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Comparative sport injury epidemiological study on a Spanish sample of 25 different sports[1]

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COMPARATIVE SPORT INJURY EPIDEMIOLOGICAL STUDY ON A SPANISH SAMPLE OF 25 DIFFERENT SPORTS

KEYWORDS: Sport injury, Epidemiology, Relative risk

ABSTRACT: Sport injury is a widely extended morbidity condition. However, epidemiological studies are far from giving a convergent outlook. Moreover, there is a lack of studies comparing relative risks of different groups of sports. The present paper is aimed to carry out a descriptive epidemiological study of sport injuries of athletes from 25 sport modalities in order to identify risk factors as well as to compare epidemiological characteristics according to the different sport groups. A sample of 297 athletes from different sport federations in the region of Madrid (Spain) were assessed using a protocol comprising a section about the sport being practiced and a section about injury incidence. Due to the wide variety of sport modalities, the sample was classified into four groups according to the Blázquez and Hernández Moreno's (1984) sports classification. Results showed no gender but age differences in injury incidence. They also showed differences in terms of injury frequency and severity (elapsed time between the injury and the returning to sport practice) among sport groups, being athletes practicing co-operation-opposition sports those who seemed to be more at risk. There were also differences regarding internal/external causes and when the injury was sustained. The global exposure injury rate (training and competition) rose to 4.1 injuries/1.000 hours.

Sport injury is a morbidity condition any athlete is inevitably going to face during his/her sport career (Almeida, Olmedilla, Rubio and Palou, 2014). Moreover, sport injury nowadays appears not only in professional and semi-professional sport but also in amateur, leisure and even in introduction to sport (Pipe, Junge, Charles and Dvorak, 2005). This is probably due to the generalization of the practice of physical activity, the extension of professionalization and the increase in competitiveness (Bahr and Krosshaug, 2005).

Sport injuries may not only have an important effect on sport career (e.g. sport activity dropout, Wylleman, Alfermann and Lavallee, 2004) but also on health (e.g., chronic pain, disability, Jimenez, 2006; Podlog and Eklund, 2006), labor and/or education facets (e.g. occupational or educational absenteeism, Abernethy and McAuley, 2003), social environment (e.g., becoming a familial burden, reducing one's social network, Ortin, Garces de los Fayos and Olmedilla, 2010), and on financial terms (e.g., consumption of health services, Cumps, Verhagen, Annemans and Meeusen, 2008). Therefore, knowing the incidence of this morbidity condition and identifying its epidemiologically related factors are crucial for designing prevention programs and health systems according to the extension and characteristics of such a condition.

There have been a fairly large number of epidemiological studies about sport injury extension and related factors. However, results are contradictory (Brooks and Fuller, 2006) probably due to, on the one hand, how the morbidity condition is defined and, on the other, what measurement outcomes are used. Regarding sport injury definition, the field possesses a lack of consensus (Junge and Dvorak, 2000) despite the progress promoted by the Injury Consensus Group sponsored by the Fédération Internationale de Football Association's (FIFA) Medical Assessment and Research Centre (Fuller et al., 2006). According to such, a sport injury is any physical complaint (caused by a transfer of energy that exceeds the body's ability to maintain its structural and/or functional integrity) sustained by an athlete during competition or training directly related to the sport or exercise activity investigated, irrespective of the need for medical attention or time-loss from athletic activity (p. 193). Some other institutions such as the International Olympic Committee (IOC) have also backed the initiative (Junge et al., 2008).

Similar to the problem of agreeing upon a definition, has been that of how to standardize the assessment outcomes (Jung et al., 2009). International organizations have also given classification criteria based on site, tissue affected, type, severity, time elapsed since athlete's return to competition or training, match period, contact, recurrence, etc. (Junge et al., 2009). Moreover, in order to make a comparison of data coming from different official registers, the operationalization in terms of the number of injuries per 1.000 hours of sport activity exposure: [number of injuries in an established period/(number of players x training and competing hours)] x 1.000 has been suggested (Hodgson, 2000). However, there is still a high degree of variability among studies (Fuller, Junge and Dvorak, 2005).

