



## PECULIARITIES OF WU-SHU APPLICATION IN REHABILITATION OF PATIENTS WITH DORSOPATHIES

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Article DOI: <https://doi.org/10.36713/epra12915>

DOI No: 10.36713/epra12915

### ABSTRACT

*This article presents an analysis of literary sources on the role of wu-shu as an unconventional method of physical rehabilitation of patients with dorsopathy. wu-shu is not only a kind of martial art, but also an unconventional method of physical rehabilitation, which, by influencing the regulation of the nervous, endocrine and respiratory systems, not only helps to reduce pain, improve the psycho-emotional status of patients, but also restore the basic processes in organism and improve quality of life.*

**KEYWORDS:** rehabilitation, dorsopathies, wu-shu, Chinese medicine, physical exercises

Nowadays the problem of back pain syndromes remains relevant, since, according to WHO, they rank second after arthritis as a disabling factor<sup>1</sup>. According to some authors, from 35 to 90% of the adult population suffer from back pain<sup>2,3</sup>.

In different countries the problems of back pain present a challenge to clinicians from the many different specialties. In the face of such diversity of skills it is unlikely that a consensus will be reached without resorting to basic epidemiological principles<sup>4-6</sup>. A special category of patients with dorsopathies includes athletes involved in various types of sports activities, in which sports results and, most importantly, their quality of life are significantly reduced<sup>7-10</sup>.

Therefore, the main task of many researchers is to search for new methods of treatment and rehabilitation of patients with dorsopathies. Comprehensive treatment programs are being developed not only for medical and surgical treatment<sup>11-13</sup>, but also including methods of physical rehabilitation and alternative medicine<sup>14-17</sup>.

One of such methods is traditional Chinese gymnastics – wu-shu . It is the common name for all martial arts that exist in China consisting of two hieroglyphs: wu (“wu”) - “military, combat” and shu (“shu”) - “art, technology; skill; tricks.”<sup>18,19</sup>

Just like traditional Chinese medicine, Wu-shu gymnastics is based on general theoretical concepts: the concepts of yin-yang, wu-xing, the theory of the system of energy meridians. The historical birthplace of wu-shu gymnastics is China.

Modern wu-shu as a system of special physical exercises of various kinds has a number of aspects: health-improving; applied; worldview. It should be noted that the implementation of solving problems caused by one or another aspect is associated with the culture of the body and begins with the culture of movement involved. The “culture of movement” should be understood as the formation of motor skills and wu-shu skills in integration with various accompanying features, in particular, the way of thinking, breathing, etc. In the mid-fifties of the last century, the Chinese systematized and classified all the existing styles of their national martial arts - wu-shu<sup>19,21</sup>.

Modern health-improving wu-shu gymnastics integrates exercises with a certain type of breathing - tai chi quan. Therefore, this type of physical activity is of great health-improving importance and solves the problems of preventing health disorders, in particular, the respiratory system.

The specificity of wu-shu gymnastic exercises lies in the use of various styles traditional for the Chinese, which are distinguished by an unusual variety. Basically, these styles conditionally convey the movements and habits of animals (tiger, snake, eagle, monkey, etc.). Traditional styles include elements of acrobatics, as well as jumps and falls. It should be noted that the skills and abilities of using various types of traditional Chinese weapons in the content of wu-shu health-improving gymnastics are presented quite rarely and are not so much applied as artistic.<sup>22,23</sup>

There are several views on the history of its origin. The first - as one of the systems that developed independently in China, mainly in the Taoist tradition, such as the "Movement of the Five Beasts and Birds" by the famous doctor Hua-To. The development of this direction is somehow connected with the Taoist temple complex of Mount U-Dan. The second source goes back to the Vedic traditions that were brought to China with Buddhism, such as the Diamond Qigong of Chinese Buddhist



patriarch Bodhidharma. The development of this direction is associated with the Shaolin Monastery. Further formation of WU-SHU was based on these two sources.

The origin of this system was primarily associated with the goal of strengthening the health of the body and spirit, which was used both in the medical and military-applied aspect.<sup>18,19</sup>

With all the diversity of modern wu-shu, there are two main directions - external and internal.

