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Investigation of some injuries in freestyle and greco-roman style Turkish wrestlers

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Abstract

The study's main purpose is to determine the disability status of elite Turkish wrestlers in the young and senior categories according to Freestyle and Greko-Romen wrestling styles and to determine the precautions to be taken to prevent possible injuries in today's wrestling. Fifty-eight wrestlers in Freestyle and 72 wrestlers in Greco-Roman style were followed. Student t-tests- and "chi-square" tests were used for statistical analysis. It has been determined that there is a difference in the injury exposure of the wrestlers during active sports according to the wrestling style (Chiquare = 9.82, p<0.05). In the distribution of total number of injuries according to wrestling year, those injured 2 or 3 times increased significantly as the wrestling year increased (Chi-square 21.55, p<0.001). There are significant differences in the neck, back, shoulder and collarbone, rotator caf, other muscles, nose, finger, elbow, knee and below the knee, ankle, chest, and abdominal regions among the injured areas of the wrestlers according to the style (p<0.05 and p<0,001). The difference in the distribution of injury types in training and competitions according to wrestling style was not statistically significant (Chi-square =1.02, p=0.196). A significant difference was found in the participation of the wrestlers in the competitions according to the styles when they were injured (p<0.001). It has been determined that freestyle and Greco-Roman wrestlers have more injuries during training. As the number of wrestling years increases, so does the number of injuries. Greco-Roman wrestlers were injured more in the neck, back, abdomen and shoulder regions than freestyle wrestlers. Freestyle wrestlers suffered more injuries in the knee and ankle region.

Keywords: Competition, injury, training, wrestler, wrestling

Serbest stil ve greko-romen Türk güreşçilerin bazı sakatlıklarının incelenmesi

Öz

Çalışmanın temel amacı, genç ve büyükler kategorisindeki elit Türk güreşçilerinin serbest stil ve Greko-Romen güreş stillerine göre sakatlık durumlarını tespit etmek ve günümüz minder güreşlerinde olası sakatlıkların önlenmesi için alınması gereken önlemleri belirlemektir. Serbest stilde 58, Greko-Romen stilde ise 72 güreşçi çalışmaya dahil edildi. İstatistiksel analizlerde student t ve ki-kare testleri kullanıldı. Güreşçilerin aktif spor yaparken yaralanma maruziyetlerinde güreş stiline göre farklılık olduğu tespit edilmiştir (Chiquare = 9,82, p<0.05). Toplam yaralanma sayısının güreş yıllarına göre dağılımında, güreş yılı arttıkça 2 veya 3 kez sakatlananların sayısı anlamlı düzeyde arttı (Ki-kare 21,55, p<0,001). Güreşçilerin sakatlanan bölgeleri arasında stile göre boyun, sırt, omuz ve köprücük kemiği, rotator kaf, diğer kaslar, burun, parmak, dirsek, diz ile diz altı, ayak bileği, göğüs ve karın bölgelerinde önemli farklılıklar bulunmaktadır (p<0,05 ve p<0,001). Antrenman ve müsabakalardaki sakatlık türlerinin güreş stiline göre dağılımındaki farklılık istatistiksel olarak anlamlı değildi (Ki-kare =1,02, p=0,196). Güreşçilerin sakatlandıkları dönemde stillerine göre müsabakalara katılımlarında anlamlı farklılık bulundu (p<0,001). Serbest ve Greko-Romen güreşçilerin antrenman sırasında daha fazla sakatlık yaşadıkları belirlendi. Güreş yılı arttıkça sakatlıkların sayısının arttığı tespit edildi. Greko-Romen güreşçiler serbest stil güreşçilerine göre boyun, sırt, karın ve omuz bölgelerinden daha fazla sakatlanmıştır. Serbest stil güreşçileri diz ve ayak bileği bölgesinden daha fazla sakatlanma yaşadı.

Anahtar Kelimeler: *Antrenman, güreş, güreşçiler, sakatlık, yarışma*

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Genişletilmiş Türkçe Özet makalenin sonunda yer almaktadır.

