SCIENTIFIC JOURNAL OF SPORT AND PERFORMANCE

ORIGINAL ARTICLE

Position specific technical actions within elite academy football across variety of small-sided games

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ABSTRACT

In football, each playing position is required to perform position specific technical actions as part of their role within the team. Whilst the position specific technical actions of senior players in the 11vs11 format have been researched previously, no research has investigated the position specific actions within youth football, and in particular the different small-sided game (SSG) formats utilised. This study aimed to investigate the technical actions of different playing positions in two SSG formats in each of the Under-9 and Under-11 age groups at a Category One Football Academy. Participants were video recorded playing forty minutes in each format commonly played in their age group, with nineteen technical actions observed and analysed. Eight significant differences were found between positions within the 5vs5 format for Under-9s, and seventeen in the 7vs7 format. Twenty-two significant differences were found between positions in the 7vs7 format for Under-11s, and forty-one in the 9vs9 format. The findings of this study suggest that SSG formats with decreased player numbers should be maintained for longer within the foundation phase of youth football, due to the skill acquisition and development opportunities children may miss out on through the more position/role specific nature of larger formats.

Keywords: Performance analysis, Football, Technical actions, Playing position, Skill development, Small-sided games.

Cite this article as:
Conway, K. (2025). Position specific technical actions within elite academy football across variety of small-sided games. *Scientific Journal of Sport and Performance*, *4*(4), 544-556. https://doi.org/10.55860/DRFN1552

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Submitted for publication February 09, 2025.
Accepted for publication April 08, 2025.
Published June 26, 2025.
Scientific Journal of Sport and Performance. ISSN 2794-0586.

doi: https://doi.org/10.55860/DRFN1552

INTRODUCTION

Small-sided games (SSGs) are defined as football matches played with reduced pitch dimensions and fewer players compared to the traditional 11vs11 format (Kelly et al., 2018). SSGs provide age-appropriate focus within youth football and a higher frequency of technical actions (Capranica et al., 2001; Silva et al., 2014). SSGs have been described as enhancing decision-making and simulating game subphases, such as 1vs1 and 2vs1 scenarios, more frequently than larger formats (Fenoglio, 2003; Goncalves et al., 2016). The number of players within SSGs increases as the players progress through the youth pathway at grassroots or academy level, typically beginning with 7vs7 at Under-9, before transitioning to 9vs9 at Under-11 and 11vs11 at Under-13.

SSGs with decreased player numbers demonstrate an increase in technical actions such as receiving a pass from a teammate (Aslan, 2013; Clemente et al., 2019), dribbling (Aslan, 2013; Hinterman et al., 2021), passing (Almeida et al., 2013; Garcia-Angulo et al., 2020), and shooting (Aslan, 2013; Katis and Kellis, 2009), as well as scanning actions (Smith and Conway, 2025). Conway and Smith (2025) investigated English academy specific formats, displaying a similar increase in technical actions as player numbers decrease within SSGs from Under-9 to Under-11, as well as investigating previously unidentified actions such as receiving under pressure from an opposition player, players bypassed through a dribbling action, players bypassed through a forward/penetrating pass and number of touches required per shooting opportunity.

In football, each player within the team fulfils a specific role and requires associated technical actions within their playing position, a key aspect of analysing individual as well as overall team performance (Hughes et al., 2012). The physical demands regarding each playing position have been extensively researched within the literature (Bradely et al., 2010; Di Salvo et al., 2009; Kubayi, 2019). Research investigating the technical actions and demands of elite players is limited (Dellal et al., 2011; Dellal et al., 2010; Taylor et al., 2004) and has focused on basic actions such as passing, tackling and shooting (Praça et al., 2020). Smith and Conway (2025) investigated scanning differences between different playing positions within academy football across a variety of SSG formats, finding that central midfielders performed significantly more scans across all three SSG formats than central defenders wide players and centre forwards.

Yi et al. (2018) investigated the actions of players within the UEFA Champions League, finding that forwards had the highest frequency of shooting opportunities, whilst central defenders had the highest frequency of passes as well as a higher pass accuracy than central midfielders. The finding of an increase in passing for a central defender compared to a central midfielder is comparable to the findings of Praça et al. (2020), whilst Kubayi (2021) found that central midfielders had the highest frequency of passing actions, but central defenders had the higher accurate pass percentage. Ermidis et al. (2019) investigated the actions of international players at the Asian Cup, finding that central defenders had the least dribbling actions, no key passes and an increase in longer passes when compared to other positions. Forwards were found to have the highest frequency of shooting actions and the least passing actions. Dellal et al. (2010) found that central defenders had the least touches and the lowest successful pass percentage.

