

Investigation of the Effects of Sports Injuries on the Quality of Life of Adolescent Athletes

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ABSTRACT

The aim of the study is to examine the effects of sports injuries experienced by adolescent athletes between the ages of 13 and 18 on their quality of life during training and competition. The universe of the study consists of licensed athletes between the ages of 13-18 who play sports at the Manisa Youth and Sports Provincial Directorate. In the study, purposeful sampling method was chosen, and the study sample consisted of 170 athletes (97 females, 73 males) with sports injuries and 90 athletes (49 females, 41 males) without sports injuries, totally 260 volunteers. The demographic information form developed by the researchers, the Adolescent Form of the Quality of Life for Children (PedsQL) developed by Varni et al. (1999), the Adolescent Form of the Age of 13-18, and the Causes of Injury in Sports Questionnaire prepared by Alkaabi (2015) were used as data collection methods. As a result, it was found that female athletes had more sports injuries in adolescent athletes than men. The number of athletes who suffered injuries in defense sports is higher than in other branches. As a result, it has been determined that sports injury negatively affects the quality of life. It was found as a result of the study data that they experienced more injuries in training than in competitions. Since the injury is mostly in the winter season and the athletes stated that they did not use protective equipment during the injury, the trainers should be informed, they should be thoughtful about taking the necessary precautions and precautions and should be offered the necessary supervision.

Keywords: Adolescent athlete, injury, quality of life

INTRODUCTION

Adolescence can be described as the period where various changes occur both psychologically and physiologically. Youth is a transitional period. This period in which childhood end but adulthood has not been formed yet can be explained with the metaphor of caterpillar's becoming a butterfly (Teber M, 2015). As the children start to become adults through their hormones, they experience some physical changes as well as rises and falls emotionally (Gül S.K. and Güneş İ.D., 2009). These emotional rises and falls are experienced in a very sudden and deep way. Consequently, these sudden and deep emotional rises and falls can pose a problem inside the house. In an emotional sense, some extreme behaviors such as abreacting, crying easily, getting angry easily can be observed (Öztürk M, 2008). The risk of depression is higher during adolescence period when compared to the other age groups, and this can be seen as a constant introverted behavior, not wanting to leave the room and lack of energy to do anything. Especially in this period, individuals become distant with their families and want to spend time with their friends. They can also change their behaviors and how they talk according to their group of friends. It is also possible to see that the effect of parents on their children diminish in this period. Their children might want to stay alone at home or want to spend time with their friends (Gül S.K. and Güneş İ.D. 2009). Being attached to a group is the wish of being inside a group; accordingly, individuals want to act with the dynamics of the group in terms of opinions, behaviors and mold. As a result, individuals come to the point of becoming distant to their homes and caring about a group which is outside their home (Öztürk M, 2008).

On the other hand, many parents complain about their

children's moving slowly, their unwillingness, their lack of anger management and their sudden emotional rises and falls. As a result of these complaints, disagreements among children and their families occur. When certain physical problems occurring during adolescence are considered, moving slowly, carrying more weights on the joints especially on the knees, decreases in the skills of doing sports and having difficulties in holding the body in an appropriate position can be seen (Baltacı G, et.al., 2008). Actually, these physical problems lie beneath the complaints made by parents. However, the basis of these problems also includes anatomical and physiological development. Adolescence period is the period in which individuals experience anatomical and physiological changes and developments at maximum level; therefore, they also have difficulties in adapting in these changes (Baltacı G, et.al., 2008). These anatomical and physiological developments and changes occur almost the same for each individual. In this period, various injuries can occur as a result of the unstable flexibility of muscles. Individuals can be more easily exposed to injuries which occur as a result of overuse depending on the instability in strength and flexibility of muscles during development process (Baltacı G, et.al., 2008). Adolescent try to cope with various problems during this period. they become mature cognitively, socially and affectively while solving these problems (Türnüklü and Şahin, 2004). Today, families support their children in terms of muscle and bone development by directing them to the sports more as well as involve them in a more controlled group. Families provide their children with both recreational and sports activities. Leisure is described as the period of time which is different from activities necessary for an individual and others, in which an individual participates in activities in line

