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Orginal Article

Infectious dermatological diseases findings of the wrestlers according to regions

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Abstract

Aim: Dermatologic diseases are commonly found in people engaged in contact sports. Particularly wrestlers can easily contract skin infections. The aim of this study is to reveal the incidence of infectious skin diseases engaged in wrestling athletes living in different climate regions.

Material and Methods: Three hundred nineteen volunteer who actively wrestle in different climate regions of Turkey participated to the research. All of the athletes were asked the questions in the survey of "Personal History and Dermatological Examination Findings of Athlete". The findings and diagnoses of each wrestler were then recorded and evaluated.

Results: Dermatological diseases were observed in 195 (61.12%) Turkish wrestlers, 84 (26.33%) in the eastern region, 43 (13.47%) in the inland region and 68 (21.32%) in the coastal region. These diseases were 118 (36.99%) fungal, 49 (15.36) bacterial and 28 (8.77%) viral, respectively.

It was found that infectious dermatological diseases were observed more frequently in the eastern and coastal regions than inland region and this difference was statistically significant. (P = 0.045).

Conclusion: In this study which is the first study conducted on this issue in sports literature, various infectious dermatological diseases were detected in wrestlers living in different climate regions in Turkey and it was determined that these diseases differ by climate regions.

Keywords: Dermatology; Infectious; Climate; Sport; Wrestling.

INTRODUCTION

Various studies in the the literature report that there are differences in types and incidence of dermatologic diseases found in people living in different climate regions. It has been reported that incidence of dermatologic diseases increases as temperature and humidity rise. Incidence of the bacterial infection-derived skin disease (pyoderma) was found 5.2% in mild region while it was 12.2% in subtropical and 26.8% in tropical region (1). In rural areas of India, incidence of pyoderma was reported to triple in summer compared to winter (2).

Geographical position and formations of Turkey, which is a peninsula surrounded on three sides by the sea, led to different climate types. The climate is cold and arid in the Eastern Region, hot and humid in the Coastal region while continental climate is prevailing in the inland region (3).

Dermatologic diseases are commonly found in people engaged in contact sports. Particularly wrestlers can easily contract skin infections due to frequent skin to skin contact. For this reason, infectious dermatologic diseases can be found more frequently among wrestlers compared to other athletes (4,5).

Kurt A. et al. (6) researched the incidence of infectious skin diseases among athletes engaged in various branches of sports such as wrestling, football, hockey, volleyball, basketball and swimming. Accordingly, the highest incidence of skin infections was detected among wrestlers with 73.8% followed by footballers with 17.9 % and athletes of other branches with 1.2%. It was found that particularly tinea corporis and herpes simplex virus infection is very common among wrestlers (7,8).

There are a good number of studies related to dermatologic diseases found in wrestlers (6,8-10). However, there is no monographic research which detects the incidence of dermatologic diseases among wrestlers living in different climate regions and the differences of these diseases by regions in the literature.

This research aims to detect infectious skin diseases of wrestlers living in various climate regions of Turkey, incidence and distribution of these diseases by regions.

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MATERIAL and METHODS

Research Group

A total of 319 volunteer wrestlers from sports clubs in various provinces and climate of Turkey participated to this study. Research group included currently active athletes who practiced wrestling for at least 2 years.

Dermatological examination was held in either sports hall or dermatology sections in hospitals by dermatologists.

All wrestlers participated to the research were examined by specialist dermatologists and the findings were recorded in "Dermatologic Examination Findings (DEF)" form.

Athlete's history survey

In the athlete history questionnaire, the questions were related to height, weight, sports age and success of the athletes.

Dermatological Examination Findings (DEF)

In this study, DEF questionnaire was formed to detect the incidence of skin infections such as Tinea corporis, Tinea versicolor, Tinea pedis, onychomycosis, Herpes, verruca, folliculitis, impetigo and erythrasma among wrestlers. Questions in the questionnaire were asked to participants by a dermatologist during the examination.

Ethical Committee

For this study, B.30.2.ATA.0.01.00./153 numbered and 08.12.2016 dated approval of Ethical Committee of Clinical Research, Faculty of Medicine at Atatürk University was obtained. The approval of the all volunteers were received orally and in written.

Statistical Analysis

SPSS 22.0 package program was used for the analysis of the obtained data. Chi-square test was used for the analyzed data.

RESULTS

Features of wrestlers taking place in the study are presented in Table (age, weight, height, body mass index (BMI), standard deviation (sd).