Whilst it has been established that SSGs with a decrease in player numbers promote a higher frequency of most technical actions, there is currently no research that provides insight into how the technical actions of players varies depending on their playing position within different SSG formats played. In particular, no research has been conducted investigating the technical actions of the different playing positions within youth football, with previous research exclusively being conducted with senior players within the 11vs11 format.

The purpose of this study is to compare the technical actions performed by each playing position in different SSG formats across the Under-9 and Under-11 age groups within an elite English youth football academy. With the previously identified disparity in technical actions between positions performed by elite players in the 11vs11

format, this study aims to provide insight into which format(s) this disparity and shift to position/role specific actions becomes evident.

METHOD

All participants were registered male youth players at a Category-One Football Academy based in the south of England. The perceived standard of practice of each professional club's academy corresponds to the category awarded by the Premier League within the Elite Player Performance Plan (EPPP), with each academy undergoing an internal audit process where they are categorised from One to Four, with Category One academies graded the highest (The Premier League Elite Player Performance Plan, 2012). Players were recruited depending on the necessary formats for each age group, as outlined in Table 1 below. In total, 28 outfield players were utilised across the two age groups: Under-9 and Under-11. Of these 28 players, 24 had been registered with the club from the beginning of their Under-9 season, with 4 joining after successful trial periods through identification by the club's recruitment department within their grassroots clubs. All players trained three times per week with the club, as well as engaging in the club's games programme against other academy teams. All participants were free from injury at the time of testing. Participant background is outlined in Table 2.

Table 1. Age group formats, ball size, pitch and goal dimensions.

	SSG		RSG			
	Format (Outfield Players Used)	Pitch Dimensions (Yards)	Format (Outfield Players Used)	Pitch Dimensions (Yards)	Goal Dimensions (metres)	Ball size
Under-9	5vs5 (8)	40x25	7vs7 (12)	60x40	6x12	3
Under-11	7vs7 (12)	60x40	9vs9 (16)	80x50	7x16	4

Table 2. Participant background.

	Playing Background			Birth Quartile (Q)			
	Total Outfield Players	Recruited from Pre-Academy	Recruited Externally	Q1 (Sept. – Nov.)	Q2 (Dec. – Feb.)	Q3 (Mar. – May)	Q4 (June – July)
Under-9	12	12	0	7	4	1	0
Under-11	16	12	4	8	4	3	1
Total	28	24	4	15	8	4	1

Procedures

The lead researcher was employed within the coaching department of the academy in this study. The researcher had been employed by the club for four seasons at the time of the study and had achieved the UEFA B License and FA Advanced Youth Award qualifications. English football academies have been described as inaccessible environments (Cushion and Jones, 2014), providing the researcher with a unique insight that would add value to existing literature on technical actions and game formats. The parents/guardians of the participants were provided with an information sheet that outlined the objectives and procedures of the study, as well as requiring informed consent prior to participation in the study. All participants and parents/guardians were provided with the opportunity to withdraw from the study should they wish, and they would not be part of the games within that training session. However, there were no objections to participation from any parents/guardians or players. Ethical approval was granted from the university's research ethics committee prior to data collection.

Data was collected over a period of four weeks. Two formats commonly played by each age group in their training and games programme were applied, as identified by each age-group coach (see Table 1). 'Format one' was the small-sided game format (SSG) that each group would occasionally play within their games programme, whilst 'format two' is their regular-sided game format (RSG) that was more frequently played. The pitch dimensions, goal size and ball size are all outlined in Table 1, in accordance with the 'FA guide to pitch and goalpost dimensions' (Football Association, 2012). The teams and formations for each game were selected by the lead coach of the age group to evenly distribute ability and playing position based on their perception, expertise, and experience.

The games were refereed by another of the age group's coaches. Positions utilised included Central Defender (CD), Full Back (FB), Central Midfielder (CM), Wide Midfielder (WM) and Central Forward (CF).

