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PREVALENCE OF SHOULDER INJURIES AMONG SPORTSMEN IN BAHAWALPUR

Original Research

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ABSTRACT

Background: Shoulder injuries are a growing concern in the sports community due to their impact on functional performance, pain, and athlete well-being. These injuries are commonly linked to overuse, poor biomechanics, and inadequate training, particularly in overhead sports. Female athletes are often found to be at higher risk, possibly due to anatomical and physiological differences. Identifying the prevalence of such injuries within specific populations can aid in developing preventive and rehabilitative strategies.

Objective: To determine the prevalence of shoulder injuries among sportsmen in Bahawalpur using a standardized pain and disability assessment tool.

Methods: This cross-sectional observational study was conducted from September to November 2023 in Bahawalpur. A total of 385 male and female sports participants, aged 18 to 30 years, were recruited using a non-probability convenience sampling technique. Data were collected using the validated Shoulder Pain and Disability Index (SPADI) questionnaire. The participants were selected from various sports including volleyball, cricket, football, swimming, rugby, badminton, kabaddi, hockey, wrestling, boxing, and tennis. SPSS version 27.0 was used for statistical analysis, and ethical approval was granted by the Institute Research Committee of the Agile Institute of Rehabilitation Sciences.

Results: Of the 385 participants, 320 (83.1%) were male and 65 (16.9%) were female. The age distribution included 164 participants aged 18–21 years, 206 aged 22–27 years, and 15 aged 28–30 years. SPADI scores indicated that 43.6% of cases fell within the moderate severity range. The highest prevalence of shoulder injuries was noted in volleyball players (13%), with the greatest age-specific prevalence seen at 28 years (12%). Female participants exhibited a slightly higher prevalence (38%) compared to males (37%).

Conclusion: The findings suggest that shoulder injuries are more prevalent in overhead sports, with increased occurrence in older and female athletes. Sports such as volleyball, football, swimming, rugby, and hockey showed the highest injury rates among Bahawalpur athletes.

Keywords: Athletes, Cross-sectional studies, Overuse injury, Shoulder joint, Sports injuries, SPADI, Volleyball.

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INTRODUCTION

Shoulder joint injuries are among the most commonly encountered musculoskeletal issues in clinical and sports medicine, often presenting as a combination of pain, restricted motion, and functional limitations. These injuries are multifactorial in origin, with causes ranging from acute trauma to chronic overuse, and are frequently misdiagnosed as shoulder periarthritis due to overlapping symptomatology. Of the various types, rotator cuff pathology, shoulder sleeve injuries, and glenoid labrum (lip) injuries are particularly prevalent. Athletes involved in overhead sports such as tennis, volleyball, and hockey are at significantly higher risk, but even individuals participating in lower-impact activities like swimming, golf, and cricket are not exempt (1). Notably, a lack of research on cricket players underscores a gap in the current literature, especially in understanding the role of muscular imbalance among rotator cuff muscles as a contributing factor to injury (2). The mechanical complexity of the shoulder joint renders it highly vulnerable to both traumatic and repetitive stress-related injuries. Epidemiological data suggest that while sports-related fatalities and serious injuries are rare, musculoskeletal trauma is relatively common, with strains, sprains, dislocations, tendon ruptures, fractures, and chronic inflammatory conditions like tendinitis and bursitis constituting the bulk of diagnoses (3). Chronic shoulder injuries often manifest as persistent pain, weakness, instability during functional activities, and disturbed sleep, significantly impacting athletic performance and daily life (4). Rotator cuff degeneration, particularly involving the supraspinatus or infraspinatus, is frequently observed in overhead athletes, where excessive and repetitive eccentric loading contributes to partial-thickness articular surface tears (5,6).

