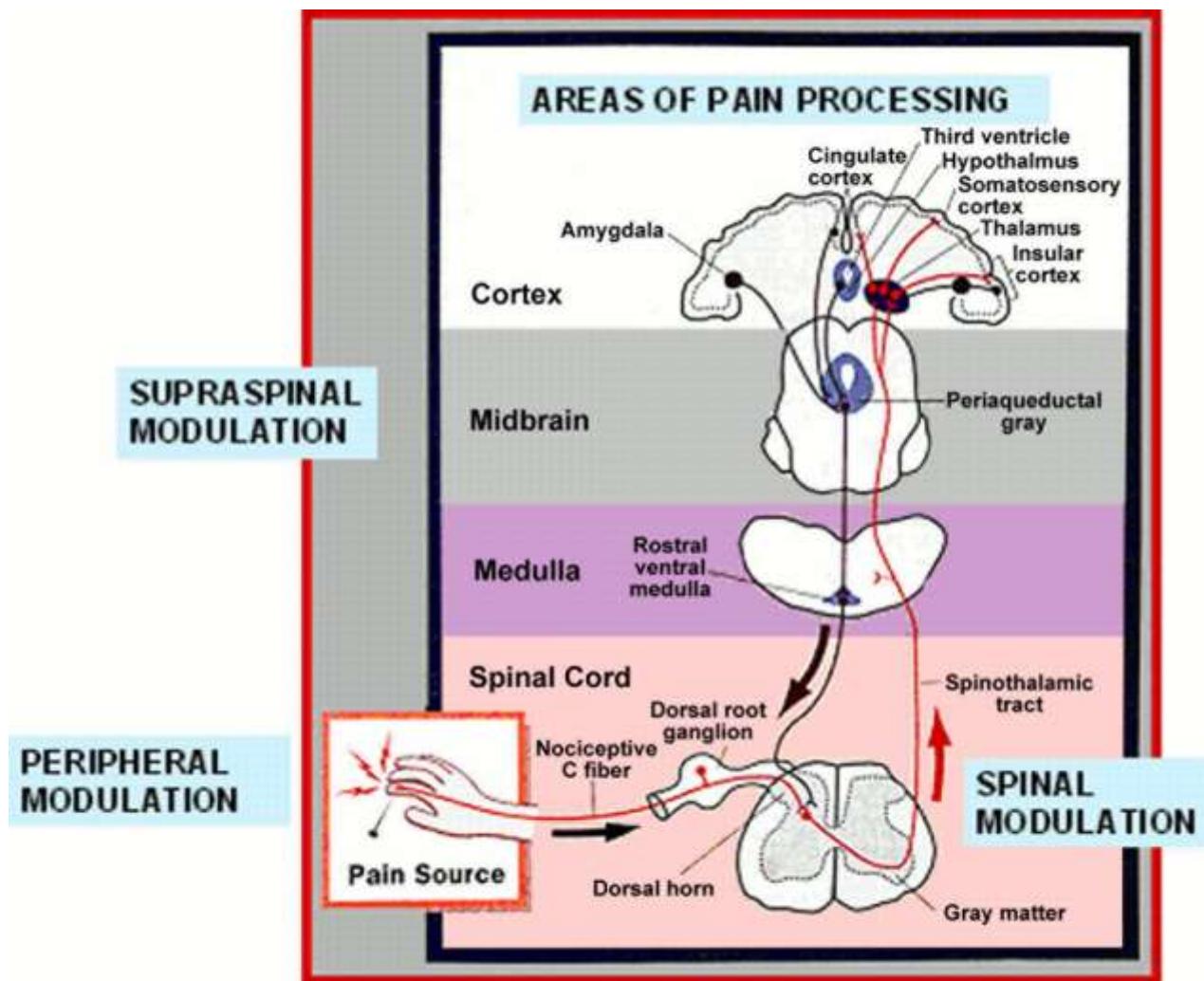
*Segmental Acupuncture*

**Heterosegmental Acupuncture**



principle of pain transmission as described by René Descartes (1596-1650) in *Tractatus De Homine (Treatise of Man)*

Fig. 2 Chart shows the main anatomic areas of pain modulation.