INTRODUCTION

Among the various disciplines of sports, Wrestling is also defined as a sport in which the anaerobic energy system is predominantly used and factors such as strength, speed, agility, flexibility, balance, muscular and cardiovascular endurance, coordination and experience affect performance. Many parameters such as strength, speed, balance, flexibility and endurance and mental ability are required to be successful in wrestling competitions. In the sport of wrestling, a high mobility of the body is required. Thanks to fast and strong body movements, muscles and joints are forced hard. Wrestling is a branch that requires all body parts to work together except for courage, reflex, talent, endurance, and strength. Olympic wrestling is a high demand contact sport that occasionally results in injury (Akhmedov et al., 2016; Çebi et al.,2022; Ermiş et al.,2019; Halloran, 2008; Kılınç and Özen, 2015; Küçük and Erim, 2021; Shadgan et al., 2010; Arslan & Erail, 2023). Understanding the mechanisms of wrestling injuries is fundamental to preventing and reducing the risk of injury. However, due to the complexity of the movements in this sport, it is not always easy in wrestling (Molnár et al., 2020; Myers et al., 2010). Frequent contact and collisions during wrestling, as well as inadequate preparation or loss of concentration, can cause injuries (Maffulli et al., 2010; Molnár et al., 2021). Nutritional status (Diet) may also contribute to physical injuries in wrestlers (Barley et al., 2019; Jlid et al., 2013; Khodaee et al., 2015; Kim and Park, 2021; Lingor and Olson, 2010). While competitions and training take place on soft mats and there is an increasing number of other measures and improvements to defend wrestlers, the development of injuries is inevitable (Shadgan et al., 2010; Shadgan et al., 2021; Shadgan et al., 2017; Tomin and Kmetty, 2021). Wrestling is known as the most intense and physically demanding sport with a very high risk of injury (Kordi et al., 2012). Wrestling consists of fast repetitive offensive and defensive movements, and wrestlers must generate high levels of both anaerobic and aerobic energy to maintain high levels of muscle strength and power, and these forces significantly load both the upper and lower body skeleton and musculature (Karnincic et al.,2009; Garcia et al.,2011). The definition of injury includes “any new-emergent musculoskeletal or soft tissue complaint that requires medical attention during competitions, whatever the consequences associated with abstinence from sports” (Shadgan et al., 2017).

The severity of wrestling injuries is classified as mild (treatable on the mat), moderate (additional medical care required after the match off the mat), serious and serious (the match is ended by the referee or medical teams). The seriously injured wrestler should seek emergency care at a well-equipped medical center and be transported immediately to a nearby hospital.

Any serious injury that threatens life is classified as a major injury (Molnar et al., 2022). Wrestling is associated with a high incidence of orthopedic injuries, but information about these injuries differs in the literature (Barroso et al., 2011). Injury is an obstacle to participation and development in sports (Shadgan et al., 2017). Although wrestling injuries have been extensively studied by researchers, the definition of injuries and the population of studies are extremely heterogeneous (Hewett et al., 2005). In studies conducted in the United States, wrestling ranks high in all injuries. In another study, it ranked 3rd in the United States as a disability rate. In one study, 65% of wrestlers checked pre-season reported at least one injury from sports and non-sporting activities. Studies reported on the sport of wrestling have indicated a wide injury rate depending on the definition of the injury, the population studied, and whether the tournament or season is evaluated (Pasque & Hewett, 2000; Çebi et al., 2022). In terms of sports injuries, wrestling is among the first group sports. According to the research, the injury rate in wrestling is 36% among all sports branches, and it ranks third after football and handball (Kolukısa et al., 2018). In order to be successful in international competitions in wrestling, at least 5 years of training history is considered necessary. Wrestlers will encounter injuries during this long training period and competitions. Although injuries and injuries are very similar in people engaged in the same type of sport, some regions may be injured more in training and competitions in two different styles of the same sport type. Knowing the injuries that may occur in Olympic mat wrestling by the wrestlers and their trainers helps to take the necessary precautions (Kordi et al., 2012). The main purpose of the study is to determine the disability status of elite Turkish wrestlers in the young and senior categories according to freestyle and jungle wrestling styles and to determine the precautions to be taken to prevent possible injuries in today's mat wrestling.

METHOD

Research group (population-sample)

58 Freestyle and 72 Greco-Roman style wrestlers from the elite wrestlers competing in the youth and senior categories of the Turkish National Teams were included in the study. The participation of the wrestlers in the study was determined on a voluntary basis.

