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Technical and tactical performance in professional female futsal players: a descriptive analysis depending on teams level and playing group

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ABSTRACT

Among the many factors that can affect women's futsal performance, technical and tactical actions can obscure relevant game data, even affecting specialists in both the programming and design of training tasks. This study describes the technical and tactical actions in elite futsal teams, analysing performance measures according to the playing group and team ranking level. One hundred and twenty-eight games from an Elite League in the 2020/2021 season were observed. The variables analysed were grouped into three groups: "Goals and Rules", "Attack" and "Defence". The two-way mixed ANOVA analysis revealed significant effects on attack variables, emphasising Shot to the Post (STP) variable ($F_{1,2} = 19.13$, $p = .04$, $\eta^2 = .90$), Throw-in For (TIF) variable ($F_{1,2} = 75.00$, $p = .01$, $\eta^2 = .97$) and between Defence I (I) variables and playing group condition ($F_{2,4} = 8.74$, $p = .03$, $\eta^2 = .81$). This study observed how consistently those teams positioned at the top developed a higher goal average compared to those teams further down the ranking. The study highlights the significance of the offensive part and the number of goals in the game system and how achieving good numbers in this area can influence. Coaches and athletes can use the intraclass correlation coefficient to demonstrate how specific technical and tactical actions impact performance.

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1. Introduction

Futsal is an intermittent team sport distinguished by very high physical demands involving repetitive high-intensity neuromuscular actions. In particular, futsal is characterised by its dynamism and the rapid succession of plays that generate multiple scoring opportunities. Female futsal player's performance has been

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described using both physiological (Barbero-Alvarez et al., 2015; Lago-Fuentes et al. 2020) and physical variables (Palucci Vieira et al., 2021; Ramos-Campo et al., 2016).

However, there is a lack of ecological study designs to fully describe the performance in both competition and training context (Méndez-Domínguez et al., 2022). One of the causes is that women's specialisation in futsal tends to occur later than men's, generally taking place within less structured environments (Martins et al., 2018; Mascarín et al., 2019).

Moreover, among those with sufficient ecological design in studies of female players, only kinematic parameters (Rico-González et al. 2022; Oliva-Lozano et al., 2021) and injury rates (Lago-Fuentes et al., 2020, 2021; Ruiz-Pérez et al., 2019, 2021;) have been analysed. Thus, while the studies carried out with elite male players (M. Á. Gómez et al., 2015; Méndez et al., 2019; Méndez-Domínguez et al., 2019) shown the importance of including both technical and tactical activities for the performance analysis, the paucity of studies in female players makes it difficult to comprehensively characterise the real demands of the sport for these athletes.

Tactical performance analysis has consistently showed that those teams with more ball possession and complete passes, have a greater chance of winning matches (Méndez et al., 2019). Indeed, it has been reported that attacks initiated during defensive-to-offensive transitions had higher frequencies of shots on goal (Travassos et al., 2012; Vilar et al., 2014). In line with this, Sarmiento et al., (2016), observed that in the Spanish League, more goals were scored during positional attacks (42%) and free kicks (27%) than those coming from other actions, with similar results reported for the Italian league (Amatria et al., 2021). However, as possession time increases, attack efficiency decreases (M. A. Gómez et al., 2019).

As for the fly-goalkeeper plays, Vicente-Vila and Lago-Peñas (2016) reported that the number of shots, goals and effectiveness are not higher than a positional attack of 4 players, with a greater possibility of receiving a goal. On the other hand, during fly-goalkeeper plays and defence situations, the available data seems to suggest that defending with more players in the 6-metre area reduces the number of shots on goal of the opposing team (Méndez-Domínguez et al., 2019). As shown, this type of analysis provides a better characterisation of the specific sport actions that have a greater effect on the final performance allowing the adaptation of the training methods to the reality of the competition.

Following similar research in football, success is achieved through a blend of effective tactics and the right balance of physical and technical performance. Yet, examining physical and technical variables alone can constrain our comprehension and application of research findings in futsal. This limitation arises because a player's performance in this sport is shaped by not only their physical and technical attributes but also their mental and, crucially, tactical factors (Bush et al., 2015; Sarmiento et al., 2014).