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Moreover, most of the epidemiological studies carried out have focused on specific sports (Hootman, Dick and Agel, 2007) or concrete pathologies (Fuller et al., 2005), whereas there are just a few that compare different sport modalities. These epidemiological studies comparing different modalities have been recently carried out, having taken advantage of the multisport events such as the Olympics, (Junge et al., 2009).

The number of epidemiological studies comparing different modalities is limited but the number of epidemiological studies using Spanish samples is even scarcer. To our knowledge, the epidemiological studies carried out in Spain have been focused on specific sports, such as football (Llana, Pérez and Lledó, 2010; Olmedilla, Andreu, Ortín and Blas, 2008), basketball (Sánchez Jover and Gómez Conesa, 2008) or "pelota valenciana" (valencian pilota, Montaner, Llana, Gámez and Montaner, 2013). Based on the consensus promoted by the Injury Consensus Group previously mentioned, the present paper aims to carry out an epidemiological study of sport injuries using an opportunistic sample of athletes from 25 sport modalities in order to check the distribution of sport injuries according to age, gender, competitive level, training sessions per week, time practicing the sport, competitions per season, season phase and moment (training or competition) as well as to compare epidemiological characteristics according to the different sport groups.

Method

Participants

Two hundred and ninety-seven athletes from different sports federations in the region of Madrid, Spain (19.5% females; mode age = 21, *M* age = 25.19, *SD* = 3.87, ranging from 21 to 38 years old) voluntarily participated in the study. Due to the wide variety of sport modalities, the sample was classified into four groups according to the Blázquez and Hernández Moreno's (1984) sports classification, which was developed based on Parlebas's (1981) classification (see Table 1).

Sport Groups	Frequency (*n*)	%
Solo action group		
Canoeing and Kayaking	6	2
Swimming	11	3.7
Weightlifting	7	2.4
Alpine skiing	8	2.7
Track and field (high jump, long jump, shot put)	8	2.7
Shooting sports	5	1.7
Total	45	15.2
Co-operation group		
Rowing (2x-, 4x- sculling)	10	3.2
Artistic roller skating (in pairs)	9	3
Sport climbing (climber and belayer)	6	2
Total	25	8.2
Opposition group		
Karate	10	3.4
Track and field (middle-, long-distance running)	15	5.1
Fell running	12	4
Judo	8	2.7
Fencing	5	1.7
Boxing	6	2
Tennis (individual)	8	2.7
Badminton (individual)	7	2.4
Total	71	24.0
Co-operation-Opposition group		
Road bicycle racing (teams)	10	3.4
Basketball	34	11.4
Handball	24	8.1
Football	29	9.8
Futsal	17	5.7
Water polo	14	4.7
Rugby	18	6.1
Roller hockey	10	3.4
Total	156	52.6

Table 1. Sport classification.

Instrument

The usual way for gathering information in epidemiological studies is via athlete self-report (Fuller et al., 2006; Junge et al., 2008; Olmedilla, 2005). This is due to questionnaires and surveys being a quick and cheap way for obtaining such information as well as the fact that many sport clubs and federations do not have a health service that can register and follow up with injured athletes.

In this study, a protocol was designed based on the instruments proposed by Fuller et al. (2006) and Junge et al. (2008) for use in the IOC's and FIFA's competitions surveillance studies. The protocol consisted of two sections. The first one was related to the sport being practiced: sport modality (classified into four groups), competitive level, training sessions per week, time practicing the sport, and competitions per season, The second concerned injury incidence: frequency of injuries per season, anatomical location, severity (in terms of restricted participation in practice), internal/external trigger event, season phase, and sustaining moment (training or competition). It also gathered socio-demographic data (age and gender).