Data collection tools

A personal information form was prepared by the researchers. In addition to the personal information form, an injury follow-up form was used for the wrestlers. It was accepted that the wrestlers answered the questions in the questionnaire correctly. The weakness of the study is thought to be in stating how many times the wrestlers were injured during their wrestling years.

Data analysis

SPSS 25.00 (SPSS package for Windows, Release 25; SPSS Inc., Chicago, Illinois, USA) package program was used for statistical operations. Student t-test was performed for anthropometric characteristics. The chi-square test (Fisher's Exact Test) was used for the difference of injuries in freestyle and Greco-Roman wrestling.

FINDINGS

Table 1. Comparison of Age, Sport age, height, body weights, Body Mass Indexes, and weekly training frequencies according to wrestling type

	Type of wrestling	Mean	Sd	t-test
Age (Year)	Free Style	20.85	2.21	2.97*
	Greco-Roman Style	21.70	2.58	
Sports age (Year)	Free Style	7.19	1.23	-4.41**
	Greco-Roman Style	9.13	1.88	
Number of workouts per week (hours)	Free Style	5.45	2.32	0.37
	Greco-Roman Style	5.63	2.35	
Height (cm)	Free Style	173.02	7.31	0.47
	Greco-Roman Style	173.11	7.50	
Body weight (kg)	Free Style	71.62	10.95	1.01
	Greco-Roman Style	71.90	11.48	
Body Mass Index (kg/m^2)	Free Style	23.93	2.12	0.53
	Greco-Roman Style	24.01	2.15	

*p<0.05 and **p<0.001

There is a statistically significant difference between the age and sporting ages of freestyle and Greco-Roman wrestlers according to wrestling type (p>0.05 and p<0.001).

Table 2. Distribution of the number of injury repetitions according to the sports age category of the wrestlers

Injury status/Year of wrestling		5 years or less	6-10 years	11 years or more	Total	χ^2 value / p-value
One	N	11	15	8	34	15.857 / 0.015
	%	32.35	44,12	23.53	100	
Two times	N	5	13	14	32	
	%	15.63	40.62	43.75	100	
Three times	N	10	8	22	40	
	%	25,00	20.00	55.00	100	
More than three times	N	1	8	15	24	
	%	4.17	33.33	62.50	100	
Total	N	27	44	59	130	
	%	20.77	33.85	45.38	100	

In the study, it was determined that the total number of injuries varied according to the sports age of the wrestlers. In other words, the number of injuries increased in direct proportion to the sports age of the athletes (Chi-square 15.857, p=0.015).

Table 3. Comparison of the injured regions of wrestlers

Injured Areas		Type of wrestling	Yes		No		χ^2 value / p-value
			n	%	n	%	
Neck/Back /Waist	Neck	Free Style	3	5,17	55	94.83	8.390 / 0.003
		Greco-Roman Style	17	23.61	55	76.39	
	Back	Free Style	4	6.9	54	93.1	9.305 / 0.002
		Greco-Roman Style	20	27.78	52	72.52	
	Waist	Free Style	25	43.10	33	56.90	0.000 / 1.000
		Greco-Roman Style	31	43.06	41	56.94	
Shoulder Area	Shoulder and collarbone	Free Style	8	13,79	50	86.21	3.717 / 0.042
		Greco-Roman Style	20	27.78	52	72.22	
	Rotator caf	Free Style	5	8.62	53	91.38	9.392 / 0.002
		Greco-Roman Style	22	30.56	50	96.44	
	Other muscles	Free Style	25	43.10	33	56.90	19.290 / <0.001
		Greco-Roman Style	7	9.72	65	90.28	
	Shoulder dislocation and semi-dislocation	Free Style	5	8.62	53	91.38	0.003 / 1.000
		Greco-Roman Style	6	8.33	66	91.68	
Head/Face	Eyes	Free Style	5	8.62	53	91.38	0.127 / 0.751
		Greco-Roman Style	5	6.94	67	93.06	
	Nasal	Free Style	4	6.9	54	93.1	8.381 / 0.003
		Greco-Roman Style	19	26.39	53	73.61	
	Ears	Free Style	13	22.41	45	77.59	0.488 / 0.546
		Greco-Roman Style	20	27.78	52	72.22	
Arm. Elbow. wrist fingers	Fingers	Free Style	5	8.62	53	91.38	5.134 / 0.033
		Greco-Roman Style	17	23.61	55	76.39	
	Elbow	Free Style	2	3.45	56	96.55	6.715 / 0.012
		Greco-Roman Style	13	18.6	59	81.94	
	Wirst	Free Style	13	22.41	45	77.59	2.153 / 0.174
		Greco-Roman Style	25	34.72	47	65.23	
	Arm muscles	Free Style	5	8.62	53	91.38	2.397 / 0.135
		Greco-Roman Style	13	18.06	59	83.94	
Knee. ankle and toes	Knee and below knee	Free Style	42	72.41	16	27.59	19.629 / <0.001
		Greco-Roman Style	24	33.33	48	66.67	
	Ankle	Free Style	38	64.52	20	34.48	15.799 / <0.001
		Greco-Roman Style	22	30.56	50	64.44	
	Big toe	Free Style	5	8.62	53	91.38	0.873 / 0.416
		Greco-Roman Style	10	13.89	62	86.11	
Trunk	Chest	Free Style	5	8.62	53	91.38	5.918 / 0.020
		Greco-Roman Style	18	25,00	54	75.00	
	Abdominal region	Free Style	5	8.62	53	91.38	7.590 / 0.007
		Greco-Roman Style	20	27,78	52	72.22	
Skin	Wound (Scrape)	Free Style	5	8.62	53	92.7	0.221 / 0.772
		Greco-Roman Style	8	11.11	64	88.89	
	Inflammation	Free Style	5	8.62	53	92.7	0.047 / 0.829
		Greco-Roman Style	7	9.72	65	90.28	

