

# Playing under high pressure and ball retention

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## 1. Introduction

Among its many uses, the game intelligence data produced by the French company [SkillCorner](#) can be deployed to analyse players' performances when they are subjected to different levels of pressure from their opponents. A player is considered to be under pressure when he is in possession of the ball and has at least one opponent close to him trying to recover it or limit his playing options.

For each of these situations, SkillCorner determines the intensity of the pressure by taking into account the speed of the players exerting it, their distance from the player in possession and the angle of their movement. In this report, we will focus on high-intensity pressure, i.e. pressure exerted with the greatest speed and at the greatest proximity to the opponent (more information [here](#)).

The ability to keep the ball is obviously linked to the player's individual talent (level of technique, orientation in space, perception of the game, etc.), but also to the style of play of the employer team (proximity of teammates, passing options, compactness, etc.). Regardless of his intrinsic qualities, a player under pressure and on his own will find it harder to retain possession than a colleague with more passing options available.

This report contextualises the SkillCorner data on pressure using statistical models that highlight the link between the teams' styles of play, the level of pressure faced by players and their ability to retain possession. The report is based on a sample of 7,050 matches played during the 2023 or 2023/24 seasons (up to 4 March 2024) in 28 leagues across Europe and the Americas.



















Figure 1: study sample

	Season	Matches
 Primera División (ARG)	2023	582
 Bundesliga (AUT)	2023/24	126
 Pro League (BEL)	2023/24	223
 Brasileirão (BRA)	2023	380
 HNL (CRO)	2023/24	123
 Czech Liga (CZE)	2023/24	184
 Superliga (DEN)	2023/24	119
 Premier League (ENG)	2023/24	268
 Championship (ENG/2)	2023/24	419
 La Liga (ESP)	2023/24	269
 La Liga 2 (ESP/2)	2023/24	317
 Ligue 1 (FRA)	2023/24	216
 Ligue 2 (FRA/2)	2023/24	270
 Bundesliga (GER)	2023/24	214
 2. Bundesliga (GER/2)	2023/24	215
 Super League 1 (GRE)	2023/24	182
 Serie A (ITA)	2023/24	269
 Serie B (ITA/2)	2023/24	278
 Liga MX (MEX)	2023/24	259
 Eredivisie (NED)	2023/24	216
 Ekstraklasa (POL)	2023/24	204
 Primeira Liga (POR)	2023/24	214
 Premiership (SCO)	2023/24	171
 Super League (SUI)	2023/24	155
 Allsvenskan (SWE)	2023	240
 Süper Lig (TUR)	2023/24	276
 Premier League (UKR)	2023/24	140
 MLS (USA)	2023	521
Total		7'050

## 2. Pressure frequency

During the 2023 and 2023/24 seasons, outfield players from teams in the 28 leagues studied experienced an average of 9.2 instances of high-intensity pressure per match. The highest values were measured for dominant teams, producing a game based on ball possession and collective pressure. Topping the list is Manchester City (15.2 pressures per game), followed by Bayer Leverkusen (13.9) and Columbus Crew (13.5).

Figure 2: most instances of high-intensity pressure per match and player, 28 leagues (seasons 2023 or 2023/24)

1	 Manchester City (ENG)	15.2	<div style="width: 100%;"></div>
2	 Bayer Leverkusen (GER)	13.9	<div style="width: 100%;"></div>
3	 Columbus Crew (USA)	13.5	<div style="width: 100%;"></div>
4	 Paris St-Germain (FRA)	12.6	<div style="width: 100%;"></div>
5	 Malmö FF (SWE)	12.4	<div style="width: 100%;"></div>
.	 Southampton FC (ENG/2)	12.4	<div style="width: 100%;"></div>
.	 Celtic FC (SCO)	12.4	<div style="width: 100%;"></div>
8	 FC Barcelona (ESP)	12.3	<div style="width: 100%;"></div>
.	 PSV Eindhoven (NED)	12.3	<div style="width: 100%;"></div>
.	 Dinamo Zagreb (CRO)	12.3	<div style="width: 100%;"></div>
11	 Tottenham Hotspur (ENG)	12.2	<div style="width: 100%;"></div>
.	 FK Chornomorets (UKR)	12.2	<div style="width: 100%;"></div>
13	 Bayern München (GER)	12.1	<div style="width: 100%;"></div>
.	 Chelsea FC (ENG)	12.1	<div style="width: 100%;"></div>
15	 AFC Ajax (NED)	12.0	<div style="width: 100%;"></div>
16	 Leeds United (ENG/2)	11.9	<div style="width: 100%;"></div>
.	 Sunderland AFC (ENG/2)	11.9	<div style="width: 100%;"></div>
18	 AS Monaco (FRA)	11.8	<div style="width: 100%;"></div>
19	 KAA Gent (BEL)	11.7	<div style="width: 100%;"></div>
.	 BK Häcken (SWE)	11.7	<div style="width: 100%;"></div>

