

Incidence and prevalence of injuries in futsal: A systematic review of the literature

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ABSTRACT

Futsal athletes are exposed to a high number of injuries. Purpose: This study aimed to gather data on the injuries produced in futsal, attending to the prevalence, part of the body injured, type of injury and mechanism, and severity. Also, to evaluate the influence that sociodemographic factors and the position on the pitch may have on the injuries. Finally, we pursued to summarize the prevention strategies proposed by the expert literature. Design: Different search strategies were entered in PubMed, Scopus, Web of Science, and Sport Discuss databases. Results: 36 articles were selected to be reviewed. Futsal is situated among the sports with the highest injury incidence, being the main body part injured the lower limb, specifically the knees and ankles. Regarding the type of injury and the mechanism causing the injury, bone injuries are usually related to contact with rivals and muscle, tendon, and ligament injuries related to non-contact mechanisms. In this concern, non-contact injuries are frequently more severe than impact injuries. There is not a clear consensus on if more injuries occur in training or games, and on the severity of the major part of the injuries that occur in futsal. Concerning sex, male players seem to present a higher prevalence of ankle injuries while woman players present more incidence of knee sprains. The age was reported to be correlated with the incidence of injuries during futsal practice. No influence of the position on the field of play on the prevalence of injuries was observed in the literature. Some recommendations are gathered concerning the prevention of injuries. These recommendations are focused on player equipment, playing facilities, rules, physical assessment, and appropriate strength and conditioning preparation. Conclusion: The results presented in this study may help coaches and practitioners to understand crucial factors on the common injuries that occur in futsal. This may allow them to prevent potential injuries and maintain the athlete's performance.

Keywords: Indoor soccer; Sprains; Ankle; Knee.

Cite this article as:

Gene-Morales, J., Saez-Berlanga, A., Bermudez, M., Flández, J., Fritz, N., & Colado, J.C. (2021). Incidence and prevalence of injuries in futsal: A systematic review of the literature. *Journal of Human Sport and Exercise*, 16(3proc), S1453-S1466. <https://doi.org/10.14198/jhse.2021.16.Proc3.63>



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Abstract submitted to: Winter Conferences of Sports Science. [Costa Blanca Sports Science Events](#), 22-23 March 2021. Alicante, Spain.

JOURNAL OF HUMAN SPORT & EXERCISE ISSN 1988-5202.

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doi:10.14198/jhse.2021.16.Proc3.63

INTRODUCTION

Futsal is an indoor team sport played between two teams of five players, including the goalkeeper, on a parquet or synthetic pitch of 40x20 meters. Matches have a total duration of 40 minutes divided into two times of 20 minutes each, the time stops when the ball is not in play (International Federation of Association Football [FIFA], 2013). This sport is characterised by intermittent high-intensity actions with varying resting opportunities, from full to partial recoveries (Ferreira et al., 2010). Short sprints, changes of rhythm and direction, ball control, and interaction with rivals are the main actions that take place in futsal (Zagalaz, 2011; Zagalaz et al., 2012). All these specific features altogether with overloading periods due to training and competitions, make futsal a sport with a high prevalence of injuries (Cain et al., 2007; Ribeiro et al., 2003).

Injuries are defined as musculoskeletal damage that withdraws athletes from competition. It is crucial to understand the origin and reach of injuries to be able to design preventive interventions (Ladeira, 1999; Morato et al., 2013). Prevention programs are multidisciplinary interventions that are relevant to maintain athletes at their maximum level of performance and avoid unnecessary time and money expenditures (Bahr, 2007; Baroni & Leal, 2010; Engström & Renström, 1998; Panchuk & Glab, 2015). Bearing in mind that epidemiological studies allow to follow up the incidence, prevalence, characteristics, frequency of injuries both in the short and long term (Junge et al., 2004), the necessity arises of gathering information on the incidence, prevalence, and prevention of injuries in futsal.

Due to all these aforementioned factors, this study aimed to systematically review the literature to gather data on the most common injuries produced in futsal, attending specifically to the prevalence, part of the body and region injured, type of injury and mechanism, and severity. Also, we intended to evaluate the influence that sociodemographic and other factors related to the sport, such as the position on the pitch, may have on the injuries. Finally, we pursued to summarize the prevention strategies proposed by the expert literature.

METHODS

For this systematic review, the protocols of the PRISMA declaration (Hutton et al., 2015; Urrútia & Bonfill, 2010) and the items proposed by Aranda (2006) were followed.

