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Original article

Tattoos among professional football players in the 2018–2019 Spanish La Liga season



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SUMMARY

Introduction: Data regarding tattoos among football players are limited. We investigated the prevalence and characteristics of tattoos among elite players over a full season in the Spanish La Liga. We assessed whether tattoos had any impact on the performance and behavior of players and teams on the pitch.

Materials and methods: Demographic (age, geographic origin, position), performance (goal-scoring) and disciplinary data (yellow/red cards received) for 476 players and overall team statistics over the 2018–2019 season were analyzed according to the presence of visible tattoos (head and neck, upper arms, lower limbs) for each player.

Results: Of the 472 players analyzed, 160 (36%) had visible tattoos (upper limbs, 99%; lower limbs, 18.5%; head and neck, 12%), most of which were in black ink (83%). Players from South and Central America had the highest prevalence of visible tattoos (50%) and significantly more head and neck tattoos than Europeans (19% vs. 10% $P=0.02$). Tattoos were not significantly related to players' age or position. The mean number of goals scored was higher in the tattooed player group (2.7 ± 4.6 goals vs. 1.9 ± 3.3 ; $P=0.013$). There was a correlation between having tattoos and number of goals (Spearman rho 0.103, $P=0.034$). Tattooed players were more likely to have received ≥ 1 yellow card (91% vs. 83.5%, $P=0.03$). There was no difference regarding red cards received (15 vs. 14%, $P>0.05$). The mean number of yellow cards was higher among players with tattoos than those without (4.4 ± 3.2 vs. 3.6 ± 3.2 ; $P=0.01$). However, the proportion of tattooed players in a team did not influence the overall team outcomes. The results were no longer significant when we included only players taking part in at least in 22 matches.

Conclusion: Among footballers in La Liga, 36% had visible tattoos, with individual variations attributable to differences in geographic, social, cultural and religious background. Having tattoos was associated with certain aspects of individual performance and discipline. The question whether this factor should be taken into consideration by players' agents and team managers remains open.

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Tattoos are common among professional athletes in team sports, including football [1,2]. We previously estimated that 34% of male players in the 2018 FIFA World Cup (FWC) Russia had visible tattoos, as did 30% of female players in the 2019 FWC France [3,4]. We failed to find any notable association between tattoos and either performance (goals scored) or disciplinary sanctions (yellow/red cards received) during these competitions. However, our studies were limited by the low number of games played by each team in these two competitions (between 3 and 7). We decided to investigate whether being tattooed had a bearing on player's performance

and disciplinary record over a complete official season of the top Spanish football league (La Liga).

1. Material and methods

1.1. Study design

The 2018–2019 La Liga season took place between August 17th, 2018 and May 19th, 2019, with twenty teams competing. The methodology was similar to that used in our previous study of two FWCs [3,4]. We used the official websites of each team to collect the following data for each player: country and continent of origin, age, position (forward, midfielder, defender or goal-keeper). We collected end-of-season data from sports websites (e.g. <http://www.beinsports.fr>) regarding performance and disci-

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plinary record. Performance was arbitrarily based on the number of goals scored by outfield players ($n=422$). We excluded goalkeepers ($n=49$), as well as three players who did not play a single game throughout the season and one player for whom we were unable to obtain a photograph. Own goals were excluded. Disciplinary record corresponded to the number of yellow and red cards received throughout the season. For each team, we recorded the total number of goals and of yellow and red cards received. We noted the presence of “visible” tattoos, defined as those that could be seen on the field during official games or training sessions. They were located either (i) on the head and neck, (ii) on the upper limbs, below the shirt sleeve midway between the upper arm and fingers, or (iii) on the lower limbs between the shorts and socks. Tattoos on the trunk (beneath the shirt) were excluded. We used the Getty Images website to obtain photos of players’ tattoos [5]. Getty Images Inc. is an American stock photo agency that supplies stock images for business and consumers from an archive of 80 million still images and illustrations [6]. We used the following key words on the website’s search bar: “Team name + 2019 + Player’s first name and surname”. The shirt number was used to identify each player in the pictures. The following features of tattoos were recorded: presence of visible tattoos, location of tattoos and use of colored or black ink. The size, number, design and meaning of the tattoos were not analyzed. Data collection was performed during the spring of 2019.

1.2. Statistical analysis

Statistical analysis was performed using SPSS Statistics 22 (IBM). Player characteristics are presented as means and standard deviations (SD) or median and range for continuous variables, and as frequency and percentage number for categorical variables. Data were compared using Fisher’s exact test for categorical variables and Student’s t-test for continuous variables. The correlation between tattoos and goals scored and yellow/red cards received was analysed by Spearman’s test. The threshold of statistical significance was set at $P < 0.05$.