As mentioned above, the number of instances of high-intensity pressure experienced by each team is dependent on the style of play used. Four style-related variables explain 66% of the differences observed between teams according to the regression model built for this purpose. The model shows that teams under high pressure play a short game, complete a lot of passes and dribbles (Wyscout data) and perform many high-speed sprints (>25 km/h for at least 0.7 seconds, SkillCorner data).

Within the same team, the pressure undergone by players varies considerably depending on the position they occupy. The values per position shown in Figure 4 refer to the averages and medians observed for 5,101 footballers who played in the same position for at least 1,000 minutes in the 28 leagues studied during the period in question.

On average, centre backs experience the fewest instances of high-intensity pressure per game (7.6). With an average value of 9.3, centre forwards are put under more pressure, but this figure remains low compared to other positions, mainly because they touch fewer balls than their teammates. Full backs face an average of 10.6 instances of high-intensity pressure per match, a lower figure than for the three most exposed positions: defensive midfielders (12.3), wingers (13.7) and attacking midfielders (15.6).













**Figure 3: regression model to explain the number of instances of high-intensity pressure experienced by teams**

Variables	coefficient	p
Successful passes (/90')	0.007	0.000 ***
Successful dribbles (/90')	0.109	0.000 ***
Average length of passes	-0.320	0.000 ***
Sprint high (/90')	0.101	0.000 ***
Constant	10.543	0.000 ***

N=504 / R2=0.671 / Adjusted R2=0.669 / Residual Std. Error=0.730 (df=499) / F Statistic=254.6 (p<0.001\*\*\*)

\*\*\* Highly significant

**Figure 4 : number of instances of high-intensity pressure per match, by position**

Position	Average	Median
Centre backs	7.6 	7.3 
Full backs	10.6 	10.2 
Defensive or central midfielder	12.3 	11.9 
Attacking midfielders	15.6 	14.9 
Wingers	13.7 	13.2 
Centre forwards	9.3 	8.9 

### 3. Ball retention

SkillCorner data can also be used to measure a player's ability to cope with pressure from opponents, particularly in terms of their ability to keep possession of the ball. Either the player is always in control of the ball, thanks to a successful dribble for example, or his team maintains possession thanks to a pass. The indicator of the ball retention under high pressure shows the proportion of possessions maintained by the team in relation to the number of instances of high-intensity pressure undergone.

The ranking of the teams that kept the ball best under high pressure is fairly close to that of the teams that were subjected to the most high-intensity pressure instances, the two variables being highly correlated with a coefficient of determination of 0.5 (Figure 5). In both cases, the indicators reflect the style of play practised by clubs. Five teams in Europe's big-5 have the highest percentages of ball retention under high pressure, with a record of 84.2% for Manchester City, followed by Real Madrid, Paris St-Germain, Arsenal and Bayer Leverkusen (Figure 6).

Figure 5: correlation between the number of incidences of high-intensity pressure and the percentage of ball retention, by team

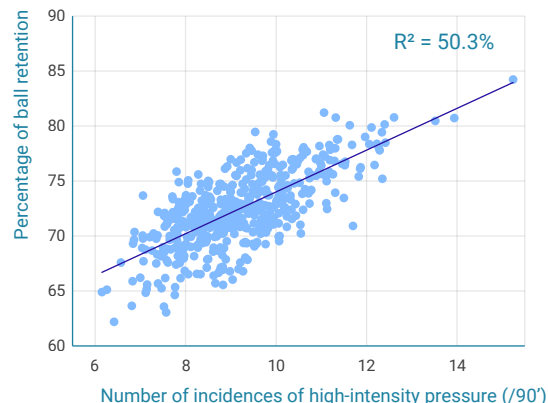


Figure 6: highest ball retention percentage under high-intensity pressure, 28 leagues

