

## Traditional Theories and the Development of Motion Acupuncture: A Historical Perspective

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**Abstract**—Muscle soreness is a common response to exercise after unaccustomed workouts or sports activities. Additional causes of muscle soreness include tension, stress and minor injuries to tissues within and around muscles. Motion Acupuncture, a specialized technique of acupuncture incorporating both traditional acupuncture, western biomedicine, and physical movements, has demonstrated excellent efficacy for decreasing musculoskeletal pain, improving musculoskeletal function, and treating non-musculoskeletal symptoms. The sinew in Motion Acupuncture refers to muscle and fascia, especially skeletal muscles and their associated connective tissue. The so-called “motion” refers to active range of motions initiated and controlled by muscle, fascia, joints and ligaments. Abnormalities in meridian sinews create abnormal transverse collaterals and nodules of sinews which have the same meaning as tender or trigger points. With Motion Acupuncture, tension over the painful areas will be released and thus the limited range of motion will return normal. Techniques of Motion Acupuncture involve muscle contraction and stretching exercises during acupuncture at the affected areas. Dr. Decheng Chen, founder of Motion Acupuncture, created Motion Acupuncture which greatly enhanced the therapeutic effects of acupuncture in motion. Understandings of Motion Acupuncture are well supported by both traditional Chinese medicine theory and modern biomedical research. Motion Acupuncture features “selecting the tender point and nodule as the acupoint for needle insertion”. In Motion Acupuncture, acupuncture manipulation features regular acupuncture needles, special techniques and targeted therapy; motion styles include independent active motion supplemented with passive motion, based on patients’ tolerance.

**Keywords:** Motion Acupuncture; muscle soreness; musculoskeletal pain; historical perspective; sinews

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### INTRODUCTION

Muscle soreness is a common response to exercise after unaccustomed workouts or sports activities [1–3]. Additional causes of muscle soreness include tension, stress and minor injuries to tissues within and around muscles. Typical muscle soreness is usually localized and limited to one or several muscles with a specific functional activities. Systematic muscle soreness which is characterized by pain throughout the body is usually a secondary response to systematic pathological conditions. Common causes of systematic muscle soreness include inflammation, infection, psychological stress, neurological abnormality, and/or a combination of two or more of the aforementioned factors. In western medicine, muscle soreness is usually treated with non-steroid anti-inflammatory medications and opioids in severe cases. Additional therapies for muscle soreness may include stretch and active range of motion exercises.

Nonetheless, medications are always coupled with side effects which many times outweigh their benefits.

Long-term nonmedical treatments of stretch and active range of motion exercises in western medicine usually bring transient effects or require strict patient adherence which may be difficult especially in this fast pace modern society. As patient adherence usually is not a concerning issue, short-term motion exercises including stretch and active range of motion exercises seem an excellent treatment option for pain related to the musculoskeletal system.

Acupuncture has been found to be effective in decreasing exercise-induced muscle soreness. In a recent meta-analysis, researchers highly recommend the use of both the traditional acupuncture and modified acupuncture technique for myofascial pain [4]. Myofascial pain and exercise-induced muscle soreness share significant similarities in their pathogenesis and presentation [5]. Additional benefits of acupuncture come from its therapeutic effects on non-musculoskeletal symptoms. As fascia investing all tissues, organs, and systems of the human body, active and passive adjustment and regulation of the fascia system

through fascia of the musculoskeletal system provide theoretical foundation for acupuncture effects on non-musculoskeletal symptoms, which are usually caused by dysfunction of internal organs. Effects of acupuncture for common systems in the human body are promising in theory, research, and clinical practice.

Besides typical acupuncture based on traditional Chinese medicine theories, modern acupuncture based on western medicine theories and acupuncture trigger point therapy [6], Motion Acupuncture, a specialized technique of acupuncture incorporating both traditional acupuncture, western biomedicine, and physical movements, has demonstrated excellent efficacy for decreasing musculoskeletal pain, improving musculoskeletal function, and treating non-musculoskeletal symptoms. Motion acupuncture, as its name indicates, provides active regulation from patients' active movements simultaneously with passive regulation from acupuncture to the fascia system. This special acupuncture technique was developed by Dr. Decheng Chen, an acupuncture physician in New York City, after over 30 years clinical practices.

In this paper, we aimed to briefly discuss the fundamental theories and practice of Motion Acupuncture from a traditional Chinese medicine perspective.