Given the lack of studies in futsal analysing technical and tactical performance in women's futsal, the present study aimed to a) describe technical and tactical actions in elite Futsal teams and b) analyse them as performance measures according to the playing group and ranking level.

2. Methods

2.1. Participants

A total of 326 match records (128 matches) were collected from the 2020–2021 regular season across 18 rounds. A total of 18 teams participated, comprising 327 athletes.

2.2. Data collection

Data were recorded, observed, coded and analysed following observational methodology (Anguera & Hernández-Mendo, 2013) and match analysis (Sarmiento et al., 2022).

A 4K video camera with a frame rate of 25 Hz was used to record the data, placed at a height of between 3 and 7 metres in the middle of the field. The observation was carried out by a futsal coach with more than 10 years of experience in training and analysis in high-performance futsal. Eighteen matches (14.1% of the sample) were observed by the researchers of this study to verify the information collected by the observer (Losada & Manolov, 2015), finding a minimum reliability of 0.75 (Intraclass correlation coefficient).

To respect the Helsinki Declaration and guarantee the confidentiality of the participating teams and players, the data were anonymised. As the data were anonymised and the participants were adults, written consent was waived. The research was approved by the Ethics Board of the University of Murcia (approval number 3180/2020).

2.3. Variables

The included variables were divided into three groups (Table 1). The operational definitions of each tactical and technical variable within each group are provided in Table 1 (see meanings in Supplement 1):

- Goals & Rules: the number of goals scored and the regular fouls. In this group, the variables defined by the law regulations (FIFA, 2023) and signalled by the referee of the match were collected.
- Attack: the technical and tactical skills with possession of the ball.
- Defence: the technical and tactical skills without possession of the ball.

For the “game group” analysis, teams were classified into two groups:

- Group 1 (teams: A1, B1, C1, D1, E1, F1, G1, H1 and I1).
- Group 2 (teams: A2, B2, C2, D2, E2, F2, G2, H2 and I2).

By classificatory order with respect to the previous season, the league championship alternately divided the teams into two groups: 1st in group 1, 2nd in group 2, 3rd in group 1 ... Based on this classification, we organised our study considering the ranking tier condition: [Ranking Tier 1 (1st, 2nd & 3rd classified of Groups 1 and 2); Ranking Tier 2 (4th, 5th & 6th classified of Groups 1 and 2); and Ranking Tier 3 (7th, 8th & 9th classified of Groups 1 and 2)].

Table 1. Performance indicators of the analysed technical and tactical variables.

Goals & Rules					
Variable	Abbreviature	Attack		Defence	
		Variable	Abbreviature	Variable	Abbreviature
Fouls	F	Attack disputes	AD	Balls recovered	BR
Goal plays	GP	Attack disputes won	ADW	Defensives Disputes	DD
Goals	G	Ball ossession/min	BPM	Defensives disputes won	DDW
Red cards	RC	Corners in favour	CF	Disputes	D
Yellow cards	YC	Corners in favour finished	CFF	Disputes won	DW
6-metre penalty kicks	6PK	Counterattack	C	Interceptions	INT
6-metre penalty kick scored	6PKS	Counterattacks finalised with shot	CFS	Recoveries in rival field	RRF
10-metre penalty kicks	10PK	Direct free kick goal	DFK	Rejects	R
10-metre penalty kick scored	10PKS	Fly keeper play	FKP	Successful actions	SA
		Free kick goal	FKG	Total actions	AT
		Loss balls	LB		
		Losses in own field	LOF		
		Mean time of possession	MTP		
		Passes	P		
		Positional	PA		
		Positional attacks finalised with shots	PAS		

Information from each game was passed to a spreadsheet (Microsoft Excel) and exported to the SPSS v.26.6 for Mac (SPSS Inc., Chicago, IL U.S.A.) statistical program for analysis (Table 2).

2.4. Statistical analysis

Descriptive statistics are presented as mean and standard deviation unless stated otherwise. The normality of the data distribution was examined using the Kolmogorov–Smirnov test (>50 samples). The influence of classification level and group condition was analysed using a two-way mixed design ANOVA. Subsequently, another two-way mixed design ANOVA for the classification level condition and the group condition was used to analyse all mixed measures. Effect size is indicated by partial eta squared for Fs. For all analyses the alpha level was set at 0.05 (Table 3).