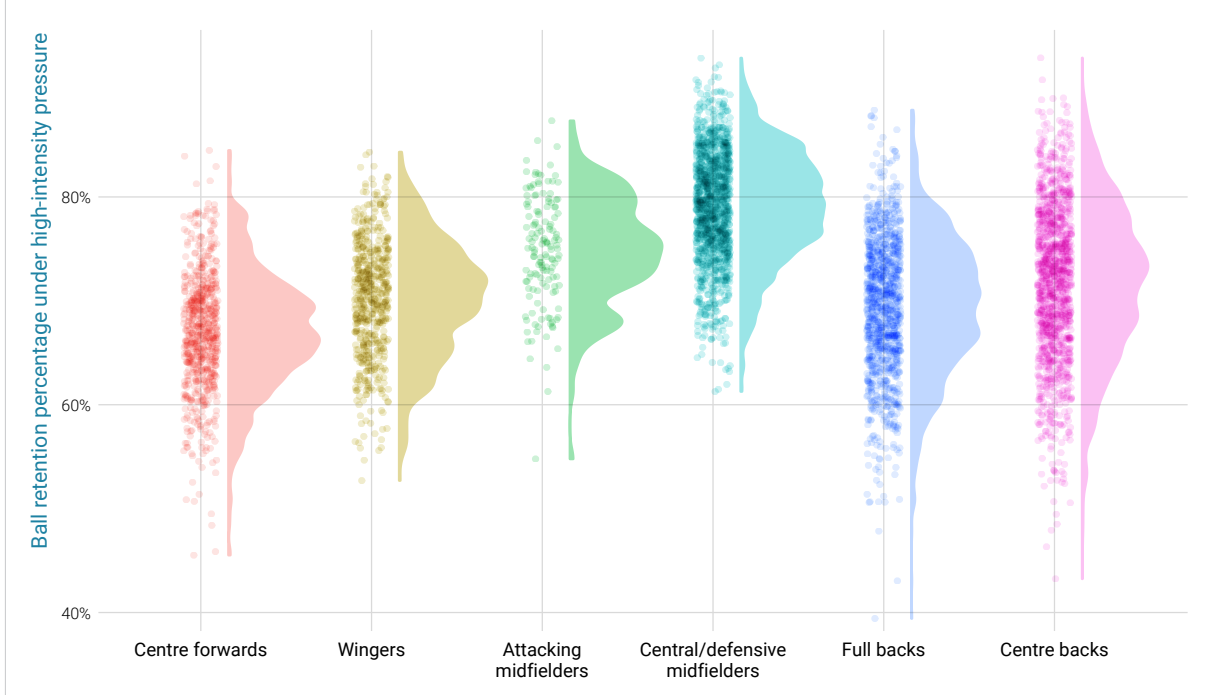
1	Manchester City (ENG)	84.2%	<div style="width: 84.2%;"></div>
2	Real Madrid (ESP)	81.2%	<div style="width: 81.2%;"></div>
3	Paris St-Germain (FRA)	80.8%	<div style="width: 80.8%;"></div>
.	Arsenal FC (ENG)	80.8%	<div style="width: 80.8%;"></div>
5	Bayer Leverkusen (GER)	80.7%	<div style="width: 80.7%;"></div>
6	Columbus Crew (USA)	80.5%	<div style="width: 80.5%;"></div>
7	Southampton FC (ENG/2)	80.1%	<div style="width: 80.1%;"></div>
.	Leicester City (ENG/2)	80.1%	<div style="width: 80.1%;"></div>
9	Bayern München (GER)	79.9%	<div style="width: 79.9%;"></div>
10	Shakhtar Donetsk (UKR)	79.5%	<div style="width: 79.5%;"></div>
11	FC Barcelona (ESP)	79.4%	<div style="width: 79.4%;"></div>
12	Dynamo Kyiv (UKR)	79.2%	<div style="width: 79.2%;"></div>
13	AFC Ajax (NED)	79.0%	<div style="width: 79.0%;"></div>
14	VfB Stuttgart (GER)	78.8%	<div style="width: 78.8%;"></div>
.	Brighton & Hove (ENG)	78.8%	<div style="width: 78.8%;"></div>
16	Atlético San Luis (MEX)	78.6%	<div style="width: 78.6%;"></div>
17	Malmö FF (SWE)	78.5%	<div style="width: 78.5%;"></div>
18	Tottenham Hotspur (ENG)	78.4%	<div style="width: 78.4%;"></div>
.	Chelsea FC (ENG)	78.4%	<div style="width: 78.4%;"></div>
20	CF América (MEX)	78.3%	<div style="width: 78.3%;"></div>

