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REVIEW ARTICLE

Overview of systematic reviews on the most common sports injuries

Manca Zupančič and Jan Marušič

University of Primorska, Faculty of Health Sciences, Izola, Slovenia

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Abstract

The frequency and nature of sports injuries depend primarily on the specific sport that an individual play. In this article we review systematic reviews to identify and highlight the most prevalent injuries in basketball, football, volleyball, ice hockey, rugby, and handball. We collected data on the prevalence rates of the most common injuries across these sports, revealing that the most common injuries are lateral ankle sprains, concussions, hamstring strains, quadriceps strains, and various internal knee derangements. Notably, the majority of these injuries affect the lower extremities, which are under the most stress during athletic activities. We also provide insights into preventive measures for the three most common injuries. This compilation of data from different sports will prove valuable to kinesiologists, coaches, and sports professionals, helping them to develop comprehensive training programs aimed at preventing injury and improving overall athletic performance.

Keywords: injuries · team sports · epidemiology · prevention

Correspondence:
Jan Marušič
jan.marusic@fvz.upr.si

Introduction

Engagement in sports offers numerous benefits to our physical, mental, and social well-being (World Health Organization, 2023). However, increasing participation in sports also correlates with a higher incidence of injuries and exposure to associated risks and hazards (Dennis & Finch, 2008). Epidemiology, the study of injury prevalence, risk factors, causes, and consequences in different populations, is crucial for understanding and addressing these issues (Frérot et al., 2018; Allahabadi, Su, & Lansdown, 2021). It helps identify injury risk factors and develop preventive strategies, considering various factors and mechanisms influencing injury frequency and nature (Bahr & Krosshaug, 2005).

Injuries inflict pain on athletes, interrupt their training and competition routines, and may temporarily or permanently prevent them from participating (Hsu et al., 2016). This disruption of engagement can lead to a decline in physical fitness, reduce team success, increase individual and social expenses for treatment and rehabilitation, and increase the risk of future injuries (Andreoli et al., 2018; Lian et al., 2022; Raya-González et al., 2020). In addition, sports injuries often have a significant emotional impact on the injured athlete, which can trigger intense psychological reactions that gradually diminish throughout the rehabilitation process (Hsu et al., 2016). To avoid these negative consequences, a comprehensive understanding of injury-related aspects in sports, including epidemiology, injury mechanisms, and risk factors, is crucial. This knowledge is especially crucial for coaches, physicians, medical practitioners, kinesiologists, and physiotherapists, as it can assist in the development of optimal injury prevention training programs, thereby reducing the incidence and severity of injuries while improving overall individual performance (Knowles et al., 2006; Lian et al., 2022; Lopes, Hespanhol, Yeung, & Costa, 2012).

The objective of our study is to systematically review systematic reviews of the most prevalent injuries in team sports, focusing on basketball, soccer, volleyball, handball, rugby, and ice hockey. The aim was to gather data regarding the prevalence of the most frequent injuries in these sports, identify the five most common injuries within each sport, and provide a summary of key preventive recommendations for the three most common injuries.

Method

The literature search was conducted from February 2023 to March 2024 in the PubMed database, focusing only on systematic reviews and meta-analyses. We used a combination of keywords such as "(basketball OR (soccer OR football) OR handball OR volleyball OR "Ice hockey" OR rugby) AND injury AND (Epidemiology OR Incidence OR Prevalence)", resulting in 262 hits. To cover a broad range of potential data, we incorporated the term "incidence," although we focused solely on prevalence data.

Inclusion and exclusion criteria were defined to ensure relevant articles. Articles were included if they (i) referred to the specified sports (basketball, soccer, volleyball, handball, rugby, and ice hockey), (ii) reported on the most common injuries, and (iii) provided quantitative data on injury rates. Articles that contained additional epidemiological data were also considered for inclusion in Tables 1 and 2. Conversely, articles that (i) contained solely other epidemiological data on injury occurrence (e.g., incidence), (ii) had irrelevant titles or content (e.g., population, purpose of study), or (iii) focused solely on the occurrence of a specific injury rather than overall injuries were excluded. Ultimately, seven articles met the inclusion criteria. A flowchart illustrating the inclusion process is shown in Figure 1.

