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Sports injury of futsal players of universities

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Abstract

Sports injury has always troubled the training and competition of football players, which makes it difficult to realize the scientific and systematic training and normal matches, and seriously hinders the continuous improvement of their sports level. This paper analyzes the sports injury of five-person football players in universities by using the methods of literature, questionnaire and mathematical statistics. The results showed that the injuries were mainly in the lower limb, especially the ankle. The main causes of the damage are the incorrect technical action, the opposing side's defense fouls, and the inadequate preparation. On this basis, the corresponding preventive measures are proposed.

Keywords: Futsal players sports injury

1. Introduction

Soccer is the most popular sport in the world. Injuries soccer have increased in number, since it is a sport characterized by intense physical contact, short, fast and non-continuous movements, such as acceleration, deceleration, jumps and sudden changes of direction. Prevention and onset of orthopedic injuries in soccer are based on intrinsic or personal factors such as: age, previous injuries, articular instability, physical preparation and ability, while the extrinsic factors are: exercise overload, excessive number of games, field quality, inadequate equipment and the game's rules violation (excessive fouls and violent moves). The visible advance of the sports medicine has enabled greater knowledge about the exertion physiology, allowing hence that specific protocols for each athlete are designed according to his characteristics.

Football injury refers to all kinds of injuries to the body that occur in the process of football. Statistics show that football is one of the sports with the highest injury rate. In the investigation and analysis of sports injuries of college students majoring in sports, football also has a higher incidence. In recent years, football has been developing rapidly. With the obvious enhancement of competition and competition, sports injuries are on the rise. Therefore, it is urgent to take the prevention and reduction of the injury of football sports as an important content to study, investigate and study the injury of football players, explore the cause of injury, find out the preventive measures, so as to minimize the occurrence of sports injury.

2. Methods and Subjects

2.1 Subjects

Of the 225 athletes from 11 universities in the country, 157 were men and 68 were women 22 football experts and coaches.

2.2 The research methods

2.2.1 Bibliographic method

In recent years, relevant reports about football injuries published in sports science journals and books were reviewed to understand the overall situation, providing theoretical basis for this study. Similar survey data of the research methods were used as the data source of this study

2.2.2 The questionnaire survey

A questionnaire survey was conducted on high-level football players with sports injury experience in colleges and universities.

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The survey indexes were determined based on the previous literature and the survey interviews of relevant experts. A total of 246 questionnaires were issued, and 225 valid questionnaires were recovered, including 157 men and 68 women.

2.2.3 Mathematical statistics: The relevant data obtained from the questionnaire were summarized and sorted out, and the statistical processing such as percentage was conducted.

3. Results and discussion

3.1 Characteristics of sports injuries of football players

3.1.1 Soccer has high requirements for the muscles, blood circulation, respiratory system, internal organs and nervous system of soccer players.

The football match place is big, time is long, motion is big, contention is intense. High strength of resistance has become an important symbol of the modern game and characteristics of the game's fierce body contact and fierce collision is inevitable, athletes can create the space between the more and more small, body contact between the more and more frequent, reflected in the field is fierce fighting and confrontation, the result is that damage has a tendency to increase training game, so football player damage rate is higher, and the external force lead to injury is common [11, 13, 17].

3.1.2 It is difficult for football players to learn and master the coordination of movement and tactics

Due to the long and intensive systematic and scientific

training, the body is under heavy load and is prone to functional fatigue damage [10, 12]. For example, the ankle and knee joints are constantly flexion, extension and rotation, so the tendon around the joint and the joint are often in a state of overload and abnormal stress, which is easy to lead to injury. [5, 15].

3.1.3 Football game technology is complex, tactics are diverse, more difficult.

In sports, most of the technical movements are mainly performed by the feet. The proprioception is poor, which makes it difficult to complete the technical movements accurately. Besides, it is necessary to change the posture rapidly [21, 23, 25].

3.2 Investigation of sports injuries of Fusal players in universities

In numerous studies the type, location and severity of injuries in football have been investigated. The most frequent injury locations are the ankle (11-36%), knee (14-33%), thigh (8-23%), groin (7-13%), foot (5-21%), lower leg (2-13%), back (2-11%) and head (1-4%) [3, 14, 18]. Of specific injury types, most previous studies indicate that ankle sprains are the most common in football [22, 25]. However, some recent studies show a higher proportion of hamstring strains than ankle or knee sprains [10, 17].

