# Table of contents

1. Using Acupuncture for Headache Treatment: Getting the Point! .......................................................... 1  
Bibliography .............................................................................................................................................. 6
Using Acupuncture for Headache Treatment: Getting the Point!


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Many people use Japanese or Chinese-style acupuncture for both acute and chronic pain (additional forms include Korean and French acupuncture). Acupuncture has gained respect in western medical circles for its effectiveness in specific clinical settings, and now is being incorporated into pain clinics and chiropractic care, as well as continuing to be offered as a standard treatment mode of the Oriental Medicine Practitioner. Headaches, whether tension-type or migraine, are a common major pain problem that can be either episodic or chronic, painfully annoying or incapacitating, and difficult to treat curatively. The need for effective treatment continues. This article will explore the potential use of acupuncture in treatment of this pesky problem.

The difficulty in effectively managing headaches is multi-faceted. Part of the problem is in identifying the true underlying pathologic etiology of the headache. For example, many "sinus headaches" are actually facial vascular or cluster headaches that masquerade, quite convincingly to the patient, as sinus symptoms. Another point of diagnostic confusion is the presentation of tension versus migraine headaches. Patients present complaining of "a severe migraine," however, in ferreting out additional pertinent historical details from the patient, the examiner is able to deduce that the problem is really that of a severe tension headache. The treatment for the three types of headaches is different, and not necessarily interchangeable. To make matters even more complicated, a tension headache can spawn a migraine if allowed to persist long or intensely enough. Another part of the problem is that headaches are largely episodic, and require preventative care, as well as urgent intervention with an exacerbation.

Headache pain can be quite debilitating, requiring time off work or away from family duties, and can be costly in terms of medical care and associated pharmaceutical treatment. Chronic headache pain can trigger depression or anxiety that requires treatment. The medications used in treatment of headaches also may have adverse side effects. For example, beta-blockers sometimes induce fatigue, slow the pulse (which can impact exercise capacity), cause sleep disturbances, and exacerbate depressive symptoms. Calcium channel blockers, though usually well tolerated, can cause swelling in the extremities and even, on rare occasions, an increase in headache frequency. Tricyclic antidepressants, while cost-effective, can cause sedation, anti-cholinergic side effects, and weight gain. The newer anti-seizure medications, though the most expensive class, are very effective but cause difficulties in cognition in some patients, occasional development of paresthesias (numbness in hands, feet, or around the mouth), and fatigue. Narcotics are potentially addictive and costly, with side effects consisting of constipation, lethargy, and decreased short-term memory.

The goal of headache management is to safely, effectively, and inexpensively prevent episodes, or at least to relieve discomfort quickly and completely should a headache occur. In doing so, the practitioner helps reduce disability and enhance quality of life. Acupuncture has been promoted as one way of meeting these goals.

Background

Acupuncture has been researched in many countries, with varying conclusions on its effectiveness in headache management over placebo or standard-of-care medical treatment. Part of the difficulty in researching this modality involves research methodology. Many research studies have drawn from too small a sample size to allow firm conclusions or to show statistically significant differences between the groups. Comparison of
Acupuncture treatment techniques can also be a problem. Practitioners in one study might, for instance, use a limited set of acupuncture points, while another comparison study may use different or unlimited points. Accurate comparison of studies can be problematic, as some trials permitted additional treatment along with acupuncture as routine protocol. It is not infrequent to find studies that allowed techniques to amplify the effect of needling or related interventions, such as the use of moxibustion (touching a piece of smoldering Artemisia vulgaris to the top of the inserted needle), electrical stimulation (use of mild electrical current through the inserted needle), or cupping (use of glass containers placed on the skin and heated to create a vacuum and hence draw stagnant energy out of the area). Chinese acupuncture also varies from Japanese-styled acupuncture in that the needles are more deeply placed. In traditional Japanese acupuncture technique, the needle is inserted superficially at only 1-2 mm depth, or no needles are used at all and, instead, the chosen acupuncture point or meridian is stimulated with a small blunt toothpick-shaped metal tool. Some practitioners stimulate regional trigger point sites instead of meridian therapy, while in some hands, Western medical acupuncture is often more prescriptive rather than individualized.