Data for each individual age-group was collected over a period of two weeks. In week one, two periods of 20 minutes were performed by the participants for one game format, with a 5-minute rest period in between, consistent with what the participants would usually perform on a matchday. The following week, this was repeated with the second format. Aligning with the work of Aguiar et al. (2012), standardised conditions were maintained within the different formats, to allow for a better understanding of the role of individual factors that may help researchers to find more reliable conclusions. For example, playing and rest periods were consistent to what the players usually experience within their games programme, and there was consistent application of the rules such as offside, whilst coach interference was not utilised, so as to not influence the players' actions and decisions within the research protocol.

All games were scheduled during the youth players regular training programme, beginning at 5.30pm after a 30-minute warm-up performed by members of the Sport Science department. All SSGs and RSGs were conducted on a third-generation artificial turf surface at the club's training ground that the players would regularly train on. Following explanation of the rules prior to the game, the participants played freely with no coaching input. Footballs were placed surrounding the pitch at 10m intervals to ensure quick restarts to maximise ball-rolling time within the games. Each game was recorded via two fixed internet protocol cameras within the club's training ground, by a member of the performance analysis staff. One camera was fixed providing a vertical view of the pitch, whilst the other provided a horizontal view. Each camera was fixed at a height of 40 feet above the pitch.

Alongside the information obtained from prior literature within the subject area, clear and concise operational definitions were utilised from Conway and Smith's study (2025) investigating technical actions across a variety of SSGs within academy football. Within observation, the computerised sport analysis software iCODA was utilised to analyse the recording via a specifically designed code window to incorporate the key technical actions that the researchers sought to analyse. For the purpose of this study, goalkeeper in-possession data was excluded from outfield player results, due to the potential to skew the results for the outfield players due to the different positional requirements in-possession.

Data analysis

Normality of the variances was tested via the Shapiro-Wilks and the Kolmogorov-Smirnov tests for normality of distribution statistic, which found that the data did not meet parametric assumptions. Thus, with the data being non-parametric, a Kruskal-Wallis H test was utilised to find technical actions within each game format that contained a significant difference between positions. Once identified, the action which demonstrated significant difference between positions was further explored through individual Mann-Whitney U tests to find which positions were significantly different to each other. Statistical analysis was performed using the Statistical Package for Social Sciences software V28.0 (IBM, SPSS), and the statistical significance level was set at $p < .05$.

Reliability

Intra-observer and inter-observer reliability analysis were each conducted on 10% of the data collected (Cooper and Pulling, 2020; Pulling et al., 2018). 10% of data collected accounted for 10 participants. Intra-observer reliability was performed two weeks following the completion of the initial coding to account for limiting recollection of the event (O'Donoghue, 2014). The inter-observer reliability test involved a performance analyst at the club where the study was conducted, with 3 years in the role and previous experience using Sportscode. Operational definitions were provided as well as a 30-minute training session on how to conduct the analysis of the footage. Intra-class correlation coefficient was utilised to assess reliability. Data was tested for absolute agreement through the two-way mixed model, with 95% confidence intervals set. Inter-observer and intra-observer reliability is

outlined in Table 4. Strength of reliability 0.9 and above was deemed excellent, between 0.75 and 0.9 deemed good, and between 0.5 and 0.75 deemed moderate (Koo and Li, 2016).

Table 3. Technical action definitions.

In-Possession Actions	
Possession	Total individual possessions player obtains.
Touches	Total amount of touches player has on the ball – excluding non-deliberate contacts e.g., blocks, deflections.
Total Receive	Total times a player attempts to receive the ball.
Total Receive Under Pressure	Total times a player attempts to receive a deliberate pass from a teammate, with physical contact from opposition player 1 second before/after 1st ball contact.
Penetration Dribble	Player attempts to dribble directly at opposition player with aim of getting past them towards opposition goal.
Turn Dribble	Player attempts to manipulate the ball to change direction of their dribble.
Exploit Dribble	Player attempts to exploit open space with a dribble.
1st Touch Dribble	Player attempts to use their 1st touch to evade an opposition player.
Total Dribble	Total amount of attempted dribbles.
Players Beaten by a Dribble	Opposition players evaded in a dribbling situation that has allowed the player to play forward towards the opposition goal.
Release Actions	
Total Passes	Total amount of attempted passes.
Pass Behind	A pass when the ball is played towards the goal that the player is defending.
Pass Beside	A pass when the ball was neither played towards the goal that the player is defending or towards the opponent's goal.
Pass Ahead	A pass when the ball is played towards the opponent's goal.
Players Beaten by a pass	Number of players beaten by a penetrating forward pass.
Total Shots	Total amount of attempted shots.
1 Touch Shot	A shot from 1 touch.
2 Touch Shot	A shot from 2 touches..
3+ Touch Shot	A shot from more than 3 touches

Table 4. Intra-class correlation coefficient.