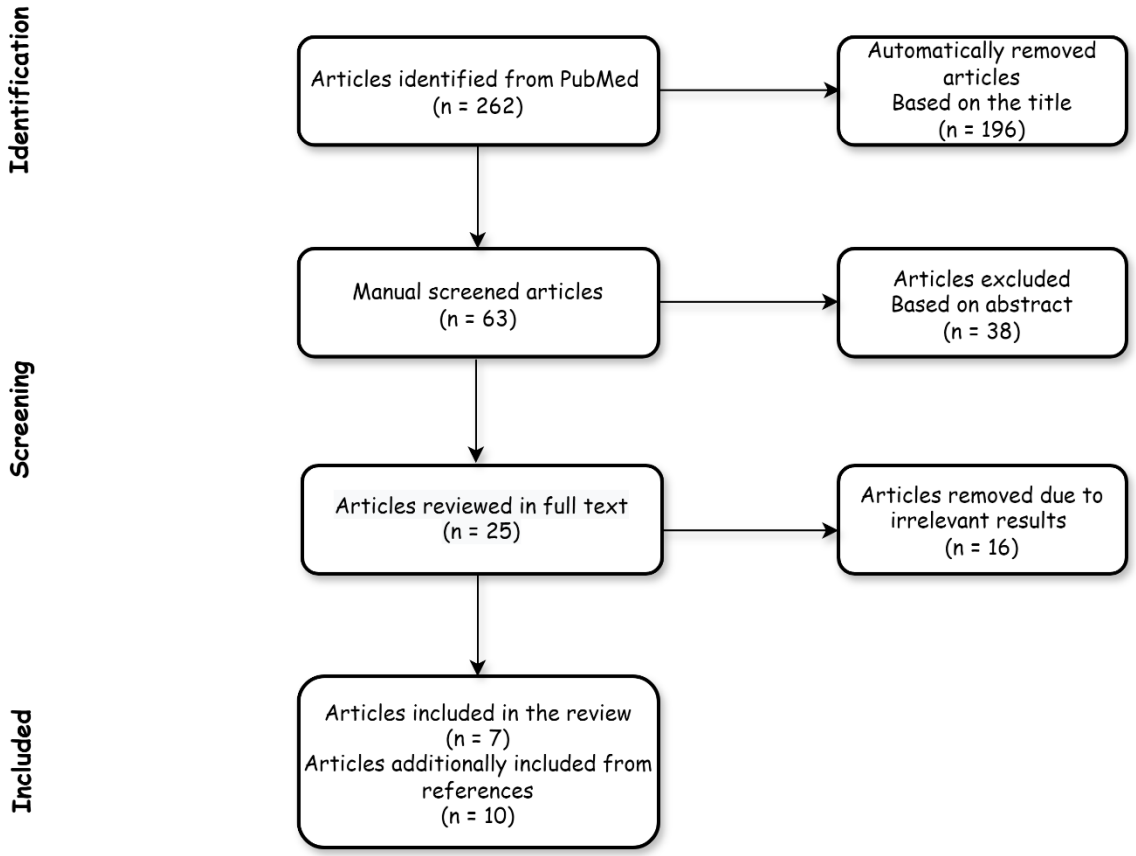

Figure 1. Flowchart of the inclusion process of the articles in the systematic review

Results

Table 1 provides an overview of the systematic review articles included in this study. Alongside the author and year of publication, the table summarizes the aim of the article, the participants, and the results in relation to injuries within a particular sport. This includes the percentage of the three to five most common injured sites, the type of injuries, and/or specific injuries analyzed in each review.

As most studies focused primarily on the prevalence of the most common injuries in terms of location and type, rather than specific injuries, additional articles are presented in Table 2. These articles provide percentages of the three to five most prevalent specific injuries by sport. Where available, we have also included other epidemiological data provided by the authors, such as injury incidence.

Table 1. Review of included systematic review articles.