Procedure

After IRB approval, researchers contacted 30 different sport federations in the region of Madrid (Spain). Five out of the 30 did not respond to our attempts. The project was presented to those in charge of the federations that showed interest in the research, in order to ask for their cooperation in recruiting participants. Once they agreed to communicate to different sport clubs and sport facilities, researchers went to the premises and presented the project to the athletes who voluntarily decided whether or not to participate. Those who decided to participate signed the informed consent and were surveyed by the researchers. Each survey took around 20-30 minutes and the data collection lasted three months.

Descriptive analysis using frequency distributions for categorical variables and mean and standard deviation for quantitative variables were carried out. Also, a frequency distribution was used for describing the number of injuries, by age and gender, with descriptive purpose. Even when the number of injuries is presented in ordered categories, parametric tests were used for examining group differences or relationship between variables, as the original variable is quantitative and the sample is big enough. The χ^2 statistic was used for examining the relationships between categorical variables, respectively. Relative risk of each factor was computed using the Odds-Ratio (OR). In such cases, variables that were not originally dichotomous were transformed to be so. Statistical analyses were carried on using SPSS v.20.0.

Results

Sixty-four participants (21.5%) out of 297 did not sustain any injury during the season. The 233 (78.5%) who were injured ranged from 1-6 injuries during the season (see Table 2).

Sociodemographic Variables		No injury		1 injury		2 injuries		3 injuries		4 injuries		5 injuries		6 injuries		TOTAL		
		n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*M (SD)*
	Men	49	76.6	61	75.3	63	82.9	27	81.8	22	100	11	91.7	6	66.7	239	80.5	1.87 (1.54)
Gender	Women	15	23.4	20	24.7	13	17.1	6	18.2	0	0	1	8.3	3	33.3	58	19.5	1.50 (1.50)
	Total	64	100	81	100	76	100	33	100	22	100	12	100	9	100	297	100	1.80 (1.54)
	21 – 25	47	73.4	52	64.2	47	61.8	17	51.5	11	50	6	50	2	22.2	182	61.3	1.55 (1.39)
	26 – 30	11	17.2	23	28.4	20	26.3	14	42.4	10	45.5	5	41.7	5	55.6	88	29.6	2.27 (1.66)
Age	31 – 35	2	3.1	3	3.7	7	9.2	2	6.1	1	4.5	1	8.3	2	22.2	18	6.1	2.44 (1.79)
(years)	> 35	4	6.3	3	3.7	2	2.6	0	0	0	0	0	0	0	0	9	3	0.78 (.83)
	Total	64	100	81	100	76	100	33	100	22	100	12	100	9	100	297	100	1.80 (1.54)

Table 2. Gender, age and frequency of injuries.

Injuries according to Gender and Age

There were no significant differences between men (M = 1.87; SD = 1.54, n = 239) and women (M = 1.50; SD = 1.50, n = 58); $t(295) = 1.65$; $p = .100$; $d = 0.243$; $1 - \beta = .38$. To the contrary, there were a small positive association between injury frequency and age: the older the participant, the greater the number of injuries ($r = .13$; $p = .026$). Table 2 shows the distribution of injuries by gender and age.

Injuries according to practicing sport

There were significant differences between injury frequency and competitive level, $t(295) = 2.27$; $p < .050$; $r = .131$, $1 - \beta = .39$. There were also significant differences between injury frequency and training sessions, $t(295) = 3.66$; $p < .001$; $r = .209$, $1 - \beta = .87$; time practicing the sport, $F(2, 294) = 10.48$; $p < .001$; $\eta^2 = .067$, $1 - \beta = .99$, and the number of competitions per season, $F(3, 293) = 9.43$; $p < .001$; $\eta^2 = .088$; $1 - \beta = .99$ in any case, the more time spent practicing, training or competing, the greater the number of injuries. As reported, the variance of injuries that can be accounted for these variables ranges from 1.7% to 8.8%. Table 3 shows frequency of injury per season according to different sport practicing variables.

