



The Point of Acupuncture?

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“What’s in a name?” If proven efficacious, a complementary medicine remains a complementary medicine; but, regardless of whether an alternative medicine is proved or disproved efficacious by scientific scrutiny, it loses its appellation, “alternative.” Either it becomes conventional medicine or is discarded. If the appellation is temporary, why institutionalize departments or centers for alternative medicine? Furthermore, placing an institutional imprimatur at the local or national level on scientifically unproved therapies may promote alternative [to science] belief sets regarding health, hygiene, sanitation, and nutrition. Isn’t the alternative to health, illness?

The distinction between complementary medicine and alternative medicine involves relation to conventional medicine. The former

is used together with conventional medicine, while the latter is used in place of conventional medicine. Some of these therapies come from times when human longevity was distinctly less than what it is today. Alternative medical therapy includes “proto-medicine,” the earliest medical treatments. Yet, ancient computational methods, such as the abacus, are not considered alternative mathematics. Traditional acupuncture is an example of an ancient Chinese medical treatment, with an intrinsic, non-scientific belief set. Its longevity suggests therapeutic efficacy and/or that nonscientific belief sets inhibit change in practice, precluding therapeutic progress.

The National Institutes of Health noted acupuncture controlled nausea and vomiting after surgery/chemotherapy and “may be useful” in

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relieving musculoskeletal pain (1). While the National Institutes of Health funding of "rigorous" acupuncture clinical trials applies scientific methodology, can we allocate funds more efficiently to develop acupuncture? Pharmaceutical development from ancient remedies suggests application of a similar developmental process for acupuncture. First, discover how acupuncture works in conditions proven therapeutic, enabling experimentation to enhance therapy, before "rigorous" clinical trials with improved products.

As acupuncture is considered alternative medicine, we present a unified concept regarding scientific development of therapy from alternative medicine to conventional medicine. Since acupuncture "may be useful" in relieving musculoskeletal pain, where and how does acupuncture relieve this type of pain? Acupuncturists believe they alter the flow of "energy" [*chi* or *Qi*] through body channels to balance energy. While this belief set terminology warrants investigation, pain relief research has a modern lexicon. An "effective" therapy with least toxicity usually acts through a relatively specific mechanism. The mechanisms placebo, spinal cord pain gate, and central [brain] do not appear specific to acupuncture. When presented with various simultaneous painful stimuli, a spinal cord pain gate supposedly controls access to the brain. Some suggest the brain is the site of acupuncture's action, releasing endogenous opioids, neurotransmitters, and neurohormones, but so do painful stimuli, vigorous exercise, and relaxation training. If pain and acupuncture release identical central chemicals, isn't it unlikely that release of these chemicals is the primary mechanism by which the latter relieves the former? Without excluding these and other mechanisms, why not focus on the "point" of acupuncture, local needle penetration and/or movement?

In myofascial pain syndromes, trigger points occur at nerve-muscle junctions. These trigger points are characterized by local hyper-irritability, where local pressure elicits pain and, occasionally, a diagnostic local muscle contraction, termed a twitch (2). Inserting an acupuncture needle at a tender [*ah shi*] point or at a muscle trigger point elicits the same sensation of numbness, pressure, soreness, or distention [termed *De Qi* in acupuncture]. Possi-

bly, these points are identical. As muscle trigger points are not limited to acupuncture points, the musculoskeletal pain relief of acupuncture may not be limited to classical acupuncture sites. In fact, pain relief upon needling non-classical acupuncture points has already been described (3,4) but previously attributed to acting at a pain gate. Additionally, as twitch points are clustered in zones, this challenges the notion of a single acupuncture point.

Clinically detectable small local muscle twitches are occasionally noted upon needle penetration and/or manipulation in classical or electrical acupuncture. Intramuscular stimulation (5) uses acupuncture needles and often induces small local muscle twitches. Needle insertion in electromyographic examination may also induce small local muscle twitches. When twitches are elicited in painful muscles during intramuscular stimulation or electromyography, pain relief results. This suggests that the insertion or movement of a needle in a painful muscle, causing that muscle to twitch, may be the gross local mechanism through which acupuncture relieves musculoskeletal pain.

Muscle twitches exercise muscle and increase local circulation (6). An increase in circulation may wash out accumulated local chemicals and/or reverse lack of local tissue oxygen, decreasing pain. Impaired circulation in cardiac muscles causes pain, termed angina. Often a coronary artery is narrowed, due to atherosclerosis. While differences exist between heart and skeletal muscle, relief of angina similarly involves increasing local cardiac muscle circulation. Occasionally, arteries that supply skeletal muscles, such as those in the leg, become narrowed, decreasing circulation. The resultant skeletal muscle pain is relieved when the circulation is increased.

Although not yet proven, skeletal muscle twitches may also induce muscle lengthening in shortened muscles. Muscle lengthening has also been associated with pain relief. A "charley horse" is a nonpathologic example of muscle shortening, due to spasm of an arm or calf muscle. When the affected muscle lengthens, the pain ends. The movement of a muscle also stimulates position receptors, possibly influencing signals sent to the spine/brain to modify sensation of pain and/or limit spasm. Regardless of dependent mechanisms of action,

as relief of musculoskeletal pain is associated with a twitch, then the twitch appears to be the key to local pain relief. Twitches are not just diagnostic, but therapeutic (7).

To institute departments in hospitals and medical schools that potentially encourage non-scientific belief sets regarding health, hygiene, sanitation, and nutrition may have harmful side effects. Yet, some ancient beliefs or practices, such as those of the traditional acupuncturist, if subjected to scientific scrutiny, may be proved. Once a "belief" or practice transforms into a scientific discovery, enabling development, this facilitates medical advance. When the key to acupuncture's musculoskeletal pain relief is fully understood, not only does the potential exist to improve upon it, but it may also unlock other acupuncture effects, enabling other therapies.

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