



Prolotherapy and acupuncture for pain management

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Prolotherapy

- Prolotherapy is an injection treatment for chronic musculoskeletal pain.
- The term prolotherapy comes from the word prolix, which means proliferate-to produce new cells .
- It is also known as “sclerotherapy”, “proliferation therapy”,
- It is a method of treating chronic ligament and tendon weakness, where the weakened areas are repeatedly injected with a **proliferant** solution to help restart body’s natural healing process by causing controlled acute inflammation

- As the tendons and ligaments grow stronger and healthier, the pain is disappeared .
- The purpose is to strengthen weakened connective tissue and alleviate musculoskeletal pain.
- Proliferants (injected solutions) cause local irritation, with subsequent inflammation and tissue healing, resulting in strengthening of damaged ligamentous, tendon and intra-articular structures.
- These processes were thought to improve joint stability, biomechanics, function and eventually to reduce pain.

- The healing process is expected to take about **six weeks** after the initial treatment.
- Protocols for prolotherapy consists of several injection sessions delivered every 2 to 6 weeks over the course of several months

There are three major classes of proliferants commonly used in prolotherapy

- **Irritants** include phenol and phenol-glycerine-glucose.
- **Chemotactics** like sodium morrhuate
- **Osmotics** includes concentrated/hypertonic solutions of glucose
- Local anaesthetic (commonly lignocaine) is often added to proliferant solutions to reduce the pain of the irritant injections



