BJIHS
ISSN 2674-8169
Qualis B3 CAPES 2021-2024 | Latindex | DOI | Google Acadêmico

ANALYSIS OF INJURIES AMONG THE BRAZILIAN DELEGATION AT THE SOUTH AMERICAN SCHOOL GAMES – A CROSS-SECTIONAL STUDY

Igor Borges Silva[1]; Ayla Karolina Americo Lima Souza[2]; Suziany dos Santos Caduda[1]; Thaís Santos Tavares[1]; Domingos Corrêa Júnior[3]; Jorge Augusto Almeida Garcez[3]; Annita Victória Braz Borges[2]; Antonio Hora Filho[4]; José Aderval Aragão[5]; Walderi Monteiro da Silva Junior[6]

https://doi.org/10.36557/2674-8169.2026v8n5p2180-2197
Artigo recebido em 29 Abril e publicado em 29 de Maio de 2026

ARTIGO ORIGINAL

RESUMO

Este estudo epidemiológico transversal teve como objetivo analisar o perfil das lesões musculoesqueléticas entre atletas brasileiros participantes dos Jogos Escolares Sul-Americanos de 2023, realizados em Santiago, Chile, e Assunção, Paraguai. Um total de 202 atletas com menos de 15 anos, provenientes de diferentes modalidades esportivas, foi avaliado por meio de um sistema de vigilância de lesões baseado em atendimentos fisioterapêuticos de urgência e ambulatoriais durante as competições. Variáveis relacionadas ao sexo, tipo de lesão, localização anatômica, mecanismo da lesão, abordagem terapêutica e encaminhamento hospitalar foram analisadas utilizando estatística descritiva, teste do qui-quadrado e teste exato de Fisher ($p < 0,05$). Foram realizados 272 atendimentos fisioterapêuticos, predominantemente entre atletas do sexo feminino (57,4%). O atletismo apresentou o maior número de atendimentos (34,2%), seguido do judô (14,7%) e do basquetebol (12,1%). As lesões musculares (47,9%) e articulares (40,4%) foram as mais frequentes, acometendo principalmente os membros inferiores, especialmente joelho, coxa e tornozelo. A maioria das lesões foi atraumática (84,9%) e conduzida em nível ambulatorial (59,9%), com baixa taxa de encaminhamento hospitalar (6,6%). Não foram observadas diferenças significativas entre os sexos quanto ao tipo ou à localização das lesões. Esses achados sugerem que lesões não traumáticas em membros inferiores apresentam elevada prevalência entre atletas escolares brasileiros e podem contribuir para o desenvolvimento de estratégias preventivas e para o planejamento da assistência à saúde em competições multiesportivas juvenis.

Palavras-chave: Lesão; Sistema de Vigilância em Saúde; Estudos Epidemiológicos;

Medicina do Esporte; Atletas.

ANALYSIS OF INJURIES AMONG THE BRAZILIAN DELEGATION AT THE SOUTH AMERICAN SCHOOL GAMES – A CROSS-SECTIONAL STUDY

ABSTRACT

This cross-sectional epidemiological study aimed to analyze the profile of musculoskeletal injuries among Brazilian athletes participating in the 2023 South American School Games held in Santiago, Chile, and Asunción, Paraguay. A total of 202 under-15 athletes from different sports disciplines were evaluated through an injury surveillance system based on emergency and outpatient physiotherapy care during the competitions. Variables related to sex, injury type, anatomical location, injury mechanism, therapeutic approach, and hospital referral were analyzed using descriptive statistics, chi-square test, and Fisher's exact test ($p < 0.05$). A total of 272 physiotherapeutic consultations were performed, predominantly among female athletes (57.4%). Athletics presented the highest number of consultations (34.2%), followed by judo (14.7%) and basketball (12.1%). Muscle injuries (47.9%) and joint injuries (40.4%) were the most frequent, mainly affecting the lower limbs, especially the knee, thigh, and ankle. Most injuries were atraumatic (84.9%) and managed on an outpatient basis (59.9%), with a low hospital referral rate (6.6%). No significant differences were observed between sexes regarding injury type or injury location. These findings suggest that non-traumatic lower-limb injuries are highly prevalent among Brazilian school athletes and may contribute to the development of preventive strategies and healthcare planning in youth multisport competitions.

Keywords: Injury; Health Surveillance System; Epidemiological Studies; Sports Medicine; Athletes.

