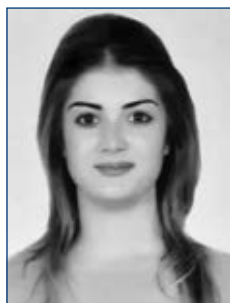


Peculiarities of injuries in syrian athletes aged 15-17

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Abstract

Objective of the study was to identify the features of injuries in Syrian athletes of different sexes at the age of 15-17 years.

Methods and structure of the study. A complex of research methods was used, including the analysis of scientific and methodological literature, interviews with athletes of different sexes, and a questionnaire survey. During mathematical and statistical processing of data, the reliability of differences in the number of injuries between boys and girls aged 15-17 was determined with calculations using the χ^2 criterion. The calculations were aimed at identifying differences between athletes of different sexes separately for each type of injury and then for all types of injuries. Then the causes of injuries were determined using the example of the ankle joint in athletes and their percentage. The empirical part of the study was organized in Syria during the competitions for the Cup of the Republic in athletics.

Results and conclusions. For most types of injuries between Syrian boys and girls aged 15-17 years old involved in athletics, no significant differences were found. An exception is a significant difference between boys and girls in getting tendon ruptures, which was found only in girls: the empirical chi-square value of 5 turned out to be greater than its tabular value (3.84) at a significance level of 0.05. The most common injuries among athletes involved in athletics were muscle cramps, muscle tears and sprains. The main causes of injuries in the example of the ankle joint in Syrian athletes are insufficient warm-up, overtraining, lack of consideration for the individual characteristics of the athlete, insufficient recovery, unsuitability of places for training. The data obtained can be taken into account in the training of young athletes aged 15-17 years.

Keywords: athletes, injury, ankle joint, differences, training load.

Introduction. Injuries are one of the problems that not only prevent athletes from achieving high sports results, but sometimes threaten with serious consequences for their health and even life. The rise in sports injuries hinders regular training and competition. In addition, the treatment and rehabilitation of athletes requires large financial costs, in 10% of cases surgical intervention is necessary, after which there is a decrease in mobility in the joints and the functionality of athletes [1, 2].

According to some scientific data [1, 3], a very high percentage of sports injuries is observed in gymnastics and athletics. The probability of injury in young athletes at the age of 15-17 years increases especially when they move to specialization in certain disciplines of athletics, which is associated with a significant in-

crease in the volume, intensity of the training and competitive load. Therefore, the study of the characteristics of injuries in athletes on the example of Syria at the age of 15-17 years is of considerable scientific interest.

Objective of the study was to identify the features of injuries in Syrian athletes of different sexes at the age of 15-17 years.

Methods and structure of the study. A set of methods was applied: literature analysis, interviews with athletes of different sexes, a survey using a specially designed questionnaire [4], determining the percentage ratio between injury rates, identifying significant differences by calculating the χ^2 criterion in terms of the number of injuries received between boys (n=49) and girls (n=35) involved in athletics. We



examined qualified athletes aged 15-17 who participated in the Syrian Cup in September 2020. Among them were male and female representatives, specializing in running (n=42), jumping (n=19) and throwing (n=23). The study was conducted from 2020 to 2022 by representatives of the College of Physical Education of the University of Hama (Syria), the Faculty of Physical Education of the Belgorod State National Research University, Belgorod (Russia), the Department of Theory and Methods of Teaching Physical Education of the Utemisov West Kazakhstan University, Uralsk (Kazakhstan), Department of Physical Culture and Sports of the North-Western Institute of Management of the Russian Presidential Academy of National Economy and Public Administration, St. Petersburg (Russia).

Results of the study and their discussion. Analysis of the literature showed that athletes have a variety of injuries. According to the literature [1-3], the highest percentage of sports injuries in athletics are sprains (14.7%), muscle tears and fractures, injuries of the ankle joint (up to 34.48%) and lower leg (19%).

As a result of observation and questioning, data were obtained indicating the typology of injuries in Syrian athletes aged 15-17, presented in Table 1.

It was found that the most common types of injuries are muscle cramps with a percentage of 23.28% in men and 17.46% in women, muscle ruptures - 9.52% in men and 11.46% in women, sprains - 9.52% in men and 5.82% in women. The frequency of injuries in boys (53.44%) exceeds that of girls (46.56%). However, at the time of the examination, no tendon ruptures, abrasions, wounds were found in the boys, and five tendon

ruptures, one abrasion and three wounds were found in the girls.