Authors, Year	Purpose of the Article	Sport and Subjects	Results
Andreoli et al. (2018)	A systematic review of the epidemiology of musculoskeletal injuries in basketball (review includes 11 studies).	Basketball players: Children and adolescents, professional, amateur, and recreational players. The number of included participants is not provided.	General data; percentage of sites of injuries for all groups of participants: ankle (21.9%), knee (17.8%), thigh and hip (13.8%), head and neck (11.3%), hands, fingers, and wrist (8.7%).
		Women	Sites of injuries: ankle (19.5%), knee (20.6%), thigh and hip (17.5%), head and neck (9.7%), hand, fingers, and wrist (8.6%).
		Men	Sites of injuries: thigh and hip (19.3%), knee (17.5%), ankle (14.6%), trunk and back (11.0%), hand, fingers, and wrist (8.4%).
		Children and adolescents	Sites of injuries: ankle (25.6%), knee (16.3%), head and neck (13.7%), hand, fingers, and wrist (8.9%), thigh and hip (8.5%).
		Professional players	Sites of injuries: thigh and hip (20.4%), knee (19.5%), ankle (17.5%), trunk and back (11.1%), hand, fingers, and wrist (8.6%).
		Amateur and recreational players	Sites of injuries: thigh and hip (31.4%), knee (26.8%), foot and ankle (16.3%), not defined (16.3%), shoulder and forearm (7.9%), trunk and back (7.5%).
Mayhew et al. (2021)	Systematic review - assessment of injury frequency in women's soccer among adult elite players and identification of injury mechanisms and anatomical injury	Professional female soccer players, aged over 18 years. The number of included participants is not provided.	Most commonly injured areas - overall: knee (23%), thigh (21%), ankle (18%). During tournaments: ankle (24%), head, face, and neck (17%), thigh (13%). Most common types of injuries - overall: ligament sprains (34%), muscle strains (27%),

	locations (review includes 12 studies).		and soft tissue injuries, including hematomas (15%). During tournaments: soft tissue injuries, including hematomas (44%), ligament sprains (25%), and muscle strain (10%). The three most common injuries: are ankle ligament sprain (43%), hamstring strain (16%), and knee ligament sprain or strain (12%).
Jones et al. (2019)	Systematic review - summary of published scientific literature on injuries among youth soccer at a high level (characteristics, risk) (review includes 23 studies).	Soccer players: male gender, children and adolescents, 7953 high-level players, aged between 8 and 21 years.	Most commonly injured sites: ankle and foot (10%-38%, median 22% and 29%), knee (8%-21%, median 15% and 17%), injuries to the front or back of the thigh (4%-21%, median 5% and 8% and 7% to 21%), upper leg (18%-34%, median 9%), and groin injury (7%-33%, median 19% and 11%). Five (out of ten) most common types of injuries: muscle strains (15%-87%, median 37% and 27%), ligament injuries (1%-21%, median 15% and 19%), tendon injuries (3%-13%, median 12% and 5%), bruises and contusions (7%-31%, median 21% and 18%).
Freitag, Kirkwood, Scharer, Ofori-Asenso, & Pollock (2015)	A systematic review of injuries in rugby among children and adolescents under 21 years of age (review includes 35 studies).	Rugby players: children and adolescents under 21 years of age. The number of included participants is not provided.	Percentage of injuries by body region: lower extremities (3.4%–46.8%), head and neck (4.6%–41.2%), upper extremities (19.3%–38.4%), trunk (6.5%–12.5%). Five most common types of injuries are ligament injuries, sprains, and muscle strains (15.7%–47.2%; incidence 3.9–69.2/1000 playing hours), soft tissue injuries (2.7%–46.0%; incidence 0.4–31.9/1000 playing hours), fractures (3%–27%; incidence 0.8–11.3/1000 playing hours), concussions (2.2%–24.6%; incidence 0.8–11.8/1000 playing hours),

