



## اپیدمیولوژی آسیب‌های اسکلتی – عضلانی اندام فوقانی و اندام تحتانی در بین کشتی‌گیران کاراد تالوکا

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### چکیده

**مقدمه:** کشتی ورزش بسیار قدیمی و محبوب در هند است. به دلیل ماهیت این ورزش، نیروی بیومدیکال متعددی در بین ورزشکاران اعمال می‌شوند و منجر به مجروح شدن قسمت‌های مختلف بدن می‌شوند. هدف از این مطالعه، یافتن شیوع جراحات موسکولواسکتال در میان کشتی‌گیران کاراد تالوکا بود.

**مواد و روش‌ها:** ۱۰۰ کشتی‌گیران برای این مطالعه براساس معیارهای شمول و حذف انتخاب شدند. اطلاعات ساختاری جراحات مربوط به کشتی و همچنین داده‌های دموگرافیک آنها گردآوری گردید.

**نتایج:** همه کشتی‌گیران حداقل ۱ ضایعه را گزارش کردند. رایج‌ترین مناطق آسیب دیده بدن در ناحیه اندام تحتانی (۵۷/۱٪) و سپس در ناحیه اندام فوقانی بود (۳۱/۴٪). کشیدگی عضلانی نیز بیشتر در ناحیه اندام تحتانی (۵۷/۱٪) و سپس در ناحیه اندام فوقانی مشاهده شد (۳۱/۴٪). نتیجه‌گیری: آسیب‌های موسکولواسکتال بیشتر در اندام‌های تحتانی و فوقانی کشتی‌گیران مرد کاراد تالوکا شایع است.

**واژه‌های کلیدی:** کشتی، ورزشکاران، ارتوپدی.

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## Introduction

Wrestling has been a very ancient and popular sport in India. It is been traditionally practiced in ashrams or akhadas on a field of dug earth and has been called "Mall yudh" or "Pehlwani".<sup>1</sup> More modern practices are being followed in recent times. Overall in the world, records of ancient Olympic wrestling can be found as far back as 708 B.C.<sup>2</sup> It is a contact sport and its arduous nature, and compulsory physical contact leads to a high injury rate.<sup>3</sup> Wrestling is second in line over football for the frequent amount of injuries among young school athletes. This is despite having the sixth-highest average annual participation of boys in collegiate sports.<sup>4</sup>

It involves the whole body in voluntary and involuntary movements. A variety of biomechanical forces are applied on these athletes due to the very nature of this game, leading to injury to different parts of the body.<sup>2</sup>

Freestyle (FS) and Greco-roman (GR) are two types, practiced over the world in the present time.<sup>5</sup> The difference lies in the type of moves allowed. The Hold and attack activities are allowed to both the upper and the lower extremity in FS wrestling, whereas the lower extremity attacks are not allowed in the GR type.<sup>6</sup> These are associated with a variety of patterns of injuries as a result. In India, Freestyle is the more popular style. A lot of wrestlers tend to start their careers by practicing in FS and shifted to GR style after sustaining injuries to the lower limb. The popularity of this sport in India is evident from the number of medals won in Olympic and World championships by Indian wrestlers.<sup>1</sup>

However, the sport's aggressive nature has led to more injuries that have been rated as high as 30.7 injuries per 1000 athlete-exposures among college wrestlers second only to injury rates among college football players.<sup>7</sup> In a study done by Powell and team, the highest proportion of injuries for which a player missed more than 7 days were for wrestling (32.6%) and baseball (31.0%), with the lowest count for field hockey (20.4%) and softball (22.9%).<sup>8</sup>

Of all the wrestling injuries, those to the knee and shoulder joints are most frequent.<sup>9,10</sup> Jarret et al.<sup>7</sup> evaluated collegiate wrestling injuries over 11 years and found that, next to spring football, wrestling had the highest injury rate. Various authors have reported the knee joint to be the most frequently injured body part. Despite this, Indian wrestling has overall received less attention in the world literature.

Wrestling is can be denoted as a contact sport with extreme physical capability and its practice is naturally associated with an increased incidence of musculoskeletal injuries,<sup>7,10-12</sup> yet there is very little information about these injuries in literature, this study aimed to identify and characterize the musculoskeletal injuries more commonly related to the sport.<sup>10,11</sup> The analysis of the data that will be obtained will help assist in the preparation of preventive measures.

## Materials and Methods

Participants: 100 wrestlers both men and women between the age group of 18 to 35 years; who had at least 1 year of experience in wrestling were selected for the assessment to check for the prevalence of the musculoskeletal injuries associated with wrestling. Wrestlers any history of a recent sports injury or surgery secondary to any previous injury were

excluded from the study. A self-structured questionnaire was used to fill in the demographic data and any other history related to wrestling. The NAIRS (National Athletic Injury Reporting System) was used to assess the severity of the sports-related injury.<sup>13</sup>

Procedure: This research study was presented to the institutional ethics committee of Krishna Institute of medical sciences "Deemed to be" university, Karad and it was conducted at Krishna hospital in Karad, Maharashtra. Concerned participants that were required for the study were approached and the purpose of the study was explained to them. Written informed consent was taken from those willing to participate.

All the data collection sheets were filled in to record the demographic details of these wrestlers and the assessment for finding the prevalence of these musculoskeletal injuries was done. After the collection of the data, all the details were shown to the statistician for further statistical analysis.

Statistical Analysis: It was done using SPSS version 22.0.