3. Results

The most relevant variables analysing the technical and tactical variables according to the “game group” and the “level of classification” did not show a significant interaction effect or a significant main effect of the “level of classification”. However, there was a significant main effect of the “game group”.

Also, the two-way mixed ANOVA analysis, revealed a significant effect for the variable TIF and playing group condition ($F_{1,2} = 75.00$, $p = .01$, $\eta^2 = .97$). The between-subjects level ($F < 1$) and the interaction ($F < 1$) were not significant.

4. Discussion

The aim of this study was to describe and analyse the technical and tactical actions of elite women’s futsal teams taking into account the playing groups and ranking levels of the teams.

Overall, the results of the categorised descriptive analysis into “Goals & Rules”, “Attack” and “Defence” show the averages of the analysed variables. Both in futsal and in other sports, descriptive analyses of technical and tactical variables have been carried out in order to understand the existing differences and similarities within the game between different teams. Additionally, they try to establish a comparison between different levels of play, describing the performance between winners and losers, home and away teams, as well as in close or open matches.

The most important results of the descriptive analysis showed that in the “Goals & Rules” variable group, teams in the level 1 classification have higher goal averages than teams classified in level 2 and level 3 classification. These results are in line with those reported by M. A. Gómez et al. (2019) and Amatria et al. (2021) in male elite teams. Thus, these data imply that the highest scoring and best attacking teams also have better ranking positions compared to the lowest scoring teams. However, it is difficult to generalise these results, as there is still a limited body of knowledge to compare samples of different genders. Notably, the low frequency of some variables within the so-called “Attack” group, such as FKP ($n = 0.81$), SG ($n = 1.07$)

Table 2. Measured variables in group 1 and groups 2 (mean ± SD).