Instituição afiliada
[1] PhD student in the Postgraduate Program in Health Sciences at the Federal University of Sergipe, Aracaju, Sergipe, Brazil, and Physiotherapist at the Brazilian Confederation of School Sports, Brasília, Federal District, Brazil.
[2] PhD student in the Postgraduate Program in Movement Sciences at the Federal University of Sergipe, Aracaju, Sergipe, Brazil.
[3] Physiotherapist at the Brazilian Confederation of School Sports, Brasília, Federal District, Brazil.
[4] President of the Brazilian Confederation of School Sports (CBDE), Brasília, Federal District, Brazil.
[5] Titular Professor of Clinical Anatomy, Department of Morphology, Federal University of Sergipe (UFS), Aracaju, Sergipe, Brazil.
[6] Professor in the Department of Physical Therapy at the Federal University of Sergipe, Aracaju, Sergipe, Brazil

Autor correspondente: *Igor Borges Silva* igor_fisio@yahoo.com.br Tel.: +55 (79) 98105-5725.

Introduction

The South American School Games are a continental-level event that brings together school-aged athletes (12 to 18 years old) from various sports disciplines, organized by the South American Sports Council (CONSUDE). These events aim to promote sports development and cultural exchange among countries. However, due to exposure to long training periods and the competitive nature of sporting events, these athletes are more susceptible to sports-related injuries. In this context, the importance of developing effective strategies to investigate and, consequently, prevent such events is highlighted, minimizing risks and promoting safe sports practices (Prieto-González et al., 2021).

Injury surveillance and epidemiological studies are essential tools for protecting athletes' health, enabling the identification of occurrence patterns (Bahr et al., 2020). Sports surveillance studies conducted by the International Olympic Committee (IOC) have reported the incidence of injuries during competitions across different sports disciplines (Engebretsen et al., 2013; Soligard et al., 2017a). In this context, the IOC, National Olympic Committees, and Sports Federations are organizations that play a fundamental role in regulating sports practice by adopting injury surveillance systems in multisport events.

The aim of monitoring is to characterize the mechanism, type, and location of injuries, enabling the development of specific preventive strategies for each sport discipline (Engebretsen et al., 2008). The healthcare teams of sports federations themselves act as surveillance agents in multisport competitions due to their close contact with athletes and extensive epidemiological knowledge. Furthermore, these teams adopt therapeutic approaches aimed at minimizing the effects of injuries and maintaining athletes' performance during competition (Ferreira; Veneziano, 2022).

Although several epidemiological studies have analyzed sports competitions involving young athletes worldwide (Belilos; Jow; Maxwell, 2023; Moseid et al., 2018; Prieto-González et al., 2021) there is still a scarcity of epidemiological evidence focused on Brazilian school athletes. Therefore, this study aims to analyze aspects related to the prevalence of injuries recorded in the Brazilian delegation during the South American School Games, contributing to the improvement of injury surveillance and the

promotion of athletes' health.

MATERIALS AND METHODS

Study Design

This cross-sectional epidemiological study retrospectively examined data on musculoskeletal injuries among Brazilian athletes participating in the South American School Games. Data collection took place during the competitions held in Santiago, Chile, from December 4 to 9, 2023, and in Asunción, Paraguay, from October 1 to 15.

Participants

The sample was selected by convenience sampling and included all 202 athletes from the Brazilian national delegation under 15 years of age, with equal representation of both sexes, who were selected for the competitions. Injuries occurring during the competitions were included in the study, whereas injuries sustained before the beginning of the competitions were excluded from the epidemiological outcomes of the study.

Ethical Aspects

The Ethics Committee of the Brazilian Confederation of School Sports (CBDE) and the Research Ethics Committee of the Federal University of Sergipe (CAAE: 75797323.1.0000.5546, approved in 2023) reviewed and approved the study, authorizing the analysis of the Confederation's database. In addition, the participants' technical supervisors signed the Informed Consent Form, confirming the absence of conflicts of interest, publications, or any direct involvement of the athletes in this study.

Procedures

The injury surveillance system was organized to ensure that data collection was standardized during both competitions. It consisted of monitoring athletes during official matches (emergency care) and at healthcare centers (outpatient care). The data collection team was composed of physiotherapists who received standardized training regarding assessment procedures, form completion, and therapeutic interventions in order to avoid errors in data collection. In addition, two technical supervisors reviewed the data daily throughout the competition period to minimize the risk of bias.