Technical Action	Inter-Observer		Intra-Observer	
	ICC Value	Strength of Reliability	ICC Value	Strength of Reliability
Possession	0.980	Excellent	0.996	Excellent
Touches	0.988	Excellent	0.999	Excellent
Total Receive	0.942	Excellent	0.976	Excellent
Total Receive Under Pressure	0.971	Excellent	0.965	Excellent
Penetration Dribble	0.995	Excellent	0.997	Excellent
Turn Dribble	0.977	Excellent	0.988	Excellent
Exploit Dribble	0.842	Good	0.945	Excellent
1st Touch Dribble	1.000	Excellent	1.000	Excellent
Total Dribble	0.990	Excellent	0.994	Excellent
Players Beaten by a Dribble	0.972	Excellent	0.995	Excellent
Total Passes	0.839	Good	0.991	Excellent
Pass Behind	0.972	Excellent	0.772	Good
Pass Beside	0.962	Good	0.881	Good
Pass Ahead	0.936	Excellent	0.935	Excellent
Players Beaten by a pass	0.972	Good	0.986	Excellent
Total Shots	1.000	Excellent	0.991	Excellent
1 Touch Shot	1.000	Excellent	1.000	Excellent
2 Touch Shot	1.000	Excellent	0.919	Excellent
3+ Touch Shot	1.000	Excellent	1.000	Excellent

RESULTS

Under-9

Within the Under-9 age group, significant difference was found within 3 actions in the 5vs5 format, with 8 significant differences between positions, and 7 actions within the 7vs7 format, with 17 significant differences between positions found. Following Mann-Whitney U tests, within 5vs5 it was found CFs experienced significantly more

receiving under pressure than other positions, whilst having significantly fewer forward passes and exploiting space dribbles than CDs and WMs. CDs experienced significantly more exploiting space dribbles and forward passes than WMs. 7vs7 demonstrated similar trends in that CFs had significantly fewer passing actions than the other three positions as well as significantly fewer forward passes than CDs and CMs, with these positions demonstrating significantly higher forward passes and players beaten by a forward pass. There was significant difference found in shooting actions, with CFs generally showing a higher proportion of these actions in this format.

Table 5. Under-9 5vs5 Kruskal-Wallis H.

	Total frequency			Mean rank			Kruskal Wallis H	Significance
	CD (n = 4)	WM (n = 8)	CF (n = 4)	CD (n = 4)	WM (n = 8)	CF (n = 4)		
Possession	101	172	89	10.88	7.88	7.38	1.387	.5
Touches	297	465	211	11.5	7.94	6.63	2.324	.313
Total receive	47	68	35	11.75	7.13	8	2.63	.269
Total receive under pressure	4	17	25	4.5	7.56	14.38	9.801	.007
Penetration	16	32	15	9	8.56	7.88	0.117	.943
Turn	16	32	16	8.38	8.69	8.25	0.027	.986
Exploit	15	15	1	13.5	8.56	3.38	9.365	.009
1st Touch	7	9	5	10.5	7.88	7.75	1.034	.596
Total 1vs1	54	88	37	10.13	8.44	7	0.87	.647
Players beaten	18	42	16	8	9.38	7.25	0.602	.74
Total pass	66	101	50	10.88	7.69	7.75	1.336	.513
Backwards	10	26	29	6.25	8.13	11.5	2.608	.271
Sideways	13	26	8	9.88	9.13	5.88	1.779	.411
Forward	23	18	2	13.63	8.56	3.25	9.939	.007
Players beaten	27	20	6	12.63	8.13	5.13	5.232	.073
Total thot	17	42	17	7.38	9.69	7.25	1.019	.601
One touch	6	15	8	6.75	9.31	8.63	0.811	.667
Two touches	1	12	5	4.38	10.38	8.88	4.681	.096
Three plus touches	10	15	4	10.38	8.63	6.38	1.536	.464

Table 6. Under-9 5vs5 Mann-Whitney U.

