Available online at www.pelagiaresearchlibrary.com

Pelagia Research Library

European Journal of Experimental Biology, 2013, 3(5):224-228

ISSN: 2248 –9215
CODEN (USA): EJEBAU

The research of Turkish national taekwondo athletes' ınjury states and their reasons

Alparslan Ünveren

Dumlupınar University, School of Physical Education and Sports, Kütahya, Turkey

---

ABSTRACT

The research aims to contribute to preventing of injuries and protection of athlete health by determining the Turkish National Taekwondo Athletes' injury states and their reasons. 39 National Athletes (14 males and 25 females) who participated in the National Team camp (2011) attended the research. Demographic information, information about injuries that occur in trainings and games, types of injury, injury areas and the reasons of injury were recorded by asking questions to the athletes. The frequency percentage (%) and average distributions of the data obtained thanks to the athletes' answers were calculated in SPSS 16.0 program by using descriptive statistics method. 94,87% of the athletes stated that they were injured whereas 5,13% of them stated the opposite. Most of the injuries consisted of "Strain" by 37,85%, "Crush" by 27,00% and "Sprain" by 24,35%. The injuries in games mostly consisted of "Crush" by 29,73%, "Sprain" by 24,33% and, "Rupture" and other various types by 13,51%. It was seen in the study that the most frequently injured areas of the national team athletes in trainings were Foot-Ankle by 51,4%, Calf-Femur by 32,4, Hand-Wrist, Knee and Calf-Femur by 5,4%. The most frequently injured areas in games were Foot-Ankle by 59,45%, Knee by 13,51%, Hand-Wrist and Calf-Femur by 10,82% and Waist-Hip by 5,40% (Table 4). The reasons for injuries in trainings according to the athletes' answers were insufficient warm-up by 51,28%, over loading by 17,95%, unconscious action by 10,26%, not using protective material by 15,38%. The reasons for injuries in games according to the athletes' answers were illegal action of the opponent by 33,33%, insufficient warm-up by 15,38%, insufficient training in the preparation period by 12,82%, over loading in the preparation period by 5,13% (Table 5). Consequently, the injuries of the Turkish National Taekwondo Team athletes mostly consisted of crush, strain and sprain. These injuries usually occured on the hand, foot, wrists and legs. The reasons were generally insufficient warm-up, unconscious training and illegal actions. Finally, it was observed that most of the injuries were treated in less than one month.

Key words: Taekwondo, Injury, Athlete

INTRODUCTION

Sports has various risks according to the sport branches as well as it has positive effects on human health. No matter what their branch is, each athlete will somehow be injured in his/her sports career at each level. Thus, the most significant point is to minimize the risk of injury during the athletes' sports career.

Sports injuries are not different from other injuries and it makes the athlete have a break for a while. They are the injuries that occur on tissue because of indigenous or exogenous, single or recurrent physical factors [1]. Besides, sport injury is defined as the injuries that inhibit participation in sports for a while in the post-injury period according to American national sports injury record [2].

It is stated that there has been an increase in the frequency of injury in sports branches recently. According to reports, nearly 500 thousand people consult a doctor because of sports injury every year and, 4% of the injuries are serious enough to be treated at hospitals. For this reason, sports injury has started to be considered as urgent public health problem in many countries [3,4].

Sports injuries can be healed and athletes can return sports after treatment. On the other hand, they can result in permanent injuries and even in death. Also, sport injuries vary according to the features of the sports branches. In literature, it is stated that 55-90% of sports injuries occur in lower extremities and gluteal area and that the most frequent among these injuries is foot and ankle injuries [5].

Frequent injuries in martial arts such as taekwondo and karate occur on the hand and arm as well as on the calf, femur, foot and ankle in lower extremities [6]. It is observed that traumatic injuries such as fracture, protruding and bond ruptures are seen much in sports branches which require contact and crush. whereas stress and overuse injuries are more common in gymnastics, gold and racket sports [7].

Taekwondo, in which technical and tactical skills are showed, is a fighting sports that requires striking against the opponent with sudden and changing positions [8,9,10]. The most significant feature of taekwondo is that you apply attack techniques against the opponent with bare hands and feet [11,12].