The following information was collected: registration number and personal

identification document number, demographic data (name, place of birth, age, and sex), sport discipline, primary injury, anatomical location and type of injury, occurrence of traumatic brain injury (concussion), therapeutic resources used, and the need for withdrawal from competition or hospital referral. The competition included the following sports disciplines: athletics, judo, chess, table tennis, basketball, handball, futsal, swimming, para-athletics, para-swimming, and volleyball, all of which were analyzed individually.

Injuries were classified according to the type of tissue affected, including: bone, muscle, tendon, joint, and/or Functional Neurological Disorder (FND), which is a psychological disorder characterized by alterations in the autonomic nervous system without detectable physical causes (Grabowski; Kończak-Czarnoczyńska, 2022; Hallett et al., 2022).

The anatomical regions were categorized into head and neck (cervical spine and face), upper limbs (shoulder, arm, elbow, forearm, wrist, hand, and fingers), trunk (thoracic cage, abdomen, thoracic and lumbar spine), and lower limbs (hip, thigh, knee, leg, ankle, foot, and toes).

Statistical Analysis

The variables analyzed included sex, type of injury, sport discipline, therapeutic approach, injury location on the body, hospital referral, and injury mechanism. Descriptive statistics, such as mean (±) and standard deviation (SD), were used to organize and provide summarized information regarding the distribution, central tendency, and variability of these data. Initially, the Shapiro–Wilk test was used to verify data normality before applying other parametric or non-parametric statistical methods. In this study, data asymmetry was observed. Therefore, the selected method was the non-parametric chi-square test, which evaluates the association between different categorical variables. This test assesses whether there is a significant difference between expected and observed frequencies. In cases of small sample sizes, Fisher's exact test was applied, as it allows the evaluation of the association between only two variables in situations where the applicability of the chi-square test was not possible. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), version 22.0, graphs were generated using GraphPad Prism 8, and the

significance level was set at $p < 0.05$.

RESULTS

A total of 272 physiotherapeutic consultations were performed, with 57.4% involving female athletes and 42.6% male athletes. Most consultations were outpatient-based (59.9%), and only 13.3% resulted in hospital referral, leading to athletes' withdrawal from competition (Table 1).

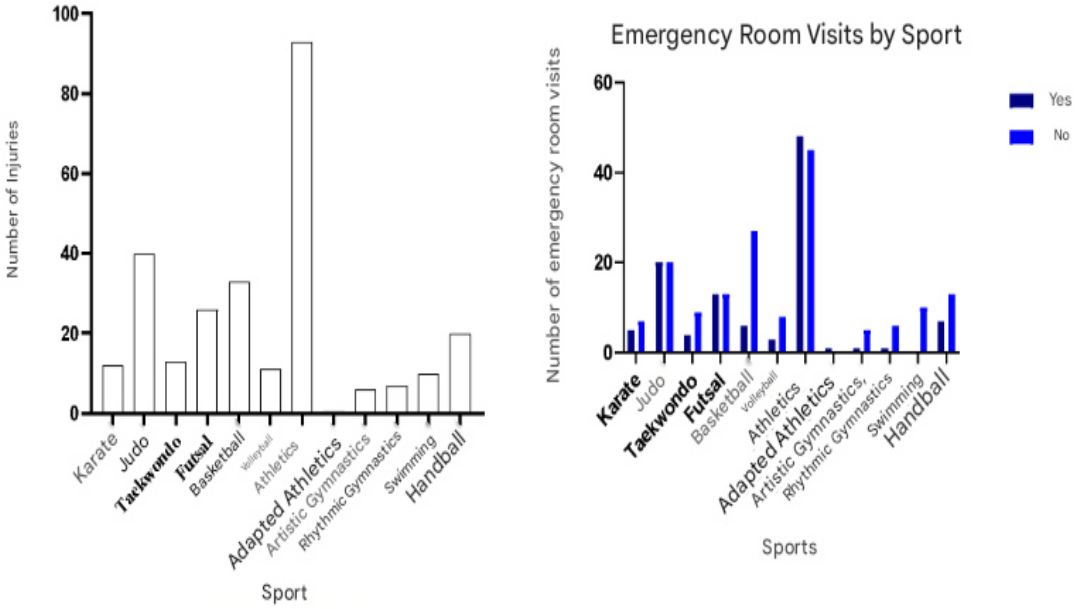
Table 1. General characteristics of the athletes evaluated.