Tension Headaches - Clinical Studies

Tension headaches, both episodic and chronic, are frequently treated with acupuncture; however, efficacy is regarded by many as debatable, as cited by Dieter Melchart and colleagues. One German study presents a randomized, multi-centered trial of acupuncture with episodic or chronic tension headache randomized (n = 270) subjects into three groups: standard acupuncture, "minimal acupuncture" to serve as sham (defined as superficial needling at non-acupuncture points), and waiting list control subjects. Headache diaries were evaluated after each subject had 12 sessions delivered over a period of eight weeks. The acupuncture group had needles deeply inserted at specific points identified with headache treatment and at specific depth to elicit the classic verifying response called the "de qi." The "sham" group used points along the meridians, but not at the same study acupuncture points, and with insertion at a very superficial depth. The findings were that both acupuncture groups fared better than the waiting list control group, and that the therapeutic effect persisted for several months following treatment. There was no statistical significance between efficacy of the sham and the verum (real) acupuncture groups; however, the verum group reported 30 side effects compared with 11 side effects in the sham group (those being: pain, hematoma, dizziness, or triggering of headache). The interesting fact that sham and verum were both equally effective was corroborated in another large, multi-centered trial of 409 subjects comparing sham and verum acupuncture versus controls in subjects experiencing tension-type headaches. The intervention consisted of ten 30-minute sessions over a six-week period. Again, there were findings of a similar efficacy in that 33% of verum and 27% of sham controls responded with a >50% reduction in headache days/month at six months without other medications or usual therapies.

People with tension-type headaches do seem to benefit from acupuncture treatment, but why the similar efficaciousness of both sham and verum treatment? This may be explained by a study that looked at the problem of comparing superficial with deep needling. Macpherson and colleagues used a functional MRI (magnetic resonance imaging) to determine if there was a variance in blood oxygen level dependent (BOLD) signal responses in the brain when a subject was needled using either of the two different techniques. There was no difference in cerebral BOLD activation or deactivation between either deep or shallow needling. These data support the claims from both the Chinese (deeper insertion) and the Japanese (superficial insertion) that the needling styles are equally effective and may explain the reason for the similar effectiveness of the sham (shallow and not at the specific point) versus the verum (deep and on the specified acupuncture point).
phenomena, looking at the response of pain fibers in both verum acupuncture and the "sham" modality. They reasoned that deep needling affects the intensity (discriminative aspect) and unpleasantness (affective component) of perceived pain by activating the pain inhibiting pathways and deactivating the limbic structures (area in brain responsible for emotional content). The more superficial needling may work by stimulation of the mechanoreceptors (light touch), which "induces a change in the limbic system resulting in emotional and hormonal reactions commonly seen following caressing." Activating these C tactile afferents "alleviates unpleasantness and re-establishes the patient's sense of self esteem and well-being," which may be an important aspect of acupuncture's perceived efficacy for pain management. This reduction of the unpleasantness of pain may be responsible for allowing a decrease in the use of analgesics and the frequency of contacts with healthcare providers in chronic pain patients using acupuncture.

Clinical Studies - Migraine Headaches
A small 2006 Spanish study of 28 patients by Alecrim-Andrade and colleagues showed that treatment with 16 acupuncture sessions in a 12-week span was associated with a >50% decline in frequency of attacks, average duration of attack, rate of rescue medication used, and average headache severity rate compared with baseline. Semi-standard acupuncture was compared to sham acupuncture, and it was found that both had the same rate of success. In a 2008 study by the same group, individualized acupuncture therapy was compared with sham, revealing a statistically significant difference in that the individualized verum group had a more rapid improvement in number of migraines per month and reduction in attack frequency in the first and second month, while sham acupuncture achieved the similar effects, but not until the third month. This suggests that individualized verum acupuncture treatment plans may produce results more rapidly than sham acupuncture.