It is reported that injuries in taekwondo players are less than injuries in other fighting and far east sports and, that the rate of injury in karate and kickbox is 25%. The rate is reported 7% for adults and 3,4% for the young in taekwondo games in taekwondo games. A research on karate players showed that 82 of 284 athletes were injured and 16 of the injured withdrew from the games [13]. It was reported that 12,74% of the male athletes of the American Taekwondo team and 9,01% of the female athletes of the American Taekwondo team were injured in the 1988 Olympic Games [14, 15].

It is determined that injuries of athletes usually occur in training and games and that most common reasons are insufficient warm-up, unconscious training, fatigue and reluctance, poor physical conditions and illegal actions. It is necessary to take measures for preventing and minimizing those injuries. For this purpose, the reasons of these injuries have to be put forward and these problems must be cleared away. This study aims to contribute to preventing of injuries and protection of athlete health by determining the injury states and their reasons of the Turkish National Taekwondo Athletes who are at the elite level.

MATERIALS AND METHODS

39 National Athletes (14 males and 25 females) who participated in the National Team camp in 2011 attended the research. Demographic information, information about injuries that occur in trainings and games, types of injury, injury areas, reasons of injury and treatment durations were recorded by asking pre-prepared questions to the athletes by face to face interview method. The frequency percentage (%) and average distributions of the data obtained thanks to the athletes' answers were calculated in SPSS 16.0 program by using descriptive statistics method.

RESULTS

Table 1: The Distributions of Sex, Education and Age to Start Sports of the Athletes

Sex Distribution			Educational Status			Age to Start Sports		
	n	**%**		**n**	**%**		**n**	**%**
Male	14	35.90	Secondary Education	21	53.85	Aged 8 and below	11	28.21
Female	25	64.10	University	17	43.59	Between the ages of 9 and 11	11	28.21
Total	**39**	**100**	Post Graduate	1	2.56	Between the ages of 12 and 14	15	38.46
			Total	**39**	**100**	Between the ages of 15 and 17	2	5.13
						Total	**39**	**100**

As seen on the Table 1, 39 national Taekwondo athletes, whose 64,10% are female and 35,90% are male, attended the study. 53,85% of these athletes have secondary education, 43,59% have university education and 2,56% have post graduate education. When we examine the ages of the athletes to start sports; it is seen that 38,46% of them are 12-14, 28,21% are below the age of 8, 28,21% are 9-11 and 5,13% are 15-17.

Table 2: The Distribution of Injury States of the Athletes

Were you injured?	n	%
Yes	37	94.87
No	2	5.13
Total	**39**	**100**

When asked whether they have ever been injured during their sports career, 94,87% of the athletes stated that they had been injured and 5,13% stated the opposite.

Table 3: The Distribution of the Injury Types of Injured Athletes in Trainings and Games

Injury States in Trainings			Injury States in Games		
Injury Type	**n**	**%**	**Injury Type**	**n**	**%**
Crush	10	27.00	Crush	11	29.73
Sprain	9	24.35	Sprain	9	24.33
Fracture	1	2.70	Fracture	3	8.11
Tensile	1	2.70	Tensile	2	5.41
Strain	14	37.85	Strain	2	5.41
Rupture	1	2.70	Rupture	5	13.51
Others	1	2.70	Others	5	13.51
Total	**37**	**100**	**Total**	**37**	**100**

It was seen in the study that the national team athletes had injuries in trainings by the rate of 37,85% for "Strain", 27,00% for "Crush", 24,35% for "Sprain" (Table 3). The same athletes had injuries in games by the rate of 29,73% for "Crush", 24,33% for "Sprain" and 13,51% for "Rupture" and various types.

Table 4: The Distribution of the Injury Areas of Injured Athletes in Trainings and Games

Injured Area in Training			Injured Area in Game		
Injury Area	**n**	**%**	**Injury Area**	**n**	**%**
Foot-Ankle	19	51.4	Foot-Ankle	22	59.45
Hand-Wrist	2	5.4	Hand-Wrist	4	10.82
Calf-Femur	12	32.4	Calf-Femur	4	10.82
Knee	2	5.4	Knee	5	13.51
Waist-Hip	2	5.4	Waist-Hip	2	5.40
Total	**37**	**100**	**Total**	**37**	**100**

It was seen in the study that the most frequently injured area in trainings was Foot-Ankle by 51,4%, Calf-Femur by 32,4% and Hand-Wrist, Knee and Calf-Femur by 5,4%.

