

## A CLINICAL TRIAL OF TRIGGER POINT TRADITIONAL CHINESE AND WESTERN MEDICINE COMBINED THERAPY ON SPORTS REHABILITATION OF FOOTBALL PLAYERS' KNEE JOINTS

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### ABSTRACT

**Objective:** This article aims to study the clinical trial effect of trigger point Chinese and Western medicine on sports rehabilitation of football players' knee joint injuries.

**Method:** By adopting the random sampling approach, 60 male college football players with common knee sports injuries were selected and divided into a control group and an experimental group by random grouping. Comparative research and analysis were carried out on them. Methods The two groups adopted different rehabilitation methods, the control group adopted conventional treatment methods, and the experimental group adopted trigger point Chinese and Western medicine. The two treatment contents differed, and the treatment time was one month. After both the control and experimental groups completed the treatment and rehabilitation, the data measurement was performed again to compare and analyze the differences in knee joint function score (Lysholm) grades and pain scores at several different time points, and the observation records were analyzed.

**Results:** The Lysholm scores of the control group at other time points were lower than those of the experimental group, and the pain scores of the control group at different time points were higher than those of the experimental group. Finally, the collected results were sorted out and analyzed using data statistics software, and the differences were statistically significant ( $P < 0.05$ ).

**Conclusion:** The results show that comparing the trigger point of Chinese and Western medicine is more effective for football players' knee joint injury rehabilitation and is better than the conventional rehabilitation treatment.

**Keywords:** Trigger point, chinese and western medicine, knee joint rehabilitation, football player.

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### Introduction

Sports injuries of the knee joint are common among football players. Sports injuries will significantly shorten the career of athletes. When athletes suffer from sports injuries, if they do not recover immediately and conduct intensive training and competitions, it will be counterproductive, aggravating the degree of injury and gradually causing joint compression and wear. Ultimately, it may cause environmental damage to the articular cartilage, and in severe cases, it may even interrupt

the athlete's entire sports career. Therefore, athletes must pay attention to sports injuries and treat them in time. Not only can it effectively recover and reduce the frequency of subsequent sports injuries, but it can also help improve athletes' competition levels and physical fitness levels. The trigger point can be anywhere on the body. Most are located at the attachments of muscles, ligaments, and bones. They are abnormally electrified in the form of cords, which are formed at muscle tension and injuries<sup>(1)</sup>. Trigger points in the activated state can cause spontaneous pain, and trigger points in the hidden state often

cause motor dysfunction. The muscle is the largest organ in the human body, and the distribution of skeletal muscle in the human body accounts for about 40% of the body weight. In reality, pain often occurs in certain parts of the body due to excessive use of muscles or specific bad postures. Usually, these "places or points" are all over the body, called "myofascial trigger points"<sup>(2)</sup>. Muscle pain may be caused by one or more trigger points, destroying its structure, and trigger points can be healed.

By treating trigger points in Chinese and Western medicine, pressing and stretching training and acupuncture therapy for existing trigger points can relieve pain and recovery, which is different from conservative treatment and precision surgery in Western medicine. With the development of the times, people's awareness of health care has increased, and traditional Chinese medicine rehabilitation methods such as massage and acupuncture have gradually become popular. Acupuncture therapy is an effective method of traditional Chinese medicine for rehabilitation treatment. It has been passed down for a long time and is still used today. It has the characteristics of curing and preventing diseases, and dredging meridians, is simple, effective, safe, and efficient, and has an excellent curative effect.

According to investigation and statistics, there are more sudden turns and stops in disguise due to football players' excessive training and competition intensity, which will cause more significant damage to the knee joint.

Therefore, athletes with sports injuries should generally introduce traditional Chinese medicine acupuncture therapy so that athletes can effectively prevent and reduce the occurrence of such injuries during training and competition. Aiming at athletes with sports injuries, the comparative analysis of trigger point Chinese and Western medicine and traditional treatment methods shows the curative effect of acupuncture therapy on motorcycle athletes' knee joint sports injuries.

