

# *Research Progress of Chinese Medicine External Therapy for Sarcopenia*

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**Abstract:** Myasthenia gravis is a chronic wasting disease characterized by persistent skeletal muscle loss. The external treatment method of Chinese medicine highlights "Chinese medicine external treatment", including acupuncture, massage, Yi Jin Jing, Taijiquan, and plastering, which has unique efficacy compared with the internal treatment method and complements the internal treatment method. The author has done a review on the external treatment of sarcopenia in recent years, with the aim of providing new ideas for the treatment of sarcopenia. Sarcopenia is a chronic wasting disease characterized by continuous skeletal muscle loss. The external treatment of traditional Chinese medicine the external treatment of traditional Chinese medicine emphasizes "external treatment of Traditional Chinese medicine", including acupuncture, massage, easy tendons, taijiquan, plaster sticking, etc. Compared with the internal treatment, it has a unique effect and is complementary to the internal treatment. In order to provide new ideas for the treatment of sarcopenia, the author makes a review on the treatment of sarcopenia by external treatment of traditional Chinese medicine in recent years.

Sarcopenia refers to a generalized decrease in muscle mass, strength, and physiological function, and is characterized by a close correlation with age [1]. Increases in underlying diseases are important reasons for the increase in the number of patients with sarcopenia [2-4]. Some studies suggest that the number of people suffering from sarcopenia group will reach 500 million in the coming decades, which will have a serious impact on people's quality of life [5]. HANA [6] suggested that hormone metabolism disorders, insulin resistance, motor neuron degeneration, inflammation, impaired nutrient absorption and utilization, mitochondrial dysfunction, and genetic factors may be related to the development of sarcopenia. The diagnostic criteria for sarcopenia developed by AWGS in 2014 [7]: (1) Skeletal muscle mass index of the extremities ASMI <7.0 kg/m<sup>2</sup> in men and ASMI <5.7 kg/m<sup>2</sup> in women as measured by bioresistive resistance method BIA. (2) Grip strength: <26 kg in men and <18 kg in women; grip strength was measured using the American JamarPlus+ digital grip strength meter, and the patient was measured in a sitting position with the elbow bent at 90°, and the dominant hand was measured three times to take the maximum value. (3) Physical mobility: 6m walking speed <0.8m/s; those who meet (1) and satisfy (2) and/or (3) can be diagnosed with sarcopenia. Ke ZF et al [8] found that exosomes

can mediate the proliferation and differentiation of skeletal muscle cells. The remission of sarcopenia is achieved through the exercise of releasing large amounts of exosomes to modulate the expression of miRNAs and/or proteins they carry. It has been suggested that mitochondrial disorders are the main factor causing sarcopenia, and improvement is achieved by mentioning the regulation of mitochondrial vitamin E/C, resveratrol and targeting mitochondria to muscle number and function [9-10]. Qianxi Tu believes that enhancing nutrition and slowing down debility through reasonable preventive and control measures can make the course of the disease develop in a good direction [11], and the use of Chinese medicine as external treatment special therapy for myasthenia gravis has achieved great efficacy in clinical practice.

