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ORIGINAL

INJURIES IN TRADITIONAL WRESTLING: THE LEONESE WRESTLING CASE STUDY (2005-2015)

LESIONES EN LA LUCHA TRADICIONAL: EL CASO DE LA LUCHA LEONESA (2005-2015)

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ABSTRACT

This study aimed at describing the anatomical location, type and severity of the sport injuries observed during the Leonese Wrestling “masculine summer leagues” official tournaments (2005-2015). The wrestler’s profile was taken into account as a way to achieve a deep analysis. A total of 401 injuries were registered. The best wrestlers were the ones that suffered the least number of injuries. Contusions were the type of injuries more frequently registered (41.4%), while sprains were the most common cause of severe injury (42.3%). The most frequent anatomical location affected and the one in which a great number of severe injuries occurred were the lower limbs (38.2% and 45.4%). The knee, thorax, and shoulder accounted for almost half of the total injuries and represented 68% of the severe injuries. The obtained results suggest that Leonese Wrestling show a similar injury pattern to the one observed in other combat sports.

KEYWORDS: traditional wrestling, injuries, injuries prevention

RESUMEN

El objetivo de este estudio fue describir la localización anatómica, el tipo y la gravedad de las lesiones ocurridas en las competiciones oficiales de las ligas de verano masculinas (2005-2015) de Lucha Leonesa. Al objeto de realizar un análisis más profundo, se tuvo en cuenta, el perfil del luchador. Se produjeron un total de 401 lesiones, siendo los luchadores de mayor nivel los que menos número de lesiones sufrieron. Las contusiones fueron las lesiones más frecuentes (41,4%) pero entre las graves fueron los esguinces (42,3%). Los miembros inferiores fueron la localización más frecuente en el total de lesiones (38,2%) y entre las graves (45,4%). La rodilla, el tórax y el hombro acumulaban casi la mitad de las lesiones y el 68% de las lesiones graves. Los resultados obtenidos sugieren que las características de las lesiones que se pueden observar en la lucha leonesa son similares a las de otros deportes de combate.

PALABRAS CLAVE: lucha tradicional, lesiones, prevención de lesiones

1. INTRODUCTION

All peoples, in all periods, have had some form of wrestling that took root both in the religious and social ceremonies and in sports practice. Currently, the wrestling is kept both associated with tradition and adapted to the conventional forms of modern sport, which probably makes it the oldest sport (Khalili-Borna & Honsik, 2005). The Traditional forms of Wrestling reflect a way of living, of

relating, and therefore, they are considered an Intangible cultural heritage of humanity, which must be recognised and protected (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2006). The Leonese Wrestling (LW), also known as *Aluche*, is a Traditional Wrestling, registered with and officially recognised by the International Federation of Associated Wrestling Styles (FILA, for its Spanish initials), the European Traditional Wrestling Association (AELT, for its Spanish initials) and the International Belt Wrestling Association (IBWA, for its Spanish initials) (Territorial Leonese Wrestling Federation in Castile and León, 2007). As a combat sport, it is not exempt from injuries, many of them preventable (Martín, et al., 2013). From the point of view of the injury epidemiology, prevention is considered one of the most relevant strategies when it comes to reducing the risk of injury resulting from sports practice (Saragiotto, Di Pierro, & Lopes, 2014). In this regard, collecting information on injuries that occur in a sport is deemed as an essential resource that allows the development of preventive actions (Dahlström, Jacobsson, & Timpka, 2015), especially in combat sports (Pocecco, et al., 2013). Therefore, knowing the frequency, severity, type and location of the injuries that occur in the *Aluche* or LW will be useful in order to design prevention and control strategies. These plans of action will not only be helpful for this wrestling, since by sharing risk factors and injury mechanisms with the other Traditional Wrestlings, the knowledge of what happens in one may be applicable to most of them. Thus, the decrease in the incidence of injuries could lead to an increase in the number of those who practice it and could prevent the early withdrawal of some of them. All the foregoing together could facilitate the protection and survival of this varied cultural heritage of humanity and in turn, this could comply with the mandate of the International Olympic Committee (IOC), of preventing injuries in order to encourage the safe practice of the sport (Ljungqvist, 2008).