General Characteristics	Mean ± SD or n (%)
Age	13.1 ± 0.7
Sex	
Masculine	116 (42.6)
Feminine	156 (57.4)
Emergency Care	109 (40.1)
Outpatient Care	163 (59.9)
Serious Injuries – Hospital Referral	
Masculine	8 (6,9)
Feminine	10 (6,4)

Legend: Mean ± Standard deviation, absolute frequency (n) and relative frequency (%).

Athletics athletes presented the highest number of consultations (34.2%), with 51.6% occurring in an emergency setting. Judo was the second sport with the highest incidence of injuries during the competition (14.7%), with half of the consultations classified as emergencies. Futsal athletes showed an equal distribution between outpatient and on-court consultations. Basketball accounted for 12.1% of the consultations and the highest number of outpatient consultations (81.8%). A significant difference ($p < 0.04$) was observed between sport discipline and type of care. **Figure** 1 the relationship between injuries and type of care, respectively, in each sport.

Figure 1. Number of injuries by sport e number of emergency medical visits by sport.



The gender distribution associated with sport discipline showed no significant difference (**Table** 2).

Table 2. Data related to the sex of participants in different sports.

	Sex		
	Feminine	**Masculine**	**p-value**
Sport			0.98
Karate	6 (3,8%)	6 (5,2%)	
Judo	24 (15.4%)	16 (13.8%)	
Taekwondo	8 (5,1%)	5 (4,3%)	
Futsal	15 (9.6%)	11 (9.5%)	
Basketball	22 (14,1%)	11 (9.5%)	
Volleyball	7 (4,5%)	4 (3,4%)	
Athletics	50 (32.1%)	43 (37.1%)	
Adapted athletics	1 (0.6%)	0 (0%)	
Artistic Gymnastics	3 (1,9%)	3 (2,6%)	
Rhythmic Gymnastics	4 (2,6%)	3 (2,6%)	
Swimming	5 (3,2%)	5 (4,3%)	
Handball	11 (7,1%)	9 (7,8%)	
TOTAL	156 (100%)	116 (100%)	

Values presented as absolute frequency (N) and relative frequency (%).

The pattern of injuries, in terms of type, was similar in both sexes, with no significant difference (p = 0.26). The most common injury type was muscle injury (47.9%), followed by joint injury (40.4%), whereas tendon (6.25%), bone (2.9%), and ligament injuries (2.9%) were less frequent. No functional neurological disorders were reported during the competitions. The body region with the highest number of injuries was the lower limb, particularly the knee (14.7%), thigh (14.3%), and ankle (12.9%). The distribution of injured body sites was similar between sexes, with no significant difference (p > 0.24) (**Table** 3).

Table 3. Data related to the sex of participants in different locations and types of injury.