DeLeo J. A. J Bone Joint Surg 2006;88:58-62

# **Diffuse Noxious Inhibitory Controls (DNIC) in Animals and in Man**

**Le Bars D, Villanueva L et al.  
*Acupuncture Medicine 1991; 9(2): 47-57***

**Acupuncture Research**

**And**

**Functional Brain Imaging**

# **Functional Neuroimaging**

- **Positron Emission Tomography (*PET*), Single Photon Emission Computed Tomography (*SPECT*)**
- **Functional Magnetic Resonance Imaging (*fMRI*)**

## Neuronal Specificity of Acupuncture Response: A fMRI Study with Electroacupuncture

Ming-Ting Wu,<sup>\*†</sup> Jer-Ming Sheen,<sup>‡</sup> Kai-Hsiang Chuang,<sup>§</sup> Pinchen Yang,<sup>¶</sup> Shieuh-Lii Chin,<sup>||</sup>  
Chin-Ying Tsai,<sup>\*</sup> Chung-Jen Chen,<sup>\*\*</sup> Jan-Ray Liao,<sup>††</sup> Ping-Hong Lai,<sup>\*†</sup> Kuo-An Chu,<sup>†‡‡</sup>  
Huay-Ben Pan,<sup>\*†</sup> and Chien-Fang Yang<sup>\*†</sup>

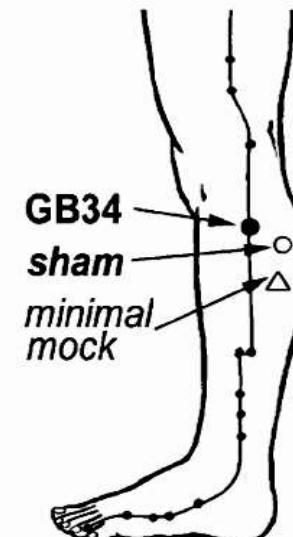
<sup>\*</sup>Department of Radiology, <sup>||</sup>Department of Rehabilitation, and <sup>††</sup>Department of Internal Medicine, Kaohsiung Veterans General Hospital, Kaohsiung 813, Taiwan, Republic of China; <sup>†</sup>School of Medicine, National Yang Ming University, Taipei, Taiwan, Republic of China;

<sup>‡</sup>Department of Chinese Medicine, Chang-Chung Memorial Hospital-Kaohsiung Medical Center, Kaohsiung, Taiwan, Republic of China;

<sup>§</sup>College of Electrical Engineering, National Taiwan University, Taipei, Taiwan, Republic of China; <sup>¶</sup>Department of Psychiatry and

<sup>\*\*</sup>Department of Internal Medicine, School of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan, Republic of China; and  
<sup>††</sup>Department of Electrical Engineering, National Chung Hsing University, Taichung, Taiwan, Republic of China

Received October 5, 2001



A minimal EA > rest

Neuroimage. 2002 Aug;16(4):1028-37.



B minimal EA > mock EA



C sham EA > rest



D real EA > rest



E real EA > sham EA



top

right medial

right lateral

left lateral

# **Mechanisms of Acupuncture Analgesia**

- Neurochemical mechanisms
- Neurological mechanisms
- Deactivation of trigger points
- Placebo effect
- Promotes the flow of “Qi” (life force energy), thereby balancing the human body system

# **Trigger Point**

## **(Trigger Zone, Trigger Spot, Trigger Area)**

- A focus of hyperirritability in a tissue that, when compressed, is locally tender and, if sufficiently hypersensitive, gives rise to referred pain and tenderness, and sometimes to referred autonomic phenomena and distortion of proprioception. Types include myofascial, cutaneous, fascial, ligamentous and periosteal trigger points.**