GV	PM	GROUP 1										GROUP 2										Mean ±SD		Mean ±SD G1/G2
		TM	A1	B1	C1	D1	E1	F1	G1	H1	I1	A2	B2	C2	D2	E2	F2	G2	H2	I2	G1	G2		
Goals & Rules	R	1	2	3	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9				
	G	6.83	3.78	3.72	3.72	3.06	3.22	2.11	2.06	2.22	1.83	4.78	4.39	4.39	4.33	4.50	3.89	3.06	2.50	1.06	3.20(±1.46)	3.65(±1.16)		
	GP	14.00	8.00	8.00	8.00	7.00	10.00	6.00	4.70	6.00	4.80	8.00	8.00	10.00	10.00	9.00	7.00	8.00	5.40	3.90	7.61(±2.76)	7.70(±1.91)		
	F	5.90	5.70	7.00	6.00	6.00	6.00	4.60	6.00	5.00	4.90	7.00	7.00	6.00	5.90	4.50	6.00	6.00	5.20	7.00	5.68(±0.69)	6.07(±0.81)		
	YC	1.25	1.50	1.64	0.85	2.20	0.52	1.04	0.86	0.95	0.95	2.40	1.12	1.32	1.00	0.52	0.86	0.86	0.68	1.33	1.20(±0.48)	1.12(0.52)		
	RC	0.04	0.05	0.08	0.05	0.19	0.10	-	-	-	0.14	0.10	0.12	-	0.17	-	0.05	0.09	-	0.05	0.09(0.05)	0.10(0.04)		
	6PK	2.00	2.00	1.00	5.00	2.00	1.00	-	-	3.00	1.00	-	4.00	1.00	1.00	2.00	1.00	1.00	-	-	2.13(±1.27)	1.67(±1.11)		
	6PKS	0.07	-	0.04	0.25	0.06	0.05	-	-	0.09	0.05	-	0.12	-	0.04	-	-	-	-	-	0.09(±0.07)	0.08(±0.04)		
	10PK	0.21	0.18	0.08	0.15	0.12	0.14	0.08	0.05	0.05	0.24	0.20	0.04	0.16	0.09	0.04	0.27	0.05	0.08	0.05	0.14(±0.06)	0.11(±0.08)		
	10PKS	0.04	-	0.08	0.05	-	0.05	-	-	-	0.10	0.07	0.04	0.08	-	-	0.18	-	0.04	-	0.06(±0.02)	0.08(±0.05)		
Attack	SGO	4.30	2.10	1.96	2.10	2.80	1.24	1.12	1.12	1.27	1.38	2.00	2.30	2.80	2.20	2.40	2.70	1.86	1.24	0.57	2.03(±0.96)	2.01(±0.67)		
	S	43.00	35.00	36.00	33.00	35.00	31.00	31.00	29.00	30.00	29.00	34.00	38.00	43.00	34.00	33.00	33.00	34.00	23.00	20.00	33.44(±4.22)	32.44(±6.62)		
	SG	18.00	15.00	15.00	14.00	15.00	12.00	11.00	11.00	12.00	10.00	14.00	15.00	19.00	15.00	13.00	14.00	14.00	9.00	8.00	13.56(±2.36)	13.44(±3.10)		
	P	515.00	458.00	400.00	425.00	473.00	408.00	427.00	427.00	329.00	390.00	441.00	406.00	433.00	465.00	480.00	463.00	384.00	357.00	363.00	425.00	421.33		
	SP	451.00	382.00	337.00	348.00	406.00	327.00	353.00	353.00	250.00	311.00	377.00	341.00	363.00	390.00	403.00	384.00	312.00	276.00	283.00	(±50.39)	(±43.18)		
	SCP	13.00	7.00	7.00	7.00	6.00	8.00	6.00	5.00	6.00	5.00	9.00	7.00	12.00	10.00	10.00	8.00	8.00	6.00	4.00	7.00(±2.31)	8.22(±2.25)		
	AD	44.00	41.00	47.00	38.00	38.00	36.00	42.00	52.00	39.00	47.00	38.00	38.00	48.00	43.00	46.00	39.00	54.00	46.00	45.00	42.89(±4.82)	44.67(±4.98)		
	ADW	12.00	10.00	12.00	10.00	10.00	9.00	10.00	10.00	12.00	9.00	10.00	10.00	8.00	12.00	12.00	10.00	13.00	11.00	8.00	10.44(±1.17)	10.61(±1.94)		