Sport Practicing Variables		No injuries		1-3 injuries		4-6 injuries		TOTAL		
		n	%	*n*	%	*n*	%	*n*	%	*M* (*SD*)
Competitive level	Amateur	61	95.3	168	88.4	36	83.7	265	89.2	2.38 (1.56)
	Professional	3	4.7	22	11.6	7	16.3	32	10.7	1.73 (1.52)
	Total	64	100	190	100	43	100	297	100	1.80 (1.54)
Training sessions per week	1 - 3 sessions	22	34.4	31	16.3	2	4.6	55	18.5	1.13 (1.17)
	≥ 4 sessions	42	65.6	159	83.7	41	95.3	242	81.5	1.95 (1.57)
	Total	64	100	190	100	43	100	297	100	1.80 (1.54)
Time practicing the sport	5 - 9 years	31	48.4	42	22.1	5	11.6	78	26.2	1.18 (1.39)
	10 - 14 years	27	42.2	101	53.1	23	53.5	151	50.8	1.91 (1.49)
	15 - 20 years	6	9.4	47	24.7	15	34.8	68	22.9	2.26 (1.58)
	Total	64	100	190	100	43	100	297	100	1.80 (1.54)
Competitions/contests per season	6 -15	17	26.6	27	14.2	2	4.6	46	15.5	1.13 (1.19)
	16- 25	40	62.5	94	49.5	19	44.2	153	51.5	1.64 (1.48)
	26 -35	7	10.9	65	34.2	19	44.2	91	30.6	2.29 (1.57)
	≥ 36	0	0	4	2.1	3	6.9	7	2.3	3.29 (1.80)
	Total	64	100	190	100	43	100	297	100	1.80 (1.54)

Table 3. Distribution of frequency of injuries according to sport practicing variables (competitive level, training sessions, time practicing and competition per season).

Injuries according to sport groups

Table 4 shows the distribution of the frequency of injury per season, anatomical location, severity (athletic time-loss), internal/external trigger event, sustaining moment (training or competition), and season phase, according to the sport group.

There were significant differences in frequency of injury per season among groups, $F(3, 293) = 5.98$; $p < .010$, $\eta^2 = .058$; $1 - \beta = .96$, with the Co-operation-Opposition group ($M = 2.08$, $SD = 1.61$) differing from Solo Action ($M = 1.24$; $SD = 1.11$) and Co-operation ($M = 1.04$; $SD = 1.02$) groups, and Opposition ($M = 1.80$; $SD = 1.58$) differing from Co-operation group.

In contrast, there were no significant differences among groups regarding the anatomical location, $\chi^2(3) = 3.59$, $p = .309$, but differences among groups were found again when analyzing the elapsed time between the injury and the returning to sport activity (athletic time loss), $\chi^2(3) = 9.98$, $p = .019$. In this case, the Co-operation-Opposition group showed longer time-loss than the rest.

Regarding the differences among sport groups in terms of the internal/external trigger event and when (training or competition) the injury was sustained, it can be seen (Table 4) that internal event is the most common trigger event in the Solo Action group, $\chi^2(3) = 22.88$, $p < .001$ and injuries in this group are mostly sustained during training. To the contrary, Co-operation-Opposition group shows significantly more injuries sustained during competition, $\chi^2(3) = 37.44$, $p < .001$. Regarding the season phase in which the injury is sustained, athletes in the Solo Action group suffered injuries mostly during the preseason, while the rest of the groups sustained their injuries during the competition phase, $\chi^2(3) = 9.29$, $p = .026$.

Risk factors associated with the injury

As can be seen (Table 5), there is no significant association between gender or competitive level and becoming injured. To the contrary, age, sports group, training sessions, time practicing the sport, and competitions per season showed significant associations with the athlete sustaining an injury. Table 5 also shows that the proportion of injured vs. non-injured athletes (Odds ratio) nearly doubles when the athletes are 25 or older, when they are professionals, and when they practice a Co-operation-Opposition sport. Odds ratio triples when athletes train four or more times a week, and quadruples when the athletes have been practicing for 10 years of longer. Finally, athletes who compete in 25 five or more matches/contests per year are five times more prone to become injured than the others.