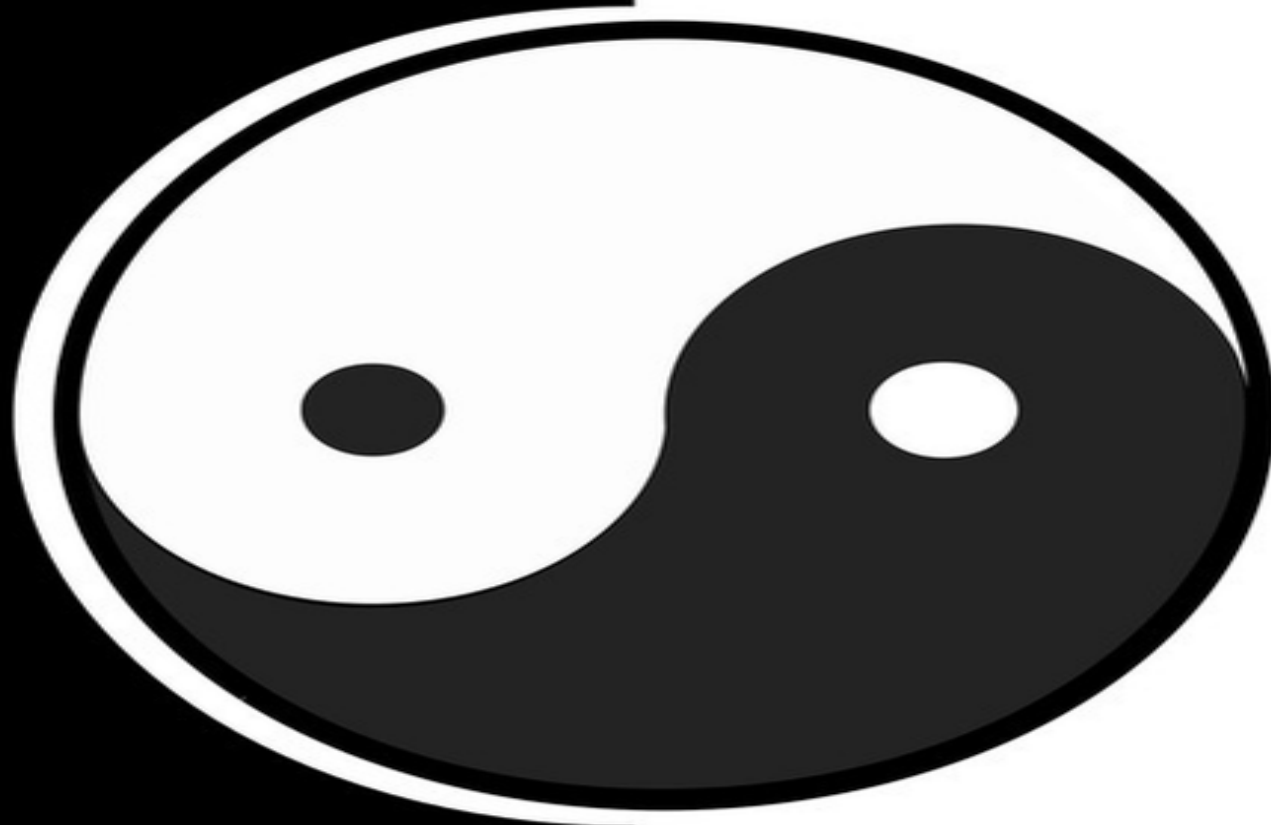


Acupuncture

- It is one of the modalities of Traditional Chinese Medicine (TCM)
- TCM deal with flow of energy called “chi” through the body between the vital organs along paths called “meridians.”
- TCM focuses on balancing the flow of qi throughout the body and physiological functions (such as breathing or digestion)
- The diagnoses in TCM is based on determining how the symptoms fit into the idea of the eight principles through paired concepts, such as heat/cold, internal/external, yin/yang, and vacuity/repletion (deficiency/excess).

Yin

Negative
Feminine
Passive
Introspective
Retreating
Quiet
Stillness
Flexible
Intuitive
Dark
Night
Cold
Soft
Slow
Moon



Yang

Positive
Masculine
Active
Expressive
Advancing
Loud
Movement
Rigid
Logical
Light
Day
Hot
Hard
Fast
Sun

Primary methods and therapies of TCM

- Correct dietary nutrition as well as exercise based around the movements of tai chi
- acupuncture needles
- consumption of Chinese herbal
- mineral-based supplements,
- tui na massage therapy.