There are significant differences in the injured areas of wrestlers, depending on the style, in the neck, back, shoulder and collarbone, rotator cage, other muscles, nose, nassal, fingers, elbow, knee and below the knee, angle, chest and abdomen ($p<0.05$).

Table 4. Distribution of injury types in wrestling training and competitions

	Injuries in Free Style						Injuries in Greco-Roman Style					
Injured type	Training		Competition		Total		Training		Competition		Total	
Injury	N	%	N	%	N	%	N	%	N	%	N	%
Sprain	45	28,30	15	22,06	60	26,43	66	26,29	23	24,73	89	25,87
Muscle Strain	32	20,13	12	17,65	44	19,38	45	17,93	21	22,58	66	19,19
Infection	24	15,09	11	16,18	35	15,42	40	15,94	13	13,98	53	15,41
Contusion	15	9,43	9	13,24	24	10,57	43	17,13	11	11,83	54	15,70
Cartilage Tear	12	7,55	6	8,82	18	7,93	26	10,36	5	5,38	31	9,01
Fracture	10	6,29	5	7,35	15	6,61	8	3,19	6	6,45	14	4,07
Dislocation/ Subluxation	8	5,03	4	5,88	12	5,29	9	3,59	7	7,53	16	4,65
Ligament Tear in Knee	7	4,40	3	4,41	10	4,41	6	2,39	4	4,30	10	2,91
Others	6	3,77	3	4,41	9	3,96	8	3,19	3	3,23	11	3,20
Total	159	100	68	100	227	100	251	100	93	100	344	100

The difference in the distribution of injury types in training and competitions according to wrestling style was not found to be statistically significant (Chi-square =1.02, p=0.196).

Table 5. Frequency of injuries in the wrestlers according to style and competitions

Type of wrestling		Yes/Always	Sometimes	No	Total	χ^2 value / p-value
Free Style	N	18	38	2	58	24.074 / <0.001
	%	31.03	65.52	3,45	100	
Greco-Roman Style	N	30	20	22	72	
	%	41.67	27.78	30.56	100	
Total	N	48	58	24	130	
	%	36.92	44.62	18.46	100	

It was determined that the injury frequencies of wrestlers differed significantly according to style and competitions (p<0.001). In mostly, while freestyle wrestlers stated that they were injured sometimes (65.52%) in competitions, Greco-Roman style wrestlers declared that they were yes/always injured (41.67%).