*J. Travell, D. Simons*

# **Myofascial Pain Syndrome**

**Pain and/or autonomic phenomena referred from active myofascial trigger points with associated dysfunction. The specific muscle or muscle group that causes the symptoms should be identified.**

# Types of Acupuncture Points

- Classical meridian points
- Extrapoints
- Ashi points (阿是穴)  
*(Trigger Points)*

**Review Article**

---

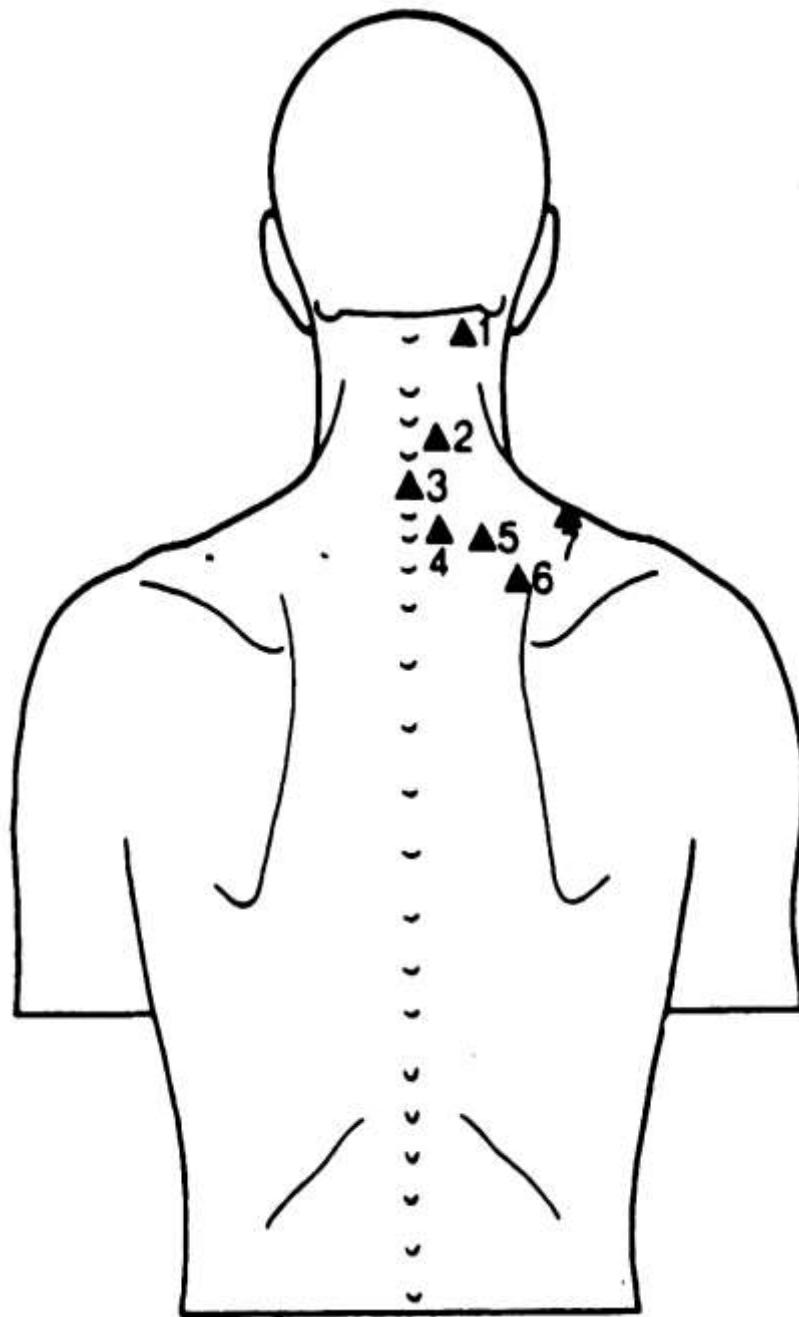
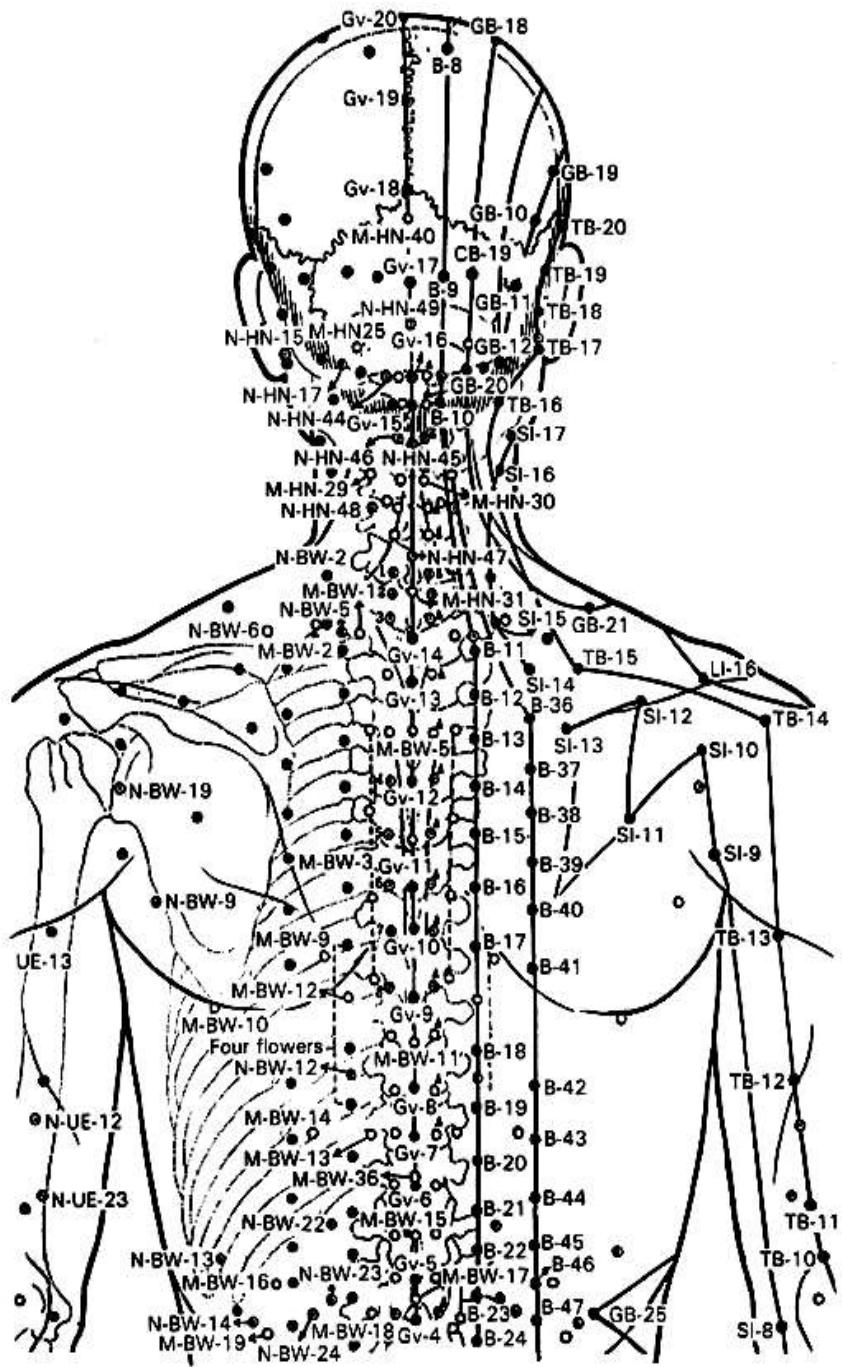
**TRIGGER POINTS AND ACUPUNCTURE POINTS FOR PAIN:  
CORRELATIONS AND IMPLICATIONS**