Overuse syndromes are particularly concerning in overhead sports, where tendinitis or tendinosis results not from a single traumatic event but rather from repetitive mechanical stress. These conditions are exacerbated during the early training season, especially in athletes who have not undergone adequate pre-season conditioning (7). Additionally, shoulder injuries may not only arise from gameplay but also from improper techniques during resistance training, including exercises like the bench press and lat pull-down, where poor form and lack of biomechanical alignment increase injury risk (8,9). Tennis serves as a prominent example of an overhead sport with high incidence of shoulder injuries. The sport requires both aerobic and anaerobic output, placing significant stress on the dominant shoulder due to repetitive motions. Alarmingly, despite experiencing shoulder pain, many players fail to alter their training regimens, thereby aggravating injuries and prolonging recovery. According to the 2009 Consensus Statement on Injury Recording in Tennis, injuries should be recorded regardless of time lost, with severity measured by days missed from full training and match participation. However, accurately classifying injury severity remains challenging, especially for players who do not fully return to play (10).

The rotator cuff muscles, especially those of the posterior capsule, are subject to microtrauma due to high eccentric loads and limited internal rotation range, common in throwing athletes like fast bowlers in cricket. These stresses often lead to rotator cuff and biceps tendinitis, further limiting functional performance (11). Structural injuries such as clavicle fractures or labral tears (e.g., SLAP lesions) also compromise shoulder movement, presenting with symptoms like mechanical popping, decreased range of motion, and "dead arm" syndrome, particularly in sports involving repetitive overhead motions such as gymnastics, swimming, and baseball (12). Given the high prevalence and multifaceted nature of shoulder injuries in athletes, especially those engaged in overhead sports, there is a pressing need for comprehensive evaluation of associated risk factors. Previous studies consistently identify overuse, poor training techniques, and muscular imbalances as major contributors to these injuries. Despite growing recognition of the issue, a detailed understanding of the mechanisms in sport-specific populations remains insufficient. Therefore, the objective of the present study is to assess the prevalence, characteristics, and contributory factors of shoulder joint injuries among overhead sports athletes, with a particular focus on under-researched populations such as cricket players.

METHODS

This cross-sectional observational study was conducted to evaluate the prevalence of shoulder injuries among sportsmen in Bahawalpur. The data collection sites included the Islamia University Sports Promoting Complex and the District Sports Complex in Bahawalpur. The study was carried out over a three-month period, from September 1 to November 30, 2023. The estimated population of registered sportsmen in the region was approximately 10,000. Using the Raosoft sample size calculator (http://www.raosoft.com/samplesize.html), a sample of 385 participants was determined at a 95% confidence level with a 5% margin of error. A convenience sampling method, a

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form of non-probability sampling, was used to recruit participants based on accessibility and willingness to participate. Inclusion criteria encompassed male and female athletes aged between 18 and 30 years (13), actively participating in sports such as cricket, wrestling, boxing, rugby, football, hockey, volleyball, tennis, badminton, swimming, and kabaddi. Eligible participants were those with no medical restrictions preventing them from engaging in the mentioned sports, and who trained for more than eight hours per week (14). Exclusion criteria included athletes with a history of autoimmune diseases (15) or those who had undergone shoulder surgery (16), as these factors could confound the assessment of shoulder function and pain. The primary data collection tool used in this study was the Shoulder Pain and Disability Index (SPADI), a validated self-reported questionnaire designed to assess pain and disability associated with shoulder pathology. The SPADI evaluates two domains—pain and functional impairment—using a series of Likert-scale questions, making it suitable for both clinical and research contexts. Participants who met the inclusion criteria were provided with the SPADI questionnaire, and informed consent was obtained prior to data collection. Ethical approval for the study was obtained from the Institute Research Committee (IRC) of the Agile Institute of Rehabilitation Sciences. Data were collected and subsequently entered and analyzed using SPSS version 27.0. Descriptive statistics were used to present the demographic and clinical characteristics of participants, and the results were displayed using appropriate tables and graphs for clarity.