2. Results

2.1. General data

In all, 476 footballers (mean age: 26.7 ± 4.1 years, range: 18–38) were reviewed. Their positions were as follows: 94 forwards (26.6 ± 4.0 years), 170 midfielders (26.4 ± 4.3 years), 163 defenders (26.8 ± 3.7 years) and 49 goalkeepers (27.9 ± 4.7 years). 73.9% ($n=352$) of players were from Europe, with 18.1% ($n=86$) from South and Central America, 6.9% ($n=33$) from Africa, and 1.1% ($n=5$) from Asia, while Spanish players ($n=276$) accounted for 79% of European players and 58% of all players. We could not evaluate whether four players had tattoos due to unavailability of pictures, and 11 players had zero playing time throughout the season. The mean number of matches played was 22 ± 10 (median: 24).

2.2. Characteristics of tattooed players

One hundred and sixty-nine players (36% of 472) had visible tattoos. The mean age was identical between tattooed and non-tattooed players (Table 1). The prevalence of tattooed players by team ranged from 59% (FC Barcelona) to 13% (Villarreal) (Supplemental table*). Players from Latin America were more likely to have tattoos than Europeans (50% vs. 34%; $P=0.007$) and Africans (21%; $P=0.004$). Ninety-seven Spanish players (35%) had tattoos. There was no significant difference regarding the prevalence of tattoos between forwards (41%), midfielders (36%) and defenders (39%). It should be noted that 27 field players played in long-sleeved

shirts. While goalkeepers had the fewest visible tattoos (15%), 40% of them ($n=28$) played in long sleeves. When we considered only those playing in short sleeves, the difference compared to outfield players was no longer significant. Tattoos were situated on the upper limbs (99%), lower limbs (thighs or calves, 18.5%) and head and neck (12%), and 83% ($n=140$) of players had tattoos in black ink only, occasionally with gray shading. Latin American players more frequently had tattoos on their lower limbs (30% vs. 14.5%, $P=0.02$) and on their head and neck (19% vs. 10%, $P=0.02$) compared with Europeans (Table 2). Overall, 90% ($n=19$) of players with head-and-neck tattoos were from Latin America or Southern Europe (Spain, Italy, Portugal).

2.3. Tattoos and personal performance

One hundred and three tattooed outfield players (64%) scored 442 goals (of 941, 47%). Conversely, 152 non-tattooed players (58%) also scored. This difference was not significant. However, the mean number of goals scored was higher in the tattooed player group (2.7 ± 4.6 goals vs. 1.9 ± 3.3 ; $P=0.013$) (Table 1). There was a correlation between having tattoos and number of goals scored (Spearman rho 0.103, $P=0.034$). Half of the players (49%) among the top 56 scorers (players scoring ≥ 5 goals during the season) had visible tattoos, as did 50% of the top 10 scorers. We did not find any connection between having tattoos and number of goals scored or goals-to-game ratio among the 56 top scorers (Spearman rho test, $P=0.877$ and 1.000 respectively).

Since the number of games played is an important factor, we performed the same analysis while arbitrarily including only those players who had taken part in at least 22 matches ($n=244$). Of these, 98 (40%) had tattoos. Eighty-five tattooed outfield players (87%) scored 405 goals (48% of 841). Conversely, 112 non-tattooed players (77%) scored. The difference was once again non-significant. The mean number of goals scored was higher in the tattooed group (4.1 ± 5.4 goals vs. 3.0 ± 4.0) but did not reach statistical significance. On the other hand, we still found a correlation between having tattoos and number of goals scored (Spearman rho 0.150, $P=0.019$).

2.4. Tattoos and personal discipline

Overall tattooed players were more likely to have received ≥ 1 yellow card during the season (91% vs. 83.5%, $P=0.03$). No statistical difference was seen regarding red cards (15% vs. 14%, $P > 0.05$). There was no statistical difference between players in terms of yellow or red cards according to continent of origin (South America, Europe or Africa, data not shown). Among Europeans, tattooed players were more likely to have received yellow cards than their non-tattooed counterparts (107/117; 91% vs. 186/225; 82.7%; $P=0.04$).

The distribution of yellow and red cards between tattooed European (91% and 14% respectively) and tattooed South American players (88% and 19%) was similar ($P > 0.05$).