Table 1. Physical Features of the Wrestlers

Physical Features	(mean ± sd)
Age (year)	17.50 (± 4.712)
Weight(kg)	61.924 (± 17.34)
Height (cm)	165.50 (± 12.929)
BMI*	22.15 (± 3.85)

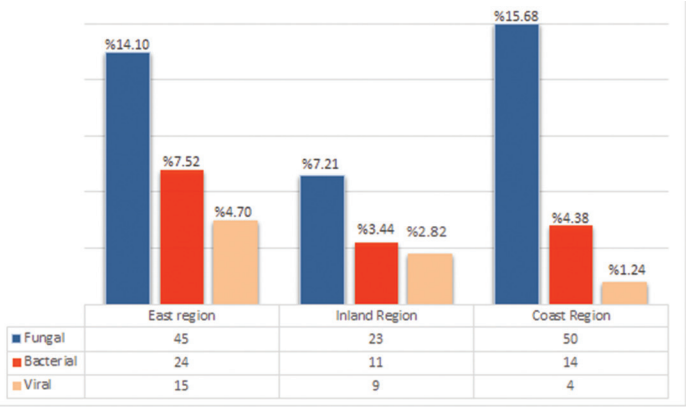
* BMI: Body Mass Index

Of all 319 wrestlers taking part in this study, 195 wrestlers (61.12 %) were diagnosed with skin infections while no infectious dermatologic disease was found in 124 athletes (39.88%) (Table 2).

A total of 84 (26.33%) athletes were diagnosed with infectious dermatologic diseases being fungal in 45 athletes (14.10%); bacterial in 24 athletes (7.52%) and viral skin infection in 15 athletes (4.70%) in the Eastern region.A total of 43 athletes (13.47%) were diagnosed with infectious dermatologic diseases being fungal in 23 athletes (7.21%); bacterial in 11 athletes (3.44%) and viral skin infection in 9 athletes (2.82%) in the inland region. A total of 68 athletes (21.32%) were diagnosed with infectious dermatologic diseases being fungal in 50 athletes (15.68%); bacterial in 14 athletes (4.38%) and viral in 4 athletes (1.24%) in the coastal region. (Table 2), (Graphic 1). When compared incidents of infectious dermatological diseases detected in wrestlers in the eastern and coastal regions with the inland region, it was found that infectious dermatological diseases were observed more frequently in the eastern and coastal regions and this difference was statistically significant. (P = 0.045). (Table 3).

Table 2. Dermatological disease findings of the wrestlers by regions

Eastern Region	(n / %)	Inland region	(n/ %)	Coastal region	(n / %)
Fungal infection	45 (14.10)	Fungal infection	23 (7.21)	Fungal infection	50 (15.68)
Tinea pedis	17 (5.32)	Tinea pedis	8 (2.50)	Tinea pedis	17 (5.32)
Tinea corporis	15 (4.70)	Tinea corporis	12 (3.76)	Tinea corporis	23 (7.22)
Onychomycosis	11 (3.45)	Onychomycosis	0 (0)	Onychomycosis	3 (0.94)
Tinea versicolor	2 (0.63)	Tinea versicolor	3 (0.94)	Tinea versicolor	7 (2.20)
Bacterial infection	24 (7.52)	Bacterial infection	11 (3.44)	Bacterial infection	14 (4.38)
Erythrasma	7 (2.20)	Erythrasma	6 (1.88)	Erythrasma	6 (1.88)
Folliculitis	10 (3.14)	Folliculitis	4 (1.24)	Folliculitis	5 (1.56)
Paronychia	5 (1.56)	Paronychia	1 (0.32)	Paronychia	2 (0.62)
Impetigo	2 (0.62)	Impetigo	0 (0)	Impetigo	1 (0.32)
Viral infection	15 (4.70)	Viral infection	9 (2.82)	Viral infection	4 (1.24)
Verruca	10 (3.14)	Verruca	7 (2.20)	Verruca	3 (0.94)
Herpes simplex	5 (1.56)	Herpes simplex	2 (0.62)	Herpes simplex	1 (0.32)



Graphic 1. Dermatolological disease findings of the wrestlers according to regions

Table 3. Number, percentage and values of dermatological diseases

Eastern Region		Inland Region		Coastal Region		Total		P
n	%	n	%	n	%	n	%	0.045
84	26.33	43	13.47	68	21.32	195	61.12	

In addition, this study detected that out of 195 athletes diagnosed with skin infection during physical examination, 70 (21.94%) athletes had skin infection after they started wrestling and 17 (5.32%) of them consulted to a doctor.

Table 4. The number and percentage of consultation to doctor among wrestlers with dermatologic disease

	Eastern Region	Inland Region	Coastal Region.	Total
Wrestling-induced*	36	16	18	70 (21.94)
Application to Doctor	9	5	3	17 (5.32)

*of wrestlers developed skin infection after they started wrestling

DISCUSSION

Variations in socio-economic levels among societies, genetic factors, nutrition, life style, different geographical and climate conditions lead to great differentiations in incidence and distribution of dermatologic diseases (11-13). Many studies have been conducted on incidence of skin infections among people living in certain climate regions (5,6,14,15).

There are a good number of studies on sports-related dermatologic diseases in the literature. Various data have been revealed in many sport branches such as football (16), athletics (17), rugby (18), ice hockey, wrestling (9,19,20), swimming (21).

In the literature review, it was detected that infectious dermatologic diseases are more commonly found in wrestlers since wrestling is a sport branch in which skin to skin contact is the most common (22-24); related studies focus on wrestlers.

