

INJURIES IN THAI MALE NATIONAL SEPAKTAKRAW TEAM: 13TH ASIAN GAMES TOURNAMENT

Karuna Neraphong, Wattana Jalayondeja and Roongtiwa Vatchalathiti
School of Physiotherapy, Mahidol University, Bangkok 10700, Thailand

To determine epidemiological details of sport injuries for prevention, this study detected incidence, severity, type, area and mechanism of injuries in 12 Thai male national Sepaktakraw athletes. Questionnaire and forms were used for collecting details of injuries during training and competition of 13th Asian Games. Reportable injuries were 1) the injuries that make athlete require medical or physiotherapist attention and 2) injuries that have obvious tissue damage. Those injuries could result in time lost from sport activities, depending on severity. After completion of this tournament, 53 injuries were recorded during 3903.5 hours. Incidence was 13.58 injuries per 1000 player-hour. The majority of injuries did not affect sport activities, alternately no time was lost. Strain accounted for the highest type of injuries, which found in this study (20 injuries). Lower extremities were usually damaged, especially at ankle, knee, hip and thigh. Thirty-three acute injuries and 20 overuse injuries were also found.

KEY WORDS: sepaktakraw, injury, epidemiology

INTRODUCTION: Sepaktakraw is one of the most popular sports in South East Asia and in other countries in the world. The 13th King's cup or world championship saw national teams competing from 13 countries, including Asia, North America, South America and Australia. This sport has been included in the Asian Games since 1990 in Beijing. Moreover, the International Sepaktakraw Federation (ISTAF) is trying to introduce this sport into the 2008 Summer Olympics. The Thai male national team is one of the best teams in the world having won many world championships. In order to be a successful team, athletes need to perform at a high level and free from injury. To prevent injuries, epidemiological information related to injuries is essential to establish preventive strategies. However, there are very few reports that are related to injuries in Sepaktakraw. The incidence, severity, area, type and mechanism of injuries have not been determined at a national team level. Therefore, the purpose of this study is to establish epidemiological information related to injuries in Thai male national Sepaktakraw team.

METHODS: A prospective-cohort study of Sepaktakraw injuries in 12 Thai male national competitors was completed during training and competition sessions at the 13th Asian Games tournament. Questionnaires and data forms were used to collect characteristics of subjects, levels of training and competition sessions. Details of injuries including; areas, mechanisms, types, time, initial treatment consequence and history of previous injuries were recorded. The injuries reported in this study were defined by a number of categories; 1) the injuries where athlete requested medical or physiotherapy attention and 2) injuries that have obvious tissue damage. These injuries could result in the athletes missing at least a part of a training program or competition session. Data were recorded at the time of injury by a researcher who was on-site all times during training and competitions.

On the first day of study, all subjects registered personal information. Every subject completed a questionnaire to register current injuries describing status and including area, mechanism, severity and previous treatment. During the study period, the researcher recorded characteristics of every training and competition session. The severity; time lost from participation, and participation hours were calculated. Number of injuries, areas, mechanisms, type, time of injuries, initial treatment, consequence of injuries and history of previous injury were registered every time an injury occurred. The time lost and the consequences were used to describe the severity of injuries as 1) no time lost, 2) time lost less than one week and 3) time lost more than one week. The consequences of injuries were considered as the athlete 1) being able to continue the session, 2) be able to continue session after resting and 3) not be able to continue the session.

At the end of tournament, all parameters, including incidence rate, severity, area, types and mechanisms of injuries were analyzed by using descriptive statistics. Incidence rate was calculated as number of injuries per participation hours of all participants. It was calculated in unit of injuries per 1000 player-hours. Mechanisms of injuries were classified into 2 categories as traumatic disruptive or acute injury and overuse or repetitive injury. In acute injury, the activities during injury were described and categorized.

RESULTS AND DISCUSSION: This study found 53 injuries in 10 athletes during 3903 hours and 30 minutes of total exposure time, an incidence of 13.58 injuries per 1000 player-hours. Forty-six injuries were found during training (11.90 injuries per 1000 player-hour) and 7 injuries during competitions (177.22 injuries per 1000 player-hour). These numbers were different to the number of injuries that reported by Sport Authority of Thailand (SAT) (1). This study found 53 injuries during 1 tournament (3 months) whereas 50 injuries were reported during 1997 (SAT). The differences in numbers may have been caused through the definition of injuries and system of collecting data. The injuries reported by SAT, which were recorded from a sport clinic of that facility, were primarily severe injuries. But this study recorded all injuries at the place of training and competition. This present study was in close contact with the athletes and was without pressure from the association. Moreover, incidence rate from this study also differed from other sports that had some activities similar to Sepaktakraw (soccer, volleyball and gymnastics). The incidence of Sepaktakraw was higher than soccer (2,3,4), although soccer is a more aggressive sport. Because of longer time of collecting data of soccer study, there is a difference in definition of injuries and different levels of competitions. Moreover, the higher frequency of training and competition produce the higher risk in Sepaktakraw. The Sepaktakraw athletes trained twice per day for approximately 3 hours per session (3864 hours). In addition, time of exposure of individual risk of each athlete in Sepaktakraw was higher than soccer. Sepaktakraw has 4 competitors in the Regu event and 12 persons in the Team event. Substitution is allowed for one time only in one game and the game has no time limit. However, soccer has at least 15 persons in each team. Three substitutions are also allowed and time of game is limited. Moreover, the competition level of Sepaktakraw was higher.