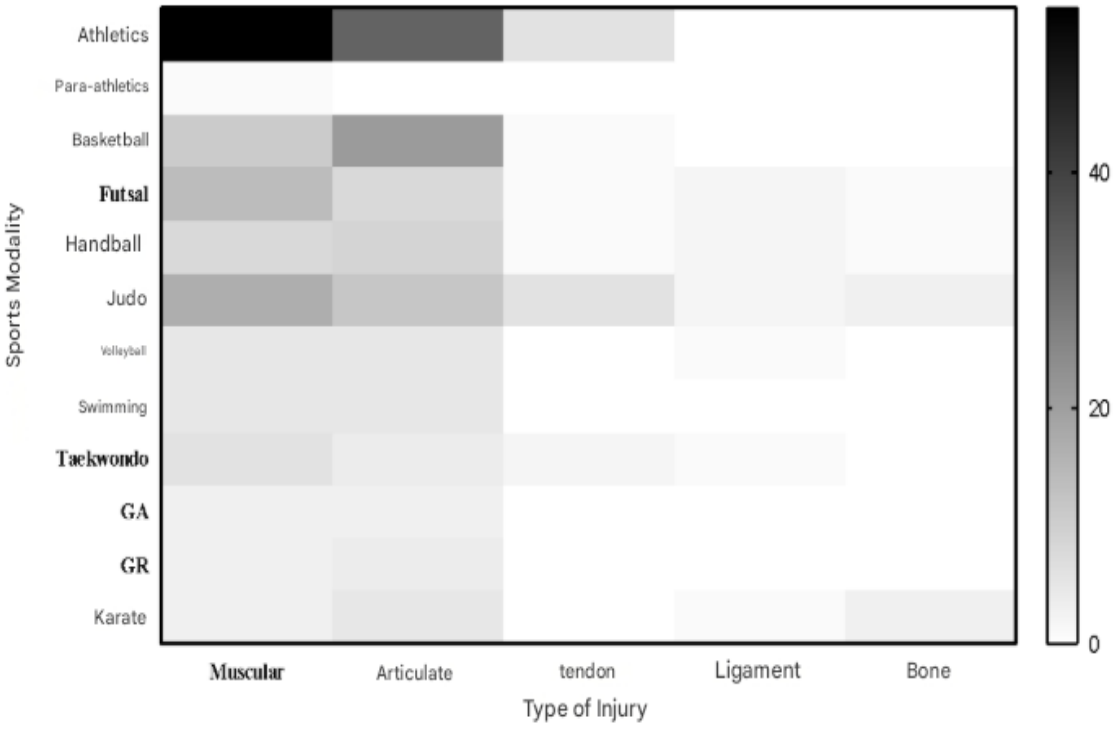
	Sex		**p-value**
	Female	**Male**	
Type of Injury			
Muscular	68 (43.6%)	61 (52.6%)	0.26
Articular	67 (42.9%)	43 (37.1%)	
Bone	3 (1,9%)	5 (4,3%)	
Tendon	12 (7,7%)	5 (4,3%)	
Ligamentous	6 (3,8%)	2 (1,7%)	
Location of the Injury			
Cervical spine	7 (4,5%)	7 (6%)	0.24
Thoracic spine	6 (3,8%)	5 (4,3%)	
Lumbar spine	8 (5,1%)	14 (12.1%)	
Shoulder	15 (9.6%)	5 (4,3%)	
Arm	5 (3,2%)	1 (0.9%)	
Elbow	10 (6,4%)	6 (5,2%)	
Forearm	0 (0%)	3 (2,6%)	
Fish	4 (2,6%)	2 (1,7%)	
Hand	1 (0.6%)	0 (0%)	
Hip	13 (8.3%)	14 (12.1%)	
Thigh	26 (16.7%)	13 (11.2%)	
Knee	25 (16%)	15 (12.9%)	

	Sex		
	Female	**Male**	**p-value**
Leg	9 (5,8%)	11 (9.5%)	
Ankle	19 (12.2%)	16 (13.8%)	
Foot	5 (3,2%)	2 (1,7%)	
Fingers	1 (0.6%)	0 (0%)	
Toes	1 (0.6%)	0 (0%)	
TOTAL	**156 (100%)**	**116 (100%)**	

Values presented as absolute frequency (N) and relative frequency (%).

Significant differences in injury type were observed among sports disciplines ($p < 0.05$). Muscle injuries predominated in athletics (62.2%) and futsal (53.5%), whereas joint injuries predominated in basketball (66.7%). Ligament injuries affected only combat sports: karate (8.3%), taekwondo (7.7%), and judo (5%). In this category, bone and tendon injuries were also reported, as shown in Figure 3. Tendon injuries accounted for 15.4% and 15% of injuries in judo and taekwondo, respectively. Bone injuries represented 25% of injuries in karate (**Figure** 2).

Figure 2. Heatmap relating injury type and sport modality.



There was a statistically significant association between the sport modality and the location of the injury (p=0.00). Individual sports (athletics, para-athletics, artistic gymnastics, and rhythmic gymnastics) and team sports (futsal, basketball, and volleyball) had the highest rate of lower limb injuries. The exception was handball and swimming, where the most affected region was the shoulder. Combat sports (judo, karate, and taekwondo) showed variation in this distribution, with the main injuries occurring in the elbow in judo (20%); shoulder (16.7%) and leg (16.7%) in karate; and knee in taekwondo (23.1%), as illustrated in **Figure** 3.

Figure 3. Heatmap relating injury location and sport modality.

Regarding the injury mechanism, traumatic injuries were more prevalent in judo (29.2%) and atraumatic injuries in athletics (36.3%). Karate, swimming, rhythmic gymnastics, and adapted athletics did not present traumatic injuries. Sports such as athletics, handball, judo, taekwondo, and futsal required hospital referral. However, there was no statistically significant association between these variables (p>0.05), as illustrated in

Tables 4 and 5.

Table 4. Association between sports and injury mechanisms.