RESULTS

A total of 385 sportsmen participated in the study. The majority of the participants (42.5%) belonged to the 18–21 year age group, followed by 33.7% in the 22–24 year range, while only 3.8% were in the 28–30 year group. Males comprised 83.1% of the sample, and females represented 16.9%. Participants were selected from a variety of sports, with hockey being the most represented (31%), followed by swimming (24%). Kabaddi was the least represented at 5%. The overall prevalence of shoulder injuries varied by sport. Volleyball reported the highest prevalence at 13%, followed by football at 12%. Cricket, hockey, swimming, and rugby each had 11%, while the lowest prevalence was observed in kabaddi and badminton at 7% each. Age-wise, the prevalence of shoulder injuries gradually increased with age, peaking at 28 years with a prevalence rate of 12%. The lowest prevalence was recorded at 29 and 30 years, both with 6%. Gender-based analysis revealed a slightly higher prevalence of shoulder injuries among female athletes (38%) compared to males (37%), with corresponding SPADI mean scores of 49.5 and 48.3, respectively. Among the sports, volleyball had the highest mean SPADI score of 61.2, followed by football at 60.2. The lowest mean SPADI score was noted in badminton (34.2), closely followed by kabaddi (34.9) and wrestling/boxing (37.0).

Assessment of SPADI scores according to age revealed the highest mean score at age 28 (76.2), indicating more severe symptoms, while the lowest scores were observed at ages 29 (36.7) and 30 (38.0). Most other age groups had moderate SPADI mean values ranging between 43.6 and 53.2. From the total dataset, 352 valid SPADI responses were recorded. In the pain subscale, the scores ranged from 0 to 50 with a mean of 19.86 (SD ±11.36). In the disability subscale, the score ranged from 0 to 80 with a mean of 29.15 (SD ±18.27). The combined SPADI score, ranging from 0 to 130, was used to classify severity: 20.5% of participants had mild shoulder pain and disability, 43.6% were categorized as moderate, and 35.8% were classified as severe.

Table 1: Demographics of Participants

Age group (in years)	**Frequency**	**Percentage**	
18-21	164	42.5	
22-24	130	33.7	
25-27	76	19.7	
28-30	15	3.8	
Total	385	100.0	
Gender	Frequency	Percentage	Valid Percentage
Male	320	83.1	83.1
Female	65	16.9	16.9
Total	385	100.0	100.0

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Table 2: Prevalence of Shoulder Injuries According to Sports and age

Sports	**Prevalence of Shoulder Injuries**
Volleyball	13%
Cricket	11%
Football	12%
Hockey	11%
Swimming	11%
Rugby	11%
Tennis	9%
Badminton	7%
Wrestling and boxing	8%
Kabaddi	7%
Ages (in years)	Prevalence of Shoulder Injuries
18	7%
19	7%
20	8%
21	7%
22	7%
23	8%
24	8%
25	8%
26	8%
27	8%
28	12%
29	6%
30	6%

Table 3: SPADI Mean and Percentage of Shoulder Injuries According to Gender and sports

Gender	**SPADI MEAN**	**Prevalence of Shoulder Injuries**
Male	48.3	37%
Female	49.5	38%
Sports	Frequency	Mean SPADI
Volleyball	18	61.2
Cricket	16	50.9
Football	23	60.2
Hockey	118	53.8
Swimming	91	53.9
Rugby	44	51.6
Tennis	26	46.1
Badminton	12	34.2
Wrestling and boxing	16	37.0
Kabaddi	21	34.9

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Table 4: SPADI Score Mean According to the Ages of Sportsmen

Ages of Sportsmen (in years)	Frequency	SPADI Mean
18	34	46.9
19	49	43.6
20	55	49.8
21	26	43.6
22	40	46.1
23	48	48.8
24	42	51.5
25	36	53.2
26	30	53.1
27	10	48.8
28	7	76.2
29	4	36.7
30	4	38.0

Table 5: Pain and Disability Mean (SPADI Scores)

