

Japanese Acupuncture - Current Research

Japanese Traditional Medicine Text (7) – Orthopedic Disorders, D Acupuncture Research for Stiff Shoulders

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The 2010 National Lifestyle Survey¹⁾ found that Stiff Shoulders were the number one complaint for women and the number 2 complaint for men, with more than 90% of the population having had experience with the condition. However, medically speaking, Stiff Shoulders are a subjective complaint with no clear definition. Further, in 2004, a study for orthopedic physicians called “Stiff Shoulder Research Project”²⁾ found subjective physical symptoms including muscle tension and stiffness (Korikan) extending from the neck to the scapular area, characterized by a sense of pressure and dullness, but presented no clear definition of objective findings. Stiff shoulders are often said to be a uniquely Japanese symptom but epidemiological comparisons between the United States and Europe for [neck pain] and [stiff shoulders] found these symptoms distributed within and between different age groups and across gender lines. On the other hand, according to a National Survey (multiple answers possible) of people who sought treatment for stiff shoulders 24.6% went to hospitals, 20.1% went to clinics and 59.6% went to acupuncture, moxibustion and massage practitioners. Clearly a large proportion of the population are receiving treatment from Acupuncture, Moxibustion and Massage. Classical Oriental Medical theory describes damage by cold in the neck, shoulders, upper back leading to stiffness and pain.

Within the field of Pain Clinics, stiff shoulder is divided into three categories. The first has no clear pathology and is referred to “Essential Shoulder Stiffness”. The second type may arise from spinal disorders or underlying shoulder disorders and is referred to as “Symptomatic Shoulder Stiffness”. Finally, regardless of whether or not the patient

presents with organic disease symptoms, if there are no objective shoulder stiffness findings, it is labeled “Psychogenic Shoulder Stiffness”. In this paper, we will be discussing shoulder stiffness that is not the result of critical changes due to diseases or conditions that cannot be confirmed as neurological abnormalities.

1. Pathophysiology of Stiff Shoulders

Until recently, the pathophysiology of stiff shoulders has been categorized as follows: instability of the cervical intervertebral discs, local tension in the sympathetic nervous system and additionally, circulatory disorders influencing the nerves and muscles. On the other hand, as for neck pain, causes have been hypothetically explained as due excessive muscle stimulation causing excessive tension in intervertebral joints, cervical discs or nerve roots as they relate to referred pain. Additionally, it is often thought that shoulder stiffness is a condition with mostly non-specific symptoms involving a vicious cycle of pain compounded by additional psychological and sociological factors²⁾.

2. Acupuncture Treatment for Stiff Shoulders

With the exclusion of the psychological and sociological background attached to stiff shoulders, the functional abnormalities seen in the sympathetic nervous system, circulatory disorders influencing the muscles and nerves begin to form a clearer clinical picture. For the purposes of Acupuncture and Moxibustion treatment, keeping in mind the possibility of stimulating the subcutaneous tissues, we can anticipate effects in the skin, muscles, fascia, intervertebral joints and the peripheral nerves. It has been estimated that the effects of acupuncture are due to improved circulation in muscles and nerves³⁾ and may be due to normalization of the autonomic nervous system mediated by higher levels of the central nervous system. The principle areas for stimulation are along the back of the skull, trapezius muscles of the neck and head and semi-spinalis muscle of the head (UB10, GB20), the

insertions of the Sternocleidomastoid and the Splenius muscles of the head (GB12), on the upper portion of the Trapezius (GB21), muscles that cross along the inter-scapular area (UB43), also, areas of the Splenius and the Scapulae Levator and the insertion of the Splenius at the superior border of the scapula (SI14). Common methods of stimulation include embedded needles, manual stimulation of filiform needles, and electro-acupuncture. It is necessary to pay careful attention to the patient's condition and level of pain so that the stimulation can be appropriately adjusted.

3. Acupuncture and Moxibustion Treatment for Stiff Shoulders—The Condition of Research Abroad

We performed a literature review of clinical trials on the effectiveness of Acupuncture and Moxibustion Therapy for Stiff Shoulders conducted by foreign researchers. [PubMed] was used as the dedicated Data Base for the literature review. Key Words included [neck pain], [neck disorders], [neck stiffness], [shoulder stiffness], [acupuncture], [moxibustion], [randomized controlled trial]. We are reporting on basic research and original content standards. Our exclusion criteria eliminated reviews and commentaries from this report. We found 23 reports that could be included. Evaluation methods included mostly VAS scores, NDS and SF-36 were also seen here and there. The most common type of control was a “no treatment” control group, placebo control (non-meridian acu-points or skin stimulation groups). TENS groups and massage groups were also used as comparative control groups. Compared to the “no treatment” control groups, acupuncture treatment could be accepted as a valid treatment method. However, when compared with placebos or other treatment-type controls, the point of view about acupuncture efficacy was not unified. This paper is targeted to non-specific shoulder problems (stiffness); as there are a variety of locations and causes of shoulder pain (work related, posture related, etc.). Although the area treated by acupuncture is 3-dimensional, few reports

investigate which tissues will be stimulated beyond the superficial pre-determined acu-point. Additionally, the problem now is that, even if sham acupuncture is used as a placebo control, it has been shown to have a physiological stimulus. From now, we must investigate the causes of Shoulder Stiffness, how to conduct acupuncture to stimulate specific tissues and to grasp how this stimulation effects the disease process.