	Mechanism of Injury		
	Traumatic	**Atraumatic**	**p-value**
Sport			
Karate	0 (0)	12 (100)	
Judo	12 (30)	28 (70)	
Taekwondo	3 (23,1)	10 (76.9)	
Futsal	4 (15,4)	22 (84.6)	
Basketball	7 (21,2)	26 (78.8)	
Volleyball	1 (9,1)	10 (90.9)	0.11
Athletics	9 (9,7)	84 (90.3)	
Adapted athletics	0 (0)	1 (100)	
Artistic Gymnastics	1 (16,7)	5 (83.3)	
Rhythmic Gymnastics	0 (0)	7 (100)	
Swimming	0 (0)	10 (100)	
Handball	4 (20)	16 (80)	
TOTAL	**41 (15.1)**	**231 (84.9)**	

Values presented as absolute frequency (N) and relative frequency (%).

Table 5. Association between sport modality and need for hospital referral.

	Hospital Referral		
	Yes	**No**	**p-value**
Sport			
Karate	0 (0)	12 (100)	
Judo	6 (15)	34 (85)	0.24
Taekwondo	1 (7,7)	12 (92.3)	
Futsal	3 (11.5)	23 (88.5)	
Basketball	0 (0)	33 (100)	
Volleyball	0 (0)	11 (100)	
Athletics	5 (5,4)	88 (94.6)	

	Hospital Referral		p-value
	Yes	No	
Adapted athletics	0 (0)	1 (100)	
Artistic Gymnastics	0 (0)	6 (100)	
Rhythmic Gymnastics	0 (0)	7 (100)	
Swimming	0 (0)	10 (100)	
Handball	3 (15)	17 (85)	
TOTAL	**18 (6,6)**	**254 (93.3)**	

Values presented as absolute frequency (N) and relative frequency (%).

The most frequently used physiotherapy resource during athlete treatment was electrothermophototherapy (84.5%), followed by soft tissue mobilization with 83.5% application. Kinesiotherapy (10.3%) was used less frequently. **Table** 6 shows the frequency of use of each type of therapeutic approach associated with the type of injury; however, there was no significant difference between these variables (p>0.05). Despite this, electrothermophototherapy and soft tissue mobilization were the treatments selected for muscle injuries (47.6% and 45.9%, respectively) and joint injuries (41.5% and 40.5%, respectively). Kinesiotherapy was more frequently used for muscle injuries (50%).

Table 6. Association between type of injury and therapeutic resource used.

	Physiotherapy Resources		
	Kinesiotherapy	Soft tissue mobilization	Electrothermophototherapy
Type of injury			
Muscular	14 (50)	108 (47.6)	105 (45.9)
Articular	9 (32.1)	92 (40.5)	95 (41.5)
Ligamentous	2 (25)	5 (2,2)	6 (2,6)
Tendon	2 (11,9)	16 (7)	16 (7)
TOTAL	**28 (100)**	**227 (100)**	**229 (100)**
Value - p	0.63	0.34	0.61

Values presented in absolute frequency (N) and relative frequency (%).

Discussion

This epidemiological analysis focuses on musculoskeletal injuries in the Brazilian delegation during school competitions, examining the association between injury rates and sport discipline, sex, type of injury, injury location, injury mechanism, selection of therapeutic resources, and hospital referral.

The present study highlights the lack of differences in injury frequency between male and female athletes during the 2022 and 2023 South American Games. Although female athletes sought medical care more frequently, no significant difference was observed between sexes. However, recent studies have shown variations: during the 2023 Winter Olympic Games, the injury rate was higher among women, whereas during the Tokyo 2020 Olympic Games, the opposite result was observed. Therefore, it is not possible to state that one sex presents a higher injury frequency than the other in a multisport competition.

Athletics was the sport with the highest injury rate in these competitions, followed by judo and basketball, respectively. However, (Mooren et al., 2023a) analyzed the injury profile in judo and reported findings different from those of the present study, with a higher rate of joint injuries and the head identified as the most affected area. Ferreira; Veneziano, 2022 stated that the knee and ankles are the most frequently injured regions in basketball, corroborating the findings of the present study.

The results of this study suggest that injuries predominantly affected the lower limbs, followed by the upper limbs and trunk. Lower limbs appear to be more compromised in sports involving running, rapid changes of direction, acrobatic movements, and kicking actions, such as athletics, futsal, basketball, volleyball, and rhythmic gymnastics. Study for Santos et al., 2022 reported that basketball, volleyball, and futsal athletes presented a higher rate of ankle injuries when compared with other sports, similar to the findings observed in the analyzed South American School Games. Sports involving overhead movements, such as judo, handball, and swimming, showed a greater frequency of upper-limb injuries. Among young athletes from Singapore, also observed a prevalence of shoulder and elbow injuries in swimming, handball, and volleyball (Kim; Park, 2020),

Regarding the types of injuries in school athletes, muscle injuries were the most common, followed by joint injuries. Despite the different injury types related to the specific demands of each sport discipline in multisport events, the results of previous studies indicate a similar distribution regarding injury type (Gimigliano et al., 2021; Kim; Park, 2020). During the Rio 2016 Olympic Games, more than 700 athletes sustained muscle injuries, reinforcing the association between the metabolic intensity required during competition and this type of injury (Soligard et al., 2017b).