Category	Identified cases	Minimum Score	Maximum Score	Mean	Std. Deviation
Disability	352	0	80	29.15	18.272
Pain	352	0	50	19.86	11.358

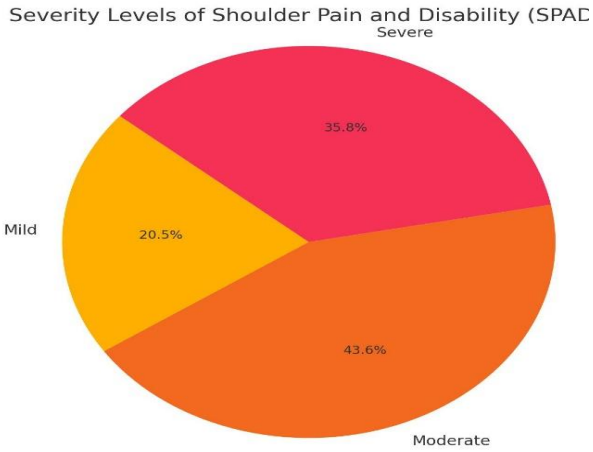

Figure 1 Severity Levels of Shoulder Pain and Disability (SPAD)

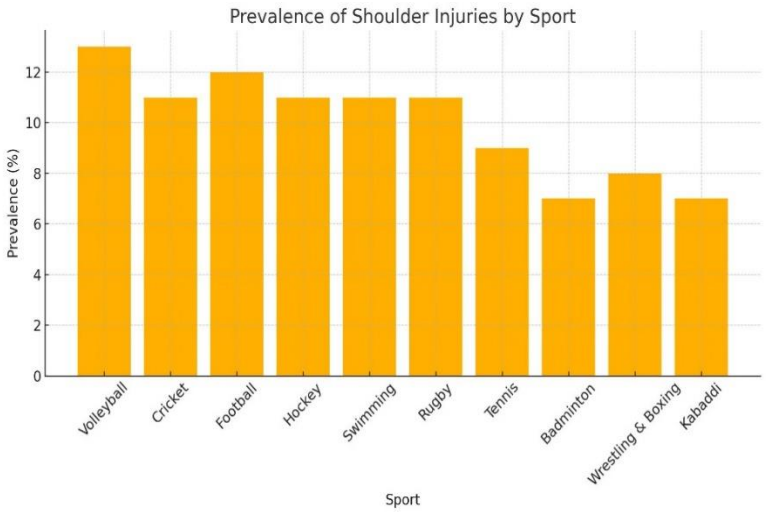

Figure 2 Prevalence of Shoulder Injuries by Sport

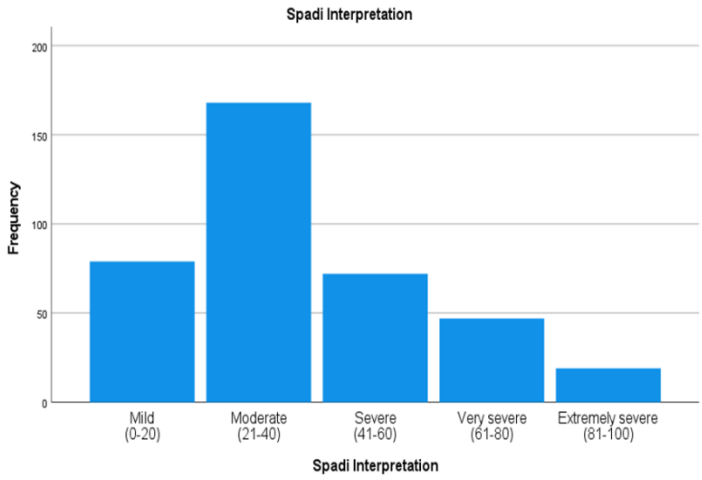

Figure 3 Spaid Interpretation

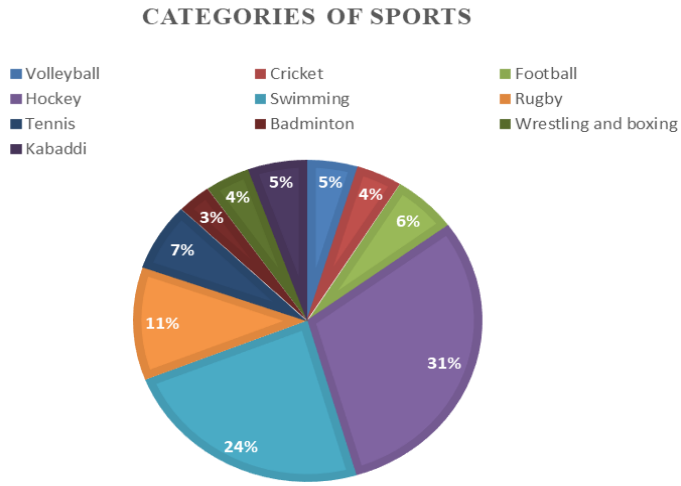

Figure 4 Categories of Sports

DISCUSSION

The findings of this study demonstrated a notable prevalence of shoulder injuries among sportsmen in Bahawalpur, with slightly higher rates observed in female athletes (38%) compared to males (37%). This aligns with previous research conducted on tennis players, where shoulder injuries were found in 35% of all players, with a considerably higher prevalence in women (47.4%) than men (26.9%) (17). The greater vulnerability among female athletes may be attributed to anatomical, hormonal, or biomechanical differences, which necessitate tailored training and preventive strategies. In sport-specific comparisons, volleyball exhibited the highest prevalence of shoulder injuries (13%), consistent with the high-frequency overhead movements characteristic of the game. This trend was further supported by SPADI scoring, where volleyball players reported the highest mean value. Conversely, the current study reported a prevalence of 11% in rugby players, closely resembling previous findings from schoolboy rugby where the incidence reached 12.2% (18). Despite methodological differences, this indicates a consistent risk of shoulder injury in contact-intensive sports.

In badminton, the present study found a prevalence of 7%, which is significantly lower than the 11.8% reported in a prior cross-sectional analysis that highlighted the repetitive upper limb motions as a major risk factor (19). Wrestling also showed an 8% prevalence in this study, which contrasts with higher rates (27.4%) observed among elite South Korean wrestlers (20). The discrepancy could be attributed to variations in training intensity, athlete level, or reporting methodology. Football players