**RONALD MELZACK \*, DOROTHY M. STILLWELL and ELISABETH J. FOX**

*Department of Psychology, McGill University, and*

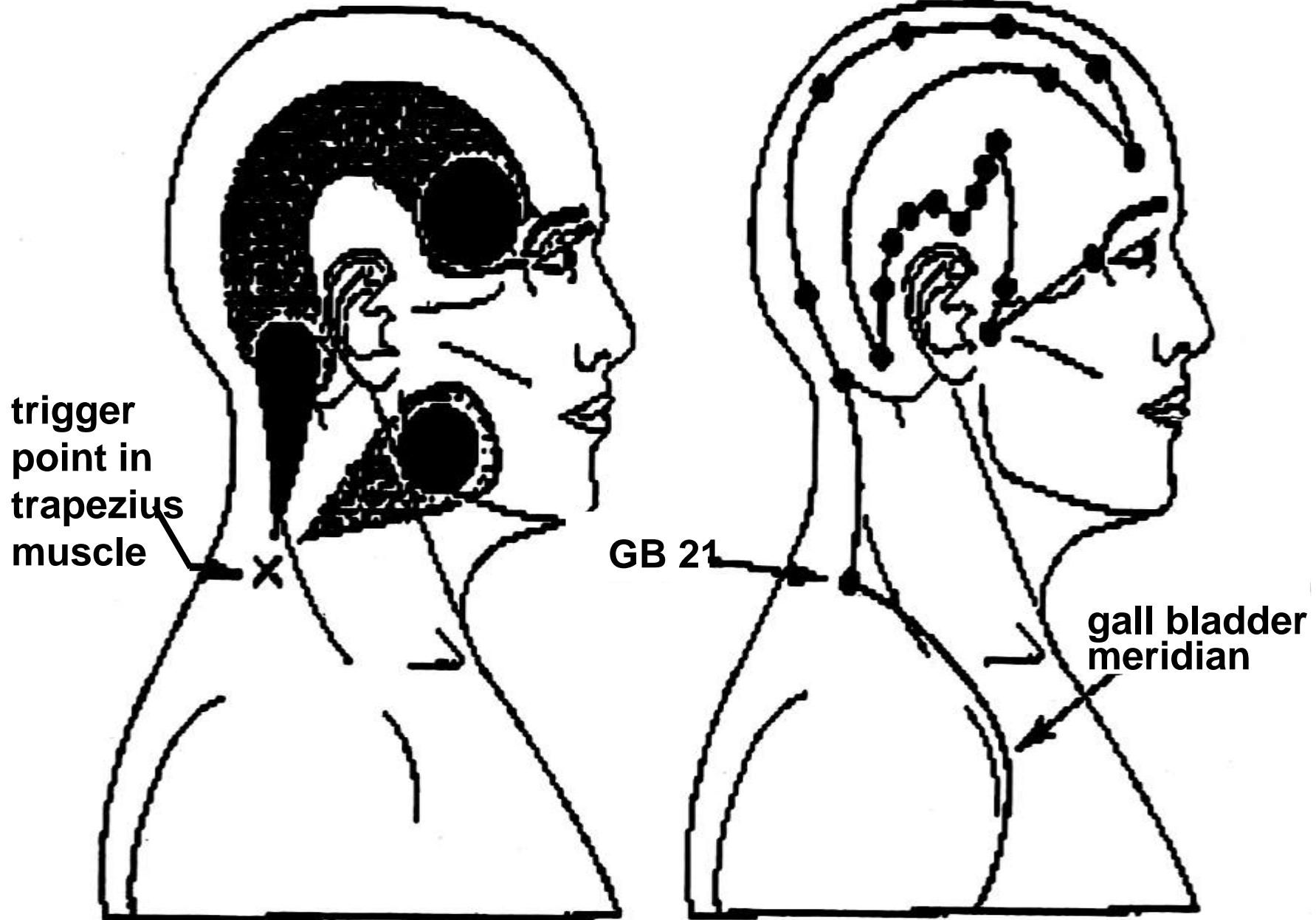
*Department of Medicine, Royal Victoria Hospital, Montreal, Que. (Canada)*