The mean number of yellow cards was higher among players with tattoos than those without (4.4 ± 3.2 vs. 3.6 ± 3.2 ; $P=0.01$). The mean number of red cards was similar (0.16 ± 0.42 vs. 0.18 ± 0.46 ; $P > 0.05$) (Table 1). We failed to find any notable differences between position and number of yellow/red cards received, except that tattooed forwards had a higher prevalence of red cards (18% vs. 11%, $P=0.01$) (Table 3).

As for performance, a second analysis including only those players taking part in at least 22 matches ($n=261$) failed to find any differences between tattooed and non-tattooed players regarding yellow cards (5.7 ± 3.1 vs. 5.2 ± 3.4 ; $P > 0.05$) and red cards (0.23 ± 0.51 vs. 0.21 ± 0.49 ; $P > 0.05$). There was no difference

Table 1
Characteristics of tattooed and non-tattooed footballers (n = 472^a) during the 2018–2019 La Liga season.

	Players with tattoos n = 169	Players without tattoos n = 303	Fisher's exact test P-value
Mean age (years, SD)	26.8 (3.8)	26.7 (4.3)	NS
Geographical origin, n (%)			
Latin America (n = 86)	43 (50)	43 (50)	Reference
Europe (n = 348)	119 (34)	229 (66)	0.007
Africa (n = 33)	7 (21)	26 (79)	0.004
Asia (n = 5)	0 (0)	5 (100)	–
Position, n (%)			
Forward (n = 94)	39 (41.5)	55 (58.5)	Reference
Midfielder (n = 168)	60 (36)	108 (64)	NS
Defender (n = 163)	63 (39)	100 (61)	NS
Goalkeeper (n = 47)	7 (15)	40 (85)	0.002
Goalkeeper playing in short sleeves (n = 19)	7 (37)	12 (63)	NS
Goals scored, n (%) ^b			
Total scored (n = 941)	442 (47)	499 (53)	–
Number of scorers	103 (64)	152 (58)	NS
Ratio by field players	4.3	3.3	–
Mean number (SD)	2.7 (4.6)	1.9 (3.3)	0.013
Sanctions, n (%) ^c			
Players receiving yellow cards	151/166 (91)	249/298 (83.5)	0.03
Players receiving red cards	25/166 (15)	42/298 (14)	NS
Number of yellow cards (n = 1812)	734 (40.5)	1078 (59.5)	
Numbers of red cards (n = 60)	30 (50)	30 (50)	

NS: not significant; SD: standard deviation.

^a Photos were unavailable for four players.

^b Goalkeepers (n = 49) and outfield players who played in no games (n = 3) or for whom no photos were available (n = 1) were excluded.

^c Players with zero game time were excluded (n = 11).

Table 2
Tattoo placement by geographic origin of footballers during the 2018–2019 La Liga season.

Continent (n)	Arm n (%)	Lower limb n (%)	Head and neck n (%)	Fisher's exact test P-value
Total (169)	167 (99)	31 (18.5)	21 (12)	–
Latin America (43)	43 (99)	13 (30)	8 (19)	Reference
Europe (119)	117 (98)	17 (14.5) ^a	12 (10) ^b	0.02 ^a 0.002 ^b
Africa (7)	7 (100)	1 (14)	1 (14)	NS

NS: not significant.

^a links lower limbs 17 (14.5%) with 0.02.

^b links Head and neck 12 (10) with 0.002.

Table 3
Individual sanctions by tattoo status and position played.

Position	Tattooed or not (n)	Yellow cards n (%)	Red cards n (%)	Fisher's exact test P-value
Forward	Tattooed (39)	34 (87)	7 (18)	0.01
	Non-tattooed (55)	43 (78)	6 (11)	
Midfielder	Tattooed (60)	56 (93)	9 (15)	NS
	Non-tattooed (106)	91 (86)	10 (9)	
Defender	Tattooed (62)	58 (93.5)	9 (14.5)	NS
	Non-tattooed (100)	93 (93)	25 (25)	
Goalkeeper	Tattooed (5)	3 (60)	0 (0)	NS
	Non-tattooed (37)	22 (59)	1 (3)	

NS: Not significant.

regarding positions and number of yellow/red cards received (*data not shown*).

2.5. Tattoos and team performance and discipline

We found no correlation between the percentage number of tattooed players in a given team and that team's league position, overall points, number of goals for and goals against, or number of yellow or red cards received throughout the entire season (Table 2).