## Research objects and methods

### Research object

This article will sample 60 male college football players with knee sports injuries. Randomly divided into the control group (n=30) and the experimental group (n=30), the above is the basic information of the subjects; there is no statistical significance (p greater than 0.05), comparable, the basic knowledge of the subjects (see Table 1).

Groups	Quantity	Age	Height	Weight	Sports life
Test Group	30	20.3±0.6	171.4±6.2	73.2±6.8	3.12±1.88
Control group	30	19.9±0.8	172.3±5.7	75.1±6.7	3.52±1.57

**Table 1:** Information about college football players (n=60).

### Methods

The two groups adopted different treatment methods, of which the control group adopted conventional treatment methods, and the experimental group adopted trigger point Chinese and Western medicine. The two treatment contents were different, and the duration was one month.

#### Control group

- **Static contraction training:** athletes are in the supine position, with their hands on both sides of the body; the legs continue to exert force to complete the contraction, the quadriceps muscles are tightened<sup>(3)</sup>, and the knee joint is straightened and kept fixed. The process lasts for about 10 seconds. Then relax for about 4-5 seconds after the movement, ten times as a group, alternate left and right, and rest after the training group, two times a day. **Stability of the knee joint:** the athlete straightens and raises one leg, keeping the knee joint fixed. Lift slowly; the range of raising the leg is 50°~60°; lift it to the highest point and fix it for 1-2s, then slowly lower it once; each process is about 8s. Change legs after completion, complete ten times each as a group, and rest after completing two groups, two times a day. **Isotonic and isokinetic contraction of the quadriceps of the lower extremities:** the athlete bends the knee joint and squats down slowly.

When in the half-squat position, it needs to remain still for 3-5 seconds. Slowly descend again, and stay still for 3 to 5 seconds when in the full squat position. Actively exert force at the knee joint to feel the process of exerting force, slowly lock the knee joint and exert force to stand up, and complete the whole process as one movement, which requires 15 to 20 activities as a group. Rest for 1-2 minutes after one set, and finish two sets twice daily. Exercising the force function of the knee joint, our legs slowly perform vertical take-off and landing buffer exercises, and our legs quickly perform vertical take-off and landing buffer exercises. First, stand with your legs open, straighten your waist and chest, hold your head with your hands, and squat down slowly, with the center of gravity behind you. When you squat to 90 degrees, lock your knee joints and

exert force to take off and land vertically to complete one time slowly. Twelve times as a group, rest for a minute after the slow s, peed, and start fast practice. Rest after completion, two sets per day. Static squat with weight: With the help of a barbell, the knee joint is bent at 130° to 150°, the trunk is straight, squat quietly until the quadriceps muscles are entirely sore, and then relax and rest. Do two groups every day<sup>(4)</sup>.

- Emphasize that patients should pay attention to keep warm, avoid being stimulated by a cold wind, wear knee pads when exercising, and reduce unnecessary going up and down stairs and mountaineering activities<sup>(5)</sup>.

- Diet: Eat more high-protein foods after exercise, the absorption of amino acids by skeletal muscle is active, and the muscle protein synthesis rate is fast.

- Experimental group: the treatment method of the experimental group is to add trigger points in Chinese and Western medicine to the conventional treatment.

*The specific content is as follows:*

- Traditional Chinese medicine fumigation and washing: it is a traditional Chinese medicine therapy that penetrates the skin with the help of medicinal power and heat conduction. Under the stimulation of steam, the skin pores of the human body are opened, the capillaries are dilated, and the ingredients of traditional Chinese medicine enter the capillaries<sup>(6)</sup>, thereby relaxing muscles and improving limb activities. Li Zhenghong<sup>(7)</sup> discovered through relevant literature on orthopedics and traumatology fumigation and washing therapy that traditional Chinese medicine fumigation and washing dispels cold and dampness, promotes blood circulation and removes blood stasis, achieves the purpose of strengthening muscles and bones, activating qi and blood, and speeds up the recovery of knee joints.