Accordingly, this study was developed with the main purpose of providing information on the anatomical location, type, and severity of injuries that occur in LW. A secondary purpose was to determine if the characteristics of the injuries observed in this sport are similar between the different types of wrestlers.

2. MATERIALS AND METHODS

2.1 LEONESE WRESTLING

The LW is a combat sport in which two participants grip each other's belts trying to take down their opponent through a series of *mañas* or wrestling manoeuvres (LW techniques). The grip is characteristic of LW, the thumb of one hand is inserted between the belt and the back of the opponent, either from bottom to top or from top to bottom (Espartero & Martín, 1995). The other fingers go outside and close the hand; the other hand passes over the opponent's arm and grips the belt on the other side, the four fingers are inserted between the belt and the abdomen from bottom to top and it is the thumb that closes the hand on the outside. The winner is the first one that in the limited time of the bout has a higher score or the first one that accumulates two falls or four points. According to the falls, the way to score is:

- Full fall or its equivalent of two points: when the wrestler who falls touches the floor with his back, understanding as back the part from the gluteal region to the last cervical vertebra. Also when the back of his shoulder touches the ground.
- Half fall or one point: fall to the ground of one of the wrestlers touching it with the abdomen; when the wrestler releases his grip without the prior consent of the referee; when the wrestler touches the floor in a full fall with the cross-section of the shoulder, with the arm or the hand; and in the event of any kind of contact with the head in order to avoid falling or to take advantage of such help.

The bout takes place in the *corro*, which is traditionally organised on grass or on a mat or other system similar to the previous ones in order to prevent that any violent contact of the wrestler against the floor becomes dangerous. The dimensions of the field will be those of a circle with an 18 metres diameter, at least for senior category *corros*.

2.2 WRESTLERS

Senior wrestlers (16 years and older) were studied.

2.3 TYPE OF STUDY

An observational descriptive study was conducted during the official *corros* of the male summer leagues held between 2005 and 2015.

2.4 INJURY CRITERION

An injury was defined as any action arising in a bout and which by harming the wrestler prevents the bout from running its course or causes the wrestler to require medical or healthcare intervention and which as a precaution prevents the wrestler from making any effort such as training or competing in other bouts and in other activities for at least the next twenty-four hours (Jarret, Orwin, & Dick, 1998).

2.5 CLASSIFICATION OF INJURIES

The injuries were classified according to their anatomical location, type and severity. In this regard, according to the number of days the wrestler was inactive as a result of the injury, they were divided into: minor injuries (1 to 7 days of inactivity), moderate injuries (between 8 and 28 days of inactivity) and severe injuries (more than 28 days of inactivity) (Hägglund, Walden, Bahr, & Ekstrand, 2005).

2.6. WRESTLER'S PROFILE

Throughout the present study, the number of *corros* attended by each wrestler, the age at which they started in the LW, and the score obtained in the competitions were registered. In this way, the wrestler's profiles were classified as follows: "regular" (they attend to more than 66% of the *corros* held) vs "non-regular" (they attend to less than 66% of the competitions); "experienced" (started in LW before the age of 14) vs "non-experienced" (started in the LW with 14 years old) and "winner" (that wrestler who has more falls in favour than against) vs "non-winner" (the one that has more falls against than in favour).

2.7 DATA COLLECTION

The information was obtained through direct medical assistance to the competitions by the medical staff, the medical reports to the accident mutual insurance companies and through personalised interviews at the end of each season to locate injuries not reported or to review them.