Search strategy

After designing the study, the first step was to design the keyword for the search. Four databases (Web of Science, PubMed, Scopus, and SportDiscus) were consulted to collect information on the incidence, prevalence and prevention of injuries in futsal. Original articles and systematic reviews from 1992 to 2020 were retrieved to be further analysed. No language restrictions were applied. The following terms were used: ("indoor soccer" OR "indoor football" OR "futsal" OR "5-a-side" OR "five-a-side") AND ("injury" OR "injuries" OR "lesion" OR "lesions" OR "wound" OR "wounds" OR "damage" OR "hurt" OR "harm" OR "epidemiology" OR "epidemiological" OR "epidemiologic" OR "prevention" OR "prevent" OR "forestalling" OR "precaution" OR "protective").

Eligibility criteria and article selection

To be included the studies had to 1) study the incidence and/or prevalence of injuries in futsal, 2) present prevention strategies. Studies analysing injuries in soccer were excluded. The search strategies were entered in the aforementioned databases and a screening of titles and abstracts was carried out to identify potentially relevant studies. The selected studies after the first screening were reviewed to ensure their eligibility for further analyses.

Data processing

After carefully reading the selected articles, we selected 1) the injury rate, 2) type, 3) body part injured, 4) body segment injured, 5) moment of occurrence (training or competition), 6) severity, 7) injury mechanism, 8) relationship position on the field-injury, 9) relationship sex-injury, and 10) relationship age-injury, as the main variables to analyse concerning the incidence of injuries. The prevention strategies included were related to 1) the material, 2) equipment, 3) facilities and infrastructures, 4) regulation, 5) strength and conditioning, 6) physical assessment, 7) training programs, 8) hydration, 9) nutrition, and 10) recovery.

RESULTS

After carrying out all the aforementioned steps, 67 articles were selected to be analysed. Out of the 67 studies, 37 (35 original studies, 2 reviews) studied the incidence and prevalence of injuries in futsal and 31 original articles studied prevention strategies. The main characteristics and contents of the articles can be found in Table 1 (prevalence and incidence of injuries) and Table 2 (injury-prevention strategies).

It is worth highlighting that the most studied variable related to futsal injuries is the body segment injured (15 studies), followed by the injury rate and mechanism (13 publications each) and the body part and type of injury (12 publications each). The severity of the injury was examined in 9 studies and 8 articles compared the injuries that occurred in training with those happening in competition. The variables gender and position on the field and their influence on the injuries were evaluated by 6 publications. Finally, 4 articles analysed the effect of gender on injury prevalence.

Table 1. Studies (n=36) analysing the incidence of injuries in futsal.

Publication	Design	Sample	Methodology	What authors understand by injury	Study variables	Results
Willick et al. (2013)	Prospective	3,565 athletes (1,218 female and 2,347 male) Age: 30 years (mean)	Duration: 14 days Way of measurement: National Paralympic Committee medical staff daily underwent a questionnaire. Training/competition : both	A musculoskeletal complaint that requires medical attention. No matter if the athlete loses training or competition.	Rate Mechanism	IR 22.4 injuries/1,000 practice days ↑ % acute injuries
Varkiani et al. (2013)	Retrospective	1,045 athletes (914 male and 104 female) Age: 31.82±19.31 years	Duration: 1 year Way of measurement: direct data retrieval from the Medical System of Injury Screening from the Iran Futsal Federation Training/competition : both	An occurrence that takes place during a competition or training, requires medical attention, and withdraw the athlete from competing or training at least one day after the occurrence.	Rate Body region Body part Age Gender	IR 8.1 injuries/1,000 athletes ↑ % lower-limb injuries ↑ % knee injuries ↑ number of injuries between 15 and 24 years old ↑ number of injuries in male

Quemelo et al. (2012)	Retrospective	6,923 athletes Age: 23.0±5.9 years	Duration: 10 days Way of measurement: questionnaire Training/competition : both	An occurrence that takes place during a game or training and that forces the athlete to stop competing or training during a period to underwent medical treatment.	Body region Body part	↑ % lower-limb injuries ↑ % knee injuries
Morato et al. (2013)	Prospective	13 athletes	Duration: 4 tournaments Way of measurement: Brazilian Paralympic Committee and Brazilian Confederation of Blind Athletes Injury Report Form Training/Competition: competition	An occurrence that causes an athlete to retire from competition during one or more events.	Rate Mechanism Body region Type	IR 0.12 injuries/game ↑ % contact injuries ↑ % lower-limb injuries ↑ % contusions

Table 2. Results related to the futsal injury production variables.