The ability to keep the ball also depends on the position of the players on the pitch. The highest values were recorded for midfielders, both defensive (76.5%) and attacking (72.9%), as well as for centre backs (70.7%). Conversely, the lowest proportion was measured for centre forwards (66.8%), which is linked to the area covered and the conditions in which passes are received. For defensive positions, we note a greater heterogeneity in the values (Figure 8), which refers to the more or less offensive roles attributed to these players depending on the team, particularly at full/wing back level.

Figure 7: ball retention percentage under high-intensity pressure, by position

Centre backs	70.7%
Full backs	68.7%
Defensive or central midfielder	76.5%
Attacking midfielders	72.9%
Wingers	69.8%
Centre forwards	66.8%

Figure 8: statistical distribution of ball retention percentage under high-intensity pressure, by position



#### 4. Modelling at individual level

At player level, over and above the raw ball retention statistics, it is particularly useful to take into account the context in which the footballers play, both in terms of the style of play of the employing team, defined by the number of instances of high-intensity pressures experienced per match, and the position occupied. This allows for a better assessment and comparison of their performance.

The multivariate statistical model developed for this purpose, which includes 6,444 players active in the 28 leagues analysed during the season under review and who experienced at least 100 high-pressure actions while playing in the same position, explains almost 38% of the differences in values observed between players. All the variables considered are highly significant.

We applied this model to the 7,633 players in the leagues studied who had been subjected to at least 80 instances of high-intensity pressure, and calculated a theoretical value in proportion to the different positions occupied. This enabled us to obtain a residual value for each player, representing the deviation from the theoretical value. The higher this value, the best the player's ball retention ability given the pressure faced by his team and his position on the pitch.

Figure 9: regression model to explain the percentage of ball retention under high-intensity pressure

Variables	coefficient	p
Number of high pressures experienced (/90')	1.77	0.000 ***
Wingers	2.37	0.000 ***
Midfielders	10.18	0.000 ***
Full Backs	1.78	0.000 ***
Centre Backs	4.46	0.000 ***
Constant	51.61	0.000 ***

N=6444 / R<sup>2</sup>=0.379 / Adjusted R<sup>2</sup>=0.378 / Residual Std. Error=5.808 (df=6438) / F Statistic=785.6 (p<0.001\*\*\*)

\*\*\* Highly significant

Figures 10a to 10f show the most positive high-pressure ball retention residuals by position. This analysis notably highlights the Croatian Emir Dilaver (HNK Rijeka) among centre backs, Márcio Rafinha (São Paulo FC) among full or wing backs, Sergiy Rybalka (LNZ Cherkasy) among central or defensive midfielders, Caleb Zady Sery (SM Caen, transferred to FK Vojvodina) for attacking midfielders, Hugo Vallejo (Huesca SD) for wingers and Dominique Badji (FC Cincinnati, transferred to Bandirmaspor) for centre forwards.

Figure 10: most positive ball retention under high pressure residuals, by position

(a) Centre backs

1	Emir Dilaver		HNK Rijeka (CRO)	+16.4
2	Riechedly Bazoer		AZ Alkmaar (NED)	+15.5
3	Allyson Aires		Cuiabá EC (BRA)	+15.5
4	Soumaïla Coulibaly		Royal Antwerp (BEL)	+14.6
5	David Lischka		Baník Ostrava (CZE)	+14.5
6	Marcus Danielsson		Djurgårdens IF (SWE)	+14.4
7	Filip Panák		Sparta Praha (CZE)	+14.3
8	Emil Bergström		Panserraikos FC (GRE)	+14.3
9	Rafa Marín		Deportivo Alavés (ESP)	+13.9
10	Bart Schenkeveld		Panathinaikos FC (GRE)	+13.5