(Accepted July 21st, 1976)

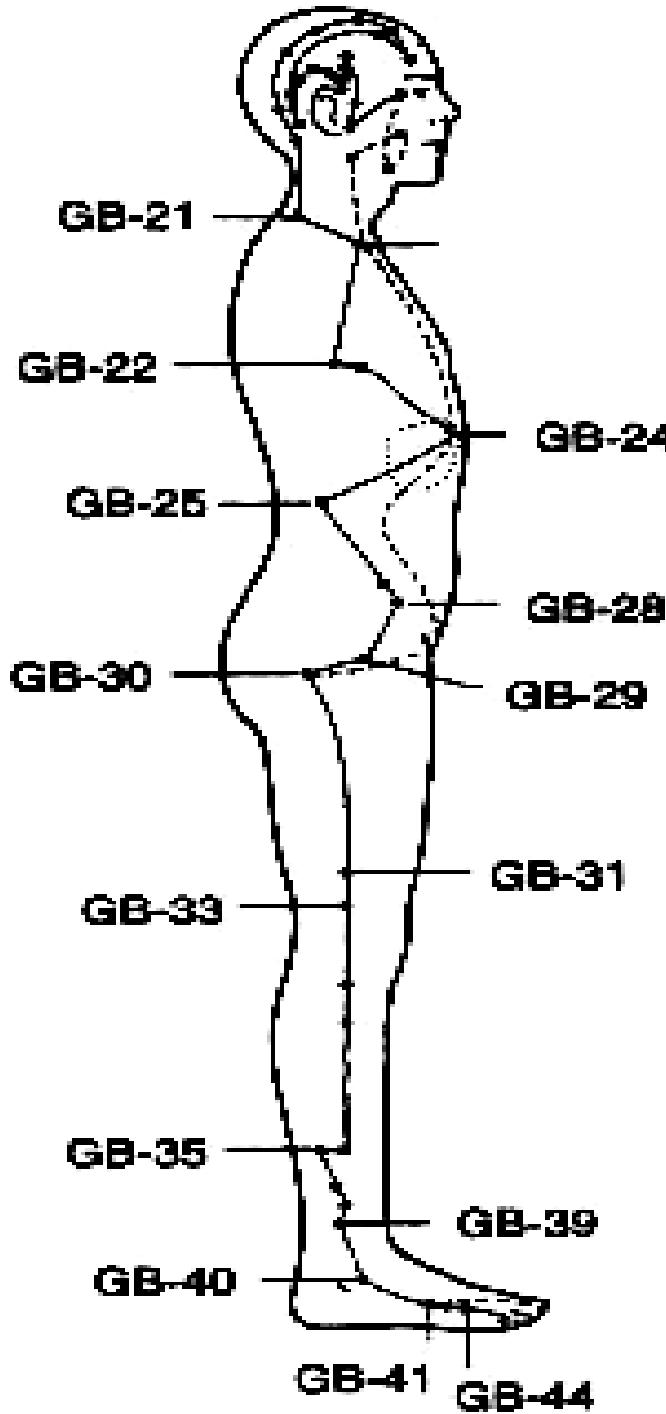


**Trigger points associated with myofascial and visceral pains often lie within the areas of referred pain but many are located at a distance from them. Furthermore, brief, intense stimulation of trigger points frequently produces prolonged relief of pain. These properties of trigger points — their widespread distribution and the pain relief produced by stimulating them — resemble those of acupuncture points for the relief of pain. The purpose of this study was to determine the correlation between trigger points and acupuncture points for pain on the basis of two criteria: spatial distribution and the associated pain pattern. A remarkably high degree (71%) of correspondence was found. This close correlation suggests that trigger points and acupuncture points for pain, though discovered independently and labeled differently, represent the same phenomenon and can be explained in terms of the same underlying neural mechanisms. The mechanisms that play a role in the genesis of trigger points and possible underlying neural processes are discussed.**