with her/his own will, and is mostly out of work time (Torkildsen, 2005). The recreational activities that individuals do during their leisure are not limited to only physical activities. Recreation is a notion that defines the activities that are done during their leisure with various different purposes such as relaxation, travelling, getting excited and health (Karaküçük 2014). Besides, they include many activities in which individuals participate voluntarily such as visiting museums, drawing, reading, having a picnic, walking and gardening. On the other hand, physical activities are more limited than the recreational activities and indicate solely the time in which individuals are physically active. Exercise (Regular Physical Activity) is the regular, planned and repetitive physical activities which aim to protect or develop one or more components of physical fitness (Ministry of Health of Turkey, 2015).

That families support their children with such beneficial activities in this fragile period help their children cope with this difficult period more easily both physically and psychologically. Hundreds of studies show the various benefits of physical activities. Physical activity contributes to the development of systems of the body and decreases various mental and physical illness risks (Altun, 2009). Physical activity is one of the fundamental tools that provide with the physical and mental development of individuals. Physical activity both encourages public welfare and protection of environment and invests in the future generations. On the other hand, the lack of physical activity is a public health problem (Ministry of Health, 2014). There are studies on various subjects such as depression, anxiety, uneasiness and the results of these studies show that physical activity helps decreasing these problems. They also reveal that physical activity improves self-confidence and positively affects the psycho-social development of individuals (Ministry of Health, 2014).

However, if necessary measures are not taken, children who are vulnerable in terms of injuries can inevitably experience injuries and traumatization more easily during this period. Even after children participate in the sports activities, taking measures can prevent injuries and traumatization. As it can be seen as a result of a study, it can be seen that as the participation in sports increases, the frequency of injuries also increases (Ergen, 2004). Adolescent individuals who do sports with so many problems, on the other hand, experience some decrease in sports ability and frequent injuries as a result of the decrease in the flexibility of their muscles as a result of the continued growth of their bones. Sports injuries include damage caused by exceeding the endurance limits as a result of the whole or a part of the body encountering a force greater than normal (Ref; Türker et al., 2011; Yıldız Y. 2006). It is stated in many sources that individuals who are more vulnerable to injuries during this transition period should pay attention to the use of protective equipment while doing sports. It is accepted that sports, equipment and individual physical and psychological characteristics affect each other in the occurrence of sports-related injuries (Johnson, 2011). Weight bearing in the joints and especially in the knee is one of the most common physical problems in adolescence. Based on this, it is necessary to take precautions in trainings or competitions, especially considering that the knees are strained in daily life. During

daily life activities and sports activities, the lower extremity complex is faced with many loads within physiological and biomechanical limits. In the cases where these loads exceed the physiological and biomechanical limits and where these lower extremity complex cannot adapt to this, sports injuries occur (Yavuz, 2006).

Especially when we consider the physiological and psychological problems of individuals in adolescence, serious decreases are expected in their levels of quality of life in this period; in addition, when we consider adolescent individuals who do sports during this period, it is thought that serious decreases occur in their quality of life, especially when this period is considered as the period when injuries are most evident. From past to present, many scientists have made many different definitions and researches about quality of life. In one of his works, Plato deals with examples of important medical ethics problems such as "the value of life" and "whether the duration of life or the quality of life should be prioritized", which still arise when the quality of life is considered (Edisan and Kadioğlu, 2013). The historical development of the concept of quality of life has been considered by many academic disciplines, including social scientists and health researchers. This creates difficulties in itself, because each discipline addresses QL from different perspectives, focusing on different concerns and seeking different outcomes (Holmes, 2005). In general, "quality" is a degree of wellbeing. Quality of life is a broader concept that includes personal well-being rather than personal health (Bayırdır, 2010). The quality of life can mean different things for different people which can include concepts such as "wellbeing" which focuses on individual or "a good place" which is location-centered (Deller, 2000). Although there are many definitions, researchers actually find a common ground which is well-being is a feeling of being well. It is seen that this is rather different from the emotions felt by adolescent individuals during adolescence. Adolescence is a period of many changes and transitions in relationships, physical appearance, emotional balance and mental capacity (Gül S.K. and Güneş İ.D. 2009). During this period, the risk of injury that may occur with the orientation of individuals to sports is quite high compared to other groups, and it negatively affects the quality of life of the person who has experienced both injuries and physiological and psychological problems during adolescence. Therefore, the main aim of the current study is to examine the relationship between the quality of life of sports injuries experienced by adolescent athletes as well as to examine whether people differ according to the frequency and duration of training, the physical characteristics of the place where they are injured, when they are injured, and various demographic variables. determine how people are psychologically affected during the period of injury and how it affects their quality of life, and to contribute to studies in the literature by making suggestions to prevent injury in these age groups and by stating the importance of quality of life.