The specific results are shown in table 1 and 2 below

Table 1: Survey of sports injuries of Fusal players (n=225)

| Injured part | Head and face | Shoulder | Elbow | Wrist | Waist | Hips | Thigh | Knees | Calf | Ankle | Foot | Other |
|--------------|---------------|----------|-------|-------|-------|------|-------|-------|------|-------|------|-------|
| n | 12 | 7 | 14 | 10 | 9 | 11 | 26 | 36 | 34 | 40 | 19 | 7 |
| % | 5.3 | 3.1 | 6.2 | 4.4 | 4.0 | 4.9 | 11.5 | 16.0 | 15.1 | 17.8 | 8.4 | 3.1 |

According to the investigation, the injury rate of football players is the injury of ankle, calf, knee, thigh, foot, hip, elbow, head and face, waist, shoulder and wrist from the bottom to the bottom. The injuries were mainly in the lower extremities, with a total of 155 cases accounting for 68.9% of the total injuries. Football is a kind of full-body contact sport with the same field of technical warfare. With strong antagonism, it needs to finish the technical movements frequently at the high speed of changing positions. Moreover, it mainly focuses on the lower limb movements, so the lower limb is vulnerable to injuries, especially the ankle, knee and calf [1, 26, 24]. The characteristics of their anatomy and biomechanics determine that they are prone to injuries due to collision and unreasonable technical movements. In particular, the ankle joint is weak and easy to cause injury from the anatomical structure. Therefore, the ankle injury is called "athlete's ankle". This study also shows that the ankle joint has the highest injury rate. Because of the anatomic characteristics of the ankle, football players should strengthen the ankle and foot muscles to maintain the stability of the

ankle [16, 23]. It is also necessary to wrap the ankle and foot with ankle protection material as required to limit excessive flexion, extension and torsion of the ankle to maintain joint stability and avoid injury during severe torsion [4, 18, 19].

3.3 The cause of sports injuries of Futsal players

Risk factors for injuries in sport are commonly divided in intrinsic and extrinsic risk factors. Intrinsic or person-related risk factors can further been classified in physical and psychological risk factors. The physical risk factors consists for example of age, gender, previous injuries, level of play, flexibility, joint instability, generalized joint laxity, muscle strength, aerobic fitness, functional performance [13, 18, 20]. Extrinsic or environmentalrelated risk factors may be the playing surface, player exposure, playing position, time in match, equipment (shin guards, shoes, orthosis, tape), coaching-related factors (quality, training load), rules and foul play. When studying risk factors for injuries, all of these factors must been taken into account, because it is the sum of these factors that causes the injury [13, 18, 20].

Table 2: Investigation of causes of sports injuries of Futsal players (n=225)

| The cause of injury | Inadequate preparation | Incorrect technical action | Improper training | Fatigue | Chronic strain | Poor self-protection | Bad site | Foul | The accident |
|---------------------|------------------------|----------------------------|-------------------|---------|----------------|----------------------|----------|------|--------------|
| n | 48 | 55 | 15 | 12 | 15 | 13 | 8 | 50 | 9 |
| % | 21.3 | 24.4 | 6.7 | 5.3 | 6.7 | 5.7 | 3.5 | 22.2 | 4.0 |

3.3.1 Incorrect technical action

Application is not reasonable, a total of 55 cases, accounting for 24.4% of all damage reason, high on the first technique is

not standard, many athletes in training at ordinary times is very casual, does not pay attention to their own actions, such as pass, catch the ankle to relax or not enough tension,

gradually formed the habit, a regularized game encountered to the ball strength slightly bigger, is easy to damage [6, 13].

3.3.2 Foul

A total of 50 cases, accounting for 22.2% of all causes of injury, jumped to the second place, showing a significant increase compared with the previous cases. As football against increasingly fierce, the phenomenon is also a rising streak, moral quality issues related with the athletes, not only requires the athletes have brave tenacious fighting style, higher ability of self-control of emotion and fearless spirit of daring to challenge, at the same time, should also be highly self protection and to protect the consciousness of others, as far as possible to avoid dangerous action, that cuts hurt yourself [20, 25, 26].

3.3.3 Preparation activities cannot meet specific requirements

A total of 48 cases, accounting for 21.3% of all causes of injury, came in third place, ignoring the importance of preparation activities. Preparatory activity is a specific measure to overcome the biological inertia of human body, improve the excitability of central nervous system, and make the human body smoothly enter into the state of motion from

relative quiet, which has a good effect on the following formal practice in many aspects[14][15]. It helps increase the excitability of nerve center, strengthen the endocrine activity, promotes the supply of oxygen, full preparation activities also can reduce the viscosity of the muscles, enhance the muscle elasticity, helps to prevent sports injuries, so prepare activity and the formal training and competition are equally important, the athletes should not only the simple running to prepare activities, to properly supplemented by special special exercises [3, 19, 20]. In addition to the above situations, neglecting necessary protective measures, improper arrangement of sports training, excessive amount of exercise, lack of recovery means, excessive fatigue, chronic injury, poor field and equipment are also causes of sports injuries [11, 13, 21].

3.4 Prevention measures of sports injury of Futsal players in universities

Every sport has a unique profile of injury and risk of injury. In recent years, there have been numerous attempts at conducting injury prevention trials for specific injuries or for injuries within specific sports to provide evidence useful to the sports medicine and sport community. Football has been a focus of a number of randomized injury prevention trials.