- Loosening manipulation: the relaxing manipulation has different effects on the recovery of the knee joint in different stages of injury. In the early stage, it is mainly for promoting blood circulation, removing blood stasis, and mainly for dredging collaterals and veins. In the mid-term, the pain is relieved, and the range of motion of the joints is improved, and in the later stage, it is mainly to restore joint stability as much as possible. Use flexion and extension techniques, rotation, and finishing techniques.

- Acupuncture therapy: firstly, make the athletes lie on their backs. Make the athlete try to keep the

knee joint as relaxed as possible after relaxing the muscle tissue around the knee joint. Acupuncture therapy acts on Dubi, Yinlingquan, Yanglingquan, Zusanli, Sanyinjiao, Ashi, inner knee eye, outer knee eye, outer knee Yangguan point, inner knee Yinxi point, blood sea, Liangqiu, Hedong, and other points<sup>(8)</sup>. First, use the short acupuncture combined with the acupuncture method, then use the lifting and interpolation method at Zusanli and Sanyinjiao. The remaining points will be supplemented and relieved. Intermittent acupuncture is performed during the remaining acupuncture points to enhance and consolidate the continuous curative effect on knee joint injury rehabilitation<sup>(9)</sup>.

Keep the needle for about 20 minutes, move the needle 1-3 times in the middle, and adjust the acupuncture points appropriately according to the patient's tolerance. Xiao Heng<sup>(10)</sup> et al. added acupuncture treatment based on exercise rehabilitation. The results were effective after a few weeks, showing the high efficiency of traditional Chinese medicine acupuncture therapy in rehabilitation.

- Relaxation of the trigger point of the knee joint: for pain in the front and side of the knee joint, select the trigger point at the Xuehai point. For pain in the front of the knee, select the trigger point below the anterior inferior iliac spine; for pain in the back of the knee joint, select the trigger point in the middle and lower part of the muscle belly. For local pain on the outside of the knee, select the trigger point above the head of the fibula, and use traditional Chinese medicine techniques to relax the above trigger point. Then choose a 0.35mm\*50-65mm needle, and pierce the stiff part of the muscle.

You will get a curative effect if you feel pain when you pull it. You can fix the trigger point by hand, insert the needle slowly, and use the lifting and interpolation method to keep the needle for 10 to 15 minutes.

- After all the training, stretch the knee joint for 20 seconds in each group, and then apply ice for 20 minutes.

## Results

### *Observation indicators*

- Compared the range of motion, pain degree, and pain disappearance time of the two groups of athletes;

- Compared the grade difference of the knee joint function score (Lysholm) at three-time points

before and after treatment between the two groups. Evaluation criteria: mainly measure and evaluate the knee joint function of the patient and quantitatively evaluate the knee joint function according to different symptoms. The total score ranges from 0 to 100 points. See Table 1.

The experimental group consisted of 30 cases, aged 19 to 22 years, with an average age of (20.3±0.6) years. The middle medical history was (3.5±1.21) days, with 16 cases of injured right knee and 14 cases of injured left knee. There were 30 cases in the control group, aged 18 to 22 years, with an average (of 19.9±0.8) years old. The average medical history was (3.42±1.17) d. There were 15 cases of right knee injury and 15 cases of a left knee injury. There was no statistical significance in the data of the two groups of patients ( $P>0.05$ ).

Groups	Quantity	Before treatment	Two weeks after treatment	Four weeks after treatment
Control group	30	54.56±5.62	62.57±6.83	70.43±10.28
Test Group	30	54.71±4.92	73.50±7.26	84.71±11.47
t		1.567	0.856	0.445
p		>0.05	<0.05	<0.01

**Table 2:** Lysholm scores at three-time points during the rehabilitation process ( $\bar{x}\pm s$ ).

The patient's knee joint pain was quantified and evaluated, and the total score ranged from 0 to 10 points. The lower the score, the better the patient's knee joint function recovery<sup>(11)</sup>.