	T	31.00	30.00	27.00	34.00	31.00	31.00	31.00	31.00	37.00	37.00	25.00	25.00	36.00	32.00	35.00	33.00	31.00	34.00	31.00	32.11(±3.11)	31.33(±3.74)		
	ST	27.00	26.00	22.00	26.00	25.00	27.00	24.00	24.00	31.00	30.00	21.00	21.00	29.00	26.00	30.00	28.00	26.00	27.00	24.00	26.44(±2.63)	25.78(±3.05)		
LB	46.00	60.00	52.00	59.00	59.00	53.00	63.00	61.00	61.00	61.00	58.00	53.00	51.00	55.00	54.00	60.00	56.00	66.00	62.00	57.00(±5.21)	56.78(±4.59)			
LOF	11.00	16.00	12.00	15.00	15.00	11.00	15.00	15.00	19.00	14.00	14.00	10.00	10.00	21.00	12.00	14.00	16.00	13.00	19.00	20.00	14.11(±2.42)	15.00(±3.97)		
Defense	SI	12.00	9.00	9.00	9.00	9.00	9.00	7.00	9.00	8.00	9.00	9.00	11.00	10.00	9.00	11.00	8.00	9.00	8.00	7.00	9.00(±1.25)	9.11(±1.29)		
	STP	0.89	0.50	0.60	0.60	0.60	0.88	0.48	0.25	0.45	0.29	0.63	0.96	1.04	0.70	0.89	0.64	0.77	0.28	0.48	0.55(±0.21)	0.71(±0.23)		
	PA	78.00	74.00	71.00	68.00	71.00	70.00	67.00	71.00	63.00	66.00	70.00	69.00	78.00	71.00	76.00	69.00	72.00	60.00	60.00	69.78(±4.21)	69.44(±5.81)		
	PAS	21.00	15.00	16.00	14.00	14.00	16.00	12.00	13.00	13.00	11.00	17.00	18.00	20.00	17.00	17.00	16.00	14.00	11.00	8.00	14.56(±2.79)	15.33(±3.53)		
	C	9.00	7.00	8.00	7.00	7.00	7.00	7.00	5.90	6.00	7.00	6.00	7.00	9.00	8.00	8.00	8.00	8.00	7.00	7.00	7.10(±0.89)	7.56(±0.83)		
	CFS	4.90	3.30	4.00	3.30	3.90	3.20	2.30	2.30	3.10	3.00	2.80	3.90	4.90	3.90	4.00	3.30	3.60	2.80	2.80	3.44(±0.70)	3.56(±0.67)		
	SP	22.00	22.00	21.00	19.00	19.00	20.00	22.00	20.00	20.00	19.00	23.00	21.00	23.00	32.00	19.00	18.00	23.00	14.00	15.00	20.89(±1.37)	20.44(±5.04)		
	SPS	13.00	14.00	12.00	13.00	13.00	13.00	13.00	13.00	12.00	11.00	14.00	12.00	14.00	14.00	11.00	10.00	14.00	8.00	9.00	12.78(±0.92)	11.44(±2.11)		
	FKP	0.82	0.95	0.96	2.40	1.88	2.60	2.60	2.60	2.60	2.70	1.00	2.40	2.90	1.20	1.87	1.67	0.77	0.77	3.30	3.90	1.77(±0.78)	2.09(±1.05)	
	SG	0.50	0.45	0.68	1.35	1.38	1.57	1.04	1.04	1.41	0.67	1.77	1.85	0.84	1.00	0.89	0.45	0.55	1.56	1.33	1.01(±0.41)	1.14(±0.48)		
DFK	1.00	1.05	0.92	0.75	0.75	0.56	0.29	0.58	0.59	1.76	1.17	1.15	0.92	0.43	0.41	0.95	0.77	0.76	0.57	0.83(±0.40)	0.79(±0.27)			
FKG	0.11	0.14	0.04	-	-	-	0.05	-	-	-	0.14	0.10	0.15	0.08	-	-	0.14	0.14	0.04	-	0.10(±0.04)	0.11(±0.04)		
CF	16.00	16.00	14.00	12.00	12.00	13.00	14.00	14.00	13.00	13.00	14.00	14.00	16.00	16.00	14.00	12.00	13.00	15.00	10.00	9.00	13.89(±1.29)	13.22(±±2.35)		