Technical action	Positions	MWU	Z	Significance
RUP	CD + CF	0	-2.323	.02
	WM + CF	0.5	-2.704	.007
Exploiting space dribble	CD + WM	4	-2.075	.038
	CD + CF	0	-2.381	.017
	WM + CF	3.5	-2.197	.028
Forward pass	CD + WM	3.5	-2.173	.03
	CD + CF	0	-2.352	.019
	WM + CF	3	-2.311	.021

Table 7. Under-9 7vs7 Kruskal-Wallis H.

	Total frequency				Mean rank				Kruskal Wallis H	Sig.
	CD (n = 8)	CM (n = 4)	WM (n = 8)	CF (n = 4)	CD (n = 8)	CM (n = 4)	WM (n = 8)	CF (n = 4)		
Possession	118	60	127	49	12.13	12.5	14.94	8.38	2.348	.503
Touches	356	140	365	132	13.19	9.5	15	9.13	2.708	.439
Total receive	61	26	50	28	13.63	11.25	11.88	12.75	0.406	.939
Total receive under pressure	6	9	11	10	8.81	15	12.38	17.63	5.075	.166
Penetration	15	1	22	9	12	5.13	15.56	14.75	6.592	.086
Turn	15	5	17	11	11.19	8.38	14.13	16	3.267	.352
Exploit	13	2	14	2	14.19	8.5	14.44	9.25	3.483	.323
1st Touch	1	4	4	2	8.94	17.38	13.25	13.25	5.423	.143
Total 1vs1	45	12	57	24	11.94	7	15.13	13.88	3.755	.289
Players beaten	11	4	16	8	11.13	9.13	14.56	14.5	2.338	.505
Total pass	93	43	75	19	14.88	15.75	13.31	2.88	9.374	.025
Backwards	10	5	13	8	11.38	11	12.88	15.5	1.249	.741
Sideways	19	12	20	3	13	17	13.75	4.5	7.376	.061

Forward	38	15	10	4	17.56	16.13	8.31	7.13	10.658	.014
Players beaten	40	18	10	2	16.94	17.13	8.88	6.25	10.411	.015
Total shot	4	7	9	19	8.56	14.25	11.5	20.63	9.167	.027
One touch	0	2	2	6	9.5	12.75	12.13	19	8.408	.038
Two touches	1	5	3	5	8.5	17.5	11.5	17.5	9.666	.022
Three plus touches	3	0	4	8	11.38	8.5	11.56	20.63	9.87	.02

Table 8. Under-9 7vs7 Mann-Whitney U.

Technical action	Positions	MWU	Z	Significance
Total pass	CD + CF	1	-2.57	.01
	CM + CF	0	-2.323	.02
	WM +CF	0.5	-2.651	.008
Forward pass	CD + WM	7.5	-2.612	.009
	CD + CF	2.5	-2.321	.02
Players beaten by a forward pass	CD + WM	10	-2.34	.019
	CD + CF	3	-2.231	.026
	CM + WM	4	-2.075	.038
	CM + CF	1	-2.097	.036
Total shot	CD + CF	1.5	-2.634	.008
	WM +CF	3.5	-2.181	.029
One touch shot	CD + CF	4	-2.675	.007
Two touches shot	CD + CM	4	-2.683	.007
	CD + CF	4	-2.683	.007
Three touches shot	CD + CF	3.5	-2.289	.022
	CM + CF	0	-2.477	.013

Under-11

Within the Under-11 age group, significant differences were found within 9 actions in the 7vs7 format, with 22 significant differences between positions found, and 9 actions within the 9vs9 format, with 41 significant differences between positions. Similar trends are evident within the 7vs7 format with regards to CDs demonstrating significant difference in an increase in forward passes (CM, CF) and players beaten by a forward pass (CM, WM, CF). CDs also saw a significant difference in penetration dribble (CM, WM), exploit dribble (WM) and total 1vs1s (WM) compared to other positions. WMs demonstrated a significant decrease in several actions compared to other positions, such as touches (CD, CM), RUP (CM, CF), penetration dribble (CD), exploit dribble (CD, CM), and total 1vs1 (CD). RUP was an action demonstrated most by CMs and CFs with significant difference to WMs and CDs. Within the 9vs9 format, CDs exhibited significantly fewer touches (FB, CM, CF), total 1vs1 (FB, CM, CF), and players beaten by a dribble (CM). CMs demonstrated significant increase in touches (CD, FB, WM, CF), RUP (WM, FB), total 1vs1 (WM, FB), players beaten by a dribble (CD, WM), forward pass (CF) and players beaten by a forward pass (WM, CF). CFs demonstrated significantly higher shooting actions than all other positions.