2.8 NON-DISCLOSURE AND TECHNICAL ASPECTS

An information sheet was delivered and the informed written consent form of the wrestler was obtained, being the study approved by the Ethics Committee of the University of León. The study was conducted in accordance with the standards of the Declaration of Helsinki (World Medical Association, 2013) and following the guidelines of the European Community of Good Clinical Practices (111/3976/88 of July 1990) and the Spanish legal framework for Clinical research in Humans (Royal Decree 561/1993 on clinical trials).

2.9 STATISTICAL ANALYSIS

A descriptive analysis of the injuries was carried out, calculating the number and percentage of injuries according to their location, the type of injury and the severity. A stratified analysis was also performed based on the wrestler's profile and taking into account the regularity of attendance, the age of onset in the LW and the quality of the wrestler.

3. RESULTS

During the official competitions in the summer leagues between the years 2005-2015, 308 wrestlers took part and a total of 401 injuries were registered, which were 24.2% severe, 29.2% moderate and 46.6% minor (Table 1). The most frequent injuries were the contusions (41.4%) and the sprains (33.2%), although the sprains were the most frequent injuries among the severe ones (42.3%), while the contusions were the most frequent among the moderate and minor injuries (42.7% and 52.9%, respectively).

Table 1. Types of injuries according to the severity, produced in the official summer league competitions of 2005-2015.

	Severe		Moderate		Minor		Total	
	N	%	N	%	N	%	N	%
Contusion	17	17.5	50	42.7	99	52.9	166	41.4
Dislocation	15	15.5	1	0.9	3	1.6	19	4.7
Strain	6	6.2	22	18.8	34	18.2	62	15.5
Sprain	41	42.3	42	35.9	50	26.7	133	33.2
Fracture	18	18.6	2	1.7	1	0.5	21	5.2
Total	97	24.2	117	29.2	187	46.6	401	100.0

Table 2 shows the analysis of the type of injuries produced according to their severity, the regularity of attendance and profile of the wrestler, with no significant differences in the injury pattern in any of the analyses performed. According to the regularity of attendance, a greater number of injuries was observed in those wrestlers who regularly attended the competitions (253 injuries) compared to those who did it sporadically (148 injuries), although the injury pattern remained in both cases, being the contusions (40.7% and 42.6% respectively) and the sprains (34.4% and 31.1% respectively) the most frequent types of injuries.

Regarding the age of onset in the LW, those wrestlers who started in the sport with less than 14 years old had a greater number of injuries (237 injuries) than those who began participating in competitions with the age of 14 or older (164 injuries), being the contusions (41.8% and 40.9% respectively) and the sprains (36.7% and 28.0% respectively) the most frequent types of injuries.

In the quality analysis of the wrestler, those whose profile was of a winner (with more falls in favour than against) had fewer injuries (183) than those who were classified as non-winners or with more falls against (218 injuries), being the injury pattern similar to the previous analyses, highlighting contusions and sprains as the most frequent types of injuries.

Table 2. Types of injuries according to their severity, regularity of attendance, age of onset in the Leonese Wrestling and profile of the wrestlers, produced in the official summer league competitions of 2005 -2015.