#### UNDERSTANDINGS OF MUSCULOSKELETAL SYSTEM

Meridian sinews, the musculoskeletal tissue pathways, first appeared in the publication of *Spiritual Pivot (Ling Shu)*. In the chapter of atrophy of *Spiritual Pivot*, it states "meridian sinews' role is to fix the bones and to lubricate joints", which indicates that meridian sinews connect bones and control joints all over the human body. Meridian sinews in traditional Chinese medicine thus should be recognized as the musculoskeletal tissue pathways. Their main function is to control movements and are responsible for all activities of the human body. Transverse collaterals of meridian sinews are bands when the meridian sinews transversely interconnect. Excessive stress through abnormal position or injury over the transverse collaterals causes pain [7].

In the term "筋 (sinew)", an associative compounds in pictogram analyses of Chinese character. "筋 (sinew)" is composed of "竹 (bamboo)", "月 (flesh)" and "力 (power)". "竹 (bamboo)" shows that the sinew can change its shape like bamboos. "月 (flesh)" means the sinew is composed of flesh or the myofascial system. "力 (power)" indicates that it generates strength as the shape changes. In humans, the sinew can deform and stretch with people's will and thus produce force and power. Consequently, sinews undoubtedly refers to the musculoskeletal system in modern biomedicine. In *Shuowen Jiezi (Explaining Graphs and Analyzing Characters)*, an early 2nd-cen-

tury Chinese dictionary from the Han Dynasty, the word "筋 (sinew)" is explained as "meridian sinew represents the force of flesh". Similarly, in the chapter of meridians of the book *Spiritual Pivot (Ling Shu)*, it states, "bone is the structure; meridian sinew provides its function". Apparently, sinews in traditional Chinese medicine refer to the myofascial system.

It is said in the book *Classified Canon (Lei Jing)* that "why does the human body have meridian sinews outside the twelve meridians? ....Answer: the meridian sinews connect bones of the human body, provides the forces needed for maintaining the position of structures and organs....So twelve meridian sinews start at ends of the four limbs, then go through the fibula or radius and hinge on the elbow or wrist. They connect joints as well as muscles and finally end on face after travelling through the neck. The pathways mentioned above are the overall descriptions of meridian sinews inside the human body". Fixing the body, protecting the meridians, moving qi and blood, activities in compliance with environments, connecting the joints and controlling the movements are the functions of meridian sinews. Meridian sinews are a huge soft tissue balance structure or web that reflects functions and activities of the human body [8]. The meridian sinews, as web of myofascial system, encloses all structures of the human body which include the musculoskeletal system, nerves, blood vessels and the lymphatic system; thus the health of the human body can be maintained if the functional performance of meridian sinews remains good [9].

Muscles are normally considered as the essence of meridian sinews. The theory that anatomical tissues, such as muscles and tendons, are meridian sinews echoed by famous acupuncturists like Dr. Ligong Xue. In Dr. Ligong Xue's monograph, *Encyclopedia of Chinese Meridian Sinews (Zhong Guo Jing Jin Xue)*, Dr. Xue considers the meridian sinews as the myofascial system made of connective tissues like sarcolemma, tendons, fascia, ligaments and joints [7]. With the inspiration of meridian sinew theory in traditional Chinese medicine, Professor Lin Yuan proposed "the theory of sinew membranes", and believes that has sinew membranes have similar functions as meridian sinews and fascia in the meridian sinews [10]. The essence of meridian sinews is neuromuscular tissue. Jingwei Huang believes that meridian sinew is an abbreviated term for the connective tissue system which includes twelve meridian sinews, twelve meridian collaterals, and twelve meridian skins; the meridian sinew serves as the core structure combining skin, muscles, tendons, fascia, ligaments and other structures with fascia investments [11].

The classic meridians and the meridian sinew system intertwine with each other to work as a huge biological organ of the human body. The specific contents of this biological organ include skin, muscular tissue, reticular connective tissue, organs membranes, joint capsule, ligaments, periosteum, fat pad, part of the

structure of nerve endings, and lymph tissues; it is a soft tissue juxtaposed complex [11]. The sinew in Motion Acupuncture refers to muscle and fascia, especially skeletal muscles and their associated connective tissue. The so-called “motion” refers to active range of motions initiated and controlled by muscle, fascia, joints and ligaments.