			dislocations and partial dislocations (0.5%–10.8%; incidence 0.3–1.3/1000 playing hours).
Cruz-Ferreira, Cruz-Ferreira, Santiago, & Taborda Barata (2017)	A systematic review of available data on injury epidemiology in older male rugby seven's players (review includes seven studies).	Elite rugby players. The number of included participants is not provided.	Percentage of injuries by body region: lower extremities (56.3%), upper extremities (17.0%), head and neck (15.8%), trunk (6.1%). The most common types of injuries: are joint/ligament injuries (34.3%–51.5%; during tournaments 44.5%), muscle/tendon injuries (32.4%), central nervous system injuries (11.6%), bone injuries (8.4%).
		Amateur rugby players. The number of included participants is not provided.	Percentage of injuries by body region: head and neck (33.3%), upper extremities (31.3%), trunk (18.8%), lower extremities (14.6%). The most common types of injuries: are muscle/tendon injuries (37.5%), joint/ligament injuries (22.9%), central nervous system injuries (16.7%), and skin injuries (14.6%).
Vila, Barreiro, Ayán, Antúnez, & Ferragut (2022)	To explore and compare the most common injuries and mechanisms of injury in handball (review includes 27 studies).	Handball players: males, females; different ages, and playing levels (elite, professional, amateur, national level, first and second league...). The number of participants is not provided.	Percentage of injuries by body region: Shoulder (22%), knee (15.1%–20.0%), ankle (19.3%), head and face (17.3%), thigh (12.9%). Most common types of injuries: Muscle injuries (hamstrings 27.8%; shoulder 15.8%; quadriceps 15.8%), joint injuries (knee 30.5%; ankle 33.3%), tendon injuries (knee 42.9%; shoulder 33.3%).
MacCormick, Best, & Flanigan (2014)	Systematic review - comparison of injuries between women and men in ice hockey (review includes 22 studies).	Male ice hockey players: youth (from 8 years to 20 years) and collegiate level. The number of participants was not provided.	Percentage of injuries by body regions: head (range 0.6%–68.2%), lower extremities (range 0.6%–34.8%), upper extremities (range 1%–31.6%), trunk (range 0.73%–25%). The five most common types of injuries: bruises (range 6.8%–65%), sprains (6%–

		36.3%), fractures (1.7%–29%), concussions (1.3%–12%), deep cuts (1.1%–28.9%).
	Female ice hockey players: youth (from 8 years to 20 years) and collegiate level. The number of participants was not provided.	Percentage of injuries by body region: trunk (4.5%–60%), lower extremities (31.5%–50%), upper extremities (3.0%–27.2%), head (3.0%–21.8%). The five most common types of injuries: are concussion (15.1%–18.3%), sprain (13.7%–18.2%), strain (11.1%–28.3%), contusion (1.5%–16.9%), dislocation (3%–5.7%).

Table 2. Most common injuries divided by sports

Sport	Participants	Authors, Year, Most Common Injuries
Basketball	NBA players	Drakos, Domb, Starkey, Callahan, & Allen (2010): Lateral ankle sprain (13.2%), patellofemoral joint inflammation (11.9%), lumbar back muscle strain (7.9%), hamstring strain (3.3%), adductor strain (3.1%). Deitch et al. (2006): Lateral ankle sprain (14,3 %), patellofemoral inflammation (11,9 %), lumbosacral sprain/spasm (5,8 %), hip adductor strain (3,4 %), face laceration (2,9 %).
	WNBA players	Deitch et al. (2006): Patella injury (13.2%), lateral ankle sprain (12.7%), inflammation of the foot/toes (3.8%), lumbar back muscle strain (3.6%), finger sprain (3.1%).
	University players	Meeuwisse, Sellmer, & Hagel (2003): Ankle sprain (15.8%), hamstring strain (5.6%), concussion (3.7%), bruise/contusion on quadriceps (3.3%), iliopsoas strain (2.3%).
Football	Male	Larruskain, Lekue, Diaz, Odriozola, & Gil (2018): Hamstring strain (18%), ankle ligament injury (11%), hip adductor strain (11%), lateral ankle sprain (7%), calf muscle strain (6%).
	Female	Larruskain et al. (2018): Quadriceps strain (16%), ankle ligament injury (13%), hamstring strain (13%), hip adductor strain (12%), knee ligament injury (9%). Mayhew et al. (2021): Ankle sprain (43%), quadriceps strain (16%), knee ligament sprain or strain (12%).
Ice hockey	Male (collage)	Agel, Dompier, et al. (2007): Games: Internal knee injury (13.5%; incidence 2.20/1000 exposure hours), concussion (9.0%; incidence 1.47/1000 exposure hours), acromioclavicular joint capsule injury (8.9%; incidence 1.45/1000 exposure hours), thigh bruises (6.2%; incidence 0.90/1000 exposure hours), hip muscle/tendon strains (4.5%; incidence 0.73/1000 exposure hours). Training sessions: Hip muscle/tendon strains (13.1%; incidence 0.26/1000 exposure hours), internal knee injury (10.1%; incidence 0.20/1000 exposure hours), ankle ligament sprain (5.5%; incidence 0.11/1000 exposure hours), concussion (5.3%; incidence 0.10/1000 exposure hours), acromioclavicular joint capsule injury (4.4%; incidence 0.09/1000 exposure hours).