3. Discussion

More than one third (36%) of elite footballers playing in Spain's La Liga during the 2018–2019 season had visible tattoos. This figure is almost identical to the prevalence that we observed during the 2018 FWC (34%) [3]. This figure may thus be taken as the frequency of tattoos among professional football players in a national elite league. Direct head-to-head comparison with epidemiological studies in the general population is impossible. However, the prevalence among footballers seems somewhat higher compared to the same age group (25 to 39 years) [7,8]. As in the 2018 FWC, Latin American players were more likely to have tattoos. We noted high

popularity of tattoos in Latin America as illustrated by the search volume index for “Tattoo” on Google Trends [9]. The high prevalence in our studies confirms that Latin Americans are true tattoo aficionados. Tattoos on the head and neck area were found almost exclusively among “Latin” players (Latin America mainly, but also southern European players from Spain, Portugal and Italy). Conversely, Asian and African players were less likely to be tattooed. Such discrepancies are attributable to social, cultural and religious reasons, as we have already discussed elsewhere [3].

We wondered whether being tattooed might have any impact on personal and team performance and disciplinary record. Tattoos are in fact associated with ego bolstering, and they symbolize physical strength as well being seen as being traits of aggressiveness and rebelliousness [10,11]. We noted that teams reaching the knockout stage of the FWC had more tattooed players than teams failing to reach this stage. We found no evidence of any correlation between tattoos and goals scored, fouls committed, or yellow and red cards received [3]. Having tattoos was thus not associated with greater aggressiveness on the pitch. However, the chief limitation in this earlier study was the very small number of games played with inequality in the number of games played by individual teams (between 3 and 7 games played), which limited the likelihood of finding any significant results. Tattoos may also have had no impact at this level of competition. In this study, we stepped down to national competition level involving an equal number of games ($n=38$) between 20 teams. We found that the mean number of goals scored was higher among tattooed players than among non-tattooed players. Tattooed players tended to receive ≥ 1 yellow cards while tattooed forwards received significantly more red cards than non-tattooed forwards. We thus identified certain individual trends associating tattoos with performance and discipline. However, when we performed a more stringent analysis that included only players taking part in ≥ 22 of 38 matches ($\geq 58\%$ of the season’s games), there were no significant results regarding our criteria for performance or discipline. Only a correlation between tattoos and number of goals scored remained and there was still a trend towards more goals scored by tattooed players, although this was no longer significant. When we evaluated the 56 highest scorers in the Liga, we failed to find any significant associations among them. At team level, the percentage number of tattooed players within a given team had no impact on any of the measured outcomes.

The question of tattoos among football players may seem trivial. Obviously, goal scoring cannot be attributed solely to the presence of tattoos, since it results from a combination of personal skills, teamwork, scoring chances and other factors [12,13]. However, agents and team managers/trainers may wish to know whether tattoos might provide a clue in assessing players’ behavior on the field. It appears that among the best players in the league, it makes no difference. Another question that arises is whether referees may be more severe with tattooed players. Indeed, there is evidence in the literature that persons with tattoos are judged more negatively than those without tattoos [14]. Thus, a tattooed player could be given a yellow card more easily, not because they are more aggressive but because the fault being penalized is perceived as being more aggressive than if it had been committed by a non-tattooed player.

Among the limitations of our study is the fact that we considered only visible tattoos. Players may have other tattoos elsewhere (chest, back, shoulders, groin, calves). Despite our efforts, we may have also missed small visible tattoos. The prevalence of tattoos is thus likely to be higher than we reported. We also had problems with players consistently playing in long sleeves, especially goalkeepers. We did not differentiate between tattoos in terms of size, number or meaning. The hypothesis might be advanced that players with extensive tattoos or more “aggressive” designs may be

more aggressive on the pitch than those with smaller or more discrete ones. Nevertheless, this remains to be studied. The positions of players indicated in our study are those given on the official team websites. However, trainers may switch the positions of players during course of the season, which could in turn affect performance and discipline outcomes. We considered only whether or not players had taken part in a number of games but did not take account of the total amount of playing time actually on the pitch. Finally, the Spanish elite league has its own bias regarding player recruitment, with a high number of players coming from Latin America and who may be expected to be extensively tattooed. Our results may thus not be readily extrapolated either to all elite national leagues (e.g. England or France) or to the overall community of footballers in general, whether amateurs or professionals playing at lower levels.

4. Conclusion

Herein we report the first study about tattoos in a European national elite football league. We noted that 36% of players in the Spanish league have visible tattoos. Differences among players regarding the characteristics of tattooing are related to geographic, social-cultural and religious background. We found that while being tattooed was associated with individual features of performance and discipline, it did not provide any advantage or disadvantage in terms of overall team level. The question of whether tattoos should be taken into consideration by agents and team managers when signing a player remains open.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.annder.2020.03.008>.

Disclosure of interest

The authors declare that they have no competing interest.

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