DISCUSSION AND CONCLUSION

The average age of the wrestlers included in the study is 20.85 years for freestyle wrestlers and 21.70 years for Greco-Roman wrestlers. Sports ages were determined as 7.19 years for freestyle wrestlers and 9.13 years for Greco-Roman wrestlers. The number of weekly trainings was determined as 5.45 in freestyle wrestlers and 5.63 in Greco-Roman wrestlers. While there was a significant difference between the wrestlers' age and sports age (p<0.05 and p<0.001), no significant difference was found between their height, body weight, Body Mass Index and the number of weekly training sessions (p>0.05).

In a study by Ahmedov et al., (2016), when the causes of injury of freestyle wrestlers were investigated, insufficient exercise and insufficient concentration were among the main causes. In this study, no wrestler was found who was not injured during his wrestling life. In

the study, freestyle wrestlers had a total of 227 injuries, while Greco-Roman wrestlers had 344 injuries. There were 3.91 (227/58) injuries per wrestler in freestyle wrestlers and 4.78 (344/72) injuries in Greco-Roman wrestlers (Table 4). In this sduty, it has been determined that there is a difference in the injury exposure of the wrestlers during active sports according to the wrestling style (Chiquare =9.82, $p<0.05$).

In this sduty, in the distribution of total number of injuries according to wrestling year, those who were injured 2 or 3 times increased significantly as the wrestling year increased (Chi-square 21.55, p=0.000).

In wrestling, changes occur in the rules and training methods depending on the rules. The intensity and intensity of training changes can cause injuries if the rest period is not appropriate. It has been reported that most injuries occur in wrestlers during training (Çebi et al., 2022). Jarret et al., (1998) found the rate of injury in matches to be significantly higher in their study. Jarret et al. (1998), while there was a higher frequency of injury in matches, in fact, there was more injury in total due to more time spent in training. In the study of Yamaner et al., (2012), injuries occurring in both Greco-Roman and freestyle training were found to be more than those occurring in competitions. Pasque and Hewett (2000) stated that the highest rate of injury occurred during training. In this study, both freestyle and Greco-Roman wrestlers stated that they were mostly injured during training. In this study, it was determined that 29.96% of the wrestlers in this freestyle wrestling were injured during the competition and 70.04% during training. In Greco-Roman wrestling, 27.03% of the injured wrestlers in the competition and 72.97% of the injured during the training were determined (Table 4).

Regarding injuries in different styles, Shadgan et al. (2017) stated that the distribution of all wrestling injuries during the Rio Olympic competitions was 40.9% Greco-Roman style and 36.4% freestyle wrestlers, respectively (Shadgan et al., 2017). Studies have reported lower injury rates in Greco-Roman style wrestling compared to freestyle wrestling (Molnar et al., 2022). According to the type of wrestling, the difference between the number of injuries in competition and training is insignificant (Chi-square: 1.72, P = 0.289). It is noteworthy that most wrestlers are injured during training. The fact that the injuries that occur in training are more common may be since the training time is too long compared to the competition periods. In addition, incorrect training, overloading in training or strength development in training while applying techniques can be effective. Among Turkish coaches, it is a preferred method to train a lowerweight and an upperweight wrestler for strength development. In the Turkish wrestling

national teams, strength training in the camps is done with competition-type training and fatigue since the training times are longer than the matches, more uncontrolled wrestling, wrestling with people above their own weight, etc. can be considered as effective factors in the formation of injuries. Controlled wrestling and the fact that the wrestlers are top level wrestlers may be effective in the fact that the injuries in Turkish wrestlers are less than in training. Elite-level wrestlers should be more careful about injury during their training, coaches should take this situation into account, and even a medical team should be present during training.

