

A CASE REPORT ON TRADITIONAL CHINESE MEDICINE IMPROVING THE EFFECT OF PERIOD TRAINING FOR FEMALE JUDO ATHLETES IN WEIGHT LOSS AND WEIGHT CONTROL

Wendi Xu¹, Xixi Ouyang^{2*}, Xiang Li²

¹ Academy of Sports, Wenzhou Medical University, Wenzhou 325035, Zhejiang, China;

² Department of Nutrition and Health, China Agricultural University, Beijing 100083, China.

Abstract: Chinese medicine intervention was used to improve the training effect of female judo athlete Miss Li during weight loss and weight control period before competition. With the same weight reduction method, pre-competition training plan and other measures, in 2019, the 30-year-old female athlete Miss Li had problems in the process of reducing and controlling weight before the competition, such as leukopenia, susceptibility to colds and fatigue, etc. In the second half of 2019, Chinese medicine was used to intervene in stages 6 weeks before the championship game, and different Chinese medicine prescriptions were used at different stages, and the training effect was compared with that of the first half of 2019 when weight reduction and weight control were not used before the championship. For comparison; the detection of biochemical indicators includes taking fasting venous blood every Monday morning to measure blood urea(Urea), creatine kinase(CK), white blood cells(WBC), hemoglobin(HGB), etc. After targeted intervention with traditional Chinese medicine in stages, the white blood cells and hemoglobin of the athletes increased significantly, the training level and quality of the athletes before the competition were improved, and the competitive state before the competition was adjusted to a better level. achieved excellent results. The results of this study show that, for athletes with a lot of weight control, the targeted intervention of traditional Chinese medicine in stages can significantly improve the effect of athletes' weight control training.

Keywords: Traditional Chinese medicine; Improvement; judo; Weight control

1. ATHLETE Miss Li'S BASIC SITUATION, METHODS AND EFFECTS OF WEIGHT REDUCTION AND CONTROL

In competitive sports, judo athletes often need to reduce their weight to participate in lower-level competitions to gain the greatest competitive advantage. Through years of research and practice, judo athletes have a relatively mature method of reducing and controlling weight before competition, and can achieve better results [1]. However, a small number of athletes may have a lot of weight reduction and age, which makes it difficult to reduce weight before the competition. In practice, the author encountered a case of female judo athlete Miss Li who needed to be downgraded to reduce weight to participate in the competition. Although various methods were used in the process of reducing weight before the competition, the effect of weight reduction before the competition was always unsatisfactory. The body has symptoms such as leukopenia, decreased resistance, and susceptibility to colds, which seriously affects the implementation of the pre-competition training plan, resulting in failure to achieve ideal results in the competition and affecting their physical and mental health. The author summarizes and analyzes the problems of Miss Li, tries to use traditional Chinese medicine to intervene, and receives good results. The summary report is as follows.

1.1 The Basic Situation of Miss Li

Miss Li, a member of the Hunan Women's Judo Team, is 30 years old, with a height of 164 cm and a basic weight of about 60 kg. Miss Li participated in the 57 kg competition a few years ago, but the opponent in the 57 kg class was strong. The player's physical condition was not dominant, and he had no good results in the competition. The coaching team tried to make the player downgrade to participate in the 52 kg competition through various trade-offs, in order to gain a physical advantage and achieve good results in the competition. For this reason, the scientific research team conducted a feasibility analysis on the player's downgrading and found that the player's usual body composition indicators are as follows: weight 59.4 kg, body mass index(BMI) 22.1, arm The thickness of sebum on the back, back, and abdomen were 10.00 mm, 8.50 mm, and 9.00 mm, respectively, and the body fat rate was 14.87%. After analysis, it is believed that although the player has a muscular physique, he may drop from 59.4 kg to 52 kg. The key question is whether he can complete the pre-competition training plan during the process of weight reduction and control, and whether he can maintain a good competitive state to participate in the competition.