It was also seen in the study that the most frequently injured area in games was Foot-Ankle by 59,45%, Knee by 13,51%, Hand-Wrist and Calf-Femur by 10,82% and, Waist-Hip by 5,40%.

Table 5: The Distribution of the Reasons of Injuries of Injured Athletes in Trainings and Games

During Training Reasons of Injury			During Game Reasons of Injury		
Reason of Injury	**n**	**%**	**Reason of Injury**	**n**	**%**
Insufficient Warm-up	20	51.28	Illegal Action of the Opponent	13	33.33
Over Loading	7	17.95	Insufficient Warm-up	6	15.38
Unconscious Action	4	10.26	Pre. Period Insufficient Train.	5	12.82
Not using Protective Material	2	5.13	Pre. Period Over Loading	2	5.13
Other Reasons	8	15.38	Other Reasons	13	33.33
Total	**37**	**100**	**Total**	**37**	**100**

The reasons for injuries in trainings according to the athletes' answers were insufficient warm-up by 51,28%, over loading by 17,95%, unconscious action by 10,26%, not using protective material by 15,38% and other reasons by 15,38%.

The reasons for injuries in games according to the athletes' answers were illegal action of the opponent by 33,33%, insufficient warm-up by 15,38%, insufficient training in the preparation period by 12,82%, over loading in the preparation period by 5,13% and other reasons by 33,33%.

Table 6: The Distribution of the Treatment Durations of the Injuries of the Injured Athletes in Trainings and Games

Treatment Durations of Training Injuries			Treatment Durations of Game Injuries		
Treatment Duration	**n**	**%**	**Treatment Duration**	**n**	**%**
Less than 1 Month	32	86.49	Less than 1 Month	23	62.16
1-3 Months	3	8.11	1-3 Months	9	24.32
4-6 Months	2	5.41	4-6 Months	5	13.51
Total	**37**	**100**	**Total**	**37**	**100**

It was observed in the study that the treatment durations of the injuries in trainings lasted less than 1 month by 86,49%, lasted 1-3 months by 8,11% and 4-6 months by 5,41%. The rates in games were 62,16% for less than 1 month, 24,32% for 1-3 months and 13,51% for 4-6 months.

DISCUSSION AND CONCLUSION

It is known because of general features of Taekwondo branch that it has risk of injury for athletes. However, the previous researches show that these injuries are not at a very significant level except for some exceptional injuries and that it is less risky than other sports branches [9,13].

It was observed in this study that 37 of 39 National Taekwondo Players (14 females, 25 males) had various injuries at various times. When we examine the injury states, 94,87% of the athletes stated that they had been injured and 5,13% stated the opposite. This injury rate shows that the risk of injury for long-term and elite level Taekwondo players is quite high.

As Taekwondo is based on sudden and hard strikes by the hands and feet, muscle contraction or even ruptures, crushes in hands and feet and, sprains in wrists are inevitable. Because the sudden and hard actions of the opponent can cause unexpected strikes, which can cause various injuries. When we examine the general injury types of the national team athletes in this study, it is observed that they had "Strain" by 37,85%, "Crush" by 27,00%, "Sprain" by 24,35% in training. It is also observed that they had "Crush" by 29,73%, "Sprain" by 24,33% and "Rupture" and other injuries by 13,51% in games (Table 3). It can be said that Taekwondo players usually have crush, strain and sprain injuries both in trainings and games as a result of these findings.

It is normal that injuries occur in hand, foot and lef areas because Taekwondo, which is a fighting sports, is played with these parts. It was seen in the study that the most frequently injured areas of the national team athletes in trainings were Foot-Ankle by 51,4%, Calf-Femur by 32,4, Hand-Wrist, Knee and Calf-Femur by 5,4%. The most frequently injured areas in games were Foot-Ankle by 59,45%, Knee by 13,51%, Hand-Wrist and Calf-Femur by 10,82% and Waist-Hip by 5,40% (Table 4). It was reported in the research done by Siana et al. (1986) that most of the injuries centred on crush [9].