(Continued)

Table 2. (Continued).

GV	PM	GROUP 1										GROUP 2										Mean ±SD		Mean ±SD G1/G2
		A1	B1	C1	D1	E1	F1	G1	H1	I1	A2	B2	C2	D2	E2	F2	G2	H2	I2	G1	G2			
Defence	TM	8.00	8.00	7.00	6.00	7.00	6.00	5.50	5.40	5.50	6.00	7.00	8.00	7.00	4.80	5.60	7.00	4.00	3.00	6.49(±0.98)	5.82(±1.54)	6.16(±1.33)		
	CFF	2.80	4.50	4.40	5.10	4.90	5.90	5.70	4.80	7.00	3.50	4.40	5.20	3.70	4.90	3.10	5.50	2.80	4.70	5.01(±1.10)	4.20(±0.91)	4.61(±1.08)		
	TIF	2.80	4.50	4.30	5.10	4.80	5.80	5.60	4.70	7.00	3.50	4.30	5.10	3.60	4.80	3.10	5.40	2.80	4.70	4.96(±1.09)	4.14(±0.87)	4.55(±1.07)		
	TES	1405.00	1215.00	1197.00	1084.00	1164.00	1100.00	1186.00	920.00	1030.00	1171.00	1191.00	1233.00	1160.00	1286.00	1242.00	1075.00	958.00	1010.00	1144.56	1147.33	1145.94(±116.66)		
	BPM																			(±127.73)	(±104.40)			
	MTP	11.00	9.00	10.00	9.00	9.00	8.00	9.00	7.00	8.00	9.00	10.00	9.00	9.00	10.00	10.00	8.00	7.00	8.00	8.89(±1.10)	8.89(±0.99)	8.89(±1.05)		
	D	85.00	81.00	88.00	84.00	79.00	86.00	96.00	88.00	97.00	75.00	75.00	99.00	99.00	90.00	95.00	84.00	99.00	85.00	87.11(±5.74)	88.33(±5.71)	87.72(±7.40)		
	DW	45.00	42.00	43.00	43.00	41.00	43.00	43.00	47.00	48.00	38.00	36.00	49.00	47.00	48.00	45.00	47.00	45.00	38.00	43.89(±2.18)	43.67(±4.67)	43.78(±3.64)		
	DD	41.00	41.00	40.00	46.00	43.00	44.00	44.00	49.00	50.00	38.00	36.00	50.00	47.00	48.00	45.00	45.00	47.00	41.00	44.22(±3.33)	44.11(±4.48)	44.17(±3.95)		
	DDW	33.00	32.00	31.00	33.00	32.00	33.00	31.00	38.00	38.00	28.00	27.00	37.00	35.00	36.00	35.00	34.00	35.00	30.00	33.44(±2.54)	33.00(±3.46)	33.22(±3.05)		
Attitude	BR	38.00	40.00	38.00	36.00	35.00	38.00	37.00	38.00	40.00	34.00	35.00	40.00	40.00	44.00	39.00	40.00	40.00	39.00	37.78(±1.55)	39.00(±2.79)	38.39(±2.34)		
	RRE	10.00	11.00	10.00	9.00	7.00	10.00	9.00	9.00	10.00	8.00	8.00	11.00	10.00	10.00	9.00	9.00	10.00	8.00	9.44(±1.07)	9.44(±1.34)	9.44(±1.21)		
	R	49.00	45.00	43.00	41.00	38.00	44.00	37.00	48.00	47.00	36.00	43.00	49.00	42.00	47.00	43.00	44.00	44.00	45.00	43.56(±4.00)	43.67(±3.40)	43.61(±3.71)		
	AT	776.00	723.00	663.00	679.00	716.00	668.00	682.00	601.00	664.00	677.00	651.00	725.00	724.00	757.00	721.00	668.00	623.00	631.00	685.78	686.33	686.06(±48.36)		
	SA	635.00	570.00	519.00	525.00	572.00	509.00	522.00	444.00	499.00	540.00	507.00	566.00	572.00	596.00	569.00	505.00	462.00	467.00	(±45.94)	(±44.54)	532.17(±45.25)		
	INT	41.00	59.00	47.00	55.00	52.00	58.00	52.00	61.00	56.00	47.00	52.00	55.00	50.00	60.00	56.00	57.00	59.00	64.00	53.44(±5.95)	55.56(±4.97)	54.50(±5.98)		

Note: Group of variables (GV); Performance Measures (PM); Team (TM); Ranking tier (R).

DFK ($n = 0.81$) FKG ($n = 0.10$), was not unexpected as neither the description nor the analysis of these variables were found in other studies. Therefore, it is possible that these measures of technical and tactical actions are not relevant for overall performance.

Within the “Defence” group, the results show that D, DW, BR, and R were the most frequent performance variables. Although there were no differences between “game groups” and “ranking levels”, their descriptive analysis could be interesting for comparing technical and tactical strengths and weaknesses among different teams. Although no studies have included these variables as indicators of technical-tactical performance, some evidence in male athletes (Travassos et al. 2012; Vilar et al. 2014) suggests that defensive–offensive transition actions are related to a higher goal conversion rate.

An interesting feature of the group so-called “Percentage mixed variables” is that it could provide coaches with valuable information about the team’s performance, allowing them to set targets for improvement. In this regard, Liu et al., (2016) have suggested that monitoring efficiency rates in football provides important information to analyse the teams’ final performance. Given the paucity of this kind of information in female futsal, the results of the present study and the average values found can be a starting point for teams to adjust their tactical behaviour and technical actions to different environments or opponents.

This was an unexpected finding as it disagrees with our hypothesis that “classification groups” would be the main source of differences. Specifically, the analyses showed a significant effect on the attack variables Shot To the Post (STP) and Throw-In For (TIF). The same trend was also observed in the defence variable STP in the “playing group” condition. However, there was neither a significant main effect of the “classification levels” condition nor a significant interaction effect. Of note, it is worth mentioning that previous studies did not include the STP in their analyses as a measure of performance. Therefore, with no available data for comparison, it is difficult to conclude whether this variable should be used as a technical-tactical performance standard in female futsal. Nevertheless, given that STP may indicate a lack of effectiveness in shots on goal, it would be advisable to conduct a more in-deep analysis of its impact on futsal performance.