1.2 Miss Li Weight Loss Control Method and Monitoring

1.2.1 Weight reduction plan

Considering that Miss Li is too old, the coaching staff has formulated a detailed weight control plan: follow the principle of gradual and orderly weight control. During the 6 weeks of training before the competition, the weight control should be relatively stable and the weight loss should be small. The plan is to lose weight every week. The weight is 0.6 kg ~ 0.8 kg, and the method of slow weight control is adopted. The goal is to control the weight at about 53 kg ~ 53.5 kg after training 6 weeks before the competition, and leave about 1 kg ~ 1.5 kg to enter the competition area.

1.2.2 Monitoring and measures for weight reduction period

A special person is responsible for weighing 7 times at different time periods every day (that is, before and after three meals and before going to bed) and recording the weight change. The weight is allowed to fluctuate within a period of time (weekly), but the range should not be too large. During the period of weight control, nutritional supplementation and physiological and biochemical monitoring are done well, and blood is collected on an empty stomach every Monday morning to detect physiological and biochemical indicators of athletes. The detection indicators include: white blood cell (WBC), hemoglobin (haemoglobin, HGB), Serum urea (Urea), serum creatine kinase (creatinase, CK) and so on.

1.2.3 The effect of reducing body weight

Miss Li participated in the championship in the first half of 2017 according to the weight reduction and control plan formulated by the scientific research team. The results showed that he could drop to the target weight, but his condition was not good during the weight reduction process. The original plan for scientific research was to allow the player to control his weight at about 54-55 kg after the 2017 championships. It is very repulsive to manage its weight control, and the training is also very negative. After weighing the pros and cons, the research team decided to slightly adjust its weight control plan, that is, to make its weight close to its base weight during the window period of the two competitions in the first and second half of the year (after the championship to prepare for the championship, and after the championship to prepare for the championship), in order to alleviate the serious discomfort to the body caused by long-term weight loss. After implementing this plan, Miss Li's previous series of discomfort symptoms have improved significantly, and his training is more active than before. He himself is willing to accept this plan, so his subsequent weight control will be carried out according to this plan, and then he will prepare for the 2017 competition. There are 4 national competitions in the 52 kg class, including the championship, the championship in 2018 and the championship in the first half of 2019. The situation of several competitions shows that the possibility of Miss Li being downgraded to participate in the competition is established. However, in the process of weight control before the competition, his condition is not very good, his body reacts greatly, and he cannot complete the pre-competition training plan formulated by the coach well. During the first 5 times of weight control, the team member experienced the most physical discomforts such as dizziness, fatigue, fever, and cough. Biochemical test data showed that the white blood cells and hemoglobin in the blood decreased, especially during the first half of 2019. During the preparation for the championship, he suffered from a severe cold. Lingered hard to heal. Although the scientific research team adopted basic nutritional supplements and targeted monitoring methods during the pre-competition weight reduction training, the effect was not very satisfactory. The first 5 pre-competition weight reductions affected the execution of the athlete's pre-competition training plan. He couldn't adjust to the best competitive state before the game, so in the first 5 national competitions, he failed to perform at the level of XX, and the results of the competitions failed to enter the top 8.

2. TCM INTERVENTION METHODS

Six weeks before the championship game in the second half of 2019, based on years of clinical experience, the author tried to intervene with traditional Chinese medicine for the problems that Miss Li usually encountered in the process of weight loss and control. To compare and observe the effect of using traditional Chinese medicine in weight loss training before Miss Li's competition.

2.1 Therapeutic Principles of Traditional Chinese Medicine Prescriptions

The following factors are mainly considered in the prescription principle of using traditional Chinese medicine intervention: (1) the common problems that the team member had in the process of reducing weight before, such as dizziness, fatigue, low-grade fever, easy cold and fatigue, white blood cells and hemoglobin in the blood drop etc. (2) Consider the impact of hot weather on athletes' bodies when preparing for the 2019 championship game. (3) The symptoms of the team member at that time obtained from the combination of four diagnostic methods. (4) The test results of physiological and biochemical indicators and the evaluation of coaches, etc. Considering the above factors comprehensively, Miss Li used the prescription of traditional Chinese medicine in stages for targeted intervention.