MATERIAL AND METHODS

Universe and Sample Group: The universe of the study consists of licensed athletes between the ages of 13-18 who play sports at the Manisa Youth and Sports Provincial

Directorate. In the study, purposeful sampling method was chosen, and the study sample consisted of 170 athletes (97 females, 73 males) with sports injuries and 90 athletes (49 females, 41 males) without sports injuries, totally 260 volunteers.

Data Collection: The demographic information form developed by the researchers, the Adolescent Form of the Quality of Life for Children (PedsQL) the Adolescent Form of the Age of 13-18, developed by Varni et al. (1999), and the Causes of Injury in Sports Questionnaire prepared by Alkaabi (2015) were used as data collection methods.

Demographic Information Form: The demographic information form developed by the researchers consist of questions related to gender, age, training duration, training frequency, training environment, the physical features of the place where the individual was injured.

The Adolescent Form of the Quality of Life for Children (PedsQL) the Adolescent Form of the Age of 13-18: PedsQL is a quality of life scale developed by Varni et al in 1999 in order to measure the levels of quality of life related to health of children and adolescents between 2-18. The subscales consist of physical health, emotional functionality, social functionality and school functionality. The scale consists of four subscales and 23 items. It is five-point liker type. The scores that can be obtained from the scale varies from zero to a hundred.

Causes of Injury in Sports Questionnaire: The questionnaire items used in the study were obtained from master's degree thesis prepared by Alkaabi (2015). The items in the questionnaire are five-point likert. These items wer evaluated as "Very little (1,00-1,79)", "Little (1,80-2,59)", "Average (2,60-3,39)", "Much (3,40-4,19)" and "Too much (4,205,00)". The questionnaire consists of 27 items; and the aim is to measure the level of agreement with the injury causes of the students.

Table 1. Demographics of Participants

Demographics	Sub-groups	Frequency (f)	Percentage (%)
Gender	Female	146	56,2
	Male	114	43,8
	Total	260	100%
Length	1,60cm and below	96	36,9
	Between 1,61cm-1,75cm	118	45,4
	1,76cm and above	46	17,7
	Total	260	100%
Weight	50kg and below	94	36,2
	Between 51kg-65kg	99	38,1
	66kg and above	67	25,8
	Total	260	100%
Field	Defense	107	41,2
	Ball-games	63	24,2
	Racket-games	20	7,7
	Shooting	26	10,0
	Others	44	16,9
	Total	260	100%
Duration of participation	1 year and below	12	4,6
	2-4 years	76	29,2
	5-7 years	118	45,4
	8 years and above	54	20,8
	Total	260	100%
Sports Injury Occurrence	Yes	170	65,4
	No	90	34,6
	Total	260	100%

Analysis of Data Findings: The data collected in the study were analyzed in IBM SPSS 20 program. The frequency distribution of the data is shown in the study. For the different variables related to quality of life scale, One-Way Anova test was carried out. Between Quality of Life and Sports Injury variables, t-test was carried out. The findings obtained in the context of the current study were evaluated in 95% confidence interval.