## Results

All the wrestlers reported at least 1 lesion. The most commonly injured body regions were at the lower limb region (57.1%) and then at upper limb region (31.4%). Lesions were more frequent in the Lower limb region (45%) and less in the Upper limb region (13%). Sprains were commonly seen in the Lower limb region (34%) as well and followed by Upper limb region (28%).

## Discussion

An author named McLennan has defined sports injury as a condition that limits function prompting the wrestler to seek the help of professionals from the area of health or that causes abandonment of a fight or training, according to the criterion of NAIRS (National Athletic Injury Reporting System).<sup>14</sup> According to the modification of the study by Brynnhildsen et al. and proposed by Cohen et al., the injuries are mainly divided into muscular lesions, tendon injuries, contusions, fractures, dislocations, and sprains, in terms of location, were grouped by segment in lower limbs (thigh, knee, leg, ankle, and foot), upper limbs (shoulder, arm, elbow, forearm, wrist, and hand) and trunk.<sup>15,16</sup>

We believe that a lot of lesions are found to be in these wrestlers as the physical demand is more.<sup>7,10-12</sup> In our study, we do not distinguish between injuries occurring during training and competitions. Agel et al. and Jarrett et al. Have mentioned that extreme traumas occur during training, but the incidence of lesions caused by exposure is about four times greater during competitions.<sup>7,11</sup>

Several anatomical regions are injured as a result of the practice of wrestling.<sup>7,17</sup> We found that the topography with the highest number of lesions were in the lower limb region (45%), followed by the upper limb (13%). Moreover a variety of sprains were found to be more in lower limb region (34.1%), and a bit in the upper limb region (28.6%), which is consistent with the findings of most researchers.<sup>7,11,12,18,19</sup> Only Pasque and Hewett<sup>5</sup>, in a prospective study with adolescent athletes for a season, found a larger number of musculoskeletal lesions in the shoulder (24%) and, in second place, in the knee (17%).

Another aspect addressed was the most frequent types of lesions.<sup>10,20</sup>

The musculoskeletal injuries were found to be more frequent among males (81%) and less in females (19%) as male wrestlers tend to practice more of this sport than females in India setups. A survey was done among 155 wrestlers of which 56% were females, with a mean age of 19.8 years. They concluded that wrestling was considered to be a violent and gendered form of entertainment.<sup>21</sup> Hence, gender differences exist with females more likely to see wrestling as a form of entertainment as compared to males. Also, women are more likely to see wrestling as violent sport, they tend to see wrestling as more suited for men to participate.<sup>22</sup> In accordance to age it was found to be common among wrestlers between the age group of 18-25 years (23.44±1.82). The difficulty in the comparison of data among studies is due to the absence of a uniform standard in the classification of lesion types.<sup>4</sup> The types of lesion most frequently reported in our study were sprains (34.5%) and muscle lesions (30.4%), which is in line with the results presented in few literatures.<sup>10,12</sup> These researchers have noted that contusions are the third most common lesion in wrestlers, unlike our data in which contusions were the least frequent lesions. The retrospective nature of the data gathering based on interviews might justify this discrepancy, since contusions, which are generally lesions of lesser morbidity and shorter length of absence from the sport, may have been underreported in our survey.<sup>12</sup>

Conclusion: Epidemiology of musculoskeletal Injuries of both the upper and lower extremities was found to be high among the wrestlers of Karad. It was found to be more common in males and less in females. Lesions and sprains were found to be more frequent in the lower limb region of the body.

**Table 1. Age wise distribution for musculoskeletal injuries among wrestlers**

Age Group	Mean±SD	P.V
18-25 years	23.44±1.82	<0.0001
26-30 years	28.61±1.31	0.0017
31-35 years	32.15±1.38	0.0053

**Table 2. Gender wise distribution for musculoskeletal injuries among wrestlers**

Gender	Percentage
- Male	81%
- Female	19%

**Table 3. Common sites of musculoskeletal injuries in wrestlers**

Common Site of Injuries	Percentage
Upper Limb	31.4%
Lower Limb	57.1%

**Table 4. Distribution of various Lesions in Wrestlers**

Lesions	Percentage
Upper Limb	13%
Lower Limb	45%

**Table 5. Distribution of a variety of sprains in Wrestlers**

Sprain	Percentage
Upper Limb	28.6%
Lower Limb	34.1%

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## Musculoskeletal Injuries of Both the Upper and Lower Extremities Among Wrestlers from Karad Taluka

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### Abstract:

**Introduction:** Wrestling has been a very ancient and popular sport in India. A variety of biomechanical forces are applied on these athletes due to the very nature of this game, leading to injury to different parts of the body. This study aimed to find the prevalence of musculoskeletal injuries among wrestlers from the taluka of Karad.

**Methods:** 100 wrestlers were selected for this study based on the inclusion and exclusion criteria. They completed a structured questionnaire to assess for any injuries regarding wrestling and also their demographic data was recorded.

**Results:** All the wrestlers reported at least 1 lesion. The most commonly injured body regions were at the lower limb region (57.1%) and then at upper limb region (31.4%). Lesions were more frequent in the Lower limb region (45%) and less in the Upper limb region (13%). Sprains were commonly seen in the Lower limb region (34%) as well and followed by Upper limb region (28%).

**Conclusion:** Musculoskeletal injuries of both the upper and lower extremities was found to be high among the wrestlers of Karad. It was found to be more common in males and less in females. Lesions and sprains were found to be more frequent in the lower limb region of the body.

**Keywords:** Wrestling, Orthopaedic, Athletes.

Conflict of Interest: No

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