The definition of injury mechanism may generate uncertainty. According to Bahr; Krosshaug, 2005, the traumatic mechanism involves the transfer of high kinetic energy from one agent to another, such as collisions between athletes, falls, or sudden movements. In contrast, the atraumatic mechanism is characterized by intrinsic factors rather than a direct event, such as repetitive movements, muscle fatigue, and athletes' biomechanical imbalances. Thus, injuries secondary to atraumatic mechanisms were more predominant, which may be explained by the intense nature of the competitions. Judo was the sport with the highest rate of traumatic injuries. The high injury rate in this sport may be related to gripping the judogi, the force and speed of applied techniques, and the impact of falling onto the tatami (Mooren et al., 2023b).

The low rate of hospital referrals may be justified by the classification of the injuries as not severe, with no cases of concussion, functional neurological disorders, or competition withdrawal. In addition, the outpatient and emergency care provided by the healthcare team composed of physiotherapists minimized the risk of injury aggravation. This assistance may also explain the higher prevalence of outpatient care compared with emergency care. The physiotherapists can ensure optimal conditions for athletes during competitions due to their direct involvement in these events (Downie et al., 2019).

For illustrative purposes, therapeutic approaches were categorized into three groups: kinesiotherapy (physical exercises), soft tissue mobilization (myofascial release, joint mobilization, functional taping, rigid taping, cupping therapy, pneumatic boot therapy, and dry needling), and electrothermophototherapy (cryotherapy, ultrasound, electrical stimulation, and laser therapy). The consensus on pain management in elite athletes highlights the combined use of therapies and techniques during multisport competitions

(Hainline et al., 2017). Similarly to the present study, there was no statistically significant difference between the choice of therapeutic approaches. The consensus also emphasizes the effectiveness of exercise as a pain modulator and its benefits in injury management; however, kinesiotherapy was used in only 5.7% of the treatments.

This study adds new evidence regarding the epidemiology of sports injuries in school athletes, specifically Brazilian athletes, aiming to assist in the development of preventive strategies and the improvement of athletic performance in this category. However, the study presented limitations such as the small sample size, resulting in associations with low statistical significance. In addition, there was a gap in the specification of the athletes' final diagnosis, since the forms were applied during the initial assessment.

Conclusion

It can be concluded that the most frequent complaints among school athletes from the Brazilian delegation were non-traumatic muscle and joint injuries, with the lower limbs being the most affected area. The number of consultations was higher among athletics and judo athletes, mostly outpatient-based, with no history of traumatic brain injury and a low rate of hospital referral. In this study, there was no statistical difference in injury incidence between sexes.

It was also observed that lower-limb injuries were more frequent in individual sports (athletics, para-athletics, artistic gymnastics, and rhythmic gymnastics) and team sports (basketball, futsal, and volleyball). Muscle injuries were more prevalent in athletics and futsal, whereas joint injuries were more common in basketball. Regardless of injury type, the most frequently used therapeutic resource was electrothermophototherapy.

FUNDING

This research did not receive any specific funding from funding agencies in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

REFERENCES

BAHR, R.; KROSSHAUG, T. Understanding injury mechanisms: a key component of preventing injuries in sport. **British Journal of Sports Medicine**, v. 39, n. 6, p. 324–329, jun. 2005.

BAHR, Roald *et al.* International Olympic Committee consensus statement: methods for recording and reporting of epidemiological data on injury and illness in sport 2020 (including STROBE Extension for Sport Injury and Illness Surveillance (STROBE-SIIS)). **British Journal of Sports Medicine**, v. 54, n. 7, p. 372–389, abr. 2020.

BELILOS, Eleanor; JOW, Steven; MAXWELL, Matthew. Descriptive Epidemiology of High School Swimming and Diving Injuries. **Clinical Journal of Sport Medicine: Official Journal of the Canadian Academy of Sport Medicine**, v. 33, n. 4, p. 428–434, 1 jul. 2023.