In Wroble's study, an average of 2.67 injuries per wrestler was found, while in Yamaner et al.'s (2012) study, 2.37 injuries in Greco-Roman wrestling and 2.39 injuries in freestyle wrestling. Considering the total number of injuries in this study, it is higher in Greco-Roman wrestlers. The number of injuries per wrestler in freestyle wrestling was 3,91 and the number of injuries per Greco-Roman wrestler was 4,78 (Figure 1). It has been reported in the literature that the risk of injury is higher in older wrestlers and heavyweight wrestlers. In this study, injury recurrence rate varies between two styles according to wrestling year ($p<0.001$). As the number of years of wrestling increased, the injury recurrence rate increased. In a study by Molnar et al. (2022), the most common upper and lower extremity injuries were observed, followed by head and trunk injuries. Hewett et al., (2005) stated that the body region where the highest percentage of injuries occurred was the head/spine/trunk (average 36.7%). Thomas and Zamanpour (2018) found similar results with the revue scan. The results were head and neck injuries 31%, upper extremity 25.7%, lower extremity 24.4%, and trunk and spine injuries 15.4%. In a study by Çebi et al., (2022), Greco-Roman wrestlers had more upper body, head and nose injuries than freestyle wrestlers. Upper body, lower extremity and upper extremity injuries vary according to weight categories. Greco-Roman style wrestlers suffer from neck, back, waist and chest injuries more than freestyle wrestlers. Barroso et al. (2011) found that the most frequently injured body parts were the knee (25.5%), shoulder (20%), thigh (15.2%) and ankle (14.5%). Sprains (34.5%) and muscle lesions (30.4%) were the most common injuries. Surgical treatment was applied to 9% of the lesions and most of these lesions (61.5%) were in the lower extremities. Lorish et al. (1992), on the other hand, stated in a study they conducted on 1742 wrestlers between the ages of 6 and 16 that the injuries were mostly in the upper extremities, neck and back regions.

Atay et al., (2017) in their study; the regions with the highest number of injuries in wrestlers are knees (43.4%), feet-ankles (33.6%) and shoulders (32.6%). In addition, it was stated that there was a significant difference in the frequency of hand-wrist, waist, knee, and

foot-ankle injuries in the evaluation of disability areas according to categories. Among the college wrestlers, the most injured body part was the knee and second the shoulder region, while the ankle injuries took the third place (Jarrett et al., 1998). In the study of Yünceviz et al., (1997), the most injured body parts are the knee with a rate of 26% and the shoulder region with a rate of 20%. The least injury was found in the head and neck region. Again, the most injuries are knee in freestyle and shoulder in Greco-Roman style. In some studies, the most injured body region in terms of anatomical location was the knee (Jarrett et al., 1998; Kroshus et al., 2018; Molnar et al., 2022). Kroshus et al. (2018) reported 21.3% of head and facial injuries (Kroshus et al., 2018). In a study by Barroso et al., (2011), the lower extremities were the anatomical region with the most injuries. In this study, the most affected anatomical regions were the knee, shoulder, thigh, and ankle. There are significant differences in the neck, back, shoulder and collarbone, rotator caf, other muscles, nose, finger, elbow, knee and below knee, angle, chest, and abdominal regions among the injured areas of the wrestlers according to the style ($p<0.05$ and $p<0,001$). In this study, Greco-Roman wrestlers were injured more in neck, back, Shoulder and collarbone, rotator caf, and abdominal regions than freestyle wrestlers ($p<0.05$ and $p<0,001$). Since the shoulder area in Greco-Roman wrestling is under more direct contact and opponent pressure than freestyle wrestlers, injuries were more common in these areas. In this study, free-style wrestlers were injured other muscles, knee and below knee and ankle more than Greco-Roman wrestlers ($p<0.05$ and $p<0,001$). It is natural to have more injuries in freestyle wrestling, as different games are applied to the feet in accordance with the rules. The number of Greco-Roman wrestlers injured in nasal injuries was significantly higher than the freestyle wrestlers ($p<0.05$). This may be since Greco-Roman wrestlers use more upper body parts than freestyle wrestlers. There was no significant difference between ear fractures according to wrestling type ($p>0.05$). Special precautions should be taken against ear breakage. Ear protectors can be used at least during training.

Molnar et al. (2022), in terms of injury type, there were an almost equal number of ligament lesions, joint injuries, and skin ruptures and contusions. Şadgan et al., (2017) reported that the most common injuries in wrestlers (41%) during Rio Olympic competitions were skin tears, followed by ligament sprains (13.6%), joint dislocations (13.6%), and contusions (9%) reported that he was following. Thomas and Zamanpour (2018) also reported that sprains and strains were the most common with 37.6%, which was higher than our findings, followed by laceration, abrasion and contusion with 23.4%. In this study, the most common type of injury was sprain in both freestyle and Greco-Roman wrestlers. Sprains were followed by muscle

strains. In the third place, there is infection. It was determined that the distribution of injury types in training and competitions did not differ according to wrestling style ($p>0.05$). The fact that infection rates are higher than expected indicates that more attention should be paid to health checks and hygienic measures (cleaning of wrestlers and their clothes, locker rooms and mattresses).