The calculated value of the chi-square indicates the absence of statistically significant differences between boys and girls for all injuries. An exception is tendon rupture, which is not found in boys, but occurs five times (2.65%) in girls (Table 1).

This indicator is significantly higher among girls: the empirical value of 5 is greater than the tabular value of 3.84 at a 5 percent significance level. The chi-square value calculated for all types of injuries in general (0.89) indicates the absence of statistically significant differences between boys and girls.

After identifying the typology of injuries in Syrian athletes and comparing them between representatives of different sexes, it became necessary to find out the causes of injuries, the frequency of their occurrence and the percentage of each other. Since many authors state that the ankle joint most often suffers from injuries in athletes [1-3], it was decided to investigate the causes of this injury (Table 2).

According to Table 2, a poorly conducted warm-up is the first cause of injury in athletes (29.1%). The following significant causes of injuries in athletes are overtraining (16.4%), lack of consideration for the individual characteristics of the athlete (11.6%), under-recovery after the previous training (8.5%), poor readiness to perform motor actions (6.9%), unsuitability of places of employment (5.3%). The rest of the reasons are either of lesser importance, or turned out to be irrelevant altogether.

It should be noted that many causes of injuries, one way or another, relate to the problem of insufficiently

Table 1. *Typology of injuries among Syrian athletes aged 15-17*

Injuries	Youths (n = 49)		Girls (n=35)		Total		Chi-square
	Injury frequency	(%)	Injury frequency	(%)	Injury frequency	(%)	
Broken bones	2	1,06	1	0,53	3	1,59	0,33
Tendon rupture	0	0,00	5	2,65	5	2,65	5
Muscle tear	18	9,52	22	11,64	40	21,16	0,4
Ligament tear	10	5,29	5	2,65	15	7,94	1,66
Dislocation of the joints	4	2,12	1	0,53	5	2,65	1,8
Abrasions	0	0,00	1	0,53	1	0,53	1
Bruised bones	1	0,53	4	2,12	5	2,65	1,8
Muscle injury	3	1,59	1	0,53	4	2,12	1
Stretching	18	9,52	11	5,82	29	15,34	1,69
Wounds	0	0,00	3	1,59	3	1,59	3
Muscle cramps	44	23,28	33	17,46	77	40,74	1,57
Other	1	0,53	1	0,53	2	1,06	0
Total	101	53,44	88	46,58	189	100	0,89

Tabulated chi-square value for each type of injury at 0.05 = 3.84.

Table 2. Causes of ankle injuries in Syrian athletes

Reason	Quantity	Percentage, %
Insufficient warm-up	55	29,1
Overtraining	31	16,4
Lack of consideration of the individual characteristics of the athlete	22	11,6
Insufficient recovery from previous workout	16	8,5
Poor motor fitness of an athlete	13	6,9
Unsuitability of a place for training or competition	10	5,3
Continuing training with an injury	5	2,6
Use of unsuitable sports equipment	5	2,6
Inadequate behavior of athletes	5	2,6
Failure to comply with safety rules	3	1,6
Bad weather	3	1,6
Lack of control over athlete training	3	1,6
Resuming training before full recovery is complete	3	1,6
Lack of necessary equipment	3	1,6
Violation of the principle of gradual loading	3	1,6
Insufficient rest between exercises	2	1,1
Poor mental preparedness	2	1,1
Athlete's ignorance of his readiness to perform certain exercises	2	1,1
Wrong selection of exercises	1	0,5
Lack of knowledge about sports injuries	1	0,5
Lack of timely medical examinations	1	0,5
Non-compliance with the training program	0	0
Lack of information about the athlete by the coach	0	0
Total	189	100

responsible attitude and preparedness of both athletes and coaches for training and competitive activities, systematic monitoring of the effect of the load on the body and the functional state of the athlete.

Conclusions. The study revealed the most common injuries among Syrian athletes aged 15-17: muscle cramps, muscle tears, sprains.

There were no significant differences in the number and nature of injuries between male and female athletes. However, there are significant differences in tendon rupture, which is absent in boys, but occurs in girls - an empirical chi-square value of 5 was obtained, a tabular value of 3.84 at $p < 0.05$.

The causes of ankle joint injuries are: insufficient warm-up (29.1%), overtraining (16.4%), lack of consideration for the individual characteristics of the athlete (11.6%), insufficient recovery after training (8.5%), poor readiness to perform motor actions (6.9%), unsuitability of places of employment (5.3%).

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