*Pain. 1977 Feb;3(1):3-23.*



***Trigger Point Pain Referral Patterns and Meridians***



# **Mechanisms of Acupuncture Analgesia**

- Neurochemical mechanisms
- Neurological mechanisms
- Deactivation of trigger points
- Placebo effect
- Promotes the flow of “Qi” (life force energy), thereby balancing the human body system

# **Placebo**

- **'I will please'**
- **mock medicine**

# Placebo Fiction

- *Taking a placebo is the same as doing nothing*
- *Placebo effects are usually short-lived*
- *People who respond to placebos didn't have anything wrong with them to begin with.*

## Placebo Facts

- *Large capsules are better placebos than small capsules*
- *Yellow placebos are most effective as stimulants, and white placebos are most effective as painkillers. Green placebos are best for anxiety*
- *Injections are better placebo than pills*
- *Placebos achieve their most pronounced effect among people who have severe anxiety about their conditions*
- *Taking two placebo pills works better than taking one*

# ***The Mechanism of Placebo Analgesia***

***Levine JD, Gordon WC, Fields HL***

***Lancet 1978 Sep 23;2(8091):654-7.***

- ***Placebo analgesia may exist and that endogenous opioids play a role in the mechanism***

***Is placebo analgesia mediated by endogenous opioids?***

***Ter Riet, G., de Craen, A.J.M., de Boer, A., Kessels, A.G.H.  
A Systematic Review. Pain. 1998; 76: 273-275.***



Hróbjartsson A, Gøtzsche PC. Is the placebo powerless? Update of a systematic review with 52 new randomized trials comparing placebo with no treatment. *J Intern Med* 2004; 256: 91–100.



Hróbjartsson A, Gøtzsche PC. Placebo interventions for all clinical conditions. *Cochrane Database Syst Rev* 2010 Jan 20; (1) :CD003974.

- Randomised placebo trials with a no-treatment control group investigating any health problem.
- Outcome data were available in 202 out of 234 included trials, investigating 60 clinical conditions.
- Did not find that placebo interventions have important clinical effects in general. However, in certain settings placebo interventions can influence patient-reported outcomes, especially pain and nausea, though it is difficult to distinguish patient-reported effects of placebo from biased reporting.

# Placebos without Deception: A Randomized Controlled Trial in Irritable Bowel Syndrome

Ted J. Kaptchuk<sup>1,2\*</sup>, Elizabeth Friedlander<sup>1</sup>, John M. Kelley<sup>3,4</sup>, M. Norma Sanchez<sup>1</sup>, Efi Kokkotou<sup>1</sup>, Joyce P. Singer<sup>2</sup>, Magda Kowalczykowski<sup>1</sup>, Franklin G. Miller<sup>5</sup>, Irving Kirsch<sup>6</sup>, Anthony J. Lembo<sup>1</sup>

PLoS One. 2010 Dec 22;5(12):e15591. doi: 10.1371/journal.pone.0015591.

'Placebo treatment can significantly influence subjective symptoms. However, it is widely believed that response to placebo requires concealment or deception. We tested whether open-label placebo (non-deceptive and non-concealed administration) is superior to a no-treatment control with matched patient-provider interactions in the treatment of irritable bowel syndrome (IBS).'

Patients were randomized to either open-label placebo pills presented as "placebo pills made of an inert substance, like sugar pills, that have been shown in clinical studies to produce significant improvement in IBS symptoms through mind-body self-healing processes" or no-treatment controls with the same quality of interaction with providers.

Open-label placebo produced significantly higher mean ( $\pm$ SD) global improvement scores