	Female (collage)	Agel, Dick, Nelson, Marshall, & Dompier (2007): Games: Concussion (21.6%; incidence 2.72/1000 exposure hours), internal knee injury (12.9%; incidence 1.63/1000 exposure hours), acromioclavicular joint capsule injury (6.8%; incidence 0.86/1000 exposure hours), ankle ligament sprain (4.2%; incidence 0.53/1000 exposure hours), hip muscle/tendon strains (4.2%; incidence 0.53/1000 exposure hours). Training sessions: Concussion (13.2%; incidence 0.33/1000 exposure hours), hip muscle/tendon strains (12.0%; incidence 0.30/1000 exposure hours), foot bruises (7.2%; incidence 0.18/1000 exposure hours), internal knee injury (6.0%; incidence 0.15/1000 exposure hours), patella injury or patellar tendon injury (3.6%; incidence 0.09/1000 exposure hours).
Rugby	Amateur players, male	Tondelli, Boerio, Andreu, & Antinori (2022): Hamstring strain (14.4%), ankle sprain (9.4%), medial collateral ligament sprain (6.1%), acromioclavicular joint sprain (5.6%), anterior cruciate ligament tear (5.0%).
Handball	Elite players, male	Mónaco et al. (2019): Ankle sprain (18%), hip adductor strain (11.6%), hamstring strain (8%).

Discussion

The aim of the study was to collect data from systematic reviews on the prevalence of the most common injuries in various sports, including basketball, soccer, ice hockey, handball, and rugby. We did not obtain literature on volleyball. Only one of the seven reviews contained data on the prevalence of the most common injuries in a specific sport (Mayhew et al., 2021), while the others provided information on the prevalence of the most common sites and/or types of injuries. As our interest was in the prevalence of the most common injuries, we additionally conducted further literature reviews for articles that are not systematic reviews and whose results provide a deeper insight into the main findings.

Many of the most common injuries recur in chosen sports. Together, in five sports, we identified a total of 34 injuries, of which 14 were unique. The sports listed above share common movement patterns, physical demands, and the fact that they are contact sports. Players are often exposed to various physical contacts with other players (e.g., collisions with other players, tripping, fighting for space) as well as with various objects (e.g., ball, stick, puck, fence, ground) (Calleja-González et al., 2019; Evans, 2022; Krustrup et al., 2010; Robles-Palazón et al., 2022; Timmerman, Savelsbergh, & Farrow, 2019; Vila et al., 2022). In addition, all sports involve running and other high-intensity movements such as rapid changes of direction, accelerations, decelerations, sprints, jumps, and landings (Andreoli et al., 2018; Calleja-González et al., 2019; Evans, 2022; Krustrup et al., 2010; Mero, Komi, & Gregor, 1992; Timmerman, Savelsbergh, & Farrow, 2019; Vila et al., 2022). Such movements entail significant loads (Mero et al., 1992), increasing the risk of lower limb injuries (Andreoli et al., 2018; Krustrup et al., 2010). Therefore, it is expected that the lower limbs are the most commonly injured body part in the included sports. This is confirmed by our literature review, where out of fourteen different common injuries, nine are located in the lower limbs, two in the upper limbs, two in the head and neck region, and one in the trunk.

Based on the median values of injury prevalences, we have obtained the five most common injuries. A lateral ankle sprain is the most commonly reported injury, with rates ranging from 4.2% to 43.0% (median 23.6%) of all injuries. It occurs in all selected sports but is proportionally more common in soccer, handball, and basketball. The second most common injury is concussion (3.7% to 21.6%; median 12.7%), which is reported in soccer and ice hockey. In third place is hamstring strain (3.3% to 18.0%; median 10.7%), which occurs mostly in soccer, rugby, handball, and basketball. The fourth most common injury in terms of frequency is the quadriceps strain (16.0%), the data for which comes solely from soccer. In fifth place is internal knee derangement, which causes any of the following injuries: patellofemoral joint inflammation, patellar injury, ligament and tendon injuries, medial collateral ligament sprains, or anterior cruciate ligament tears. The overall rate ranges from 3.6% to 13.5% (median 8.6%).