Injury rate comparison between sports groups per 1.000 exposure hours (training and competition).

Regarding the injury rates per sports groups, Table 6 shows that incidence of injuries/1.000 exposure hours of trainings are lower than in the case of competition hours. When computing for global exposure (training and competition), injury rate rose to 4.1 injuries/1,000 hours. Such figures change according to the sport group, training sessions and number of competitions/contests per season. As can be seen, greatest injury rates are associated with the Co-operation-Opposition group.

Variables Related to Injury	Solo action group		Co-operation group		Opposition group		Co-operation-opposition group		TOTAL	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
INJURY FREQUENCY										
No injuries	14	31.1	9	36	16	22.5	25	16	64	21.5
1 - 3 injuries	30	66.7	15	60	44	62	101	64.7	190	64
4 - 6 injuries	1	2.2	1	4	11	15.5	30	19.2	43	14.5
Total	45	100	25	100	71	100	156	100	297	100
ANATOMICAL LOCATION										
Head and neck	3	5.4	0	0	10	9.2	12	4.4	25	5.4
Upper limb	21	37.5	13	52	24	22	67	24.7	125	27.1
Trunk	5	8.9	3	12	6	5.5	19	7	33	7.2
Lower limb	27	48.2	9	36	69	63.3	173	63.8	278	60.3
Total	56	100	25	100	109	100	271	100	461	100
ATLHETIC TIME-LOSS										
0 days	10	17.8	3	12	23	21.1	24	8.9	60	13
1 a 7 days	21	37.5	6	24	23	21.1	70	25.8	120	26
8 a 28 days	17	30.3	13	52	38	34.9	100	36.9	168	36.4
More than 28 days	8	14.3	3	12	25	22.9	77	28.4	113	24.5
Total	56	100	25	100	109	100	271	100	461	100
TRIGGER EVENT										
Internal event	42	75	18	72	69	63.3	126	46.5	255	55.3
External event	14	25	7	28	40	36.7	145	53.5	206	44.7
Total	56	100	25	100	109	100	271	100	461	100
SUSTAINING MOMENT										
Training	43	76.8	17	68	57	52.3	99	36.5	216	46.9
Competition	13	23.2	8	32	52	47.7	172	63.5	245	53.1
Total	56	100	25	100	109	100	271	100	461	100
SEASON PHASE										
Pre-season	22	39.3	5	20	25	22.9	64	23.6	116	25.2
Competition	15	26.8	11	44	46	42.2	107	39.5	179	38.8
Post season	19	33.9	9	36	38	34.9	100	36.9	166	36
Total	56	100	25	100	109	100	271	100	461	100

Table 4. Variables related to injury according to sport group.

Variables		Injured		Non injured		χ^2	*p*	*OR*†	CI (95%)
		n	%	*n*	%				
Age	≥ 25 years	120	83.9	23	16.1	4.87	.027	1.89	(1.07 - 3.35)
	< 25 years	113	73.4	41	26.6				
Gender	Male	190	79.5	49	20.5	0.80	.373	1.35	(0.69 - 2.63)
	Female	43	74.1	15	25.9				
Competitive level*	Professional	29	90.6	3	9.4	3.14	.076	.346	(0.10 – 1.17)
	Amateur	204	77	61	23				
Sport group	Co-opera-opposition	131	84	25	16	5.26	.015	2.00	(1.13 - 3.52)
	Others	102	72.3	39	27.7				
Training sessions per week*	≥ 4 sessions	200	82.3	43	17.7	13.6	.000	3.17	(1.68 -5.98)
	< 4 sessions	33	61.1	21	38.9				
Time practicing*	≥ 10 years	186	84.9	33	15.1	20.7	.000	3.71	(2.07 – 6.67)
	< 10 years	47	60.3	31	39.7				
Competitions/contests per season*	>25	91	92.9	7	7.1	17.9	.000	5.21	(2.28 - 11.94)
	≤ 25	142	71.4	57	28.6				

Note. *n* = Frequency; *%* = Percentage; χ^2 = Chi-square; *p* = Significance Level; *†OR* = Odds Ratio; *CI* = Confidence Interval.
*When the injury was sustained.