Wrestler's Profile	Severe		Moderate		Minor		Total	
	N	%	N	%	N	%	N	%
Regular								
Contusion	12	21.4	29	40.3	62	49.6	103	40.7
Dislocation	11	19.6	1	1.4	3	2.4	15	5.9
Strain	4	7.1	10	13.9	23	18.4	37	14.6
Sprain	20	35.7	31	43.1	36	28.8	87	34.4
Fracture	9	16.1	1	1.4	1	0.8	11	4.3
Total	56	22.1	72	28.5	125	49.4	253	100.0
Non-regular								
Contusion	5	12.2	21	46.7	37	59.7	63	42.6
Dislocation	4	9.8	0	0.0	0	0.0	4	2.7
Strain	2	4.9	12	26.7	11	17.7	25	16.9
Sprain	21	51.2	11	24.4	14	22.6	46	31.1
Fracture	9	22.0	1	2.2	0	0.0	10	6.8
Total	41	27.7	45	30.4	62	41.9	148	100.0
Experienced								
Contusion	9	16.4	29	42.6	61	53.5	99	41.8
Dislocation	8	14.5	1	1.5	1	0.9	10	4.2
Strain	3	5.5	11	16.2	18	15.8	32	13.5
Sprain	28	50.9	26	38.2	33	28.9	87	36.7
Fracture	7	12.7	1	1.5	1	0.9	9	3.8
Total	55	23.2	68	28.7	114	48.1	237	100.0
Non-experienced								
Contusion	8	19.0	21	42.9	38	52.1	67	40.9
Dislocation	7	16.7	0	0.0	2	2.7	9	5.5
Strain	3	7.1	11	22.4	16	21.9	30	18.3
Sprain	13	31.0	16	32.7	17	23.3	46	28.0
Fracture	11	26.2	1	2.0	0	0.0	12	7.3
Total	42	25.6	49	29.9	73	44.5	164	100.0
Winner								
Contusion	5	11.9	20	37.0	45	51.7	70	38.3
Dislocation	7	16.7	1	1.9	1	1.1	9	4.9
Strain	3	7.1	9	16.7	16	18.4	28	15.3
Sprain	22	52.4	23	42.6	24	27.6	69	37.7
Fracture	5	11.9	1	1.9	1	1.1	7	3.8
Total	42	23.0	54	29.5	87	47.5	183	100.0
Non-winner								
Contusion	12	21.8	30	47.6	54	54.0	96	44.0
Dislocation	8	14.5	0	0.0	2	2.0	10	4.6
Strain	3	5.5	13	20.6	18	18.0	34	15.6
Sprain	19	34.5	19	30.2	26	26.0	64	29.4
Fracture	13	23.6	1	1.6	0	0.0	14	6.4
Total	55	25.2	63	28.9	100	45.9	218	100.0

Regarding the location, Table 3 shows the distribution of injuries according to their anatomical location and severity. It is observed how the most injured areas were the lower limb (38.2%), the upper limb (31.9%) and the abdomen or thorax

(16.2%). Although in the severe injuries these percentages increase, in the case of the lower limbs, it increases up to 45.4%.

Table 3. Distribution of injuries produced in summer league competitions 2005-2015, according to their location and severity.

	Severe		Moderate		Minor		Total	
	N	%	N	%	N	%	N	%
Head, face or neck	5	5.2	11	9.4	24	12.8	40	10.0
Abdomen/Thorax	12	12.4	30	25.6	23	12.3	65	16.2
Back	0	0.0	8	6.8	7	3.7	15	3.7
Upper limb	36	37.1	31	26.5	61	32.6	128	31.9
Lower limb	44	45.4	37	31.6	72	38.5	153	38.2
Total	97	100.0	117	100.0	187	100.0	401	100.0

In a more specific way, it can be observed in Table 4 and Table 5 that the knee (18.2%), thorax (16.0%) and shoulder (13.5%) injuries represent about half of the injuries; and in the case of severe injuries, they represent 68.0% of the injuries, with the 34.0%, 12.4% and 21.6%, respectively. No significant differences were observed between the different wrestler's profiles (Figure 1).

Table 4. Distribution of injuries according to their anatomical location and severity.