### UNDERSTANDINGS OF MUSCULOSKELETAL PAIN AND ITS INTERVENTIONS

Abnormalities in meridian sinews create abnormal transverse collaterals and nodules of sinews which are called Ashi points; Ashi points have the same meaning as tender or trigger points. In Inner Canon of Huangdi (Huang Di Nei Jing), it states, “applying acupuncture at pain points” indicating that tender points are the therapeutic targets and the method used for treatment is called “untie the nodule”. Sinew impediment is a syndrome in traditional Chinese medicine caused by a variety of soft tissue injuries. The definition of “the gap amongst flesh” refers to muscle gaps inside the wraps formed by fascia and “the end of the sinew” means the origin and insertion of a muscle which are also the attachment points between muscle and bone.

Understandings of ancient Chinese sinew diseases circles around the method of treating impediment of the sinew. According to the Inner Canon of Huangdi (Huang Di Nei Jing), theories related to abnormalities of the meridian sinews include the following theories: (1) pathophysiology of pain involves “the wind, cold and dampness stay in the muscle gap, and they transform the liquid in human’s body into abnormal air bubbles trapped inside the body”; (2) pathophysiology of chronic pain is “abnormal transverse collateral compressing the meridians”; (3) locations commonly seen in chronic pain are “ends of the muscles”; (4) the spreading of chronic pain follow the twelve sinews’ points, lines, surface and body; (5) the target of treating impediment of the sinew is to “choose the nodules that are most painful to apply acupuncture”; (6) treatment principle is “untying the nodule”; (7) therapeutic tools used are needles with or without a knife-blade, such as long needles and sharp-edged needles; (8) operation methods are joint puncture, lateral puncture and shallow puncture [12].

In modern medicine, pain caused by soft tissue injury is closely related to the change in structure or function of joints and muscles creating tender points inside the human body. The majority of strains or injuries lead to local muscle pain (impediment of the meridian sinew) where the “knot” and “gathering” are usually developed. Repeated pressing, friction and traction damage ligaments, tendons, aponeurosis, fascia, synovial capsules under the circumstances of non-physiological conditions (abnormal transverse collateral compressing the meridians). Exudative aseptic inflammation occurs in early stage (pressing the liquid into air bubbles) and then changes of tissue adhesion,

fibrosis and scar (abnormal transverse collateral and sinew nodule), as well as increased soft tissue tension (contracture) develop, which is followed by muscle pain (impediment of the meridian sinew), joints inflexibility (spasm or atrophy of sinews). Long-term muscle pain and cramps can trigger a lot of pathological changes including abnormal shortenings and elongations of muscles and fascia. The injuries of the meridian sinew include multiple pain points or trigger points which may form a line at the beginning, and lateral a surface and, finally, a whole body network of dysfunction. Thus, injury of the meridian sinew, over extended period time, may no longer be an isolated muscle or a nerve problem but a network of dysfunction with roots at ends of extremities, hinging at joints and bones and affecting the trunk, head and face eventually.

Tender point is a medical term commonly used by clinicians, which plays an important role in the diagnosis and treatment of diseases. In traditional Chinese medicine, tenderness points are referred as “ouch point” or “Ashi point”. “Select the tender point as an acupuncture point” is an important way for traditional Chinese medicine doctors to treat meridian sinew disease which was documented as early as in the chapter of Meridian Sinews in Spiritual Pivot (Ling Shu). In Spiritual Pivot (Ling Shu), it states, “using rapid fire needle to puncture, the number of treatments required will be determined by the efficacy, but should use tender points as acupuncture points”. A famous annotation of this sentence is written by ShangshanYang: “a point is just a point, and the painful point located in the sinews will be the point you should choose for acupuncture treatment and there is no need to follow the meridian points”.

Based on “selecting the tender point as an acupuncture point”, Sun Simiao (581–682) firstly raised the idea of “Ashi point” in his book Golden Prescriptions (Qian Jin Yao Fang). “There is a theory of Ashi that when patients suffer from pain, you can press on the painful point with your finger. If this is the point inside the tissue, no matter where it is, patients may feel relief after pressing. That specific point is called Ashi point and can be treated with both acupuncture and moxibustion”. The original idea of Ashi point comes from Inner Canon of Huangdi (Huang Di Nei Jing). Ashi means, literally, the most painful point when the doctors press on the surface of the patients and they may cry out “Ahh! Yes” involuntarily. Or when doing the examination, doctors may in somehow ask whether it is the pain point, and the patients may response “Ahh! Yes”. So Ashi points have no specific names, no definite locations, and no clear indications. The site of Ashi is determined by the sensation of sourness, numbness, pressure, dull pain, heaviness and changes of skin’s color when doctors press patients’ surface. This definition of Ashi overlaps with the theory of acupuncture de qi, in which rather than pressure, acupuncture needles are inserted into the human

body to produce these sensations of sourness, numbness, pressure, heaviness [13].