2.2 Chinese Medicine Decoction Method

The 6-week training before the competition is divided into three stages, the first stage is the 6th and 5th weeks before the competition, the second stage is the 4th, 3rd and 2nd weeks before the competition, and the third stage is the 1st week before the competition. Each stage uses Chinese medicine for targeted conditioning according to the situation. Soak the traditional Chinese medicine in cold water for about 30 minutes before decocting. After boiling on high heat, turn to low heat and boil for 30-40 minutes. After pouring out the medicine liquid from the first decoction, leave the medicine residue and add water to decoct the medicine for the second time. decoction for about 20-30 minutes, mix the two decoctions, and take it in two divided doses, once every 6-8 hours, twice a day, or decoct once and drink once on an empty stomach.

3. RESULTS

3.1 Miss Li's Use of Traditional Chinese Medicine During the Weight Loss and Control Period before the 2019 Championship Game.

Through the use of traditional Chinese medicine for targeted intervention, Miss Li's functional status during weight loss training before the game, the quality of pre-match training and the coaches' performance during the game Pre-training

evaluations improved significantly. It shows that according to Miss Li's personal characteristics, he used traditional Chinese medicine in stages to achieve satisfactory results during his weight loss training.

3.2 Miss Li Comparison of Weight Control before the 2019 Championship and the Championship

The weight changes of Miss Li during the 6-week pre-competition training and preparation for the 2019 Championships and Championships are as follows: There is not much difference in weight between the two pre-competition training sessions, which are 57.6 kg and 57.7 kg respectively. The two weight reduction processes were roughly carried out according to the predetermined plan, and the body weight was reduced by 0.6 kg to 0.8 kg per week. The body weight after training 6 weeks before the competition was 53.3 kg and 53.2 kg respectively, indicating that there is not much difference between the two weight reductions.

3.3 Miss Li 2019 Championships, 6 Weeks before the Championship Training Physiological and Biochemical Indicators Monitoring Results

Table 1 show that after the intervention of traditional Chinese medicine, Miss Li's blood urea level decreased significantly compared with that before the championship during weight training before the championship; Instead of falling, it rises. It shows that the intervention of traditional Chinese medicine can improve the functional state of the body due to weight control and heavy load training, and it is helpful to improve the immunity and training quality of athletes.

Table 1 Monitoring results of physiological and biochemical indicators 6 weeks before the 2019 Championships and Championships(every Monday morning)

time	Serum urea(mmol/L)				9		Hemoglobin(g/L)	
	pre-championship	pre-championship	pre-championship	pre-championship	pre-championship	pre-championship	pre-championship	pre-championship
Week before the game	65.62	5.24	161.8	221.9	3.3	3.3	127	128
Week before the game	56.68	6.41	326.5	185.6	3.0	3.5	124	129
Week before the game	47.28	7.21	126.9	165.7	2.2	3.5	112	128
3rd week before race	7.68	6.36	204.6	214.9	2.6	4.0	114	130
Week before the game	27.86	6.25	168.4	168.7	2.7	4.2	116	135
Week before the game	17.21	6.85	120.2	136.2	3.0	4.5	121	143

3.4 The Results of Miss Li 2019 Championships and Championships

Table 2 show that the intervention of traditional Chinese medicine before the competition will help the athletes to improve their competitive state and achieve better results in the competition.

Table 2 Miss Li 2019 Championships and Championships

Sessions	Championship results		Championship results	
	score	wins	score	wins
match 1	One	win	technology has	win
match 2	One	win	One	win
Game 3	overtime negative	lose	One	win
Game 4	One		One	win

Game 5	One	One	win
Final Results	Failed to advance to the top 8	Champion	

4. ANALYSIS AND DISCUSSION

In the process of weight loss and weight control, due to the decrease in intake and increase in consumption, the body may experience exercise-induced fatigue and decline in exercise capacity. Although paying attention to nutritional supplements and monitoring can solve the problems of some players, it is not effective for some players. ideal. For example, the athlete Miss Li observed in this study had a significant decrease in white blood cells during the pre-competition weight control training process, and dropped to $2.2 \times 10^9/L$ at the lowest point, and hemoglobin also showed a downward trend. Unwell or even a bad cold, the pre-competition training plan cannot be completed as required.