	Severe		Moderate		Minor		Total	
	N	%	N	%	N	%	N	%
Abdomen	0	0.0	0	0.0	1	0.5	1	0.2
Forearm	3	3.1	1	0.9	6	3.2	10	2.5
Arm	0	0.0	0	0.0	2	1.1	2	0.5
Head/Face/Neck	5	5.2	11	9.4	24	12.8	40	10.0
Hip	1	1.0	0	0.0	1	0.5	2	0.5
Front part of the Thorax	12	12.4	30	25.6	22	11.8	64	16.0
Elbow	2	2.1	2	1.7	2	1.1	6	1.5
Back	0	0.0	8	6.8	7	3.7	15	3.7
Shoulder	21	21.6	11	9.4	22	11.8	54	13.5
Hand	1	1.0	3	2.6	6	3.2	10	2.5
Wrist	6	6.2	3	2.6	9	4.8	18	4.5
Thigh	3	3.1	12	10.3	14	7.5	29	7.2
Other finger	2	2.1	3	2.6	2	1.1	7	1.7
Other toe	1	1.0	2	1.7	7	3.7	10	2.5
Leg	1	1.0	0	0.0	2	1.1	3	0.7
First finger	1	1.0	8	6.8	12	6.4	21	5.2
First toe	2	2.1	3	2.6	8	4.3	13	3.2
Knee	33	34.0	14	12.0	26	13.9	73	18.2
Ankle	3	3.1	6	5.1	14	7.5	23	5.7
Total	97	24.2	117	29.2	187	46.6	401	100.0

Table 5. Distribution of injuries according to their location, severity, regularity of attendance, age of onset and quality of the wrestler.

	Severe		Moderate		Minor		Total	
	N	%	N	%	N	%	N	%
Regular								
Head, face or neck	2	3.6	7	9.7	15	12.0	24	9.5
Abdomen/Thorax	8	14.3	22	30.6	13	10.4	43	17.0
Back	0	0.0	2	2.8	3	2.4	5	2.0
Upper limb	21	37.5	18	25.0	44	35.2	83	32.8
Lower limb	25	44.6	23	31.9	50	40.0	98	38.7
Total	56	100.0	72	100.0	125	100.0	253	100.0
Non-regular								
Head, face or neck	3	7.3	4	8.9	9	14.5	16	10.8
Abdomen/Thorax	4	9.8	8	17.8	10	16.1	22	14.9
Back	0	0.0	6	13.3	4	6.5	10	6.8
Upper limb	15	36.6	13	28.9	17	27.4	45	30.4
Lower limb	19	46.3	14	31.1	22	35.5	55	37.2
Total	41	100.0	45	100.0	62	100.0	148	100.0
Experienced								
Head, face or neck	3	5.5	8	11.8	15	13.2	26	11.0
Abdomen/Thorax	5	9.1	19	27.9	14	12.3	38	16.0
Back	0	0.0	6	8.8	3	2.6	9	3.8
Upper limb	19	34.5	20	29.4	37	32.5	76	32.1
Lower limb	28	50.9	15	22.1	45	39.5	88	37.1
Total	55	100.0	68	100.0	114	100.0	237	100.0
Non-experienced								
Head, face or neck	2	4.8	3	6.1	9	12.3	14	8.5
Abdomen/Thorax	7	16.7	11	22.4	9	12.3	27	16.5
Back	0	0.0	2	4.1	4	5.5	6	3.7
Upper limb	17	40.5	11	22.4	24	32.9	52	31.7
Lower limb	16	38.1	22	44.9	27	37.0	65	39.6
Total	42	100.0	49	100.0	73	100.0	164	100.0
Winner profile								
Head, face or neck	1	2.4	6	11.1	13	14.9	20	10.9
Abdomen/Thorax	5	11.9	16	29.6	11	12.6	32	17.5
Back	0	0.0	1	1.9	2	2.3	3	1.6
Upper limb	13	31.0	12	22.2	27	31.0	52	28.4
Lower limb	23	54.8	19	35.2	34	39.1	76	41.5
Total	42	100.0	54	100.0	87	100.0	183	100.0
Non-winner profile								
Head, face or neck	4	7.3	5	7.9	11	11.0	20	9.2
Abdomen/Thorax	7	12.7	14	22.2	12	12.0	33	15.1
Back	0	0.0	7	11.1	5	5.0	12	5.5
Upper limb	23	41.8	19	30.2	34	34.0	76	34.9
Lower limb	21	38.2	18	28.6	38	38.0	77	35.3
Total	55	100.0	63	100.0	100	100.0	218	100.0