DOWNIE, Fiona *et al.* Physiotherapist as an alternative to a GP for musculoskeletal conditions: a 2-year service evaluation of UK primary care data. **The British Journal of General Practice: The Journal of the Royal College of General Practitioners**, v. 69, n. 682, p. e314–e320, maio 2019.

ENGEBRETSEN, Anders H. *et al.* Prevention of injuries among male soccer players: a prospective, randomized intervention study targeting players with previous injuries or reduced function. **The American Journal of Sports Medicine**, v. 36, n. 6, p. 1052–1060, jun. 2008.

ENGEBRETSEN, Lars *et al.* Sports injuries and illnesses during the London Summer Olympic Games 2012. **British Journal of Sports Medicine**, v. 47, n. 7, p. 407–414, maio 2013.

FERREIRA, Letícia Batista; VENEZIANO, Leonardo Squinello Nogueira. A ATUAÇÃO DO FISIOTERAPEUTA PARA A PREVENÇÃO DE LESÕES ESPORTIVAS NO BASQUETEBOL. **Revista Ibero-Americana de Humanidades, Ciências e Educação**, v. 8, n. 5, p. 233–243, 31 maio 2022.

GIMIGLIANO, Francesca *et al.* Epidemiology of Musculoskeletal Injuries in Adult Athletes: A Scoping Review. **Medicina**, v. 57, n. 10, p. 1118, 17 out. 2021.

GRABOWSKI, Łukasz; KOŃCZAK-CZARNOCZYŃSKA, Kinga. Psychopathological analysis of several functional disorders and neurovegetative dysfunctions. **Neuropsychiatria i Neuropsychologia/Neuropsychiatry and Neuropsychology**, v. 17, n. 1, p. 9–15, 2022.

HAINLINE, Brian *et al.* International Olympic Committee consensus statement on pain management in elite athletes. **British Journal of Sports Medicine**, v. 51, n. 17, p. 1245–1258, set. 2017.

HALLETT, Mark *et al.* Functional neurological disorder: new subtypes and shared

mechanisms. **The Lancet. Neurology**, v. 21, n. 6, p. 537–550, jun. 2022.

KIM, Hyun Chul; PARK, Ki Jun. Injuries in Male and Female Elite Aquatic Sports Athletes: An 8-Year Prospective, Epidemiological Study. **Journal of Sports Science & Medicine**, v. 19, n. 2, p. 390–396, 1 maio 2020.

MOOREN, Jeroen *et al.* Epidemiology of Injuries during Judo Tournaments. **Translational Sports Medicine**, v. 2023, p. 2713614, 2023a.

MOOREN, Jeroen *et al.* Epidemiology of Injuries during Judo Tournaments. **Translational Sports Medicine**, v. 2023, p. 2713614, 2023b.

MOSEID, C. H. *et al.* The prevalence and severity of health problems in youth elite sports: A 6-month prospective cohort study of 320 athletes. **Scandinavian Journal of Medicine & Science in Sports**, v. 28, n. 4, p. 1412–1423, abr. 2018.

PRIETO-GONZÁLEZ, Pablo *et al.* Epidemiology of Sports-Related Injuries and Associated Risk Factors in Adolescent Athletes: An Injury Surveillance. **International Journal of Environmental Research and Public Health**, v. 18, n. 9, p. 4857, jan. 2021a.

PRIETO-GONZÁLEZ, Pablo *et al.* Epidemiology of Sports-Related Injuries and Associated Risk Factors in Adolescent Athletes: An Injury Surveillance. **International Journal of Environmental Research and Public Health**, v. 18, n. 9, p. 4857, 2 maio 2021b.

SANTOS, Thiago Ribeiro Teles *et al.* Ankle Sprain in Young Athletes: A 2-Year Retrospective Study at a Multisport Club. **Revista Brasileira De Ortopedia**, v. 57, n. 6, p. 1001–1008, dez. 2022.

SOLIGARD, Torbjørn *et al.* Sports injury and illness incidence in the Rio de Janeiro 2016 Olympic Summer Games: A prospective study of 11274 athletes from 207 countries. **British Journal of Sports Medicine**, v. 51, n. 17, p. 1265–1271, set. 2017a.

SOLIGARD, Torbjørn *et al.* Sports injury and illness incidence in the Rio de Janeiro 2016 Olympic Summer Games: A prospective study of 11274 athletes from 207 countries. **British Journal of Sports Medicine**, v. 51, n. 17, p. 1265–1271, set. 2017b.