Traditional Chinese medicine has been widely used to solve the problems of weight loss and control, recovery of sports fatigue, and treatment of sports diseases in competitive sports, and it has attracted much attention because of its good curative effect, applicability, and safety [2-4]. However, there are not many research reports on the application of traditional Chinese medicine to athletes' weight control before competitions, which may be related to the inability to conduct large-scale controlled studies on athletes' weight control, because different athletes have different situations when they lose weight, and only targeted solutions Only by solving problems can we receive better results, and this coincides with the concept of TCM syndrome differentiation and treatment. In the process of reducing body weight before the competition, due to body fatigue, it is easy to cause leukopenia and hemoglobin drop, and athletes will have symptoms such as dizziness, fatigue, fatigue, and sore limbs. This is similar to "marrow fatigue" in traditional Chinese medicine and belongs to the "Deficiency", "Blood Deficiency", "Insufficiency of All Deficiencies" and other categories. Motherland medicine does not have the disease name of "leukopenia", but its related symptoms and manifestations are recorded in the classics of traditional Chinese medicine, such as "Lingshu·Hai Lun" said: "Insufficient marrow sea, brain turns, tinnitus, shin acid Dizziness, nothing to see"; "Introduction to Medicine" says: "Lack of food, dizziness, lack of energy, aches and pains in muscles and bones, damp sweat and cough"; , the evil qi in the chest is tightly separated, it is not easy to be hungry when eating, if you eat with it, you will eat, and if you don't eat with it, you will not think about it." etc. Its etiology and pathogenesis are related to the insufficiency of Yang Qi, essence and blood in the heart, liver, spleen, and kidney, especially the spleen and kidney. , Mental disorders, lack of qi and muscle surface is not solid, and the root cause is deficiency of qi and blood. Traditional Chinese medicine treats leukopenia by invigorating the kidney, invigorating the spleen, nourishing qi and nourishing the blood [5, 6], and the curative effect is positive.

"Huangdi Neijing" said: "What is damaged will benefit" and "if it is deficient, it will be replenished"; Traditional Chinese medicine such as can promote the proliferation of hematopoietic stem cells, improve the hematopoietic microenvironment, and improve the body's hematopoietic function[6,7]. This observation study is the essence of inheriting the motherland's medicine. Aiming at Miss Li's many discomforts that may occur during the pre-competition training and weight loss control period, combined with the characteristics of the sports and the four seasons to conduct a dialectical analysis, adjust the traditional Chinese medicine group at different training stages. Fang carried out syndrome differentiation and treatment, thus improving the problem of pre-competition weight control training that has long plagued Miss Li, and the competition also achieved good results.

This observational study suggests that in the weight training of athletes, Chinese medicine can be used to regulate the problems of athletes, and better results can be obtained.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

References

- [1] Chen Yu. The effect of weight loss before competition on athletes' athletic ability. *Journal of Xi'an Institute of Physical Education*, 2003, 20(5): 56-57.
- [2] Qian Jinhua, Li Yueheng, Li Fengsu. Integrating traditional Chinese and Western medicine in the field of sports medicine in my country has great potential—Review of the first Symposium on Integrating Traditional Chinese and Western Medicine in "Chinese Journal of Sports Medicine". *Chinese Journal of Sports Medicine*, 1999, 18(4): 291-296.
- [3] Yu Qian, Li Mingfu, Song Kaiyuan. The overall thinking and application prospect of traditional Chinese medicine antibody fatigue. *Chinese Journal of Sports Medicine*, 2001, 20(1): 3-4.
- [4] Wang Mingming, Zhang Hongjuan. Physiological holistic view of traditional Chinese medicine on exercise-induced fatigue. *Chinese Journal of Sports Medicine*, 2015, 34(12): 1211-1214.
- [5] Shen Yicheng, Gu Junhua. The current situation and thinking of traditional Chinese medicine in the treatment of Sjogren's syndrome complicated with leukopenia. *Journal of Traditional Chinese Medicine*, 2020, 61(3): 252-253.
- [6] Li Hong, Zhang Rongrong. Analysis of medication regularity of traditional Chinese medicine compound in the treatment of leukopenia. *Journal of Traditional Chinese Medicine*, 2015, 56(4): 339-340.
- [7] Zhu Ye. Effects of ginseng, astragalus and angelica on blood development. *Journal of Chengdu University of Traditional Chinese Medicine*, 2002, 23(3): 55-56.