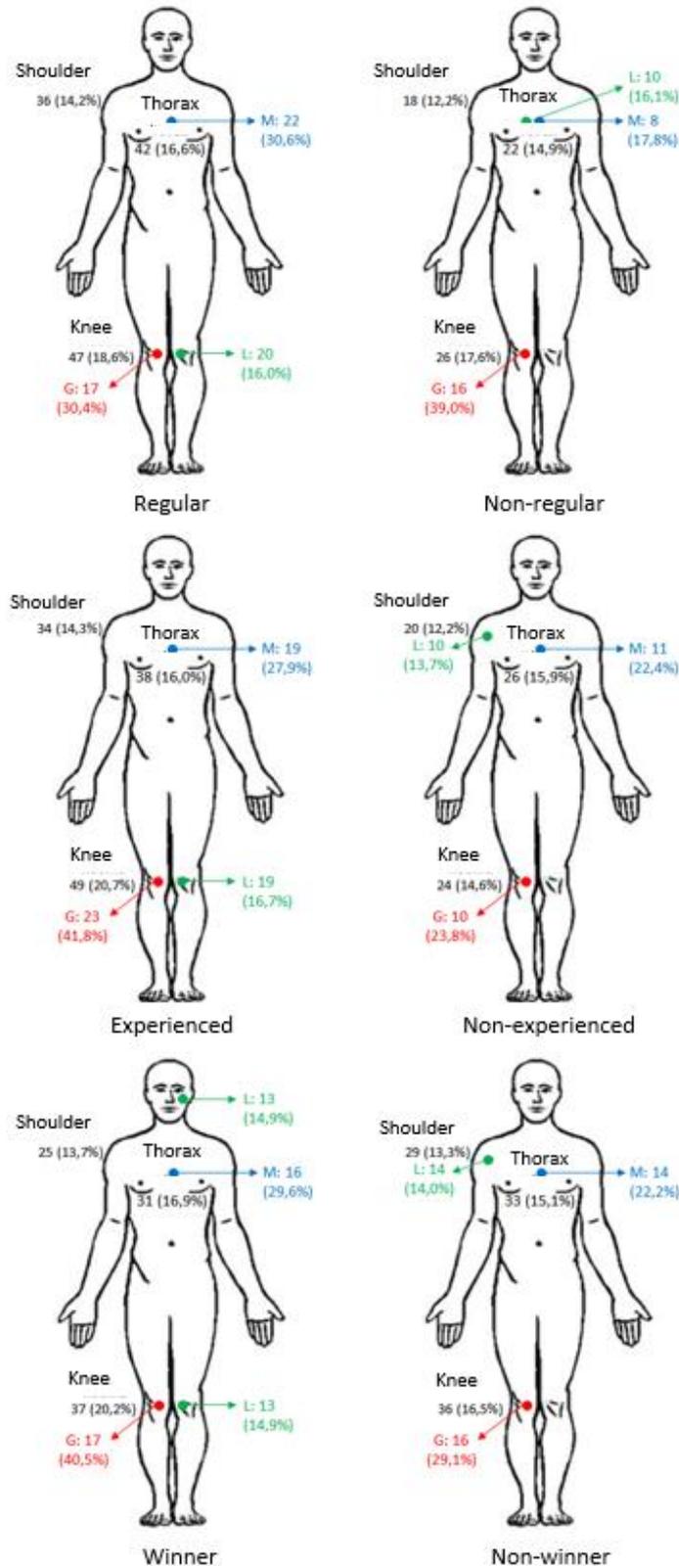


Figure 1. Distribution of the most injured anatomical areas in general, according to their severity, regularity of attendance, and profile of the wrestler. The black text shows the three most frequent locations of the injuries in general, while the red, blue and green text shows the most frequent location in the severe, moderate and minor injuries, respectively.