We found a significant effect of TIF in the playing group condition. In addition, this was supported by the results indicating the usefulness of the TESTS in the “game groups” 1 and 2 ($M = 2.8-7$). As such, our analysis could indicate that the beginning of the game phases that start with TIF should be one of the training objectives.

In line with the previous results, we found a significant effect of the variable I in the playing group condition. These results are in agreement with those reported by Vilar et al., (2014) in a male athletes, where they noticed that INT was the predominant action to initiate defensive–offensive transitions, and where the highest number of shots on goal followed compared to other actions. Although more data are needed to draw a compelling conclusion, our findings suggest that the analysis of this type of action can be significantly relevant for performance and can be included as an objective to improve defensive actions.

Regarding the use of FKP, the results of the present study and the comparison with the those of the National Indoor Football League (Méndez-Domínguez et al., 2019) allow us to conclude that the use of this attacking system is lower in females compared to male

Table 3. Two-way mixed ANOVA off all variables.

PM	MEGC	METC	IGT	PM	MEGC	METC	IGT
G	$F(1,2) = 1.19 \mid p = .38 \mid \eta^2 = .37$	$F(2,4) = 3.03 \mid p = .15 \mid \eta^2 = .60$	$F < 1$	SA	HNV	HNV	HNV
GP	$F < 1$	$F(2,4) = 2.23 \mid p = .22 \mid \eta^2 = .52$	$F < 1$	SO	$F < 1$	$F < 1$	$F < 1$
SGO	$F < 1$	$F(2,4) = 1.44 \mid p = .33 \mid \eta^2 = .41$	$F < 1$	SI	$F < 1$	$F < 1$	$F < 1$
F	$F(1,2) = 2.54 \mid p = .25 \mid \eta^2 = .56$	$F(2,4) = 2.90 \mid p = .16 \mid \eta^2 = .59$	$F < 1$	*STP	$F(1,2) = 19.13 \mid p = .04 \mid \eta^2 = .90$	$F(1,2) = 4.75 \mid p = .16 \mid \eta^2 = .70$	$F < 1$
YC	$F < 1$	$F < 1$	$F(2,4) = 1.97 \mid p = .25 \mid \eta^2 = .49$	*INT	$F(2,4) = 8.74 \mid p = .03 \mid \eta^2 = .81$	$F < 1$	$F < 1$
RC	HNV	HNV	HNV	PA	$F < 1$	$F < 1$	$F < 1$
S	$F(1,2) = 8.13 \mid p = .10 \mid \eta^2 = .80$	$F(2,4) = 1.06 \mid p = .42 \mid \eta^2 = .34$	$F < 1$	PAS	$F < 1$	$F(2,4) = 1.89 \mid p = .26 \mid \eta^2 = .48$	$F < 1$
SG	$F < 1$	$F < 1$	$F(2,4) = 1.02 \mid p = .43 \mid \eta^2 = .33$	C	$F < 1$	$F(2,4) = 2.04 \mid p = .24 \mid \eta^2 = .50$	$F < 1$
P	$F < 1$	$F(2,4) = 1.06 \mid p = .42 \mid \eta^2 = .34$	$F < 1$	CFS	$F < 1$	$F < 1$	$F < 1$
SP	$F < 1$	$F(2,4) = 2.71 \mid p = .17 \mid \eta^2 = .57$	$F(2,4) = 1.40 \mid p = .34 \mid \eta^2 = .41$	SP	$F < 1$	$F < 1$	$F < 1$
SCP	$F(1,2) = 2.52 \mid p = .25 \mid \eta^2 = .55$	$F(2,4) = 2.41 \mid p = .20 \mid \eta^2 = .54$	$F < 1$	SPS	$F(1,2) = 2.52 \mid p = .25 \mid \eta^2 = .55$	$F < 1$	$F < 1$
D	$F < 1$	$F < 1$	$F < 1$	FKP	$F < 1$	$F < 1$	$F < 1$
DW	$F < 1$	$F < 1$	$F < 1$	SG	$F < 1$	$F(2,4) = 1.81 \mid p = .27 \mid \eta^2 = .47$	$F < 1$
DD	$F < 1$	$F < 1$	$F < 1$	DFK	$F < 1$	$F < 1$	$F < 1$
DDW	$F < 1$	$F < 1$	$F < 1$	CF	$F(1,2) = 11.56 \mid p = .07 \mid \eta^2 = .85$	$F < 1$	$F < 1$
AD	$F < 1$	$F < 1$	$F(2,4) = 1.22 \mid p = .38 \mid \eta^2 = .38$	CFF	HNV	HNV	HNV
ADW	$F < 1$	$F(2,4) = 1.21 \mid p = .38 \mid \eta^2 = .37$	$F < 1$	**TIF	$F(1,2) = 1.60 \mid p = .33 \mid \eta^2 = .44$	$F < 1$	$F < 1$
T	$F < 1$	$F < 1$	$F < 1$	CF	$F(1,2) = 75.00 \mid p = .01 \mid \eta^2 = .97$	$F < 1$	$F < 1$
ST	$F < 1$	$F < 1$	$F < 1$	TES	$F < 1$	$F < 1$	$F < 1$
LB	$F < 1$	$F < 1$	$F < 1$	6PK	HNV	HNV	HNV
LOF	$F < 1$	$F < 1$	$F < 1$	6PKS	HNV	HNV	HNV
BR	$F < 1$	$F < 1$	$F < 1$	10PK	HNV	HNV	HNV
RRF	HNV	HNV	HNV	10PKS	$F(1,2) = 2.89 \mid p = .23 \mid \eta^2 = .59$	$F(2,4) = 1.57 \mid p = .31 \mid \eta^2 = .44$	$F < 1$
R	$F < 1$	$F < 1$	$F < 1$	BPM	$F < 1$	$F < 1$	$F(2,4) = 5.05 \mid p = .08 \mid \eta^2 = .71$
TA	$F < 1$	$F < 1$	$F < 1$	MTP	$F < 1$	$F < 1$	$F(2,4) = 3.5 \mid p = .13 \mid \eta^2 = .63$