The Ashi point in Traditional Chinese Medicine refers to tender point. Four features are included in Ashi point. Firstly, they are the nodules of meridian sinews. Secondly, Ashi point also includes the tender point based on the theory of Zheren Xuan [14]. Thirdly, Janet Travell's myofascial trigger point theory is apparently included [15]. Morphological changes in local painful area are the fourth feature of Ashi point which has been documented in research studies.

### MOTION ACUPUNCTURE FOR MUSCULOSKELETAL PAIN BASED ON TRADITIONAL CHINESE MEDICINE

Motion acupuncture, as its name indicates, include both movements and acupuncture. The combination of acupuncture and motion has been common in acupuncture practices since ancient times, and the acupuncture point is far away from the painful point which makes it easy to move the painful area where movements are usually limited. It is, however, rare to see acupuncture treatment together with motion exercises of the same painful area of the body. Motion Acupuncture involves acupuncture and motion of the same painful area and requires special acupuncture techniques. With Motion Acupuncture, tension over the painful area will be released and thus the limited range of motion will return normal.

The Motion Acupuncture belongs to acupuncture therapy. Motion contains active and passive range of motion exercises. Sinew includes meridian sinew and fascia. The definition of Motion Acupuncture is that a patient carries out active or passive motion with acupuncture needle retention following the supervision of doctors during the whole period of acupuncture. It is a comprehensive acupuncture therapy integrated with meridian theory, meridian sinew theory, anatomy, kinematics and therapy. Motion Acupuncture aims to treat pain, especially soft tissue injury. Pain caused by soft tissue injury predominates, especially in patients visiting outpatient orthopedic clinics. Soft tissue injury refers to a traumatic syndrome caused by direct or indirect violence, chronic strain of soft tissue or skeletal muscle. The symptoms of soft tissue injury include microcirculation abnormalities, inflammation, and pain together with swelling. Motion Acupuncture provides an excellent option for the management of these conditions.

### MOTION ACUPUNCTURE PROCEDURES

Based on these understandings of the musculoskeletal system in both traditional Chinese medicine and modern biomedicine, points used in Motion Acupuncture are not only located in the local area of pain, but at proximal or distal points from the primary

affected region. However, as the principles mentioned above, we usually puncture the local tender points as well as having the patient motions of the affected area at the same time. Consequently, special techniques of Motion Acupuncture are required to insert the needle into the human body. Procedures of Motion Acupuncture evolves from traditional acupuncture practice and has been fully developed by Dr. Decheng Chen in the past twenty years.

Motion Acupuncture originated from the application process of single point acupuncture therapy, which was written by Dr. Decheng Chen in 1993, "Chinese Single Point Acupuncture Therapy" (Chinese version), and then the book was revised into an English edition titled "100 Diseases Treated by Single Point of Acupuncture" which was published in 2000. During regular acupuncture treatments, manipulation at each acupoint are usually executed. In the early years of practice of Dr. Decheng Chen, patients usually refused to receive additional acupuncture manipulations upon acupuncture de qi with manipulations of lifting-thrusting-twirling techniques. When this happens, Dr. Decheng Chen would advise his patients to cautiously move their affected areas all by themselves to prevent unnecessary tissue injuries. The results showed that the motions initiated by these patients with needles inside the body did not increase or trigger any additional pain at all and it worked well. After years of exploration, Dr. Decheng Chen found that muscle contraction and stretching exercises during acupuncture at the affected areas greatly enhanced the therapeutic effects.

### CONCLUSION

Understandings of Motion Acupuncture are well supported by both traditional Chinese medicine theory and modern biomedical research. Motion Acupuncture features "selecting the tender point and nodule as the acupoint for needle insertion". For patients, the points refer to reaction points. For doctors, the points refer to target points, namely tender points, trigger points and sick sites of tied sinew. In Motion Acupuncture, acupuncture manipulation features regular acupuncture needles, special techniques and targeted therapy; motion styles include independent active motion supplemented with passive motion, based on patients' tolerance.

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