## 1. Acupuncture Treatment

Acupuncture (see Figure 1), as an important part of traditional therapy in China, has unique insights and treatment modalities for myasthenia gravis. Yangming meridian travels through the joints of the limbs, filling them with qi and blood, and because Yangming meridian is the sea of water and grain, the sea of the five viscera and six internal organs, it is said that "the treatment of impotence can only take Yangming" to moisten the tendons, bind the bones and benefit the joints. Clinical studies have shown [12-13] that by using Yangming meridian as the main acupuncture point together with special acupuncture points such as the eight Hui points of the Governor's vein, the inflammatory state can be improved and hormone levels can be regulated to improve the muscle wasting and weakness of patients. For complex conditions and a wide range of diseases, the use of Yangming and other meridians to complement each other and coordinate yin and yang can provide more targeted treatment [14-15], Zhao Wei et al [16] applied electroacupuncture to the circumferential jump point on the third mile of the foot in a mouse test and showed a more pronounced effect on the improvement of the gastrocnemius muscle. SU et al [17] used acupuncture plus low-frequency electrical stimulation (Acu-LFES) near the Yanglingquan, the superficial peroneal nerve and the deep peroneal nerve, and the foot three li, needles were connected to the SDZ-II electronic needle apparatus using a consistent pulse of 20 Hz and a current of 1 mA electrical frequency. Daily treatment for 15 minutes for 14 days prevented diabetes-induced muscle atrophy and improved muscle function in diabetic mice. According to Li Xizhong [18], acupuncture can act directly on the target organ to induce muscle contraction and gradual recovery of the nerve and its target muscle, and the target organ can in turn promote the maturation of the regenerating nerve, and the nerve and muscle nourish each other to recover.

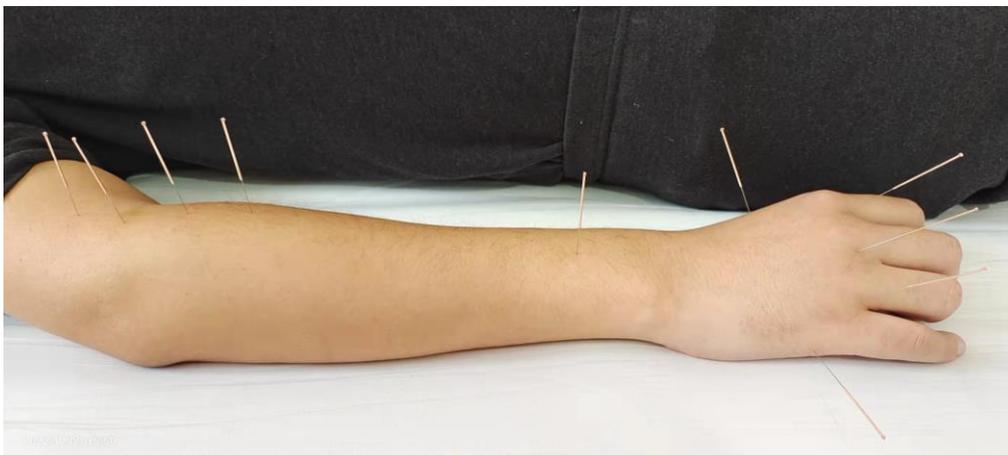


Figure 1: Acupuncture.

## 2. Tui Na Therapy

Tui Na (see Figure 2) refers to the use of pushing, holding, lifting, pinching and kneading techniques to treat the body by pressing the meridians and acupoints, so as to unblock the meridians, warm the meridians and disperse cold, activate the blood and remove blood stasis, so that the qi and blood can be unblocked and the yin and yang can be harmonized. The same as the traditional characteristic therapy, "Tui Na Zhi Wei" cold, hot, warm and flat, the four properties of medicine. Tui Na kneading pinch, the nature of the same as medicine to push, that is to use medicine push on three Guan, instead of ephedra cinnamon. The status of the pushing, "pushing the micro" spleen main muscles, labor to exercise the muscle, make it active is beneficial to the peace. The labor to weary which will lead to thinning fever. The person who is moving and generating yang, hurting the spleen's yin, so the muscle is affected by the disease, the treatment is appropriate to fill the quiet. This indicates that the treatment of myasthenia gravis is based on the method of tonicity. Chen Peng et al [19] treated 60 patients by rolling, pressing, kneading, and pushing the acupoints of the back bladder meridian, such as Liver Yu, Gall Bladder Yu, Spleen Yu, and Stomach Yu, using Hegu, Quchi, Fu Hare, Liang Qiu, Foot San Li, Upper Ju Xiu, Jiao Kou, Lower Ju Xiu, and Xie Xi, mainly on the Yang Ming meridian, and the results showed a great improvement in the quality of life of the patients with the delay of muscle strength, muscle volume, and muscle degeneration. Periodic administration of tui na treatment increases the regulation and work performance of skeletal muscles [20]. Cui Ruimin [21], through years of Tui-Na treatment of skeletal muscle reduction in the elderly, showed that as long as this method is followed, it has a significant effect on the healing effect (1) mixed to treat, appropriate (2) combination of manipulation and gongfu (3) combination of active and passive (4) combination of power training and static training (5) treatment of impotence only take Yangming. This shows that Tui Na therapy is very helpful for the improvement of symptoms of myasthenia gravis.