The occurrence of injuries can be impacted by various factors, including noticeable distinctions between genders. According to Andreoli et al. (2018), women tend to experience a greater prevalence of injuries in the lower extremities and the head and neck area, with similar trends seen in upper extremity injuries. Similarly, Vila et al. (2022) note a higher frequency of injuries among women. Conversely, MacCormick et al. (2014) found that men tend to sustain more injuries across all age groups, although women exhibit a higher prevalence of lower extremity injuries, while men tend to experience more frequent upper extremity injuries. Another significant factor affecting injury occurrence is age and/or level of training. Andreoli et al. (2018) conducted research comparing injury rates among elite athletes, veterans, and younger athletes. Their findings revealed a higher incidence of injuries among elite athletes compared to younger athletes. While veterans showed the highest injury rates, limited study numbers prevent us from definitively stating that veterans experience more injuries than elite athletes. Likewise, Cruz-Ferreira et al. (2017) highlighted a higher prevalence of injuries among elite athletes compared to amateurs. Lastly, the timing of injury emerges as a notable factor influencing injury incidence. Mayhew et al. (2021) and MacCormick et al. (2014) observed a higher incidence of injuries during competitive events as opposed to training sessions. While Vila et al. (2022) did not explore this aspect, they did observe a higher frequency of injuries during the final 10 minutes of each half of a handball match. However, they did not determine which half presented a higher risk of injury.

It is important for coaches to understand and familiarize with the most common injuries in sports in order to develop preventive programs to reduce the incidence and prevalence of injuries in their athletes or teams. Understanding the risk factors and mechanism of lateral ankle sprain is essential for creating appropriate preventive training programs.

These often include stretching exercises, strengthening of the plantar flexors and other ankle muscles, balance exercises, agility, plyometrics, and sport-specific exercises (Kaminski, Needle, & Delahunt, 2019). Kaminski et al. (2013) recommend athletes to engage in preventive programs lasting at least three months, focusing on improving balance and neuromuscular control. Both neuromuscular control training (Owoeye, Palacios-Derflingher, & Emery, 2018) and balance training (Calatayud et al., 2014) and proprioception (Kaminski et al., 2019; Rivera, Winkelmann, Powden, & Games, 2017; Schiftan, Ross, & Hahne, 2015) have proven to be effective methods in injury prevention. The FIFA 11+ program has also been shown to be effective in reducing the incidence and severity of ankle sprains (Rowe et al., 2021). In case of inadequate treatment, ankle sprains can lead to chronic ankle instability, which is also one of the most common injuries, as reported by Lin, Houtenbos, Lu, Mayer, and Wippert (2021). The prevalence of chronic ankle instability is 25% (range 7% to 53%), while the prevalence in individuals with a previous ankle sprain is 46% (range 9% to 76%) (Lin et al., 2021).

Concussion, if not properly managed, can lead to serious complications such as chronic headaches, memory and concentration difficulties, mood disturbances (depression, anxiety), sleep disturbances and cognitive function issues, also increases the risk of developing neurodegenerative diseases such as Alzheimer's and Parkinson's (Belanger et al., 2013; Guskiewicz et al., 2007; Manley et al., 2017; Rice et al., 2018; Snell et al., 2017). Emery et al. (2017) highlight the main preventive recommendations: the use of protective equipment, compliance with rules and regulations, proper education of staff and athletes, and certain training interventions. The use of helmets and mouthguards is effective in reducing the prevalence of injury (Eliason et al., 2023; Enniss et al., 2018). In some sports (rugby, and ice hockey), wearing a helmet is mandatory. August and Torres (2019) and Greenhill et al. (2016) state that the severity and duration of symptoms decrease if the helmet is properly fitted in case of injury. Both helmets and mouthguards help prevent other head and jaw injuries, making their use in contact sports meaningful. Effective training interventions include visual perception training (Eliason et al., 2023; Kung et al., 2020; Schneider et al., 2017), neuromuscular training (Eliason et al., 2023), and sensorimotor training (Kung et al., 2020), which can be incorporated into pre-season training. The implementation of visual and sensorimotor training is believed to help reduce risk in hockey players and American football players (Eckersley et al., 2019; Harpham et al., 2014). In addition to the strategies mentioned above, it is also reasonable to implement educational programs into the preventive process. The aim of education programs is to provide appropriate education about injuries, symptoms, consequences, recovery, and return to play (August & Torres, 2019). In rugby, the following educational programs are used; "RugbySmart," "BokSmart," and "Heads Up Football", designed for both coaches and players (Gardner et al., 2014; Shanley et al., 2021).