in this study had a shoulder injury prevalence of 12%, which is markedly higher than the 4.3% documented in a professional football injury surveillance report (21). However, this variation may reflect population differences between recreational and elite athletes, as well as potential underreporting in previous datasets. Swimming-related shoulder injury prevalence was recorded at 11%, substantially lower than the 49.1% noted in a prior cross-sectional study among young swimmers (22). The lower prevalence in this study might be influenced by less intense competitive exposure or fewer cumulative swimming hours per week. It is also notable that the previous research highlighted a higher burden of shoulder pain among female swimmers, a trend partially supported by this study's gender-wise analysis.

Comparative literature on upper extremity injuries in ice hockey showed a prevalence of 29.1% in males and 13.8% in females (23), contrasting with the current findings where female sportsmen showed a slightly higher prevalence. The differences may be linked to sport-specific demands, as well as protective gear and playing environment. Interestingly, a study on handball players recorded an average overuse shoulder injury prevalence of 38.4%, much higher than the present findings across all sports (24). The higher rates could stem from the repetitive high-velocity throwing mechanics and minimal recovery periods in handball. The strength of this study lies in its inclusion of a broad spectrum of sports and a well-defined age group, which allowed for a comprehensive evaluation of shoulder injury patterns in a localized athletic population. The use of the SPADI tool provided quantifiable insights into pain and functional impairment, adding clinical depth to the prevalence data. However, the study had limitations, including the use of a non-

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probability convenience sampling method, which may introduce selection bias and limit generalizability. Additionally, the reliance on self-reported data without clinical or imaging confirmation may have led to under- or overestimation of injuries.