It can be seen in the table that 146 (56,2%) of the participants were female, 114 (43,8%) were male; in addition, when considered in terms of height, it is seen that 96 (36,9%) of them were 160 cm and below, 118 (45,5%) were between 1,61cm-1,75cm, and 46 (17,7%) of them are 1,76cm and above. When their weight distribution was considered, 94 (36,2%) were 50kg and below, 99 (38,1%) were between 51g-65kg, and 67 (25,8%) were 66kg and above. It can be seen from the field of sports that 107 participants (41,2%) were in defense field. When their duration of participation in sports was considered, 118 (45,4%) reported to do sports between 5-7 years. 170 participants (65,4%) had experienced sports injury and 90 participants (34,6%) were with no experience of sports injury.

Table 2. Frequency Distribution of the Answers to the Other Questions Given by Participants with Sports Injury

	Sub-groups	Frequency (f)	Percentage (%)
Place of injury	Lower extremity	96	56,5
	Upper extremity	74	43,5
	Total	170	100%
Frequency of injury	1-5	137	80,6
	6-10	16	9,4
	11-15	13	7,6
	16-25	4	2,4
	Total	170	100%
Time of the last injury	Less than one month	23	13,5
	1-2 months	17	10
	3-4 months	18	10,6
	5-6 months	20	11,8
	7 months and more	92	54,1
Total	170	100%	
Duration of time away from sports after the injury	Less than a week	68	40
	1-2 weeks	50	29,4
	3-4 weeks	31	18,2
	5 weeks and more	21	12,4
	Total	170	100%
When injury occurred	During competition	30	17,6
	During training	140	82,4
	Total	170	100%
Phase in which injury occurred	Warm-up	28	16,5
	1 st Half	49	28,8
	2 nd Half	89	52,4
	Stretching	4	2,4
	Total	170	100%
Season in which injury occurred	Summer	57	33,5
	Winter	63	37,1
	Spring	33	19,4
	Autumn	17	10
	Total	170	100%
Use of equipment when injury occurred	Yes	46	27,1
	No	124	72,9
	Total	170	100%

In the table above, the answers of only the participants who had had sports injuries to the other questions were given. The participants reported that their injuries were in lower extremity mostly with 96 participants (56,5%); however, 74 participants (43,5%) had experienced upper extremity injuries. In terms of injury frequency, it was reported that 137 participants (80,6%) had experienced 1-5 injuries; on the other hand, 4 participants (2,4%) had had 16-25 injuries. When they were asked when they had the last injury, 92 of them (54,1%) reported 7 months and more. In terms of duration of time away from sports after the injury, 68 participants (40%) reported that it was less

than a week. In terms of the time injury occurred, 140 participants (82,4%) reported that they mostly experienced injury during training whereas 30 participants (17,6%) has injuries during competitions. In terms of phase in which injury occurred, 89 of them (52,4%) reported to have injuries in the second half whereas 49 of them (28,8%) reported that they had it in the first half. In terms of the season of injury, 63 participants (37,1%) reported that they had injury in winter and 57 of them (33,5%) had it in summer. It was also determined that during injuries 124 participants (72,9%) didn't use any protective equipment.

Table 3. Anova Test Results of Sports Year and Training Frequency According to Quality of Life Scale

Quality of Life		Sum of Squares	Sd	Mean	F	p
Sports Year	Between Groups	4,484	3	1,495	4,55	0,004*
	Within Groups	84,098	256	0,329		
	Total	88,582	259			
Training Frequency	Between Groups	12,053	5	2,411	8,001	0*
	Within Groups	76,529	254	0,301		
	Total	88,582	259			

* $p < .05$

When the table above is considered, a statistically significant difference was found between Quality of life and Sports Year ($F=4,55; p<.05$). also, according to the Post Hoc Test, it was found that athletes with 2-4 sport year had a higher level of quality of life when compared to the ones with 8 years and above.

When the effect of training frequency on quality of life

is considered, there is a statistically significant difference. According to Post Hoc Test, it was determined that the ones who has no trainings had a higher score when compared to 9-12, 13-16 and 16 hours and more groups ($F=8,001; p<.05$).