Publication	Body region injured		Body part injured	Production mechanism	Injury type	Injury severity	Occurred in training or competition
Quemelo et al. (2012)	Lower limb	36.9%	Knee 23.1% Ankle 18.1%	---	---	---	---
	Trunk	36.8%	Thigh 17%				
	Upper limb	18.2%	Leg 10.4%				
Varkiani et al. (2013)	Lower limb	62.9%	Knee 37.3% Ankle 13.5%	---	---	---	---
	Upper limb	20.3%					
	Head and neck	3.8%					
Junge & Dvorak (2010)	Lower limb	69.7%	Knee 15.8% Thigh 12.9%	Contact injuries 64%	Contusion 44.2% Sprain 19.4%	(0 d.) 43% (1-3 d.) 26%	---
	Head and neck	12.7%	Ankle 12.1%	Non-contact 36%	Muscle tear 17.6% Other 18.8%	(4-7 d.) 4.2% (8-28 d.) 7.9% (>28 d.) 1.2%	
	Upper limb	10.3%				Non reported 17.7%	
	Trunk	7.3%					
García-Tamez et al. (2011)	Lower limb	76%	---	Contact injuries 32%	Sprain 25% Contusion 23%	Minor 92%	Training 72.5%
	Upper limb	14.5%		Non-contact 68%	Muscle injury 18% Other 34%	Moderate 6.5%	Competition 27.5%
	Trunk and head	9.5%				Severe 1.5%	
Ribeiro et al. (2003)	Lower limb	79%	Ankle 46%	---	Fracture/dislocation 31%	---	---
	Upper limb	14%	Knee 19%		Muscle tear 25%		
	Head and hip	7%	Thigh 12%		Tendinitis 17%		
					Sprain 13%		
					Contusion 6%		
					Other 8%		

Morato et al. (2013)	Lower limb 80% Head 8.6% Trunk 5.7% Upper limb 5.7%	Knee 28.6% Pie 11.4% Thigh 11.4%	Contact injuries 80% Non-contact 20%	Contusion 31.4% Sprain 25.7% Tendinopathy 8.6% Spasm 8.6% Laceration 8.6% Abrasion 8.6% Other 8.5%	---	---
Emery & Meeuwisse (2006)	Lower limb 85.7%	---	Contact injuries 60% Non-contact 40%	---	(0 d.) 14.39% (>7 d.) 31.4%	Training 26.5% Competition 73.5%

DISCUSSION

Factors related to injuries

Incidence

First, it is worth highlighting that Junge & Dvorak (2000) concluded that the most adequate strategy to compare the injury rate between sports is to analyse the ratio of injuries-practice time. Out of the 36 epidemiological studies containing specific information on futsal, only 11 reported an injury rate, only 3 performing a comparison between futsal and other sports. Schimikli et al. (2009) analysed the injury rate in 10 different sports and situated futsal in the first position with 55.2 injuries per 10,000 hours of practice. Under the same perspective, Willick et al. (2013) studied this variable in 21 sports and also found the highest injury rate in futsal with 22.4 injuries per 1,000 hours of practice. Finally, Emery & Meeuwisse (2006) compared the injury rate of soccer and futsal and obtained non-significant differences, with 4.45 and 5.59 injuries per 1,000 hours of practice in futsal and soccer, respectively. In brief, it is worth mentioning that, although the injury rate is diverse among the studies consulted (see Table 1), futsal is identified as one of the sports with the highest rate in most of the included studies. This difference in the injury rate could be due to the different definition of injury utilised, apart from the different units used in the ratio.

With this in mind, it is worth comparing the different futsal injury ratios found in the literature. First, it could be observed that ratios between 4.45 and 292.40 injuries/1,000 hours are reported by the literature. In this regard, it should be borne in mind the differences between the study designs, with the prospective studies obtaining higher values. As in the comparison between sports, the definition of injury adopted by the authors could also influence the results. Another factor that could affect the obtained injury ratios is the inclusion of the training as practice time. Normally, the studies not considering training report lower injury ratios.

Body region injured

Concerning the body region injured, a major number of injuries has been reported to occur in the lower limb, with percentages between 36.9 and 88.2% as can be seen in Table 2. This result could be expected due to the specific characteristics of futsal (see "Introduction" section). In this sense, the lower limb is under constant stress during futsal practice due to ball control, displacements, and interaction with rivals (Cherati et al., 2016; Emery & Meeuwisse, 2006; Gayardo et al., 2012; Kurata et al., 2007; Lago-Fuentes et al., 2020; Morato et al., 2013).