The cross-sectional design restricted the ability to establish causality or monitor the progression of symptoms over time. Future studies should incorporate longitudinal follow-up, objective clinical evaluations, and multi-center data collection to enhance the robustness of findings. Incorporating biomechanical assessments and preventive training protocols could also provide valuable insights into modifiable risk factors. Despite these limitations, the findings highlight a critical need for preventive strategies, early diagnosis, and sport-specific rehabilitation programs, especially in sports with high shoulder injury prevalence. Special attention should be given to female athletes and those involved in repetitive overhead activities, as they appear to be at heightened risk.

CONCLUSION

This study concluded that shoulder pain and disability are notably prevalent among sportsmen involved in overhead sports, with increased vulnerability observed in older and female athletes. The higher occurrence of shoulder injuries in specific sports such as volleyball, football, hockey, swimming, and rugby highlights the physical demands and repetitive stress placed on the shoulder joint in these disciplines. These findings emphasize the need for early preventive strategies, targeted training modifications, and sport-specific rehabilitation programs to address shoulder health in athletes. The study contributes valuable regional insight into shoulder injury trends among sportsmen in Bahawalpur, reinforcing the importance of structured monitoring and injury prevention protocols in athletic settings.

AUTHOR CONTRIBUTION

Author	Contribution
Shahzaib Munir	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Muhammad Usama Ishfaq*	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Muzammil Nisar	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Muhammad Athar Khan	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Muhammad Waqas	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Ameer Humza Bin Talib	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

REFERENCES

1. Liu S, Cui B, Liang C. Rehabilitation strategies and magnetic resonance imaging techniques for shoulder injuries in sports. Journal of Radiation Research and Applied Sciences. 2024;17(1):100813.
2. Maryam S, Malhotra D, Khan SA, Singla D, Zaidi S. Shoulder rotator muscle imbalance in collegiate cricket bowlers: Measurement by Isokinetic Dynamometer at different angular velocities. Measurement: Sensors. 2022;24:100556.
3. Iona T, Raimo S, Coco D, Tortella P, Masala D, Ammendolia A, et al. Specialization and injury risk in different youth sports: a bio-emotional social approach. Frontiers in psychology. 2022;13:818739.
4. Gibson ES, Cairo A, Räisänen AM, Kuntze C, Emery CA, Pasanen K. The Epidemiology of Youth Sport-Related Shoulder Injuries: A Systematic Review. Translational Sports Medicine. 2022;2022.
5. Harmath D, Kazemi M, Côté P, Boynton E. The one-week prevalence of overuse-related shoulder pain and activity limitation in competitive tennis players living in Toronto: a feasibility study. The Journal of the Canadian Chiropractic Association. 2022;66(1):33.