Table 5. Risk factors for becoming injured.

	Solo action group	Co-operation group	Opposit-ion group	Co-operation-opposition group	Whole sample
Injuries/1.000 exposure hours of trainings	4.2	2.8	4.7	5.2	5
Injuries/1.000 exposure hours of competitions	18	15	24.1	31.5	22
Injuries/1.000 global exposure hours (trainings and competitions)	3.5	2.4	4	4.5	4.1

Table 6. Injury rate comparison between sports groups per 1.000 exposure hours.

Discussion

The present study provides information about sport injury epidemiology of different sport modalities in Spain. Our results are essentially coherent with other studies. Thus, there are no differences in injury frequency and occurrence between males and females, as other pieces of research have found (Ristolainen et al., 2010), and differences in these variables are observed according to age. Becoming injured is more probable when the athlete is 25 or older. Such a direct proportional relationship, pointed out in other studies (Olmedilla et al., 2008), is due to the increase in training and competition loads as the athlete becomes older.

Regarding sport practicing variables, it can be highlighted that the higher the competitive level, the greater the number of injuries per season. This is in agreement with the contention that professionals are more at risk for injury than amateurs (Olmedilla et al., 2006; Pipe et al., 2005). Moreover, more training sessions per season, longer time spent practicing the sport, and greater number of matches/contests per season, are all related to a higher number of injuries. In the end, such results emphasize the expected finding that greater risk exposure is associated with a greater number of injuries.

We have also found that most of the injuries were of the lower limbs, although this result could be due to the distribution of sport modalities sampled. Regarding injury severity, the most common are the severe injuries demanding a time-loss of 8 to 28 days. These results are in line with the majority of the results obtained by other authors (Emery, Meeuwisse and Hartmann, 2005; Junge et al., 2009; Olmedilla et al., 2008; Ristolainen et al., 2010). A remarkable exception is related to the season phase in which the injury is sustained. According to our results, injuries are more frequently sustained in the middle of the season, while other studies have noted the preseason as the period of highest injury frequency (Hootman et al., 2007; Woods, Hawkins, Hulse and Hodson, 2002). In this study just only the Solo Action group presents this pattern. Even though our results are in line with the idea that the increase in fatigue while the season is in progress could lead to an increase in the probability of becoming injured, it should be explored whether these results could be due to any particular characteristic of Spanish sport or the sample used. Eventually, athletes practicing sports classified as co-operation-opposition seem to be more at risk for sustaining an injury.

Concerning the injury rate per 1.000 exposure (training and competition) hours, our work shows slightly different results than others such as Frisch et al. (2009). These authors found lower injury rates in team sports (1.75 injuries / 1.000 hours), racquet sports (1.13), and individual sports (.93), although the relative tendency is quite similar to ours. Regardless of the use of different sport categories, it should be noted that the use of injury rate per 1,000 exposure hours presents wide variability according to the training loads and the number of competitions per season (Caine, Caine and Maffulli, 2006). There is also great variability due to the differences in the conceptualization of what injury is, samples, data gathering and methodology used (Alonso et al., 2010; Dvorak, Junge, Derman and Schwellnus, 2011; Mountjoy et al., 2010). Therefore, even though such injury rate is a useful way for comparing results, differences that are found should be carefully analyzed.

Several limitations of the study should also be mentioned. Firstly, it was a retrospective study. Following the recommendations of several authors (Almeida et al., 2014; Johnson, Traneus and Ivarsson, 2014), prospective studies should be carried out in the future in order to increase data accuracy by avoiding recall biases. Moreover, using real time athletes' injury records could be a future goal. Secondly, the study has used an opportunistic method of recruiting participants, rather than choosing participants at random. Nevertheless, the sample size, as well as the range of the sport modalities appraised, provides sound consistency to the results.