Table 4. T-test Results between Quality of Life and Sports Injuries

Have you ever experienced sports injuries?	N	Mean	Sd	t	sd	p
Quality of Life	Yes	170	0,7315	,58006	-5,948	258
	No	90	1,1575	,48619	-6,278	210,673

When the table 4 is considered, the participants who had no sports injuries have a higher score of quality of life when compared to the ones with sports injuries ($p > .05$).

DISCUSSION

According to the study carried out by Kvist et.al (1989)-two-third of injuries (69%) were observed in the male children. Half of the sport injuries occurred during winter months. One-fourth of the injuries (26%) were in head and neck and 36% were in upper extremity, 33% were in lower extremity and 4% was in torso. In the current study, it was determined that mostly female participants had sports injuries. It was also determined that the season when injuries occur was depending on the field of sports. When considered in terms of gender, it was determined that female participants mostly got injured in winters whereas male participants got injured mostly in summer. When the field of sports is considered, it was determined that the participant of defense sports had more injuries. When the study of Alkaabi (2015) was viewed, the sports injuries occurred mostly in upper extremity and majority of the participants did not need to take any precautions against injuries. When the places of injury in the body was considered in terms of gender variable, it was determined that both female and male participants were injured in the lower extremity. Kocaman et.al. (2018) carried out a study

on archers and found out that injuries mostly occurred during trainings on account of insufficient warm-up and in neck-shoulder areas. In the current study, when the time injuries occurred is considered in both female and male participants, it was determined that injuries occurred during trainings in both groups. When the phase is considered, it was determined that injuries generally occurred in the second half. Kirişçi (2011) found out in their study that most of the participant athletes reported that they hadn't needed to take any precautions against injuries; in addition, the differences in terms of injuries and level of awareness related to protection against injuries were revealed. When the injury places were examined, it was determined that they varied according to fields of sports. Arslan (2013) stated that protective equipment and bandage use are significant methods in order to decrease the severity of injury or in order to protect athletes from injuries. According to the results of the study carried out by Alp et.al (2019) the major reasons for the injuries were determined as follows: athletes' lack of completing warm-up exercises, the floor of the training place, intercepting the ball and the contact with the opponents. In the current study, it was determined that majority of the athletes hadn't used a protective equipment when injured.

Taş et.al. (2020) determined that when compared to the participants with upper extremity injuries, the

participants with lower extremity injuries had a higher level of fear of movement, catastrophic thoughts and depression; in addition, their quality of life levels were affected more. In the current study, it was determined that as the quality of life increases, the frequency of training decreases, and the participants with more frequency of injuries had lower extremity injuries mostly. Tüfek (2019) studied the quality of life of the participants with femoral shaft fractures (FSF) and determined that participants with FSF had a significantly lower levels of quality of life when compared to the other participants. In the current study, it was determined that participants without sports injuries had a significantly higher levels of quality of life when compared to the one with sports injuries.

CONCLUSION

It is seen that injury places generally were in lower extremity. When the time injuries occurred is considered, it was determined that injuries occurred during trainings and when the phase is considered, it was determined that injuries generally occurred in the second half. When the participants were asked if they used equipment to protect themselves, it was reported that most of the participants hadn't used protective equipment during injury. It is thought that the reason why the athletes had a lower level of injuries during competitions is because they have to wear protective equipment during competitions. Since there is no obligation to use protective equipment during trainings, the number of participants having injuries during trainings is higher which supports this thought. It was seen that the participants without sports injuries had a higher score when compared to the participants with sports injuries. As a result of the carried-out analyses, it was seen that injuries affected the quality of life.

When the results obtained from the current study are considered, considering that they have more injuries in training and although they stated that they did not use protective equipment, in light of these results, coaches should be informed to take the necessary precautions and recommend that they pay attention to the use of protective equipment in training and carry out the necessary inspections, as well as taking into account the quality of life of the person during rehabilitation after the injury. Directing them to appropriate recreational activities and making rehabilitation plans suitable for the needs of individuals, plans aimed not only at the injury of individuals experiencing injuries, but also to improve their quality of life, can allow the treatment process and its results to become more efficient.

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