Table 3: Results of expert investigation on prevention measures of sports injury (n=22)

| The serial number | Preventive measures | N | % |
|-------------------|--|----|------|
| 1 | Strengthen the technical practice, correctly master various techniques and can use skillfully, improve the special quality | 18 | 81.8 |
| 2 | Strengthen the professional ethics of athletes, coaches, and referees to establish the right motivation to play, reduce and eliminate intentional foul and intentionally hurtful behavior. | 19 | 86.4 |
| 3 | Pay great attention to and make full preparations for the activities, especially the preparation activities of the joints, such as the large leg, knee and ankle | 20 | 90.9 |
| 4 | The reasonable arrangement sports training, avoids the overfatigue production and the partial load overweight | 22 | 100 |
| 5 | The venue and equipment should meet the requirements of the competition and training | 19 | 86.4 |
| 6 | Strengthen medical supervision and improve the professional quality and business capacity of medical personnel | 18 | 81.8 |

- Strengthen the technical practice, correctly master various techniques and can use skillfully, improve the special quality. Football is a competitive sport with high technical requirements and direct physical contact. It has high requirements on athletes' strength, speed, endurance, agility and flexibility [3, 9, 16]. Super comprehensive physical fitness is the basis to ensure the athletes to complete the correct technical movements accurately and reasonably under the complex and ever-changing conditions. Any time when the athletes' movements exceed their personal qualities and abilities, injuries are inevitable. Therefore, the improvement and improvement of personal quality is the basic factor to avoid injury and enhance the antagonism ability in competition, understand and master the rules of football, improve the sports technology level and reduce the occurrence of technical injury [2, 6, 13].
- Strengthen the professional ethics of athletes, coaches, and referees to establish the right motivation to play, reduce and eliminate intentional foul and intentionally hurtful behavior [15, 23]. The professional ethics of the referee should be strengthened, the professional competence of the referee should be improved and the professional quality of the impartial enforcement of the law should be improved [16, 20].
- Pay great attention to and make full preparations for the

- activities, especially the preparation activities of the joints, such as the large leg, knee and ankle. Increase specialized preparation exercises, paying particular attention to developing strength exercises that increase small muscle groups, especially in vulnerable areas, such as the strength and flexibility of ankle, knee, thigh, and calf muscles, and reduce injuries caused by inadequate preparation [3, 19, 20].
- The reasonable arrangement sports training, avoids the overfatigue production and the partial load overweight. According to the rules of sports training, sports training should be carried out scientifically to constantly improve the training level and comprehensively promote the development of athletes' various competitive abilities so as to avoid the occurrence of sports injury caused by improper sports training arrangement [3, 9, 21].
- The venue and equipment should meet the requirements of the competition and training. Strict protection of athletes in competition and training health regulations, pay special attention to wear protective devices at the same time, continuously strengthen improve the ability of athletes to protect themselves, learn to self prevention before training, training of self-protection, and relax myself after training and self first aid after injury, develop a time attention to the good habit and be able to protect themselves [8, 22].

- Strengthen medical supervision and improve the professional quality and business capacity of medical personnel. Reasonable, correct and effective treatment methods are adopted to treat early injuries of injured athletes [7, 11]. To avoid the occurrence of misdiagnosis or injury to slow down, and increase the difficulty of the treatment of injuries. At the same time, the medical staff should strengthen the communication with the coaches, so that the coaches in the rehabilitation period of athletes injuries reasonable adjustment of training. In the training competition, medical supervision should be strengthened, athletes should be urged to use necessary protective equipment to avoid repeated injury to the maximum extent, and various modern and traditional rehabilitation methods should be adopted to accelerate the repair of damaged tissues [14, 15, 19].

4. Conclusions and recommendations

4.1 Conclusions

Football is an intense sport with long time and high intensity, and the antagonism between athletes is very strong. The probability of occurrence of sports injury and repeated injury rate are higher than other sports. Through the actual investigation, the following conclusions are drawn:

1. The injuries of football players mainly focus on the lower extremities, especially the feet, ankles, knees and large calves. The causes of injuries are mainly caused by incorrect technical movements, defensive fouls, inadequate preparation and improper training arrangements. At the same time, with the increasingly fierce competition in football, the damage caused by the violation of the other side also has the obvious increasing trend, which should arouse the great attention of football workers
2. According to the research of this subject, the most urgent matter should be scientific and reasonable arrangement of sports training to comprehensively improve the athletes' competitive ability; Improve the professional quality of coaches, athletes and referees, and strengthen moral standards; Emphasize preparatory activities; Pay attention to the movement and protection of all joints, especially the vulnerable joints in football, increase the strength training of small muscle groups, especially the muscle strength of the vulnerable parts, and require the wearing of protective equipment during training and matches to strengthen medical supervision.

4.2 Recommendations

It is suggested that the institutions of higher learning should reasonably arrange the study, living and training of athletes, and further improve the living and medical conditions of athletes, so as to prevent and avoid sports injuries to the maximum extent.

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