Note: Performance measures (PM); Main effect of group condition (MEGC); Main effect of tier condition (METC); interaction group * Tier (IGT); * Denotes significance at $p < .05$. and ** denotes significance at $p < .01$. Has No variance (HNV). Therefore, analysis was not performed.

footballers. Additionally, the results of this study show that the use of this strategy is more frequent in lower-level teams (Méndez et al., 2019), probably because it is a more frequent option when the match result is unfavourable (Sarmiento et al., 2016). The analysis of the fly-goalskeeper play, due to its particular and distinctive characteristics, is one of the performance variables to be observed. In this sense, it remains to be elucidated which are the main variables that could determine performance during this type of game action. Notably, a limitation of this study during data collection was not distinguishing between fly-goalskeeper plays and four-player plays. This in turn could restrict our results as to make methodological proposals in a 4 or 5 player attacking game context.

5. Conclusions

The present study evaluated and analysed the technical and tactical actions during a regular season in elite women's futsal teams in relation to the variables of their playing groups and their ranking levels. Our results showed that teams at the top had higher goal averages than those at the bottom of the ranking. Significant differences were found in attacking variables such as "Shots on goal" (STP) and "Throw-in For" (TIF), and in the defence variable INT in the playing group condition. In addition, a significant trend was also observed in the Fly-Goalskeeper Play (FKP), which shows not only that its use is higher in lower-level teams but also that its presence is lower compared to the men's section. Additionally, variables STP and TIF may indicate a lack of effectiveness during shots on goal actions. From a practical point of view, it may be interesting to introduce predominantly offensive exercises with high components of shots that promote effectiveness and positional attacking actions, helping to produce more of these situations during the game. Altogether, our results, with the addition of INT and FKP, could help coaches design regular tasks to address relevant aspects of futsal performance.

6. Practical applications

Based on the results, discussion and conclusions of this study, the following suggestions for training are made: It is recommended that game strategies in defence combine interception passes and defensive-offensive transitions actions. In attack phases, in training sessions, situations should be created that favour technical and tactical actions involving ball possession and shots on goal.

Disclosure statement

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