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## The application of traditional chinese medicine in sports medicine

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### ABSTRACT

Sports medicine is both a branch of medical science and an important part of sports science. It mainly includes sports medical supervision, exertional disease prevention, sports nutriology, sports injury prevention, and sports rehabilitation. In 1978, China Sports Medicine Society was founded, and in 1980, it joined the International Federation of Sports Medicine. In 2008, China successfully hosted the Olympic Games and has made remarkable achievements in sports. Traditional Chinese medicine has played an important role in maintaining Chinese people's health and preventing diseases for years. Although there are many researches focus on sports medicine by traditional Chinese medicine therapy and achieved good results in China, but these researches are mainly confined to study of one disease, not the overall review. No one has published comprehensive and international level papers. This paper comprehensively summarized the traditional therapy in recent years for the sports medicine, and hope the whole world sports medicine can benefit form traditional Chinese medicine. This paper will discuss from the following aspects: Acupuncture, Massage, Traditional Chinese medicine Herbs, Tai ji, Cupping, Skin Absorption. They can relieve sports injuries and stress before games, improve athletic capacity, eliminate fatigue. Traditional Chinese medicine physical therapy can improve exercise capacity and reduce the occurrence of the placebo event. © 2013 Trade Science Inc. - INDIA

### KEYWORDS

Traditional chinese medicine;  
Sports medicine;  
China.

### INTRODUCTION

The use of traditional Chinese medicine has thousands of years of history<sup>[1]</sup>. In 1978, China Sports Medicine Society was founded, and in 1980, it joined the International Federation of Sports Medicine. In 2008, China successfully hosted the Olympic Games and has made remarkable achievements in sports. For a long time, traditional Chinese medicine has played an important role in maintaining Chinese people's health

and preventing diseases, which is mainly shown in the following aspects: Acupuncture, Massage, Traditional Chinese medicine Herbs, Tai ji, Cupping, Skin Absorption.

### MATERIALS AND METHODS

#### Acupuncture

With the development of times, the use of acupunc-

ture in the field of sports medicine has been growing. Acupuncture can help to relieve exercise fatigue, exercise-induced diseases, and acute and chronic sports injuries and diseases. Through stimulating different meridian points, acupuncture activates the meridian regulatory function, achieving a two-way regulation of human functional state<sup>[2]</sup>.

### **Improve athletic capacity**

Acupuncture before the game can help athletes to adjust the sudden adverse competitive state, which has quick and good effects. During competitions and training, stimulating Dazhui, Mingmen, Zusanli, and Chengshan is able to collect a large number of motor units of skeletal muscles in a short period of time, which will improve the maximal strength of skeletal muscles, extensor and flexor, thus boosting the power of bone muscle to improve the athlete's speed and strength. Acupuncture can quickly eliminate fatigue and restore function level after competitions and training.

### **Eliminate fatigue**

Fatigue is due to the fact that a significant increase in free radicals in the body after strenuous aerobic exercises diminishes its elimination capacity. Applying pressure on Shenshu and Zhaohai can reduce the production of free radicals and the lipid peroxidation mediated by free radicals in movement, thereby maintaining the integrity of the structure and function of red cell membrane.

### **Relieve sports injuries**

It is often difficult for common drugs to deal with soft tissue injuries, which is with very slow effect. For sports injuries and diseases, acupuncture has a variety of treatments. For example, for styloid process of radius, ankle sprains, and patellar tendon injury in table tennis, various types of tenosynovitis in badminton, basketball, and volleyball, acute lumbar sprain in hurdles, throwing and gymnastics, acupuncturing five shu points and luo-connecting point can help recover from injuries.

## **MASSAGE**

Sports massage is mainly intended for athletes. It is meant for medical rehabilitation and health care in sports,

preventing and treating sports injuries in order to improve the results of sports competitions. It includes rubbing, pressing, poking, pushing, kneading, pinching, horizontal pushing, and vibrating<sup>[3]</sup>.

### **Relieve stress before games**

When the season approaches, athletes tend to become anxious and suffer from the loss of appetite and insomnia. If an athlete still feels tense on race day, he or she can receive massage by poking, pinching and rubbing 15 minutes before the game. For athletes who are lack of energy or confidence, in addition to comforting them, applying horizontal pushing at Baihui and Dazhui, pushing, horizontal pushing and pinching at Jianzhen, pinching at Quchi and Zusanli, and pressing and poking at Weizhong will have good effects.

### **Restoration of body function during and after the race**

Massage therapy can be done between breaks or two games. It depends on the physical condition of athletes (over-excited or extreme fatiguing) about whether using an enhanced approach or diminished approach. If the time between races is short, squeezing and pinching will do. Such therapy can contribute to the maintenance of moving posture, accelerating the recovery of the capacity and enhancing performances. If athletes employ upper limbs more than lower limbs, it is advised to apply pressure on Quchi, Waiguan, Quze, and Jianwaishu. If the case is the opposite, applying on Weizhong, Kunlun, Huantiao, Fengshi, and Xuanzhong will achieve a good effect<sup>[4]</sup>.

## **CHINESE HERBAL MEDICINE**

The invention and application of traditional Chinese medicine has thousands of years of history in China. Traditional Chinese medicine has achieved a high level of recognition in Asian countries, especially in East Asia. However, traditional Chinese medicine is far from being recognized in Western countries. In the Dietary Supplement Health and Education Act formulated by US, traditional Chinese medicine is defined as a kind of food or food additive<sup>[5]</sup>. The role of traditional Chinese medicine in sports medicine mainly focuses on the following aspects.