Figure 2: Tui Na.

### 3. Taijiquan Treatment

The "Yi" Taiji is the yin and yang that have been divided. Man is born from heaven and earth, and has the form of Taiji. Taiji is the yin and yang in one, taijiquan(see Figure 3) should be transported taiji and born, yin and yang-based, rigid and flexible, taijiquan pay attention to body movement round and coherent, the heart is quiet, not anxious, qi sinking Dantian, God Shu. It is a very suitable exercise method for patients with sarcopenia, which makes the person's form and spirit both, full of qi and blood, and long-term contact to achieve the effect of strengthening the body. As age increases, weakening of muscle volume and strength is inevitable, and clinical studies by Liu Zhizheng [22] showed that patients who practiced taijiquan for a long time were superior to their control group in terms of both muscle strength, muscle mass, muscle function, and gait and time-space indexes to the elderly. Peng Nan et al [23] measured the bilateral muscle strength of the lower limbs by clinical observation. The results showed that the muscle strength of the iliopsoas, quadriceps, rouge, and anterior tibialis muscles were higher in the taijiquan training group than in the control group, without decreasing due to age, while the muscle strength of the four lower limb groups decreased significantly in the control group of elderly men, with an average decrease rate of 35% over 30 years. The average muscle strength decline rate of the female group could reach 20%, fully reflecting the advantages of taijiquan, especially the most significant effect on the iliopsoas muscle. Practicing taijiquan for more than 1 year has shown great improvement in balance, stability, and muscle strength and has also improved chronic diseases such as diabetes mellitus and hypertension [24-25].



Figure 3: Taijiquan.

### 4. Yi Jin Jing Treatment

The "Suwen Isofa Formula Fifty" and its diseases are mostly impotent, cold and hot, and its treatment should be guided by pressing the stilts. "The weak tendons are easy to be strong" and "the weak tendons are easy to be strong" refers to one of the new gong methods "Yi Jin Jing"(see Figure 4) created by the State General Administration of Sports, which extends the tendons and draws the

bones, leads the qi of the form, and the intention follows the form. It is safe and easy to learn, with soft, smooth and rich forms. According to the physical state of the elderly and the difficulty of the moves, the State General Administration of Sports has improved the 12 styles of Yi Jin Jing, and selected "Wei Tu Xian Pestle and Mortar I", "Wei Tu Xian Pestle and Mortar II", "Wei Tu Xian Pestle and Mortar III The six basic movements are "Weidao Pestle and Mortar I", "Weidao Pestle and Mortar II", "Weidao Pestle and Mortar III", "Star Picking and Doping", "Three Coils on the Ground" and "Claws and Wings", which are the basis of practice. Practicing Yi Jin Jing can improve trunk bending ability, shoulder joint flexibility, sitting up and squatting flexibility [26], improve the dynamic balance of the practitioner, increase the stability of walking [27-28], improve the ability of knee extensor muscles [29], realize the synergistic movement of bones, muscles and nerves, improve the muscle strength and flexibility of the human body, and specific movements have obvious effects on the treatment of lower back pain [30].Fang Lei [31] performed Yi Jin Jing exercises for six months on 36 people suffering from senile skeletal hypotonia with balance disorders, and found that balance disorders were improved and the risk of falling was reduced, increasing confidence in balance disorders against falls in senile skeletal hypotonia and greatly improving the quality of life of patients.