In this study, the difference between the wrestlers participating in the competitions despite being disabled according to their wrestling style is statistically significant ($p<0.001$). In freestyle wrestling, while the wrestlers almost participate in the competitions when they are injured (3.45%), the rate of those who do not participate in the competitions when they are injured is higher (30.56%) in the Greco-Roemen style. While 31.03% of the freestyle wrestlers were injured and regularly participated in the competitions, it was 41.67% in the Greco-Roemen style. Wrestlers who sometimes participate in competitions while injured are 65.72% in freestyle and 27.78% in Greco-Roman style. In this study, a significant difference was found in the participation of the wrestlers in the competitions according to the styles when they were injured ($p<0.001$). It is recommended that the wrestlers be made aware of not participating in the competitions with injuries and that the coaches should support them in this regard. Wrestling requires aerobic power, strength, balance, nerve-muscle coordination. Decreases in these characteristics increase the risk of injury. It was stated that the technique should be taught to the athlete, extra studies should be done on the extremities with the highest risk of injury, and these extremities should be protected with various bandages during training (Kolukısa et al., 2018). It is recommended that wrestlers train seriously as in matches, try to strengthen the parts they do not actively use in their techniques, and do enough free exercise before training and matches (Akhmedov et al., 2016). Greco-Roman wrestlers declared that they participated in more competitions when they were injured. This situation may be due to reasons such as the knowledge of the wrestlers about health, the attitudes of the coaches, and perhaps the scarcity of athletes to compete in that weight in Greco-Roman wrestling.

It has been determined that both freestyle and Greco-Roman style wrestlers have more injuries during training. However, it has not yet been determined whether this detection is in the camps or outside the camps. As the number of wrestling years increases, so does the number of injuries. Greco-Roman wrestlers were injured more in the neck, back, abdomen and shoulder regions than freestyle wrestlers. Freestyle wrestlers suffered more injuries in the knee and ankle region. Although both styles of wrestling are injured, it has been determined that sometimes there are too many participants in the competitions. The types of injuries occurring in training

and competitions were determined as sprains, muscle strains and infections the most in both freestyle wrestlers and Greco-Roman wrestlers.

Recommendations

Wrestlers should be more careful about injuries during training, coaches should take this situation into account, and even a medical team should be present during training. Coaches should be more careful about injuries during the training of strength and weight training in camps. Special precautions should be taken against ear breakage. Ear protectors can be used at least during training. It is recommended to pay more attention to hygienic conditions in the materials used by the wrestlers, in the locker rooms and in the wrestling areas. Special exercises that strengthen elbow and knee muscles and ligaments should be given more place in training. It is recommended that the wrestlers be made aware of not participating in the competitions with injuries and that the coaches should support them in this regard.

TÜRKÇE GENİŞLETİLMİŞ ÖZET

GİRİŞ

Güreş anaerobik enerji sisteminin ağırlıklı olarak kullanıldığı, kuvvet, hız, çabukluk, esneklik, denge, kas ve kardiyovasküler dayanıklılık, koordinasyon, deneyim gibi faktörlerin performansı etkilediği bir spor olarak da tanımlanmaktadır. Güreş müsabakalarında başarılı olabilmek için kuvvet, sürat, denge, esneklik ve dayanıklılık, zihinsel yetenek gibi pek çok parametreye ihtiyaç duyulmaktadır. Güreş sporunda vücudun yüksek hareket kabiliyetine sahip olması gerekmektedir. Hızlı ve güçlü vücut hareketleri sayesinde kaslar ve eklemler sert bir şekilde zorlanır. Güreş, refleks, yetenek, dayanıklılık ve kuvvet dışında tüm vücut parçalarının birlikte çalışmasını gerektiren bir branştır. Olimpik güreş, zaman zaman yaralanmalarla sonuçlanan, yüksek talep gören bir temas sporudur (Akhmedov ve ark., 2016; Çebi ve ark., 2022; Ermiş ve ark., 2019; Halloran, 2008; Kılınç ve Özen,2015; Shadgan ve ark., 2010). Güreş yapısı gereği sakatlıkların olabildiği bir spordur. Bu sebeple yapılan çalışmanın amacı serbest ve Greko-Romen stil güreşçilerin sakatlık nedenlerini tespit edilmesi, elde edilecek bilgiler dahilinde antrenörlere ve güreşçilere sakatlıkların önlenebilmesi için öneriler getirmektir.