6. Watson L, Hoy G, Wood T, Pizzari T, Balster S, Barwood S, et al. Posterior shoulder instability in tennis players: aetiology, classification, assessment and management. International Journal of Sports Physical Therapy. 2023;18(3):769.
7. Walter S. Shoulder injuries of cricket fast bowlers in New Zealand. University of Canterbury. New Zealand. 2020.
8. Gibson ES, Eliason PH, West SW, Black AM, Lebrun C, Emery CA, et al. Shoulder check: investigating shoulder injury rates, types, severity, mechanisms, and risk factors in Canadian youth ice hockey. Clinical journal of sport medicine. 2022:10.1097.
9. Lau R, Mukherjee S. Prevalence of Shoulder and Elbow Overuse Injuries Among Competitive Overhead Youth Athletes in Singapore. Orthopaedic Journal of Sports Medicine. 2023;11(3):23259671231156199.
10. Hogan C, Corbett J-A, Ashton S, Perraton L, Frame R, Dakic J. Scapular dyskinesis is not an isolated risk factor for shoulder injury in athletes: a systematic review and meta-analysis. The American Journal of Sports Medicine. 2021;49(10):2843-53.
11. López-Vidriero Tejedor R, Laver L, López-Vidriero Tejedor E. Professional tennis players suffer high prevalence of shoulder alterations during the season: a possible tennis shoulder syndrome. Knee Surgery, Sports Traumatology, Arthroscopy. 2023;31(6):2152-9.
12. Marchena-Rodriguez A, Gijon-Nogueron G, Cabello-Manrique D, Ortega-Avila AB. Incidence of injuries among amateur badminton players: A cross-sectional study. Medicine. 2020;99(18):e19785.
13. de Souza Lima EB, Belangero PS, Lara PHS, Ribeiro LM, de Figueiredo EA, Andreoli CV, et al. Shoulder injuries in Brazilian professional football players: epidemiological analysis of 3828 games. Journal of ISAKOS. 2024.
14. Suzuki Y, Maeda N, Sasadai J, Kaneda K, Shirakawa T, Urabe Y. Ultrasonographic evaluation of the shoulders and its associations with shoulder pain, age, and swim training in masters swimmers. Medicina. 2020;57(1):29.
15. Achenbach L, Huppertz G, Zeman F, Weber J, Luig P, Rudert M, et al. Multicomponent stretching and rubber band strengthening exercises do not reduce overuse shoulder injuries: a cluster randomised controlled trial with 579 handball athletes. BMJ Open Sport & Exercise Medicine. 2022;8(1):e001270.
16. Bagnoli P, Ferrarello F, Pini F, Rossi D, Paci M. Shoulder injuries in amateur soccer players. An exploratory cross-sectional survey. Phys Ther Sport. 2025;72:77-85.
17. Leenen AJR, Hoozemans MJM, van Dis F, van der Graaff E, Veeger HEJ, Verhagen E. Shoulder and Elbow Symptoms in Dutch High School Baseball Pitchers: Results of a Two-Season Prospective Study. J Athl Train. 2024;59(11):1118-25.
18. López-Vidriero Tejedor R, Laver L, López-Vidriero Tejedor E. Professional tennis players suffer high prevalence of shoulder alterations during the season: a possible tennis shoulder syndrome. Knee Surg Sports Traumatol Arthrosc. 2023;31(6):2152-9.
19. Lambert C, Ritzmann R, Lambert S, Lachmann D, Malliaropoulos NG, Gesslein M, et al. Prevalence of sport injuries in Olympic combat sports: a cross-sectional study examining one Olympic period. J Sports Med Phys Fitness. 2022;62(11):1496-504.
20. Harada Y, Yokoya S, Sumimoto Y, Iwahori Y, Kajita Y, Deie M, et al. Prevalence of Rotator Cuff Tears Among Older Tennis Players and Its Impact on Clinical Findings and Shoulder Function. J Sport Rehabil. 2022;31(7):849-55.
21. Matsuura Y, Hangai M, Koizumi K, Ueno K, Hirai N, Akuzawa H, et al. Injuries and physical characteristics affecting swimmer participation in the Olympics: A prospective survey. Phys Ther Sport. 2020;44:128-35.
22. Møller M, Isaksen Johansen S, Myklebust G, Nielsen RO, Möller S, Mikkelsen U, et al. Health problems and injury management in adolescent handball: the Safeplay one-season cohort study of 679 players. Br J Sports Med. 2024;59(1):65-74.
23. Liu Y, Huang H, Yang Y, Huang Y. Global prevalence and pattern of injuries in basketball players: a systematic review. J Sports Med Phys Fitness. 2025;65(3):428-37.
24. O'Connor S, Huseyin OR, Whyte EF, Lacey P. A 2-year prospective study of injuries and illness in an elite national junior tennis program. Phys Sportsmed. 2020;48(3):342-8.