It has been reported that particularly fungal-derived skin infections are commonly found in wrestlers (20-80%) (25,26). The most commonly found fungal infections are Tinea corporis and Tinea pedis (27).

In a study conducted in Turkey, out of 236 Turkish swimmers, 28 (11.9%) were diagnosed with skin infection during dermatologic examination and the most common skin infection was reported Tinea pedis which was found in 15 (6.4%) cases (28).

Tinea corporis was commonly found in novice wrestlers (27). The factors leading to tendency to infections among athletes who started wrestling in early ages are thought to be temperature, humidity, poor hygiene conditions and lack of knowledge about protection from these infections. Therefore, particularly novice wrestlers should pay attention to hygiene rules and suggestions should be made to wrestlers about hygiene rules and protection from skin infections.

In a study conducted on college wrestlers by National Athlete Trainer's Association (NATA), it was reported that one fourth of college wrestlers contract at least one type of skin diseases and these diseases are mostly fungal infections as reported in the present study. It has been reported that fungal skin infections are among three common infectious dermatologic diseases (fungal, bacterial and viral skin infection) (29).

Bacteria-derived dermatologic diseases have been reported as the second most commonly found cutaneous infection following fungal infections. Impetigo was reported to be found with varying rates like 42-46% in different studies (4,20,30). Erythrasma and folliculitis are other common bacterial skin infections (15).

Herpes simplex dermatitis is reported to be the most commonly found infectious dermatologic disease following fungal and bacterial skin infections in wrestlers. It was reported to be commonly found in particularly novice child athletes. Incidence of this infection is reported to vary between 2.6% and 40.5% and the risk of infection is higher since it can easily transmit from skin to skin (31,32).

In their study, Kurt A et al. (6), reported infectious dermatologic disease in 349 (73.6%) wrestlers and infection source is bacterial in 288 (60.6%) cases, fungal in 131 (28.4%) cases and viral in 24 (5.2%) cases. In the present study, contrary to the findings of Kurt A et al. (6), the most commonly found infectious skin disease in Turkish wrestlers was found as fungal infection with 118 (36.99%) cases followed by bacterial infection with 49 (15.36%) cases and viral dermatologic diseases with 28 (8.77%) cases.

Our study is important since it is the first research in the literature which detects the effect of different climate regions on development and incidence of infectious skin disease.

In the present study, the distribution of infectious skin

diseases was analyzed by climate region and agent. Accordingly, a total of 84 (26.33%) athletes were diagnosed with infectious dermatologic diseases being fungal in 45 cases (14.10%); bacterial in 24 cases (7.52%) and viral skin infection in 15 cases (4.70%) in the Eastern region. A total of 43 athletes (13.47%) were diagnosed with infectious dermatologic diseases being fungal in 23 cases (7.21%); bacterial in 11 cases (3.44%) and viral skin infection in 9 cases (2.82%) in the inland region. A total of 68 athletes (21.32%) were diagnosed with infectious dermatologic diseases being fungal in 50 cases (15.68%); bacterial in 14 cases (4.38%) and viral in 4 cases (1.24%) in the coastal region.

As suggested by these findings, incidence of skin infections was found higher in wrestlers living in the eastern and coastal regions compared to the inland region.

In addition, 195 athletes stated that they were diagnosed with skin infection after they started wrestling sport in this study and the number of those who consulted to a doctor was found 17 (5.32%).

In the literature, it has been reported that incidence and distribution of dermatologic diseases in people living in hot and humid climate regions generally increase (3,33,34). However, contrary to this traditional knowledge, incidence of infectious skin diseases was found higher in the eastern region which has relatively colder climate features than the coastal region which is hot and humid. This finding is associated with socioeconomic conditions and education levels of athletes in the eastern region (11,12).

Lower age average in the eastern (17.50) and coastal regions (16.40) where infectious skin diseases are commonly found compared to the inland region (18.80) shows that age factor can also be effective in infection incidence (35). Therefore, it would be more well-directed for young athletes to show more sensitivity to hygiene rules considering the fact that dermatologic problems can be encountered more commonly.

On the other hand, although 195 (61.12%) of 319 Turkish wrestlers were not diagnosed with infectious dermatologic disease, the number (7) (5.32%) of athletes who consulted to doctor is a remarkable issue for athlete health. High incidence of infectious skin diseases among wrestlers is a significant factor which adversely affects athlete's success. In this sense, specific precautions need to be taken (36,37).

In the present study, fungal infections, particularly Tinea corporis and Tinea pedis are the most commonly found infectious dermatologic diseases among wrestlers. Since fungal infections are frequently itchy, they lead to great loss of motivation during training or competition as in many sedentariness. In order to prevent such a case, a dermatologist should be consulted when any skin lesion is noticed with the purpose of protecting athlete's health and sportive performance as well.

CONCLUSION

It has been detected that skin infections are frequently observed among wrestlers living in various climate regions and the incidence differs by climate regions.

This study was presented as a poster at Internatıonal Scıentıfıc And Professıonal Conference On Wrestlıng "Applicable Research in Wrestling" held in Serbia, Novi Sad on 5-7 May 2017.

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