Figure 4: Yi Jin Jing.

## 5. Other Characteristic External Treatments

Li Wei [32] used the method of spleen-supplementing and qi-supplementing medicinal gavage plus acupuncture point application to intervene in aging model rats, and examined the effects of morphological changes of skeletal muscle, antioxidant capacity and expression of caspase-3 and

caspase-8, and the results showed that the activity of GSH-Px and SOD in skeletal muscle was significantly increased by increasing the serum of aging rats, and the improvement of antioxidant capacity of skeletal muscle had a significant effect on The effect of increased antioxidant capacity of skeletal muscle on delaying the aging of skeletal muscle was obvious. Pan Weidong et al extracted seven effective Chinese herbs, Ginseng, Astragalus, Cistanches, Atractylodes, Poria, Glycyrrhiza and Rhodiola, and added heated granules to make an ointment (see Figure 5)to be applied on the back of patients for the treatment of sarcopenia, which can solve the problem of the drug not being able to act adequately due to swallowing difficulties in patients with sarcopenia and sarcopenia, with high safety, significant efficacy and pain relief. In addition, proper exercise, healthy and optimistic attitude, regular work and rest, and healthy diet also play an important role in the improvement of sarcopenia.



Figure 5: Ointment.

## 6. Summary

In ancient times, there was no corresponding disease name for myasthenia gravis, but the book "The Essentials of Treatment - Miscellaneous Diseases" says that "impotence is a condition in which the hands and feet are impotent and weak, and the hundred joints are slow and unresolved. According to the Yellow Emperor's Classic of Internal Medicine, each of the five organs has a combination, so they can all be made impotent. The impotent person is impotent and weak, unable to move. Combined with the clinical symptoms of myasthenia gravis, the author believes that it should be classified as impotence. The cause of the disease is mainly the weakness of the spleen and kidney, and the scripture says that five organs can cause impotence, including the skin, blood, tendons, muscles and bone marrow. The spleen and kidneys are the essence of the successive heavens, the source of life activities around the body, the spleen is the master of the limbs and muscles, the spleen and stomach are weak, the vital energy is weak, the body is weak, the hands and feet are slow, so "Shen Nong Ben Cao Jing" says: nourishing the spleen can fill the muscles. The spleen and stomach can transform the essence of grain, get angry and nurture the blood and the

blood and Qi will flow around the whole body to nourish the flesh and bones externally and irrigate the organs internally to maintain the normal activities of the body. Suwen five viscera generation: "liver by blood can see, the foot by blood can travel, palm by blood can hold, finger by blood can take" indicates that the whole body of flesh, tendons and bones, viscera need blood nourishment, qi and blood together, inseparable, "blood evidence of vomiting blood" shows: "qi for the blood of the handsome, blood followed by running, blood for the qi of the guard. Qi is quiet when it gets it", "Qi drives blood to circulate throughout the body and nourish all limbs and bones. In the "Internal Path", "the treatment of impotence is only for Yangming", but the treatment should not only focus on Yangming, but also carefully identify and treat the symptoms and consider them from multiple aspects. The "Jing" says: each replenishes its glory and pass its infusion to regulate its deficiency, and it's reverse and smooth, so it can be seen that the treatment is not exclusive to Yangming.

Myasthenia gravis has more causative factors, the current Western medicine targeted treatment of the drug less, and may bring other more obvious side effects, Chinese medicine external treatment methods through acupuncture, massage, Yi Jin Jing, Taijiquan, external ointment and other flexible treatment techniques can do both disease prevention, but also to play the role of prevention before the disease, adjusting the balance of the internal organs and blood, to avoid the liver and kidney damage brought about by drug treatment, safe and effective, with few side effects. It is safe, effective, and has few side effects, which shows unique advantages and opens a new path for the treatment of myasthenia gravis.

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