Analysis of the Protection of Curling Sports Injuries

Yue Liu

Klang University, Bangkok, 10100, Thailand

Keywords: Curling, Injury protection, Rehabilitation training

Abstract: This article takes the national male and female curling athletes as examples to analyze the athletes' injuries and propose effective protection and rehabilitation measures. According to the survey results, both male and female players have levator scapula injury and patella injury. In this regard, starting from the stages of pre-match preparation, in-match disposal, and post-match rehabilitation, protection and rehabilitation training should be carried out through ligament stretching, high leg running, cold compresses with ice packs, massage, acupuncture, and drug intervention, so as to enable injured athletes as soon as possible.

1. Introduction

Introduction (Heading 1)

Curling has developed rapidly since it was introduced to my country, and Chinese athletes have made great achievements in world events. However, this sport has been in the same posture for a long time during training and competition, causing great damage to the athletes' medial and lateral knee joints, meniscus and other tissues. In the process of taxiing, if the preparation activities are not sufficient, it is easy to be affected by psychological, technical, accidental factors and cause sports injuries. In this regard, pre-match preparations, on-site protection, and post-match rehabilitation should be done to avoid sports injuries to the greatest extent.

2. Research Objects and Methods

This article takes the national male and female curling athletes in July 2018 as an example. There are 13 males and 12 females. The basic situation is: male age is (24.25±5.47) years old and height is (178.21±5.36) cm , The weight is (77.35±5.34) kg, and the training period is (7.61±3.91) years. The age of the woman is (22.08±3.59) years, the height is (165.75±6.37) cm, the weight is (57.25±5.67) kg, and the training period is (7.00±3.89) years. In the men's team, the maximum age difference is 14 years, and the difference in training years is 12 years; in the women's team, the maximum age difference is 11 years, and the difference in training years is 13 years. It can be seen that the team members of this project are young and the men's and women's curling teams are currently in a critical period of transition from new to old. In terms of injury characteristics, the old players are mainly chronically injured, and the recovery is relatively difficult, while the new players have a shorter injury period and faster recovery. This paper uses questionnaires to investigate and explore the injuries of male and female athletes during the training period [1].

3. Research Results

3.1 Damage Investigation Results

According to the survey results, the sports injuries of male players are: 10 levator scapularis injuries, accounting for 71.4%, 1 patella joint injury, accounting for 7.2%; 3 wrist joint injuries, accounting for 21.5%; the total number of injuries 14 people, accounting for 100%; sports injuries of female players: 10 levator scapula muscle injuries, accounting for 62.5%; 1 piriformis injury, accounting for 6.3%; lumbar muscle strain, 3 people, accounting for 18.7%; There were 2 patients with patella joint injuries, accounting for 12.5%. According to the above data, both male and female players have levator scapularis injuries, accounting for more than 75%. It can be seen that the

  DOI: 10.25236/medsbe.2020.005

muscles of the scapula need to be exerted frequently during rapid ice sweeping, which can easily cause muscle tension and long-term damage. In addition, both male and female players have patella injuries, and they are mainly old players. Long-term sliding leads to knee valgus, tibia external rotation, the contact surface between the patella and femur is reduced, and the joint pressure increases, which leads to pathological changes.

3.2 Summary of Causes of Damage

Category	Injury site	Cause analysis
slide	Knee injury	During the sliding process, the athlete needs to have enough lifting power to complete the sliding action. It is extremely easy to cause external rotation of the tibia, flexion and valgus of the knee joint, and a smaller contact area between the patella and the femur.
Pitch pot	Shoulder and back muscle injuries, knee and muscle injuries, knee and hip joint injuries, bursitis and other injuries.	In the pot throwing, athletes need to maintain a posture of excessive flexion and abduction of the knee and hip joints, which increases the load on the shoulder and back muscles, which can easily cause bursitis of the shoulder and back muscles. The quadriceps muscle stretches the patellar tendon strength, increases the force on the knee joint, hip joint, and meniscus, which can easily lead to patellar tendon end disease, hip joint and meniscus injury, and “snap hip”.
Wipe ice	Injuries such as shoulders, forearms, wrist joints, and ankle joints, and injuries such as lumbar disc and cervical spine lesions.	In scouring, athletes must use their shoulders to drive the upper arm and forearm to complete continuous ice scouring on the basis of maintaining a balance on the ice, which can easily cause rotator cuff injury, wrist sprain, wrist traumatic tenosynovitis, and knee joint And other damage. Repeatedly bending the waist can cause excessive compression of the lumbar intervertebral disc and cause lesions. Excessive bending of the neck can also lead to cervical spondylosis. Excessive force on the ankle joint due to the supporting foot in the scissor sliding ice sweeping action can lead to sprains, strains and overwork injuries.