Groups	Quantity	Before treatment	Two weeks after treatment	Four weeks after treatment
Control group	30	5.63±1.42	5.05±1.05	3.09±0.88
Test Group	30	5.50±1.16	3.31±1.02	2.81±0.99
t		-0.53	-9.17	-1.63
p		0.60	0.00	0.11

**Table 3:** Knee joint pain scores at different times before and after treatment in the two groups.

• FMS functional action assessment results. Through the FMS functional movement evaluation of the experimental group and the control group, it is concluded that the scores of lower body movements such as squats, hurdles, and straight lunges are significantly higher in the experimental group than in the control group, and there is no score of 0. It shows that TCM and Western medicine rehabilitation at trigger point recovery results are relatively good.

## Discussion and analysis

The knee joint is one of the important stable joints of the lower limbs of the human body. Football players have experienced high-intensity training and competitions, and the probability of sports injuries to the knee joint is high. A mild sprain or a complex injury will impact the football player's career and sports status. Through a large number of research and analysis, after a sports injury occurs, it is necessary to apply cold spray and cold compress to the athlete in time to relieve their body pain, eliminate some blood stasis, and make sufficient preparations for subsequent rehabilitation treatment. Knee joint sports rehabilitation treatment mainly includes rehabilitation training, manual massage, acupuncture, and other methods, which are helpful for athletes to recover quickly.

These methods are also safer and rarely cause secondary injuries, which are professional. Although traditional Chinese medicine, physical therapy, and rehabilitation training can effectively relieve some pain symptoms of the knee joint, the treatment time is extended. The effect is not apparent, and repeated treatments are often required. Muscle soreness after treatment will also cause the risk of athletes' physical decline after injury<sup>(12)</sup>, which will affect the following training and has limited in an environment where every second counts in competitive sports training, trigger point Chinese and Western medical methods are widely used. It can accurately find out the location of the injury and carry out targeted rehabilitation training. The time is fast, the course of treatment is short, and the effect is good. Trigger point Chinese and Western medical treatment has a significant impact on the rehabilitation of sports injuries and can improve athletes' sports performance and prevent and treat injuries<sup>(13)</sup>.

At the same time, there was no discomfort in the muscles and joints after the treatment. In this study, the control group used conventional treatment methods, and the experimental group used the trigger point integrated with traditional Chinese and Western medicine rehabilitation methods. After one month, the treatment effect of the experimental group was better, and the difference was statistically significant ( $p>0.05$ ). The conventional treatment method was compared with the trigger point in Chinese and Western medicine, and the Lysholm score after different time points and the pain scores of the two groups of patients at other times were compared. It can be seen that the recovery of the

experimental group is better than that of the control group, and the pain is also better than that of the control group. Therefore, it is proved that the trigger point in Chinese and Western medicine has a positive and irreplaceable effect on knee joint rehabilitation.

The results show that trigger point Chinese and Western medicine combined with conventional treatment can significantly improve the recovery of football players' knee joint injuries. It is reflected in the functional score of the knee joint, the degree of joint pain, and the FMSavailablel motion screening score. Acupuncture therapy can effectively restore the strength of athletes' knee joints, significantly reduce joint and muscle pain, and promote recovery. The effect is remarkable. After four weeks of professional Chinese and Western medical treatment, most football players returned to their original high level. Through the analysis of the results of the rehabilitation treatment of 60 football players with knee joint injuries: the comprehensive treatment of trigger point Chinese and Western medicine combined with conventional rehabilitation exercises have a more significant effect on the treatment of athletes' knee joint injuries than traditional therapy. It is beneficial to the recovery of the athlete's knee joint, prolongs the athlete's career time, and improves the knee joint movement ability.

Compared with traditional recovery methods, trigger point Chinese and Western medical methods can more effectively accelerate the speed and cycle of a football player's knee joint rehabilitation. Improve the functional score of football players' knee joint recovery without delaying the standard training plan. Many athletes highly praise acupuncture therapy because of its convenient use, short treatment time, safety, and effectiveness. It is worthy of vigorous promotion and application by athletes in daily training injury rehabilitation.

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