Acupuncture

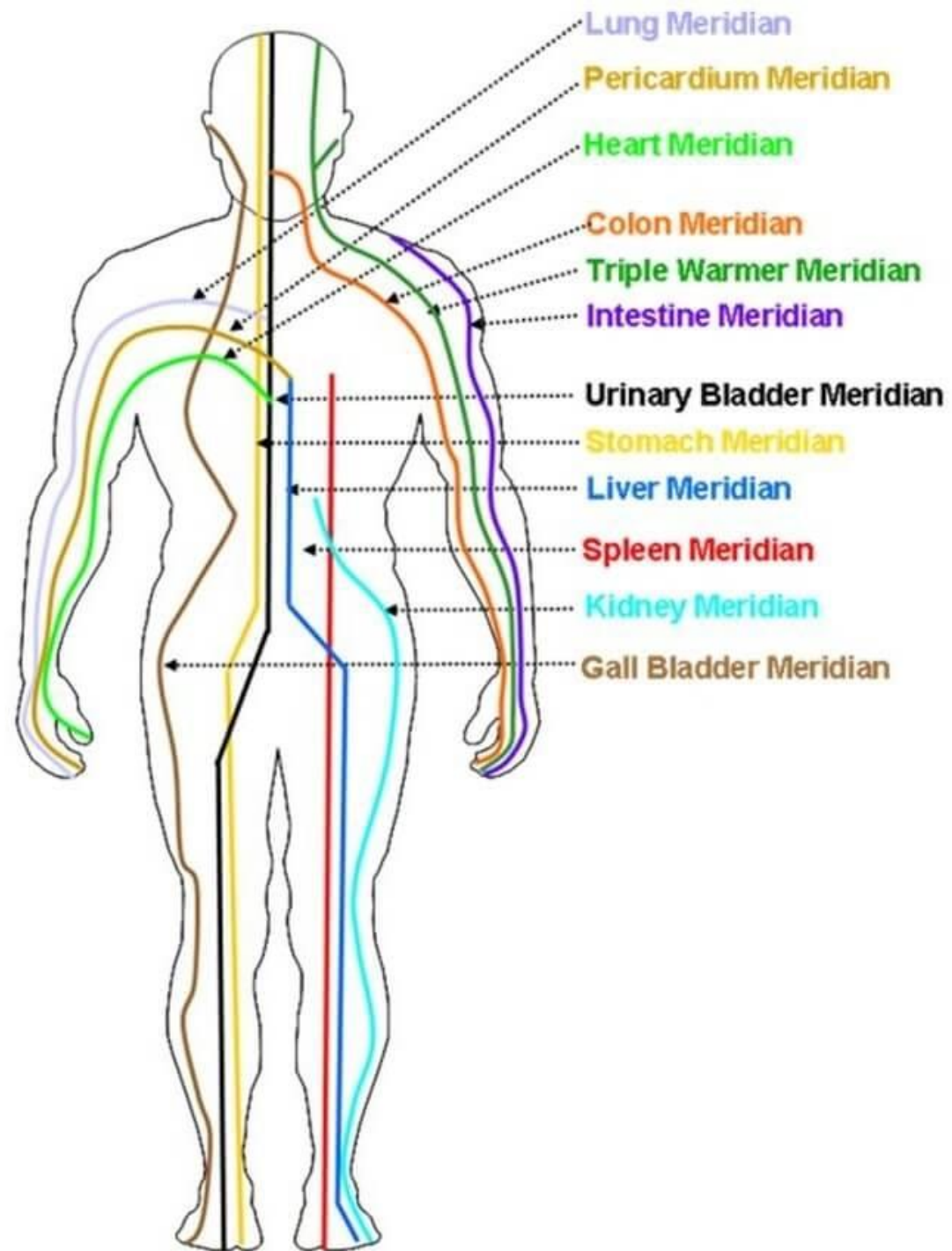
- obtain a desired physiological effect via the insertion of needles into the skin at specified points on the body, which are chosen based on the desired effect and the pathology of the patient.
- acupuncture involves the piercing of the skin with metallic needles along the body's meridians, as well as at points known as **ah shi**.
- **mechanical stimulation, electrical stimulation, applying heated needles**, using moxa made of mugwort and other plants, or applying a laser. While evidence is lacking for determining which forms of acupuncture provide superior treatment when compared to the others



How to

- mechanical stimulation
- electrical stimulation
- applying heated needles
- using moxa made of mugwort and other plants





Acupuncture induce analgesia

- By altering the flow of qi to different areas via needling along meridians for **increasing**, **suppressing**, or **changing** the behavior of the patient's qi.
- The needles causes :
 - increase blood flow throughout the body
 - reducing prostaglandin, histamine, and other inflammatory agents at a local level.
 - elevated levels of enkephalin, endorphins, and possibly gamma-aminobutyric acid released at the spinal cord,
 - enkephalin, norepinephrine, and serotonin at the midbrain, and endorphins at the pituitary.
- The opioid antagonist naloxene has been demonstrated to be capable of partially inhibiting or reversing the analgesia induced by acupuncture, pointing to the involvement of endogenous opioids as a possible mechanism for analgesia.

Complications of acupuncture

- pneumothorax with poorly positioned needles at the chest.
- Bleeding in patients on anticoagulants
- Electroacupuncture should not be administered to patients with implanted pacemakers
- . Acupuncture should be practiced using disposable, sterile needles to minimize the possible transmission of blood borne pathogens such as HIV or hepatitis B and C

Important points

- "Hegu" (LI 4) is the **most important analgesic point** in the body and is intensively stimulated in all painful conditions and is located on the highest point of the adductor pollicis muscle with the thumb and index finger adducted.
- "Shousanli" (LI 10) is located on the radial side of the dorsal surface of the forearm at about 3 cm below the lateral transverse elbow crease and between the extensor carpi radialis longus and brevis is used to treat intestinal disorders
- "Quchi" (LI 11) is located on the end of the lateral transverse elbow crease at the middle of the connection between the biceps tendon and the lateral epicondylus of the humerus.used to treat hypertension
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