Because of different definitions of injuries, level of competition, method of collecting data, calculation of exposure time, characteristic of subjects and type of sport, the incidence of injuries in volleyball (5) and gymnastics (6,7) were lower than this Sepaktakraw study. Volleyball included injuries in both sexes, whereas Sepaktakraw recorded injuries in males only. Sepaktakraw is a team sport whereas gymnastics often is individual. The lower level of competition had lower incidence of injuries. Some studies included only injuries that had time lost, but for Sepaktakraw this was not the case. This present study used actual individual exposure time, not estimates. However, in volleyball estimation is used for calculation of injuries with each game and team.

In this study, the incidence of injuries during competition was more than training, because the time of exposure during competition was more intense. There were 1470 minutes of 12 participants in Team event and 900 minutes for 4 participants in the Regu event. Semi-final and final matches produced at least 4 of the 7 injuries during competition. The concentration, intensity and motivation for winning were increased in those matches.

There were 10 injuries in feeders (9.88 injuries per 1000 player-hour), 14 injuries in servers (10.55 injuries per 1000 player-hour) and 29 injuries in attackers (18.54 injuries per 1000 player-hour). Acute injuries in feeders were during feeding (2 injuries), attacking (2 injuries) and other activities (1 injury). In servers, acute injuries occurred during serving (4 injuries), attacking (1 injury) and other activities (3 injuries). Attackers had acute injuries during attacking (11 injuries), blocking (4 injuries) and other activities (4 injuries). The alteration in positions could increase the risk of injuries, although 3 athletes could alter positions during the game in Sepaktakraw. Because of this, each position was trained as specific task.

The majority of injuries did not disturb athletes' activities. All of the injuries that caused time

lost were less than 1 week. The highest severe injury was neck strain, which caused 18 player-hours to be lost. The majority of injuries were at the ankle, knee, hip and thigh. Because the activities of this sport usually use the lower extremities to play. Moreover, the aggressive impact movements would cause many injuries, particularly when landing. False landing also produced injuries to the shoulder, head and neck. Twenty of the 53 injuries were a strain, followed by spasm (8 injuries) and sprain (7 injuries). There were many strains, although the athletes had warm-up which included stretching for 30 minutes every training and competition session. The benefit of warm-up was limited to 15-20 minutes from warm-up period. Generally, athletes were trained approximately 3 hours per session. Injuries would be produced in later part of training period.

The amount of forces used during jumping, spike rolling, twisting in air or any movements of this sport, produced muscle injuries. High intensity and duration of training would also produce muscle injuries. The tasks that have low loads and high frequency over a long time usually produce overuse (20 injuries). In addition, previous injuries influence later injuries in the same area. Half of all overuse injuries still had symptoms of a previous injury. Six acute injuries of all 33 acute injuries had symptoms from a previous injury.

There were 33 acute injuries and 20 overuse injuries. For 33 acute injuries, 14 injuries were found during attacking, 4 injuries during serving, 4 injuries during blocking, 2 injuries during feeding, 8 injuries during other activities and 1 injury, which can not be specified. Acute injuries when attacking were found during "full circular somersault" (8 injuries). This popular activity is particularly aggressive. Landing, twisting in the air were the majority of movement that caused injuries. Four injuries were found during landing on one leg, one hand, and two hands of the somersaults (full circular and half-circular). Faulty landing on the head or back, produced the highest severity of injury; 18 player-hours lost. High speed and aggressive whole leg movements during serving by the dorsum of the foot produced 2 strain, 1 spasm and 1 capsulitis. Landing on one leg during side blocking produce 3 injuries at the knee and thigh. Whole landing after high jumping caused these injuries. At the end of the landing, there were rotations of knee and ankle joints that produced thigh injuries and collateral ligament injuries of the knee.

Attacking was an aggressive activity, especially full-circular somersault, which were the popular and useful activities. Thai athletes usually use this to produce powerful ball for attacking. Acute injuries from attacking seem more severe than injuries from other Sepaktakraw activities. On the other hand, serving does not seem an aggressive activity, but could produce high speed ball. Servers used forces from leg swinging in and rotation of hip and foot to control direction and forces of ball. However, high frequency routine serving in similar activities could produce many overuse injuries in servers. As injuries during feeding, those injuries were not severe. After some those injuries, athletes could continue their activities without time lost. But the factor with most influence on many injuries was incomplete healing process of injuries. Many injuries in servers and feeders were overuse injuries, which had history of previous injuries during 1 week to 6 months before present injuries event. The symptoms of previous injuries were not absolutely absent in many overuse injuries. Because injuries in this sport were usually not severe, athletes could make decision to continue activities with those injuries. That would be a risk factor to produce recurrent and more severe injuries. Moreover, the pressure of association, coach and people around athletes could induce that decision of athletes.

CONCLUSION: Many injuries were found in Sepaktakraw study. That would be one of causes to lose or win a game, although the injuries were not severe. Those injuries usually are produced at lower extremities. Activities of Sepaktakraw produced many strains. The activity, which was most aggressive and produced many injuries, was somersault activity. However, many overuse injuries are also found. Incomplete healing process induces many overuse injuries. For prevention of these sport injuries, it is necessary to find appropriate stretching techniques, proper injury management and instruments such as weight absorber in sole of the shoe to reduce injuries in this team.

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