YÖNTEM

Çalışmaya Serbest stilde 58, Greko-Romen stilde ise 72 güreşçi katılmıştır. İstatistiksel analizlerde student t ve ki-kare testleri kullanılmıştır.

BULGULAR

Araştırmada toplam sakatlık sayısının güreşçilerin spor yaşlarına göre farklılık gösterdiği tespit edilmiştir. Sporcuların spor yaşıyla doğru orantılı olarak yaralanma sayıları da artış göstermektedir (Ki-kare 15,857, p=0,015).

Güreşçilerin sakatlanan bölgeleri arasında stile bağlı olarak boyun, sırt, omuz ve köprücük kemiği, rotator kaf, diğer kaslar, burun, burun, parmaklar, dirsek, diz ve diz altı, açı, göğüs ve sırtta önemli farklılıklar bulunmaktadır ($p<0,05$).

Antrenman ve müsabakalardaki sakatlık türlerinin güreş stiline göre dağılımındaki farklılık istatistiksel olarak anlamlı bulunmadı (Ki-kare =1,02, p=0,196).

Güreşçilerin sakatlanma sıklıklarının stil ve müsabakalara göre anlamlı farklılık gösterdiği belirlendi ($p<0,001$). Çoğunlukla serbest stil güreşçiler müsabakalarda bazen (%65,52) sakatlandıklarını belirtirken, Greko-Romen güreşçiler ise evet/her zaman sakatlandıklarını (%41,67) belirttiler.

TARTIŞMA VE SONUÇ

Ahmedov ve arkadaşları (2016) yaptıkları çalışmada serbest stil güreşçilerinin sakatlanma nedenlerini araştırmış, yetersiz egzersiz ve yetersiz konsantrasyonu ana nedenler arasında ifade emiştir. Ahmedov ve arkadaşları (2016) tarafından yapılan çalışmada güreş hayatı boyunca sakatlanmayan güreşçiye rastlanmamıştır. Araştırmada serbest güreşçilerde toplam 227, Greko-Romen güreşçilerde ise 344 sakatlık yaşandı. Serbest güreşçilerde güreşçi başına 3,91 (227/58) yaralanma, Greko-Romen güreşçilerde ise 4,78 (344/72) yaralanma vardı. Bu çalışmada güreşçilerin aktif spor yaparken yaralanma maruziyetlerinde güreş stiline göre farklılık olduğu tespit edilmiştir (Chiquare =9,82, $p<0,05$).

Molnar ve ark. (2022), sakatlanma türü açısından bakıldığında neredeyse eşit sayıda bağ lezyonu, eklem yaralanması, cilt yırtılması ve kontüzyonu olduğunu ifade etmiştir. Şadgan ve ark. (2017), Rio Olimpiyat müsabakalarında güreşçilerde en sık görülen sakatlıklarının (%41) deri yırtıkları olduğunu, bunu bağ burkulmaları (%13,6), eklem çıkıkları (%13,6) ve ezilmelerin (%9) takip ettiğini bildirmişlerdir. Bu çalışmada hem serbest stilde hem de Greko-Romen güreşçilerde en sık görülen yaralanma türü burkulmadır. Burkulmaların ardından kas gerilmeleri gelmektedir. Üçüncü sırada enfeksiyon bulunmaktadır. Antrenman ve müsabakalardaki sakatlık türlerinin dağılımının güreş stiline göre farklılık göstermediği belirlenmiştir ($p>0,05$). Enfeksiyon oranlarının beklenenden yüksek olması sağlık kontrollerine ve hijyen önlemlerine (pehlivanların ve kıyafetlerinin, soyunma odalarının ve yataklarının temizliği) daha fazla dikkat edilmesi gerektiğini göstermektedir.

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Veri Toplama ve İşleme *Data Collecting and Processing*	Verileri toplamak, düzenlemek ve raporlaştırmak *Collecting, organizing and reporting data*	Fatih KARAKAŞ
Tartışma ve Yorum *Discussion and Commentary*	Elde edilen bulguların değerlendirilmesi *Evaluation of the obtained finding*	Yener AKSOY Fatih KARAKAŞ

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