Both directions are based on the basic wu-shu, which is a set of exercises for the development of dynamics, plasticity of the body, includes exercises for the development of strength, endurance and reaction. From the very beginning, the principle of performing exercises is based on a combination of proper breathing, mental study of movement and auto-training. In the future, the development of motor skills characteristic of a certain Wu-shu style follows.

The most relevant is the use of wu-shu gymnastics in the treatment of diseases of the musculoskeletal system, specifically dorsopathy. The technique corresponds to the principles of Mikulich's orthopedic gymnastics - relaxation, mobilization, stabilization. By changing the percentage of exercises for plasticity, dynamics and statics, it is possible to apply the technique to correct disorders associated with both hypomobility of the motor segment and its hypermobility. Much attention is paid to posture - the position of the body, in which the perpendicular, lowered from the Bai-hui point, must pass through the Hui-yin point. At the same time, due to the action of multidirectional forces (crown force upward and the center of gravity tending downward), the severity of the lumbar and cervical lordosis is smoothed out. This is possible with the static work of the muscles of the directly motor segments of the spine, which helps to strengthen its muscular-ligamentous apparatus. Strengthening the muscles of the legs and pelvic girdle through stepping to the side, rotating the foot, transferring body weight to one yoga after another, leg lifts also help strengthen postural muscles and correct posture.<sup>20-22</sup>

The positive impact of wu-shu gymnastics on the nervous system is due to a number of factors. First of all, it is mental control over the movement and position of the body during exercises. Mental control contributes to a more intensive formation of neuronal ensembles and analysis of information on the principle of feedback. An increase in the efficiency of synaptic transmission is proved by a high indicator of strength in relation to the volume of muscle mass and an improvement in speed qualities. A distinctive feature of Wu-shu gymnastics is work with a wrist. A large number of forms of hand positions, the development of a sense of proprioception during special exercises make it possible to consider the hand as an information terminal for the development of sensory.<sup>23</sup>

Breathing and meditative exercises are an integral part of Wu-shu gymnastics. The function of external respiration is directly dependent on the state of the central nervous system. Physiological studies have shown that impulses from the respiratory center, radiating through the central nervous system, affect the tone of the cerebral cortex, the dynamics of cortical potentials and the periodicity of  $\alpha$ -rhythms. The main principle in breathing exercises is the principle of slow diaphragmatic breathing. The effectiveness of the latter is due to the fact that diaphragmatic breathing causes a pronounced Hering-Breuer reflex ("brake" reflex associated with the inclusion of stretch receptors in the lungs), which leads to a decrease in the activity of the reticular formation of the brain stem, a decrease in the activity of the neocortex, stabilization of mental processes and reduction of back pain.<sup>21</sup>

Of particular interest are data on the use of wu-shu gymnastics to stimulate the synthesis of endorphins. It is common knowledge that endorphins are "pleasure hormones". They are the main link in the body's anti-pain system, they are involved in the regulation of the emotional state of a person. Endorphins were discovered in the 70s of the last century while studying the mechanisms of the analgesic effect of Chinese acupuncture. Subsequently, their diverse and important functions in the human body were revealed.<sup>24</sup>

So, wu-shu exercises for beginners pay a lot of attention to the development and strengthening of the tendons. In China, the health of connective tissues is of particular importance. Muscles and bones are considered unreliable as they become weaker with age. Hardy and strong people are even said to be wiry. It is believed that tendons do not change with age, if they are properly formed at an early age, they will be supple, and the musculoskeletal system will remain a reliable support for life. In many of the ancient scientific writings that Chinese medicine relies on, healthy tendons are correlated with mobility, activity, and longevity.<sup>18,19,22</sup>

Thus, wu-shu is not only a kind of martial art, but also an unconventional method of physical rehabilitation, which, by influencing the regulation of the nervous, endocrine and respiratory systems, not only helps to reduce pain, improve the psycho-emotional status of patients, but also restore the basic processes in organism and improve quality of life.

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