4. Discussion and Suggestions

Maintaining the same posture for a long time in curling training, repeated exercise may cause injury to the athlete's inner and outer knee joints. In the sliding stage, if the preparation activities are insufficient, the on-site treatment and protection are not in place, and the rehabilitation training is not specific, it is easy to cause damage to the psoas, scapula, patella, and wrist joints. In this regard, diversified measures should be taken for protection to minimize the probability of damage.

4.1 Warm-Up Protection

In the preparation stage, protection can be done by means of ligament stretching, imitation on ice, and running with high legs. Athletes can do left and right leg raising exercises, the speed gradually increases, about 5 minutes, in order to improve body temperature and cardiopulmonary function. During this process, the coach can assign competition tasks, introduce the situation on the field, and allow players to talk to each other. For athletes who are too excited, they should reduce their exercise to restore their calm state; for athletes who are too calm, they should increase athletes and talk with them to make them enter the game state as soon as possible. In the ligament stretching activity, the duration is about 10 minutes. Pay attention to the position and time of the extension and compression during training. Wrist: Put your fingers together in front of your chest, press one wrist, and straighten your wrist back to make your forearm and wrist stretch. After resetting, stretch in the opposite direction and stretch for 5-10 seconds on each side. Extend and compress the shoulders and upper arms, exercise on both sides separately, do 2-3 times on each side, 5-10s each time; stretch and compress the shoulder position, bend the upper arm and lift it upwards, expand the chest forcefully, and continue for 5-10s. When stretching and compressing the thigh, the athlete sits on the ground with the toes straight out, the upper body is gradually tilted back, and the front part of the thigh is pulled strongly. When stretching the calf muscles, the athlete supports the wall with both hands, lunges in front of both legs, gradually lowering the center of gravity, straightening the

hind legs, and stretching and compressing the calf muscles. When stretching and compressing the posterior ligament, the athlete sits on the floor with one leg straightened forward and one leg bent. After straightening the leg, the upper body lowers the head forward and moves forward with the hand. This action lasts for 5-10 seconds and then exchanges. Repeat 2-3 times.

4.2 On-Site Disposal and Protection

In the case of wrist injuries, due to insufficient wrist strength when throwing the pot and rubbing ice, the ulna bone and the triangular floppy disk are constantly squeezed and rubbed, causing the wrist to swell and sore. At this time, ice pack should be used for on-site disposal immediately. If you use too much force while wiping the ice and cause you to fall, the shoulders will be damaged in the slightest, and the bone will be broken or even dislocated. In this regard, apply ice for 15-20 minutes on site, and then wrap it up with a bandage to avoid large-scale shoulder movements in the short term, so that the body can relax and gradually recover. Athletes may cause knee joint damage due to unskilled techniques and irregular movements. In the scene, the lower limbs of the injured can be raised, and the affected area can be cold compressed with an ice pack, and then massaged after 15-20 minutes of ice compress, which can relieve the pain. In the process of scouring ice, it is easy to cause damage to the athlete's ankle joint and even torn ligaments. The main symptom is edema of the ankle, which will cause pain when touched. In the scene, ice compress for 15-20 minutes can be used to raise the lower limbs of the patient, and then bandage it firmly to avoid increased damage. For patients with severe symptoms, bed rest should be used to reduce walking. In sports, if the ice rubbing range increases and the competition falls into a stalemate period, athletes often suffer from insufficient waist strength and irregular movements, which are mainly manifested by the inability to straighten the waist, acute injury and so on. At the scene, massage, acupuncture, and drug intervention can be used, with lumbar muscle strength and stretching training as the mainstay, and trunk muscle flexibility exercises as auxiliary to improve the effect of rehabilitation training [4].