In the end, the results obtained offer relevant information for comparing different sports as well as a better comprehension of the phenomenon. This information might be useful for researchers and applied professionals in order to design more effective prevention strategies.

ESTUDIO EPIDEMIOLÓGICO COMPARATIVO SOBRE LESIONES DEPORTIVAS EN UNA MUESTRA ESPAÑOLA DE 25 DISTINTOS DEPORTES

PALABRAS CLAVE: Lesión deportiva, Epidemiología, Riesgo relativo.

RESUMEN: La lesión deportiva es una condición de morbilidad ampliamente extendida. Sin embargo, los estudios epidemiológicos están lejos de dar una perspectiva convergente. Por otra parte, apenas hay estudios que comparen los riesgos relativos de distintas modalidades deportivas. El presente trabajo tiene como objetivo llevar a cabo un estudio epidemiológico descriptivo sobre lesiones deportivas en deportistas de 25 modalidades con el fin de identificar los factores de riesgo, así como comparar las características epidemiológicas de acuerdo a los diferentes grupos deportivos. Para ello, se evaluó a una muestra de 297 atletas de diferentes federaciones deportivas de la región de Madrid (España) a través de un protocolo que incluía una sección sobre el deporte practicado y una sección acerca de la incidencia de lesiones. Debido a la amplia variedad de modalidades deportivas, la muestra se categorizó en cuatro grupos de acuerdo a la clasificación de deportes de Blázquez y Hernández Moreno (1984). Los resultados no mostraron diferencias de género, pero sí de edad en lo que se refiere a la incidencia de lesiones. También mostraron diferencias entre los grupos deportivos en frecuencia de lesiones y gravedad (medida como tiempo transcurrido hasta la vuelta a la práctica deportiva), siendo el grupo de cooperación-oposición aquél que aparecía con mayor riesgo. Hubo también diferencias en cuanto las causas (internas/externas) y cuándo se produjo la lesión. La tasa de incidencia de lesiones en función de la exposición global (entrenamientos y partidos) alcanzó las 4.1 lesiones/1.000 horas.

ESTUDO EPIDEMIOLÓGICO COMPARATIVO SOBRE LESÕES ESPORTIVAS EM UMA AMOSTRA ESPANHOLA DE 25 ESPORTES DIFERENTES

PALAVRAS CHAVE: Lesão esportiva, Epidemiologia, Risco relativo.

RESUMO: A lesão esportiva é uma condição de morbidade generalizada. No entanto, os estudos epidemiológicos estão ainda longe de dar um direcionamento. Por outro lado, há poucos estudos que façam a comparação entre os riscos relativos de diferentes grupos esportivos. Por esta razão, o presente estudo tem como objetivo realizar um estudo epidemiológico descritivo de lesões esportivas de 25 modalidades com o fim de identificar os fatores de risco assim como comparar as características epidemiológicas segundo os diferentes tipos de grupos esportivos. Foi avaliada uma amostra de 297 atletas de diferentes federações esportivas da região de Madrid (Espanha) a partir de um protocolo que incluía uma parte sobre o esporte aplicado e outra parte sobre a incidência de lesões. Por causa da ampla variedade de modalidades esportivas, a amostra foi caracterizada em quatro grupos de acordo com a classificação de esportes de Blázquez e Hernández Moreno (1984). Os resultados não mostraram diferenças de gênero, mas sim no que se

refere a idade e a incidência de lesão. Do mesmo jeito os resultados mostraram diferenças na frequência de lesões e gravidade (medida como tempo passado até a volta da prática esportiva) entre os grupos esportivos, sendo o grupo de cooperação-oposição o que apresentou-se como de maior risco. Também houve diferenças enquanto as causas (internas/externas) da lesão e quando se produzirão. A taxa de incidência de lesões em função da exposição global (treinamento e competições) mostrou que 4.1 lesões/1.000 horas.

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