Table 9. Under-11 7vs7 Kruskal-Wallis H.

	Total Frequency				Mean Rank					
	CD (n = 7)	CM (n = 5)	WM (n = 8)	CF (n = 4)	CD (n = 7)	CM (n = 5)	WM (n = 8)	CF (n = 4)	Kruskal Wallis H	Sig.
Possession	101	72	102	49	13.86	14.4	11.44	9.88	1.376	.711
Touches	300	240	256	161	14.93	17.4	7	13.13	8.119	.044
Total receive	58	31	51	13	17.21	11.4	13.31	4	9.408	.024
Total receive under pressure	8	11	7	16	9.21	17.3	7.44	22.38	17.703	.001
Penetration	23	6	15	7	18.43	8	11.19	10.38	8.104	.044
Turn	18	18	14	15	12.36	16	8.19	17	6.13	.105
Exploit	16	12	3	8	15.57	16.6	5.88	15.25	11.553	.009
1st Touch	1	1	0	0	13.21	13.9	11.5	11.5	2.21	.53
Total 1vs1	58	37	32	30	16.93	14.4	6.38	14.63	9.63	.022
Players beaten	17	4	11	8	16.71	7.6	10.81	14.63	6.063	.109
Total pass	56	49	61	26	15.43	16	10.5	7	5.635	.131
Backwards	9	9	12	11	8.5	13.9	11.5	19.75	8.446	.038

Sideways	13	18	18	5	10.57	17.6	13.38	7.75	5.267	.153
Forward	20	9	15	5	17.79	10.8	12.13	6.13	8.709	.033
Players beaten	45	16	17	4	20.64	13.4	8.81	4.5	17.037	.001
Total shot	18	10	18	13	13	10.4	11.63	16	1.656	.647
One touch	8	3	7	3	14.79	10	12.75	11.13	1.867	.601
Two touches	4	4	4	4	10.29	14.7	12.19	14.25	1.915	.59
Three plus touches	6	3	7	6	10.93	11.5	13.25	15	1.21	.751

Table 10. Under-11 7vs7 Mann-Whitney U.

Technical action	Positions	MWU	Z	Significance
Touches	CD + WM	8	-2.319	.02
	CM + WM	3	-2.499	.012
Receive	CD + CF	0	-2.683	.007
	CM + CF	0.5	-2.42	.016
Receive under pressure	CD + CM	2	-2.801	.005
	CD + CF	0	-2.893	.004
	CM + WM	2	-2.797	.005
	CM + CF	0.5	-2.453	.014
	WM +CF	0	-2.828	.005
Penetration dribble	CD + CM	3	-2.456	.014
	CD + WM	11	-2.02	.043
Exploit dribble	CD + WM	5.5	-2.726	.006
	CM + WM	0	-3.075	.002
Total 1vs1	CD + WM	2	-3.028	.002
	CM + WM	7	-1.963	.05
Backwards pass	CD + CF	2	-2.44	.015
	WM +CF	5	-2.088	.037
Forwards pass	CD + CM	6	-2.101	.036
	CD + CF	1.5	-2.465	.014
Players beaten by a forward pass	CD + CM	1	-2.713	.007
	CD + WM	1.5	-3.097	.002
	CD + CF	0	-2.664	.008
	CM + CF	0.5	-2.367	.018

Table 11. Under-11 9vs9 Kruskal-Wallis H.