4. Characteristics of Shoulder Patients and Clinical Status

Compared to Westerners' “Stiff Neck Pain“, Japan's stiff shoulders represent deeper psychosocial stress. Japan's Historical and Cultural background are thought to have been influential in the development of this uniquely Japanese shoulder stiffness. The consensus is that Japanese culture avoided, as much as possible, descriptions of psychological symptoms that appeared, instead, focus was placed on their physical representation. To better understand the clinical efficacy of Acupuncture treatment for Stiff Shoulders we conducted a Literature Search. Using a database of prominent Medical School Journals including the following keywords: Stiff Shoulders, Neck Pain, Acupuncture, Moxibustion, and Randomized Controlled Trials. The search provided 4 appropriate references. Nakajima⁵⁾ compared a local pain relief injection group with an acupuncture group. Reported results showed that for neck pain, acupuncture treatment was more effective in the short term and over the long run, so compared to other treatment methods, acupuncture was more effective. Nabeda et al. compared the superficial needle only and retaining needle after the needling sensations at the tender point, no difference was found within and between groups after 1, 2, 3 weeks. Furuya et al.,⁷⁾ investigated using 0.6mm embedded needles and placebo type embedded needles (using just the protective tape), comparing the baseline to post-stimulation readings and 3 days after the stimulation, they found that the subjects with true

embedded needles experienced significant improvement. Further, comparing positive and negative results of a load test on the cervical spine, while groups testing intervertebral joints and discs demonstrated no changes in test results, it was reported that in test groups for muscles and fascia, test changes were effectively confirmed. On the other hand, Ito et al.⁸⁾ used a Trigger Point (TP) Acupuncture group and a Standardized Acupuncture group, comparing these to sham acupuncture, after the treatment they reported that only the TP group's VAS scores dropped significantly. Because the research subjects were students and faculty members, "volunteer bias" should be considered to a certain degree. However, acupuncture treatment for stiff shoulders by treating muscles and fascia was found to be highly useful compared to treating with TP or the cervical spine.

5. Future Prospects

Rather than treat stiff shoulders as simply a symptom, we consider it necessary to assess the exact background factors to grasp underlying disease processes and clarify which tissues are being over-stimulated by life style factors and which areas need to be treated to return the body to normal function. We suggest performing comparative trials, if possible, by separating subjects into specific groups based on their personal reports, clinical findings and discrepancies between these. For example, dividing subjects into groups with personal pain reports (specific pain in a localized area) that coincide with clinical findings or a group with pain (non-specific pain) that conflicts with clinical finding. These subgroups with shoulder stiffness complaints could then be compared using tests that provide reproducible results (such as localized pressure pain at specific points of the joint, range of motion and muscle strength tests). Concerning evaluation methods, beyond the VAS pain indicator, QOL scales with multi-faceted questions and possible responses should be used. We have already been developing a non-specific task score/ protocol based on Furuya et al.'s work with embedded needles for VDT workers with non-specific shoulder pain. So for subjects with shoulder pain, we used VAS and QOL (SF-36) measures to clarify the usefulness of acupuncture for improving work effectiveness^{9,10)} and align the treatment with background factors that may be causing shoulder pain (Table 6). On the other hand, the most significant problem has become using "sham" acupuncture when establishing the comparison groups for acupuncture. So far only embedded needles have been considered appropriate because even the mere application of a guide tube to an acupuncture point has been shown to activate Polymodal receptors in the epidermis, so using normal filiform needles (豪鍼) for sham needling was considered unrealistic. At present, comparison with other treatments and acupuncture stimulation site

Table 6: The change of acupuncture before and after with SF-36 and WAI by acupuncture treatment

	Before	After 1 month	P value
Mental Component Score	51.3±6.3	53.1±5.8	<.0001
Physical Component Score	44.0±10.0	47.2±8.5	<.0001
Physical functioning	53.6±6.4	54.0±6.4	.5998
Role physical	46.4±10.6	48.9±7.0	.0167
Bodily pain	42.4±9.0	48.9±9.0	<.0001
Vitality	48.5±9.0	50.5±8.0	.0714
General health perceptions	44.7±10.1	46.7±9.2	.1286
Social functioning	50.5±9.7	50.7±7.4	.9709
Role emotional	48.9±9.7	49.1±9.4	.8434
Mental health	47.2±9.1	48.9±8.0	.1134
Work ability index	36.1±6.5	37.4±5.7	.0058

Wilcoxon lunk sine test, $n=61$, mean±S.D.

selection methodologies, acupuncture RCTs should be used to investigate the specific effects of back ground factors on shoulder pain. In the future, multifaceted evaluation results should be used to determine what back ground factors contribute to stiff shoulders, Acupuncture RCTs should be compared with other treatments and point selection methodology should be investigated to achieve specific effects.

References

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