Body part injured

As opposed to the body region injured, there is not a clear consensus on the main body part injured with futsal practice, although the knees and ankles seem to be the main body part injured, followed by the thighs, legs, and feet. The trunk, head, and neck are among the less injured body parts. The existing controversy on the main body part injured with the highest values for the knees and ankles could lay in the constant changes

of rhythm and direction, ball control and interaction with rivals that take place in futsal. This provokes higher stress in these joints and predisposes athletes to injury (Lago-Fuentes et al., 2020; Quemelo et al., 2012; Varkiani et al., 2013). Specifically, ankle-injury-chances are higher when dribbling and shooting (Aminiaghdam, 2012; Cherati et al., 2016; López-Segovia et al., 2019) and the knee, as is situated in the centre of the lower-limb lever arm, is more exposed with changes of rhythm and direction (Aminiaghdam, 2012). Concerning the head, main injuries have been shown to occur in the mouth and eyes (Collares et al., 2014; Filipe et al., 1997).

Production mechanism

To understand mechanisms in which injuries occur is crucial to adopt prevention measures for sports. Attending to the results gathered in Table 2 it is difficult to identify injury mechanisms that prevail among others. Specifically, eight studies reported a higher percentage of injuries that occur due to direct contact with rivals (Aminiaghdam, 2012; Dantas & Silva, 2007; Emery & Meeuwisse, 2006; Junge & Dvorak, 2010; Lago-Fuentes et al., 2020; Morato, Bilzon & Duarte, 2013; Ribeiro & Costa, 2006; Willick et al., 2013). Accordingly, Lindenfeld et al. (1994) reported that a major part of injuries occurs due to collisions (30.9%) and being hit by a rival (16%). Bearing in mind the ball weight and the smaller pitch size it seems reasonable that futsal presents a high rate of contact injuries (García-Tamez et al., 2011; Luciano & Lara, 2012; Serrano et al., 2013). On the other hand, some publications give non-contact injuries a higher rate (Gayardo et al., 2012; Ruiz-Pérez et al., 2020). As opposed to injuries occurring due to contact with rivals, non-contact injuries could be associated with deficient strength and conditioning preparation (Aminiaghdam, 2012; Ribeiro & Costa, 2006), periods of overload, overuse, and/or inappropriate recovery (Aminiaghdam, 2012; Gayardo et al., 2012; Ribeiro & Costa, 2006). Finally, concerning the relationship between the mechanism that produced the injury and the type of injury that occurred, a higher incidence of bone and joint injuries (fractures, sprains) is associated with contact with rivals, and muscle and ligament injuries (tears, strains, contractures) are mainly caused by non-contact mechanisms (López-Segovia et al., 2019; Ruiz-Pérez et al., 2020; Serrano et al., 2013).

Injury type

Different conclusions can be extracted after carefully reading the existing literature in this regard. A major part of studies highlights ankle and knee sprains as the main injury happening during futsal practice (Aminiaghdam, 2012; Baroni et al., 2008; Cherati et al., 2016; Dantas & Silva, 2007; Junge & Dvorak, 2010; Lago-Fuentes et al., 2020; Lindenfeld et al., 1994; Luciano & Lara, 2012; Morato et al., 2013; Serrano et al., 2013; Uluöz, 2016). As aforementioned, the constant ball control and disputes with rivals provoke a high demand on these joints and therefore the tendency to injury increases (Panchuk & Glab, 2015; Quemelo et al., 2012; Varkiani et al., 2013). In a similar way, thigh and leg contusions are pretty common in futsal practice (Aminiaghdam, 2012; Junge & Dvorak, 2010; Lago-Fuentes et al., 2020; Lindenfeld et al., 1994; Morato et al., 2013). In addition to the overuse of the lower limb (Emery & Meeuwisse, 2006; Gayardo et al., 2012; Kurata et al., 2007; Morato et al., 2013), other factors such as the material and size of the game field can increase collisions with rivals (García-Tamez et al., 2011; Luciano & Lara, 2012).