	Total Frequency					Mean Rank						
	CD (n = 4)	FB (n = 8)	CM (n = 10)	WM (n = 4)	CF (n = 6)	CD (n = 4)	FB (n = 8)	CM (n = 10)	WM (n = 4)	CF (n = 6)	Kruskal Wallis H	Sig.
Possession	42	96	152	47	73	10.25	14.19	22.8	13.13	15.5	7.449	.114
Touches	81	239	498	116	208	4.13	12.13	27.05	11.25	16.5	22.623	.001
Total receive	21	52	85	31	35	9.75	14.56	21.7	20	12.58	7.223	.125
Total receive under pressure	7	2	27	4	12	18.63	5.75	23.35	12.5	20.67	19.329	.001
Penetration	0	6	12	4	7	7.5	15.13	19.1	17.25	19.5	5.984	.2
Turn	0	10	38	4	16	5.5	15	12.13	20.95	21.33	10.905	.028
Exploit	4	11	16	4	7	14.38	17.31	18	14.25	15.83	0.84	.933
1st Touch	1	2	1	0	1	18	18	14	15.6	16.67	1.73	.785
Total 1vs1	5	29	67	12	31	3.63	14.06	22.7	11.25	21.5	15.717	.003
Players beaten	1	7	20	1	7	9.25	15.38	22.1	9.25	18.33	9.543	.049
Total pass	34	80	117	33	38	14.5	18.69	22.05	12.25	8.5	9.46	.051
Backwards	9	13	23	8	16	17.88	12	17.75	15	20.5	3.745	.442
Sideways	5	13	32	8	11	11.88	13.5	22.65	14.13	14.92	7.246	.123
Forward	15	35	38	6	3	20.88	20.5	20.55	11.25	5	14.881	.005
Players beaten	23	46	73	4	3	19.88	20.25	22.8	7.13	5	19.624	.001
Total shot	0	3	13	3	17	6.5	10.63	18.75	14.75	28.42	19.828	.001
One touch	0	2	6	2	5	10	13.75	18.15	17.5	21.08	5.856	.21
Two touches	0	0	3	0	4	13.5	13.5	18.15	13.5	21.75	8.311	.081
Three plus touches	0	1	4	1	8	10.5	12.44	16.7	14.38	27	15.175	.004

Table 12. Under-11 9vs9 Mann-Whitney U.

Technical action	Positions	MWU	Z	Significance
Touches	CD + FB	2	-2.378	.017
	CD + CM	0	-2.828	.005
	CD + CF	1.5	-2.252	.024
	FB + CM	1	-3.465	.001
	CM + WM	0	-2.828	.005
	CM + CF	3.5	-2.879	.004
Receive under pressure	CD + FB	2	-2.59	.01
	FB + CM	2	-3.478	.001
	FB + WM	4	-2.345	.019
	FB + CF	2	-2.999	.003
	CM + WM	4	-2.387	.017
Turn	CD + FB	2	-2.533	.011
	CD + CM	6	-2.12	.034
	CD + CF	0	-2.666	.008
Total 1vs1	CD + FB	1	-2.608	.009
	CD + CM	0	-2.854	.004
	CD + CF	0.5	-2.522	.012
	FB + CM	15	-2.258	.024
	CM + WM	6	-2.002	.045
Players beaten by a dribble	CD + CM	6	-2.046	.041
	CM + WM	6	-2.046	.041
Forward Pass	CD + CF	0	-2.631	.009
	FB + CF	1.5	-2.957	.003
	CM + WM	7.5	-1.814	.07
	CM + CF	1.5	-3.138	.002
Players beaten by a forward pass	CD + WM	0	-2.337	.019
	CD + CF	0	-2.648	.008
	FB + WM	2	-2.403	.016
	FB + CF	1.5	-2.947	.003
	CM + WM	0	-2.841	.004
	CM + CF	0	-3.286	.001
Total shot	CD + CM	4	-2.395	.017
	CD + WM	2	-2.049	.04
	CD + CF	0	-2.683	.007
	FB + CM	17	-2.178	.029
	FB + CF	0	-3.202	.001
	CM + CF	6.5	-2.629	.009
	WM + CF	0	-2.631	.009
Three plus touches shot	CD + CF	0	-2.828	.005
	FB + CF	2.5	-3.103	.002
	CM + CF	10	-2.469	.014
	WM + CF	2.5	-2.318	.02

DISCUSSION

The purpose of this study was to compare the technical actions performed by each position in a variety of SSG formats across the Under-9 and Under-11 age groups within an elite English youth football academy. This study found little significant difference between positions for the U9 age-group within the 5vs5 format, however as the age group and SSG format increased, more significant differences were found between positions.

Within the Under-9 age group, significant difference was found within 3 actions in the 5vs5 format, with 8 significant differences between positions, and 7 actions within the 7vs7 format, with 17 significant differences between positions found. Within the Under-11 age group, significant differences were found within 9 actions in the 7vs7 format, with 22 significant differences between positions found, and 9 actions within the 9vs9 format, with 41 significant differences between positions.