4. DISCUSSION

The purpose of this study was to provide information on the anatomical location, type and severity of the injuries that occur during the LW practice. In addition, the wrestler's profile was taken into account in order to perform a more complete analysis. Providing this type of information will facilitate the implementation of the prevention and control mechanisms in traditional wrestling, thus favouring the survival of a unique cultural heritage.

The wrestling is a contact sport that uses strength, endurance and speed, as well as coordinative qualities of mobility and agility that in some way will condition the type of injury. In the case of the LW, due to the fact of being a belt wrestling, the grip will also condition the type of injury (Martín, et al., 2013). For all these reasons, it is not surprising that the knee, shoulder and thorax were the most affected anatomical locations and that the contusions and sprains were the most frequent injuries.

With regard to the anatomical location of the injuries, the knee, the shoulder and the front part of the thorax accounted for about half of the total injuries and two thirds of the severe ones. The lower limb was the body area in which the greatest number of injuries were located, with the knee being the most affected area. This fact has also been observed in another traditional Spanish wrestling which is the Canarian Wrestling (Sous, et al., 2006), in the wrestling (Jarret, Orwin, & Dick, 1998) and in judo (Green, Petrou, Fogarty- Hover, & Rolf, 2007; Pierantozzi & Muroi, 2009).

One third of the injuries were located in the upper limb, both the severe injuries and the total amount of injuries, a fact that has also been observed in those who practice wrestling (Caine, Young, & Howe, 2009). In the LW it has been suggested that the main cause of injuries in the upper limb is the release (Ayán, et al., 2010). The release is a strategy consisting in letting go of the opponent's belt in order to get a lower penalty. This action has been observed to increase the risk of injury, especially of the upper limb. Therefore, eliminating the half falls may reduce the incidence of upper limb injuries (Ayán, et al., 2010; Martín, et al. 2013). The shoulder was the joint of the upper limb that suffered the greatest number of injuries, which is in line with what was observed in similar combat sports, such as judo (Pocecco et al., 2013). The most frequent injuries arise from dislocations of the acromioclavicular joint and to a greater extent of the glenohumeral joint. The latter occur when the arm is fixed perpendicular to the floor or to the opponent and when the body is described as an arc whose axis of rotation is located in the glenohumeral joint.

The thorax injuries can be considered as a peculiar element to the LW. Those injuries arise almost exclusively from the costal contusions, which are a consequence of the use of a leather belt on which the opponent exerts a great pressure in order to achieve a firm grip. This leads to the creation of a sort of mortise on the thorax, and consequently any turn or striking causes an injury on the ribs or rib cartilages.

The detailed analysis of the recorded data indicated that the contusions and sprains represented four out of five injuries and only in the case of severe injuries they did not reach two thirds of the total number. This is a constant that is observed not only in the wrestling, where the striking against the ground or against the opponent and/or the sharp violent turns of the different technical actions are usual, but it is also the pattern that can often be found in judo and in another traditional wrestling (Canarian Wrestling) (Sous, et al., 2006). In this regard, it should be noted that in no other discipline is it observed that the set of these injuries reaches 75% or 66% of the total of the severe injuries as it has been observed in the present study, but they do exceed in all cases

the 50% of the injuries (Green, Petrou, Fogarty-Hover, & Rolf, 2007; Pocecco, et al., 2013). In other combat sports, such as wrestling, the most common injury that causes the most time of inactivity is the muscle strain (Rechel, Yard, & Comstock, 2008; Caine, Young, & Howe, 2009). Nonetheless, in the present study, the strain was the third most frequent type of injury. The differences in the grip may explain the discrepancies observed between both disciplines.

The dislocations and fractures accounted for less than 10% of the total injuries, although they accounted for a third of the severe injuries. In both cases, the mechanisms of production are identical to those of the contusions and/or sprains but exceeding the level of resistance of the joint or bone. In judo, perhaps the combat sport that most resembles the LW, similar results have been observed in this regard (Pocecco, et al., 2013).