4.3 Rehabilitation Training Protection

In curling, the rehabilitation training of injured athletes after the game is very important. Scientific training methods should be adopted to shorten the rehabilitation period and improve the rehabilitation effect. In terms of knee exercises, strength training is the main method to accelerate blood circulation and promote blood circulation and remove blood stasis. The main measures are: First, hip flexion training. Thighs bend towards the direction of the brain supplement, 5-10 times in each group, 20 groups in a row, training 2 times a day; the second is to stretch the knee joint exercises, the joints are straightened and bent, and then put down, 5-10s in each group, do 20 groups in a row , Practice 2 times a day; the third is knee bending practice, straighten the two legs and then put them down, each time for 10 seconds, do 20 consecutive groups, practice 2 times a day.

In the rehabilitation of leg injury, for the exercise of the front leg muscles, the position of the leg ankle joint is bent back, and the lower leg is gradually pulled toward the hip. This action is repeated 5-10 times, 2 times a day; exercises for the inner and outer thigh muscles: exercise The person sits cross-legged on the ground with the left leg extended forward, the body is tilted forward, the head touches the floor, and the legs are changed after holding for 5-8 days, doing 5-10 times, practicing 2 times a day. Straight leg stretching training, tying 50-2000g weights on the legs for straight leg exercises, and doing 15-20 sets continuously, which helps to improve the stability of the ankle muscles and effectively exercise the balance plate equipment.

During the ankle rehabilitation training, athletes are required to write with the injured toe, write numbers or letters, and practice twice a day. Bending and stretching the toes, do 20-30 times, practice twice a day; heel-lift training, the athlete’s two feet stand in horoscope, the heels are in contact with the ground, lift up, a total of 15-25 times, 2 times a day; also OK Pull the rubber band with your feet, stretch your feet outwards and relax them inward, totaling 15-25 times, and practice 2 times a day. In the rehabilitation training of psoas muscle injury, core strength training can be used to improve the stability of the waist and abdomen, such as continuous abdominal curling, prone and back-up and so on. In addition, in terms of auxiliary rehabilitation training, athletes must

ensure 8 hours of sleep a day, and eliminate muscle fatigue through pressing, shaking, and massage. At the same time, it is necessary to match nutritious foods to supplement vitamins, protein and calories in time, eat more fresh fruits and vegetables, and maintain a balanced nutrition of the body.

5. Conclusion

In summary, at this stage, curling in my country is developing rapidly. Although it is easy to cause sports injuries in training and competitions, it has a higher safety factor than skiing and speed skating. In addition, the current curling athletes have the characteristics of being younger, and the recovery period of sports injuries is relatively short. Together with the teaching of tactics and techniques by professionals, effective protective measures have been taken from pre-match preparation, during-match disposal, and post-match rehabilitation to reduce Injuries occur, and scientific and perfect post-match rehabilitation work should be done to create good conditions for athletes to recover.

References

[1] Liu Yue. On the protection of curling sports injury [J]. Science and Technology Information, vol. 17, no. 32, pp. 221-223, 2019.

[2] Yu Liang, Shang Jiuhua, Tan Weidong. Investigation and analysis of curling athletes' sports injuries[J]. Chinese Journal of Sports Medicine, vol. 1, no. 28, pp. 76-78, 2019.

[3] Chen Chen. On the injury and prevention of curling [J]. Slam Dunk, vol. 12, no. 40, pp. 51, 2019.

[4] Shang Jiuhua, Yu Liang. Sports injury characteristics and preventive measures of curling events[J]. Sports Science and Technology Literature Bulletin, vol. 5, no. 20, pp52-53, 2019.