(b) Full backs

1	Márcio Rafinha		São Paulo FC (BRA)	+16.6
2	Giorgi Gocholishvili		Shakhtar Donetsk (UKR)	+15.6
3	Ferland Mendy		Real Madrid (ESP)	+15.4
4	Richie Laryea		Vancouver Whitecaps (MLS)	+15.2
5	Mario Šitum		US Catanzaro (ITA/2)	+14.8
6	Bartłomiej Wdowik		Jagiellonia Białystok (POL)	+13.1
7	Noussair Mazraoui		Bayern München (GER)	+13.0
8	Oleksandr Tymchyk		Dynamo Kyiv (UKR)	+12.7
9	Manolis Saliakas		FC St. Pauli (GER/2)	+12.5
10	Jan Gyamerah		FC Nürnberg (GER/2)	+12.1

(c) Central/defensive midfielders

1	Sergiy Rybalka		LNZ Cherkasy (UKR)	+16.2
2	Niklas Dorsch		FC Augsburg (GER)	+15.4
3	Asier Illarramendi		FC Dallas (USA)	+14.7
4	Djihad Bizimana		FK Kryvbas (UKR)	+14.1
5	Amine Oudrhiri		Rio Ave FC (POR)	+13.2
6	Édouard Michut		Adana Demirspor (TUR)	+12.7
7	Ján Greguš		Minnesota United (USA)	+12.1
8	Steven Nzonzi		Konyaspor (TUR)	+12.1
9	Arthur Melo		ACF Fiorentina (ITA)	+11.9
10	Sebastián Pérez		Boavista FC (POR)	+11.9

(d) Attacking midfielders

1	Caleb Zady Sery		SM Caen (FRA/2)	+12.7
2	Renato Augusto		SC Corinthians (BRA)	+11.3
3	Talles Brener		Rukh Lviv (UKR)	+9.2
4	Simon Seidl		Blau-Weiss Linz (AUT)	+9.0
5	Houssein Aouar		AS Roma (ITA)	+6.8
6	Gastón Pereiro		Ternana Calcio (ITA/2)	+6.7
7	Riad Mašala		NK Rudeš (CRO)	+6.7
8	Hakim Ziyech		Galatasaray SK (TUR)	+6.2
9	Pablo Fornals		Real Betis (ESP)	+6.1
10	Oleksandr Pikhalyonok		SK Dnipro-1 (UKR)	+5.3

(e) Wingers

1	Hugo Vallejo		Huesca SD (ESP/2)	+14.8
2	Sergio Díaz		Panetolikos FC (GRE)	+14.2
3	Callum Hudson-Odoi		Nottingham Forest (ENG)	+13.0
4	Kazper Karlsson		Halmstads BK (SWE)	+12.8
5	Willian Borges		Fulham FC (ENG)	+12.6
6	Cristian Montes		CD Eldense (ESP/2)	+12.6
7	Dimitrios Souнас		US Catanzaro (ITA/2)	+12.1
8	Sito Pascual		Asteras Tripolis (GRE)	+11.5
9	Andriy Yarmolenko		Dynamo Kyiv (UKR)	+10.8
10	Sebastián Saucedo		FC Juárez (MEX)	+10.7

(f) Centre forwards

1	Dominique Badji		FC Cincinnati (USA)	+15.4
2	Pylyp Budkivskiy		FK Polissya (UKR)	+14.3
3	Filippo Di Stefano		Ternana Calcio (ITA/2)	+12.4
4	Emanuele Pecorino		FC Südtirol (ITA/2)	+12.1
5	João Pedro		Grêmio FBPA (BRA)	+11.0
6	Ihor Krasnopyr		FC Obolon (UKR)	+10.9
7	Yussuf Poulsen		RB Leipzig (GER)	+10.7
8	Brandon Thomas		PAOK FC (GRE)	+10.6
9	Kenan Yıldız		Juventus FC (ITA)	+10.6
10	Martin Terrier		Stade Rennais (FRA)	+10.5

## 5. Conclusion

The frequency with which players are exposed to high-intensity pressure depends very much on their team's style of play. The more teams play a short, elaborate game that favours possession, the more their footballers will be exposed to high-pressure situations from their opponents.

Similarly, there is a correlation between the average number of high-intensity pressure situations experienced by a team and the proportion of ball retention by players. This result reflects the importance of the role of the team as a whole in individual performances. Footballers in dominant teams are not only particularly gifted, but they also play in a context that is conducive to the full expression of their qualities.

The analysis of the residuals from the statistical model developed by taking into account the teams' style of play and the players' position in order to explain their ability to retain possession under high pressure highlights footballers who perform better than expected. This approach is particularly useful for scouting purposes to target recruits with an unexploited potential.