Injury severity

Regarding this study variable, it is worth highlighting the dissonances between the criteria used by each study to establish the level of severity of the injuries, which could lead to confusion (Medina et al., 2009). For instance, one study only considered injuries that withdraw the athlete from playing at least a week (Emery & Meeuwisse, 2006). Despite this fact, a major part of studied identified a tendency of reduction in the number of injuries as the severity increases (Aminiaghdam, 2012; García-Tamez et al., 2011; Junge & Dvorak, 2010; Medina et al., 2009; Ribeiro & Costa, 2006). Only a few studies reported a higher number of severe injuries

(Gayardo et al., 2012; Serrano et al., 2013). These dissonances could be explained by the different study designs employed, with the retrospective studies being potentially affected by the memory of subjects (Fuller et al., 2006; Junge & Dvorak, 2000) or by the mild injuries not being considered as injuries by certain athletes (Gayardo et al., 2012; Ribeiro & Costa, 2006; Van Mechelen et al., 1992). Finally, attending to the injury mechanism and its severity, non-contact injuries seem to be more severe than contact injuries (Ribeiro & Costa, 2006).

Injuries occurred in training and injuries occurred in competition

Regarding this variable, it could be interesting to differentiate between the absolute values and the relative values. While the absolute number of injuries is reported to be higher in training than in competitions (Arena & Carazzato, 2007; Baroni et al., 2008; García-Tamez et al., 2011; Gayardo et al., 2012), due to the higher hours of training compared to competitions (Gayardo et al., 2012), the relative percentage of injuries is higher in competition compared to training (Dantas & Silva, 2007; Emery & Meeuwisse, 2006), which could be explained by the higher effort, intensity, and stress applied in competitions (Gayardo et al., 2012).

Position on the field

Results regarding the differences between the occurred injuries depending on the position on the field are inconclusive, except for the goalkeepers (Baroni et al., 2008; Lindenfeld et al., 1994; Luciano & Lara, 2012; Serrano et al., 2013). In this concern, as could be expected, goalkeepers present a higher number of upper-limb injuries (Baroni et al., 2008; García-Tamez et al., 2011; Junge & Dvorak, 2010; Lindenfeld et al., 1994; Luciano & Lara, 2012), with an article obtaining different results (Serrano et al., 2013). The inconclusive results regarding the influence of the position on the field could be explained through the game structure of futsal, in which players are constantly moving throughout the field and not being limited to one specific area (Baroni et al., 2008; Serrano et al., 2013).

Gender

A tendency for more ankle injuries in male players and knee in females was observed (Aminiaghdam, 2012; Lindenfeld et al., 1994; Ruiz-Pérez et al., 2020; Serrano et al., 2013; Uluöz, 2016). Among other factors, this fact could be attributed to a) anatomical alignment between hip and knee (Q angle), b) higher knee joint laxity in female athletes, c) disequilibrium in the ratio hamstring quadriceps strength (Gayardo et al., 2012; Paterson, 2009).

Age

The age range between 25 and 34 was identified to have the greatest incidence of injuries (Emery & Meeuwisse, 2010; Lindenfeld et al., 1994; Schmikli et al., 2009; Serrano et al., 2013; Willick et al., 2013). In this regard, Spinks & McClure (2007) found a positive correlation between age and the incidence of injuries. Only two studies identified higher injury rates under 25 years old (Ahmad-Shushami & Abdul-Karim, 2020; Varkiani et al., 2013). As a summary and bearing in mind these results, it could be reasonable to think that age is a determinant factor in injury occurrence (Kurata et al., 2007).

Injury prevention

Equipment

The first factor acknowledged as crucial to prevent injuries in futsal is the use of appropriate shoes (Berdejo-del-Fresno et al., 2013; Patel et al., 2002). Appropriate footwear will diminish reaction forces caused by futsal characteristics and therefore reduce the incidence of injuries (Clará et al., 2010; Faquin et al., 2013). However, a considerable number of players select their shoes attending to the appearance more than the

functionality (Faquin, 2012). The use of shin guards has also been recognized as relevant to prevent traumatic injuries (Engström & Renström, 1998; Morato et al., 2013; Patel et al., 2002; Paterson, 2009).

As secondary factors, numerous studies suggest the use of safety goggles (Anderson et al., 2000; Filipe et al., 1997; Kent et al., 2007) and mouth guard (Anderson et al., 2000; Collares et al., 2014; Paterson, 2009), which has been shown to not influence aerobic performance (Anderson et al., 2000). Bandages, orthosis, and braces have been proven useful to prevent ankle sprains (Baroni et al., 2008; Thacker et al., 1999), especially in athletes with a previous history of injuries (Bahr, 2007; Dick et al., 2007; Junge & Dvorak, 2004). No studies were found analysing the protective equipment of goalkeepers.