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### Improve the immunity of athletes

Ginseng, Ganoderma lucidum, wolfberry and other traditional Chinese medicine have the functions of strengthening spleen and activating blood circulation, reinforcing kidney and invigorating, soothing liver and regulating vital energy. Appropriate intake of some medicine not only increases the number of white blood cells in the blood, promoting enhancements in the function of monocyte-macrophage system, but also can facilitate the increase of T cells and the transformation of lymphoblastoid cells, which is conducive to the production of antibody and significant improvement in the immunity of body fluid and cellular immunity capacity. Thereby it can improve the immunity of athletes and enhance the body's resistance to diseases, enabling them to withstand heavy training, to prevent infection and to delay the occurrence of overtraining.

### Enhance athletic abilities

Currently, traditional Chinese medicine used for anti-fatigue and promoting physical recovery is divided into two categories- benefiting type and regulating type. Those commonly used in improving athletic ability include ginseng, astragalus, Rhodiola, Siberian Ginseng, Schisandra, Chinese caterpillar fungus and so on. All of them are capable of improving training results, increasing muscle strength and the maximum oxygen uptake, stabilizing energy internal environment, reducing serum lactate levels after exercise, improving heart rate, visual and auditory reaction time, wakefulness and mental activity. Besides, tea is able to inhibit LDL oxidation, and ginkgo can clear up superoxide, hydroxyl, and nitrous oxide<sup>[6]</sup>.

### Adjust sports psychology

All athletes have trouble with anxiety, tension, or too much physical exertion, which will thereby cause varying degrees of difficulty in falling asleep. Because of the difficulty in sleeping, it will make it impossible for athletes to properly eliminate fatigue, thus unable to restore physical strength. To address this problem, traditional Chinese medicine with the effect of soothing mind should be selected, such as seed of wild jujube, longan aril, Chinese-date, which can ease psychological tension and help to restore physical fitness<sup>[7]</sup>.

### TAI JI

The simple, soft and smooth motion of traditional Tai ji makes it the best choice for the public health. Tai ji is a moderate exercise, which is based on aerobic exercise. With adequate oxygen supply during the exercise, it can speed up the breakdown of body fat, sugar and protein and increase lung capacity<sup>[8]</sup>. Tai ji emphasizes inner spirit, believing that the training of awareness is a peculiar psychology characteristic of Tai ji. Guided by awareness, people enter a carefree and transcendent state, without strong will, refraining from revealing personal feeling and maintaining the presence of mind. Through the alternative role of motion behavior, it can regulate the mood of practitioners and induce positive thinking and emotion. In this way, tai ji can greatly relieve athlete's mental stress.

### CUPPING

Prolonged strenuous exercise of athletes leads to a sustained state of tension at the waist muscles and ligaments, which is likely to cause muscle strain<sup>[9]</sup>. Cupping, with the tank as a tool, use combustion, suction, steam and other methods to create a negative pressure inside the tank, making it adsorb on acupoints or on the surface of certain parts to produce benign stimulation, which will achieve the purpose of regulating the body function, and disease prevention and treatment. Through the edge of negative pressure, the tank sucks at the skin, pulls and squeezes the superficial muscles, making the local tissue congested. The rapid congestion, bleeding, and even the breaking of capillaries and the destroying of red blood cells will cause the emergence of autohemolysis and then the occurrence of flare. Hemolysis is a benign stimulus. It can strengthen the local metabolism, and the histamine and neurotransmitter release from hemolysis stimulate the various organs of the body by flowing with the body fluids in order to enhance its functional activity. Cupping is capable of adjusting the body's yin and yang balance, relieving fatigue and enhancing physical performance. Sliding cupping along the bladder meridian can significantly improve the immune function of red cells of a normal person, which can improve pain threshold, relieve pain, and enhance the body's resistance.

## SKIN ABSORPTION

Cutaneous Drug Administration has been frequently used in the early ancient China, which could exert its effect by taking the affected area or being affixed in the corresponding acupuncture points. In the modern scientific theory, this method is interpreted as a process of releasing, penetration and absorption into the blood circulation. In everyday life, the commonly-used cutaneous drug administration includes the aerosol therapy, which is often adopted in the orthopedic clinical medicine<sup>[10]</sup>. The cutaneous drug administration method can be methodologically divided into pharmacy and physical method. The former one is to use the solvent or the penetration enhancers to make the drug penetrate into lesions or acupuncture points through the skin. For example, plastic, pellicle, gels, cataplasm, acupoint sticking agents, stickers tablets, drug precursors could achieve enhancement of the medicine penetration through the skin by physical methods, such as iontophoresis, ultrasound transport, micro needles, etc. The major advantage of cutaneous drug administration method lies in that it could refrain from going through the liver and gastrointestinal tract, thereby avoiding the damage of first-pass effect of drugs and gastrointestinal movement for the drugs. To sum up, the pharmacological toxicity has been reduced compared with the oral medications, which could bring convenience. The treatment of soft tissue blunt trauma, inflammation around the knee and periarthritis humeroscapularis has achieved good results.

## CONCLUSION

In recent years, the external treatment with traditional Chinese medicine is beneficial for athletes both from the psychological and physiological aspects in terms of the athlete's recovery from fatigue and injury treatment. Although surgeries are still adopted for the heavier damage of the athlete, the Chinese medicine is indispensable in its rehabilitation phase. A good case in point is some famous athletes like Liu Xiang, Yao Ming. In

the near future, the Chinese medicine we will be involved more in the global field of sports medicine of the whole world.

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