The reasons for injuries in trainings according to the athletes' answers were insufficient warm-up by 51,28%, over loading by 17,95%, unconscious action by 10,26%, not using protective material by 15,38%. The reasons for injuries in games according to the athletes' answers were illegal action of the opponent by 33,33%, insufficient warm-up by 15,38%, insufficient training in the preparation period by 12,82%, over loading in the preparation period by 5,13% (Table 5). This case can be explained as that these athletes do not warm up sufficiently in training, that they are exposed to over loading, that they do not use protective material, that their trainings in the preparation period are insufficient and that illegal actions are seen frequently in games.

It was determined in the research that the treatment durations of the injuries both in training and game were mostly less than 1 month (training by 86,49%, game by 62,16) and that other treatments usually lasted a few months except for very serious fractures.

Arslan C. et al. (2004) found in their study done on 80 Elite Taekwondo players (65 males and 15 females) that the most common reason for injury in training was unconscious action of my friend by 26,8% and not using protective material by 24%. The most common reason in games was illegal action of the opponent by 30,4%. They also observed that the most injured area was foot area by 40%, that the most common type of injury was crush by 43,8% and that treatment duration after injury was 1-3 weeks by 38,3% [14,16, 17]. It is now obvious that the results of the research done by Arslan C. et al. and this study are very similar and that it supports the study significantly.

As a conclusion, the injuries of the Turkish National Taekwondo Team athletes mostly consisted of crush, strain and sprain. These injuries usually occured on the hand, foot, wrists and legs. The reasons were generally insufficient

warm-up, unconscious training and illegal actions. Lastly, it was observed that most of the injuries were treated in less than one month.

REFERENCES

[1]Ergen E, Güner R, Zengeroğlu M.A, Kunduracıoğlu M, Ulkar B, *Nobel Release Distribution, Ankara* **2003**, 6-11.
[2]Kanbir O, *Journal, House Annex*, Bursa **2000**, 22-23, 89-100.
[3]Petridou E, Kedikoglou S, Belechri M, Papadopoulos F, Alexe D.M, Trichopoulos D, *Sports Injuries Among Adult in Six European Union Countries. Eur J Trauma*; **2003;** (29):278-83.
[4]Powell J.W, Barber-Foss K.D, Injury Patterns in Selected High School Sports. *Journal of Athletic Training* **1999;**(34):277-284.
[5]Bayraktar B, Yücesir İ, *Turkiye Klinikleri J PM & R-Special Topics*, **2010**;3(2):p.69-77.
[6]Bergfeld J.A, Sports Injuries: *J Bone Joint Surg Am.* **2002;**84 (7):1294-1295.
[7]Armangil M, Adıyaman S, Hand and Wirst Injuries in Athletes, *Turkiye klinikleri J Surg Med. Sci.* **2007**;3(39):22-7.
[8]Mark H, Taekwondo Entwicklung, Lehre, Erfolge. *Europen Taekwondo Union, Stuttgard*, **1984;** 16-17.
[9]Siana J.E, Borum P, Kryger H, Injurics İn Taekwondo, *Brit. J. Sports Med.* **1986.** Vol: 20, No: 4, p. 165-166.
[10] Yalçınkaya G.Z, *Taekwondo, Hilal Matbacılık, İstanbul*, **1986**, P: 32-33.
[11] Kim Y.S, What Is Taekwondo ? *Wtf Taekwondo*, No: 55, Summer **1995.** 21-26.
[12] Şahin M, Lisans Tezi, *Selçuk Üniversitesi Sağlık Bil. Enst*., Konya, 1982.
[13] Yim B.K, *Taekwondo And Sports Injuries, Wtf, Taekwondo*, **1993,** No: 48, P: 42-50.
[14] Zemper E.D, Picter W, *Brit. J. Sports Med.*, Sep; **1989.** 23(3), P: 161-164.
[15] Cengiz A, Mikail T, Fikret R, Sendrom IV, *Spor ve Tıp Dergisi, Cilt:* **2004.**12, Sayı:6, Aralık.
[16] Sheikhi A, Rahimi A.R, *International Journal of Sport Studies.* **2013;** Vol., 3 (6), 606-610,
[17] Ebrahimi varkiani M, Alizadeh M.H, Kazemi M, Nazari H.A, Ghafoorian A.R, *International Journal of Sport Studies*. **2013;** Vol., 3 (5), 542- 548.