Facilities, material, and rules

The bad condition of the field has been identified as a major factor affecting the occurrence of injuries (Bahr, 2007; Gayardo et al., 2012; Patel et al., 2002; Paterson, 2009; Yaghobi & Goodarzi, 2015). The surface should be even and smooth. Wood or synthetic surfaces are recommended over concrete and tar (Clará et al., 2010). Another material that should be adapted to prevent injuries is the goals. Oppositely to soccer goals, which have to be fixed to the ground, futsal goals should be horizontally movable and present an anti-overturn system (Anderson et al., 2000; Patel et al., 2002; Paterson, 2009). Both goals and balls should be adapted to the age of the participants, with smaller sizes for kids (Patel et al., 2002; Paterson, 2009). Referees should be instructed on how to prevent injuries through the compliance of the rules (Bahr, 2007; Engström & Renström, 1998; Morato et al., 2013; Patel et al., 2002). Also, players should be educated to promote a disciplined game and fair play that could reduce the incidence of injuries (Anderson et al., 2000; Engström & Renström, 1998).

Physical screening

Individual preseason assessments have been identified as crucial to identify injury risk in futsal athletes and be able to design prevention and strength and conditioning programs (Arena & Carazzato, 2007; Bahr, 2007; Engström & Renström, 1998; Ferreira et al., 2010; Gayardo et al., 2012; Leonardi et al., 2012; Pares et al., 2016; Patel et al., 2002). For instance, ankle injuries have been related to flat foot and supinator and knee injuries to knee valgus (Cain et al., 2007; Ribeiro et al., 2003).

Strength and conditioning and technical-tactical training

The optimal technical performance and physical condition can be relevant factors in the prevention of injuries (Bahr, 2007; Baroni et al., 2008; Gayardo et al., 2012; Kurata et al., 2007; Patel et al., 2002; Paterson, 2009; Peterson et al., 2000). Appropriate load progression and recovery have to be appropriately adjusted to prevent overloading-related injuries (Bahr, 2007; Kurata et al., 2007; Medina et al., 2009; Paterson, 2009). Proprioception training has been identified as a useful strategy to prevent ankle sprains, especially in athletes with a history of ankle injuries (Bahr et al., 1997; Calatayud et al., 2014; Engström & Renström, 1998; Junge & Dvorak, 2004; Morato et al., 2013). Other studies highlighted the necessity to perform strength and conditioning programs in the prevention of knee injuries, particularly anterior cruciate ligament in female athletes (Junge & Dvorak, 2004; Orr et al., 2011; Patel et al., 2002; Prodromos et al., 2007). Flexibility has also been proposed as a capacity to be trained to prevent injuries, with joint rigidity being directly related to injuries (Araújo et al., 2013). In this regard, a Pilates intervention showed good results in the improvement of flexibility of futsal athletes (Bertolla et al., 2007). Also, an active stretching program of eight weeks improved hip flexion in athletes, which could help to equilibrate the hamstrings-quadriceps strength ratio (Ayala et al., 2010; 2012; Ayala & de Baranda, 2011).

In addition to strength and conditioning programs, the warm-up has been highlighted as one of the most important factors to prevent injuries (Emery & Meeuwisse, 2010; Lopes et al., 2013; Reis et al., 2020). These

authors evaluated the effectiveness of the FIFA 11+ injury prevention program, which included jogging, stretching, balance training, jumps and sprints with changes of direction, and included neuromuscular strength exercises in the warm-up.

Other prevention strategies

It has been demonstrated that muscle injuries can be detected through the concentrations of certain biomarkers in plasma, such as creatine kinase (CK) and lactate dehydrogenase (LDH), which are risen after a futsal game (de Moura et al., 2012, 2013; Souza et al., 2010). Finally, many studies made emphasis on the importance of preventing mental stress and complying with appropriate sleep, nutrition, and hydration (García et al., 2010; Olmedilla et al., 2018; Patel et al., 2002; Tessitore et al., 2007, 2008).

Limitations of the study

Although all the procedures, data selection, and analyses have been carefully carried and supervised by experts, there are some limitations that should be listed. First, the comparison and extrapolation of data have to be performed with caution as the characteristics between studies vary. There exist dissonances between the data presented in the expert literature due to different factors: 1) study design and data gathering, 2) definition of injury adopted, 3) sample characteristics and sport level. Unanimous criteria should be used to obtain even data regarding the prevention and incidence of injuries in futsal. Further studies are expected to increase the scientific body of knowledge in terms of the incidence and prevention of injuries.

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