Based on the literature review, the most effective methods for preventing hamstring injuries include programs that involve eccentric strengthening of these muscles and stabilization of the lumbopelvic region (Shield & Bourne, 2018). They particularly emphasize the use of the Nordic hamstring exercise, which strengthens the hamstring muscles through eccentric contraction (Biz et al., 2021; Green et al., 2020). In addition to the mentioned exercise, they recommend the FIFA 11+ program and trunk stability exercises (Biz et al., 2021). All of these interventions have proven to be successful in preventing and reducing the incidence of injury. A recent study (Ekstrand et al., 2023) suggests that the incidence of this injury has been increasing over the past two decades. Therefore, further research on the epidemiology, risk factors, and preventive strategies is crucial to intervene timely and effective. With the acquired knowledge, awareness and reporting of injuries can increase, which may help reduce the occurrence of injuries, and severity of symptoms, and facilitate faster recovery.

Identifying key injuries and their mechanisms is crucial as it forms the basis of prevention programs and rehabilitation. Therefore, the results we gathered are important for all coaches, kinesiologists, physiotherapists, physicians, and other healthcare professionals, as understanding and knowing such information is an important first step in developing prevention programs aimed at reducing the incidence of injuries in sports. Injury prevention should be a high priority for all coaches and other healthcare professionals working with athletes, as it would reduce the occurrence and severity of injuries in athletes, thus enabling them to achieve greater success.

It is important to recognize and address certain limitations of this review. Although we conducted a thorough review, the likelihood of unintentionally excluding some studies increases due to the exclusion of reviews that focused solely on specific injuries; otherwise, we would not have captured the

overall proportion of all injuries represented by the selected injury. Additionally, the search was conducted in only one database. The limitations of the studies included in our review encompass various reporting methods regarding injuries, with some studies addressing incidence, others prevalence, and still others providing data on incidence in various ways. This fragmented reporting leads to diversity in results among different studies, making their comparison and the drawing of clear conclusions more difficult. Additionally, limitations are evident in the fact that studies often do not highlight specific types of injuries but instead focus solely on affected anatomical structures. This lack of specificity can hinder coaches' understanding of the most common injuries in their specific sports environment.

For future studies we recommend the following: Firstly, authors should focus on studying a wider range of age groups, considering both genders, along with varying levels of training, to offer a more comprehensive understanding of injury patterns. Secondly, there is a need to enhance the precision of reporting injury data, encompassing both prevalence and incidence measures. This methodological rigor would facilitate a deeper comprehension of injury prevalence and trends among various athlete populations, thereby playing a major role in formulating prevention guidelines and management of sports-related injuries in the future. Lastly, most authors focused solely on the most frequently injured sites and types of injuries, rather than the most prevalent injuries overall. However, providing information on the most common injuries is more beneficial for athletes, coaches, and other healthcare professionals, as it guides them in decreasing the frequency and severity of prevalent injuries within their chosen sport. Therefore, forthcoming studies should concentrate on reporting specific injuries rather than solely focusing on affected anatomical regions and injury types.

Conclusions

Through our systematic review, we gathered data on the prevalence of the most commonly injured sites, types of injuries, and specific injuries in various sports such as basketball, soccer, ice hockey, rugby, and handball. Among the sports included, the following injuries were identified as the most common: lateral ankle sprain, concussion, hamstring strain, quadriceps strain and various internal knee derangements. Remarkably, the majority of injuries occurred in the lower extremities, which are often under the most stress during athletic activities. Our systematic review offers valuable insights for coaches, kinesiologists, physiotherapists, and other healthcare professionals. By using this data, effective prevention programs can be developed and implemented to reduce the frequency and severity of injuries among athletes. We recommend that coaches and healthcare professionals prioritize the development of prevention programs for the lower extremities, as these are particularly susceptible to injury in athletes.

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