A study from Germany published in JAMA in 2005 by Linde and colleagues compared semi-standardized acupuncture against sham; however, it also included a waiting list of control patients. They also concluded that sham and verum acupuncture produced equivalent results compared to the control group. This larger study, containing 302 patients, was interesting in that it confirmed the findings of the smaller Spanish study. The breakdown of responders with at least a 50% reduction in headache days was 51% in the semi-standardized acupuncture group and 53% in the sham group. Even in the wait list group, there was a 15% reduction in headache days, thought to be due to the natural course of the disease or the effect of being in the study (Hawthorne effect), suggesting that the response noted in the acupuncture groups may be somewhat overrated. In view of this, however, Linde et al made a point that the response rate of the wait list controls is comparable to that observed during treatment with medications proven to be effective migraine prophylaxis, where response rates in those placebo groups are typically around 30%. An interesting point was that there was a reduction in analgesic use in both acupuncture groups, but not among members of the waiting list control group.

Conclusion
Recent scientific work has illuminated the pathophysiologic basis of pain, and the therapeutic effects of verum standardized and sham acupuncture. We now understand why there may not have been a significant difference demonstrable between the verum and sham treatments in earlier research trials examining acupuncture for headache management. Either modality of acupuncture alters pain perception by alleviating sensory discrimination (intensity), as well as the affective component (unpleasantness). The difference between the needling techniques' depth of penetration was not a factor in degree of therapeutic benefit experienced by subjects, as both achieved the same end point, though by a different pathophysiologic route. Chinese-style deep needling apparently activates ergo-receptors, which convey information through Type II or III afferents into the spinal cord, and then to the sensory cortex, resulting in the pain-inhibition and deactivation of the limbic structures. Japanese-style superficial insertion appears to stimulate mechanoreceptors coupled to slow conducting C afferents, resulting in stimulation of the insular region but not the somatosensory cortex. The C afferent path is suggested to induce a "limbic touch," resulting in emotional and hormonal changes, which like the previously mentioned pathway end point, similarly decreases unpleasantness and enhances the patient's
sense of self esteem and well being. This theory is further supported by the fact that neither verum nor sham needling show different findings in analysis of the limbic system in the brain per recent functional MRI studies. The data discussed above suggest that either Chinese or Japanese styles of acupuncture are effective in preventing and/or treating tension-type or migraine headaches, whether stimulated points are located on or near an acupuncture point as compared to no treatment. Acupuncture can be considered a viable option in the medical treatment of these painful and potentially debilitating conditions.

Recommendation
It is wise to be sure that all chronic headaches, or headaches of sudden new severity, be evaluated medically by the patient's primary care practitioner, as these may be harbingers of underlying medical pathology that require immediate medical attention. However, for those migraine or tension-style headache patients that have passed this evaluation process and are in the chronic treatment phase, acupuncture, whether utilizing Chinese or Japanese methods of needling, may be recommended as an adjunctive treatment choice. Either modality seems to work with similar effectiveness to decrease pain, frequency of the headaches, and appears to be beneficial for patients because of inherent low risk of complications and potential decrease of cost relative to preventative or rescue medication that would have been utilized. The treatment style will vary from practitioner to practitioner depending on their training; however, one may discuss the expectations for outcome and treatment plan with the practitioner prior to proceeding to be sure that it best meets the patient's goals in relief of headache symptoms. One should make sure the practitioner is licensed, experienced, and abides by the clean needle act. Prior to treatment rendered, the practitioner should adequately outline the proposed treatment plan, potential benefits and risks, estimated number of treatments required to achieve the benefit sought, and predicted cost for the treatment plan so that the patient may weigh all the variables. Patients should begin to experience relief of symptoms usually within 3-4 treatments, though in severe or chronic headache situations it may require a more lengthy treatment course to achieve the goals. Practitioners should share follow-up notes with one another to foster a collaborative dialogue, hopefully ensuring the best possible outcome for the patient.

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9. Ibid. p. 2124.

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