Within the 9vs9 format for U11s, CDs had significantly fewer touches, total 1vs1 moments and players beaten by a dribble than multiple other positions. These findings are comparable with those of Ermidis et al. (2019) who found that CDs had the least dribbles, whilst Dellal (2010) found that CDs had the least touches. The findings for CDs within the 9vs9 format are significant as within the other formats within this study, no significant decrease was found in any actions when compared to other positions. Additionally, within the 7vs7 format for U11s, CDs in fact had a significant increase in five actions (forward passes, players beaten by a forward pass, penetration dribble, exploit dribble, and total 1vs1s) compared to multiple other positions within each action. These findings suggests that as the SSG format increases, the role of a CD whilst in possession decreases, with more role specific actions resembling the 11vs11 format at adult level.

Within the 9vs9 format for U11s, it is also evident the increasing influence of the central midfielder when compared to other positions. There were few actions within the 7vs7 format that were significantly increased for a CM, however the 9vs9 format demonstrated a significant increase in six actions (touches, receiving under pressure, total 1vs1, players beaten by a dribble, forward pass, and players beaten by a forward pass) when compared to multiple other positions for each action. These findings relate to those of Ermidis et al. (2019), who described how the CM was a critical position in which all play went through. The findings of this study demonstrate that at the 9vs9 format, more role specific actions are experienced by youth players within SSGs comparable to the adult 11vs11 game.

Within the English academy football system, the Premier League has described the Foundation Phase (U9-U11) as having a focus on mastery of the ball and 1vs1 skills, whilst the Youth Development Phase (U12-U16) introduces tactical understanding of the game (Premier League, 2022). From a neurodevelopment perspective, the ages 6-11 are deemed critical in sporting development due to synergy of physiologic, neurologic and musculoskeletal systems allowing children to adopt more complex motor patterns (Brenner, 2016). Therefore, children in these ages require opportunities to practice fundamental skills, with remediation of weakness, with a focus on technical/skill development and optimising attempts, rather than performance (Patel et al. 2017). In the early years of deliberate practice, a process of experimentation of a variety of game requirements is encouraged, thus providing children with developing appropriate adaptation skills related to tactical creativity (Memmert, 2015).

Furthermore, with specific focus on the foundation phase of youth football academies, the findings of this study suggests that as the age-group and SSG format increases, the technical actions are more position/role specific, as opposed to the variety provided within each position as demonstrated with the U9 5vs5 findings. This is worth considering for academy stakeholders, as the benefits of providing variety in skill acquisition and development within technical actions in these age groups cannot be overlooked. The literature suggests that smaller SSG formats provide benefits in an increase in technical actions (Conway and Smith, 2025), whilst this study supplements these findings to demonstrate that smaller formats also provide players with variety in the actions they are exposed to within each position/area of the pitch. Smith and Harrison (2023) have described how there is a culture of racing to 11vs11 within English youth football, a culture which contains detrimental effects towards youth development. By moving to larger SSG formats such as 9vs9 and 11vs11 too early in youth development, the technical actions youth players can practice and perform become less varied and more position/role specific, thus neglecting elements of their skill acquisition and development in the foundation phase. The findings of this study recommend that smaller SSG formats are maintained for a longer duration within the foundation phase, to enable a more varied skill development environment for youth players and their practice of a range of technical actions.

These finding should also be considered by academy football stakeholders when evaluating each individual players' development needs, particularly within the 9vs9 format where more position/role specific actions are observed. Should a player have an identified technical action within their individual development plan, the insights of this study can provide guidance into which positions and which SSG formats will provide the player the

opportunity to practice this action most frequently. For example, if a player requires development of their receiving under pressure, CM would be a more appropriate position for them to be exposed to, as opposed to WM and FB, in order to experience more frequent repetition of this action.

CONCLUSION

This study found that as SSG format increases with elite youth academy footballers progressing through the foundation phase, players' technical actions become more position/role specific. The findings from this study support that youth players should not be rushed to larger formats too quickly within their development, as they may miss out on the development of a wider variety of technical actions within this skill acquisition phase. The position/role specific findings within the 9vs9 format may support coaches with the individual development plan of their players, helping to expose them through their playing position to the appropriate technical actions that require repetition of practice. A limitation of this study is the exclusion of the 11vs11 format, traditionally introduced at U13 within the English academy system, an area which warrants further research.

SUPPORTING AGENCIES

No funding agencies were reported by the author.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

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