To establish the severity of the injuries, the criterion of the "inactivity time" was used. Although it is true that sometimes it does not correlate with the consequences of the injuries, it is a useful criterion, since it facilitates the comparison between different sport disciplines (Ekstrand, Gillquist, & Liljedahl, 1983; Parkkari, et al., 2004). In our research, one in four injuries meant more than 28 days off, which is very much alike to the results of the studies published concerning wrestling, where 27% of the reported injuries were severe (Yard, Collins, Dick, & Comstock, 2008) and 32.6% of those who practiced it were more than 7 days off (Powell & Barber-Foss, 1999a). In the case of taekwondo, it has been found that 26% of the injuries meant between 2-7 days off.

In other combat sports, the development of the injuries has been different from the one observed here. Thus, in Olympic athletes who participated in wrestling and Greco-Roman wrestling bouts, it was found that 81.5% (22/27) of the injuries were minor, 18.5% (5/27) were moderate and no severe injuries were detected (Shadgan, Feldman, & Jafari, 2010). The observed differences might be explained based on two factors. The first one is the small number of bouts on which the study was based (328). The second one arises from the peculiar characteristics of the LW and those who practice it, who are usually amateurs who often compete without prior training (recreational acts at village festivals). In addition, there are no medical examinations prior to the competition and the regulation does not prohibit actions and *mañas* (wrestling manoeuvres) that pose a risk of injury. Finally, it should be added that wrestlers have a low level of training and that they participate in many highly concentrated competitions, even taking part in five and six competitions in a row for five or six days (Martín, et al., 2013). On the contrary, the Olympic category wrestlers must undergo very rigorous medical examinations even before the competition, and they have a great commitment (quasi-professional). The regulations are very strict when it comes to avoiding or prohibiting actions and wrestling manoeuvres that pose a high risk of injury and they are wrestlers that have devoted a great deal of time to training and to very few but intense competitions (Zetaruk, Violán, Zurakowski, & Micheli, 2005). In the case of LW, the wrestlers are amateurs.

In addition to the traditional descriptive study of sports injuries, in this research, it was decided to try to determine if certain characteristics of the wrestlers had an influence over the fact that they suffered more severe injuries or injuries of different location or type. The results obtained indicated that the type, severity and anatomical area affected by the injuries that occur in LW are similar among the wrestlers. Nevertheless, it was found indeed that the most experienced wrestlers and those who participated in a greater number of competitions suffered a greater number of injuries, which could be due to the fact that they had a longer time of exposure to sports practice. Along these lines, it was found that wrestlers with a winning profile suffered a lower number of injuries. In this regard, it could be hypothesised that their physical condition and

technical ability will allow them to perform the *mañas* (wrestling maneuvers) with a greater biomechanical efficiency as well as they will be able to better support the potentially harmful takedowns resulting from the bout.

Despite the careful methodology used and the large number of competitions analysed in this study, several limitations must be recognised. Firstly, only *corros* held during the summer league and senior wrestlers were analysed. Secondly, it was not taken into account an essential factor related to the injury profile of those who practice wrestling sports, such as the relationship between their weight and the category in which they mainly compete. Finally, it is wise to recognise that although the collection of information was exhaustive, it cannot be ruled out that a number of minor injuries would have not been detected or reported, as the athletes themselves did not give them relevance. Therefore, it would be sensible to think that the percentage of minor injuries is greater than the number reported in this study.

5. CONCLUSION

The most common type of injury in LW is the contusion, being the knee, shoulder and thorax the most affected anatomical areas. Most of the injuries are concentrated in the lower limbs, a quarter of them being severe. This injury pattern is similar to that one of other combat sports. The type, location and severity of the injury does not show great differences between the different wrestlers' profiles.

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