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Talent Identification and Development Processes of Female Soccer Academies from the Top Three Tiers in England

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Abstract

Considering the continued growth and professionalism within female soccer in England, the need to optimize talent identification (TiD) and talent development (TDev) processes has become increasingly critical. However, a dearth of information regarding how clubs identify and nurture talent within their academies (Curran et al., 2019) limits understanding of key processes that influence player progression. This study aimed to address this gap by exploring current practices of TiD and TDev across academies affiliated with clubs in the highest three league tiers in England. Academy directors from 26 clubs completed a 31-question online survey that assessed club structure, recruitment and development strategies, and player attrition. Data were analyzed using descriptive statistics for multiple-choice ($n = 13$), checkbox ($n = 7$), and Likert scale ($n = 5$) questions, alongside thematic analysis of open-ended questions ($n = 6$) to identify differences across age categories and league tiers. Findings highlighted a scarcity of dedicated recruitment departments in youth structures, limiting selection decisions primarily to coaches and academy directors. While recruitment efforts focused increasingly on senior team preparation at older age categories, clubs consistently prioritized the personal development of players across all ages. Recruitment and development practices became more professionalized and multidisciplinary at higher age categories and league tiers. However, clubs continue to navigate challenges as they endeavor to expand and optimize these processes. These findings provide a benchmark for the current TiD and TDev landscape in English female youth soccer and build the foundation for ongoing dialogue and initiatives aimed at enhancing and refining the talent pathway to ensure sustainable growth within the sport.

Keywords

female soccer, talent identification, talent development, recruitment, soccer academies

Introduction

Identifying talented youth soccer players who have the potential to progress through a high-performance development environment to the first (i.e., senior) team and contribute to future success is a critical process that occurs within professional soccer academies (Williams et al.,

2020). The primary aim of these academies is to cultivate an environment conducive to nurturing the technical (e.g. passing, dribbling; Harkness-Armstrong et al., 2023), tactical (e.g. positioning, decision-making; Machado et al., 2024), physical (e.g. speed, strength; Datson et

al., 2020), and psychological (e.g. coping, grit; Gredin et al., 2023) skills of young players, to supply talent for senior teams and/or generate revenue through sales (Relvas et al., 2010). During this process, practitioners responsible for player development (i.e., coaches, academy directors, etc.) monitor and evaluate soccer-specific skills of their players and make decisions on player (de)selection (Williams et al., 2023). To support practitioners, researchers have endeavored to provide evidence-based information that can be translated into practice (Emmonds et al., 2019); however, this has focused primarily on male soccer. Although the amount of research is steadily increasing, there remains underrepresentation of studies involving only female athletes (Curran et al., 2019; Okholm Kryger et al., 2020; Peters et al., 2022). Growth and maturation influences the biopsychosocial development of girls and boys differently (Lloyd & Oliver, 2012; Cowley et al., 2021), making it difficult to extrapolate findings from male to female soccer (Emmonds et al., 2019; 2023). Thus, calls for an increase in specifically female soccer research have been made (Williams et al., 2020; Randell et al., 2021), as this objective data can be used by practitioners to further support or challenge subjective player assessments (Sieghartsleitner et al., 2019).

In recent years, research on talent identification (TiD) and development (TDev) in female soccer has typically focused on physical and technical skills as predictors of expert performance (Emmonds et al., 2017; Höner et al., 2019; Datson et al., 2020; Harkness-Armstrong et al., 2020; Leyhr et al., 2020), the influence of chance events such as the relative age effect (Andrew et al., 2022; Finnegan et al., 2024), as well as the amounts and types of activities players engage in during their development (Ford et al., 2020a; Andrew et al., 2024). Psycho-social investigations have also highlighted the importance of social interaction and support throughout player development, the demands of managing education and employment with a soccer career, and a positive player perception of the soccer environment (Gledhill & Harwood, 2014; 2015; 2019;

Harrison et al., 2020; McCreary et al., 2021). For example, specifically female soccer research has indicated that physical attributes (e.g., high-intensity endurance, sprint speed, agility) have been linked to progression to higher playing levels (Datson et al., 2020; Leyhr et al., 2020), offering practitioners objective criteria to inform identification and selection and deselection decisions. However, many attributes remain unexplored within a female soccer context (Williams et al., 2020). While information on potential future predictors can provide reference values of future adult expert performance, a detailed examination of the aims and structure would provide evidence of the current TiD and TDev landscape (Bennett et al., 2019; Ford et al., 2020b; Finnegan et al., 2024). In exploring contemporary practices, this research draws on a theoretical framework outlining key elements of the talent identification and development process within soccer (Williams et al., 2020), focusing specifically on the following: (1) talent identification, the process of recognizing players with the potential to progress into and through a high-performance development environment; (2) talent development, provision of an environment and development program designed to progress players towards higher performance levels; and (3) deselection, the process of removing players from a development program when they no longer demonstrate the required attributes to progress.

During the last decade, female soccer in England has seen significant growth and transformation and remains one of the most popular sports for women and girls through increased attendances (live and television), social media, financial investment, and sponsorship (Fink, 2015). This exponential rise in popularity may be attributed to the success of the senior national team at the recent European Championship (2021 winners) and World Cup (2023 runners-up). Furthermore, the women's game in England has seen an increase in professionalism, including the creation of the Women's Super League in 2011 and opportunities for players to sign full-time professional, paid contracts in 2018, which have elevated soccer as a viable career opportunity

for girls (Culvin, 2023; Fielding-Lloyd & Woodhouse, 2023). At the youth level, the English Football Association (The FA) has implemented reformatations to their talent pathways and produced numerous female soccer-specific initiatives over the last decade to increase the number of technical staff, registered players, and playing time (The FA 2017; 2020; 2021; 2023b). These strategies aim to support TiD and TDev processes within clubs, by augmenting opportunities, and enhancing the pathway experience for players within youth structures to facilitate sustainable growth of the game. Therefore, a thorough survey of identification and development processes within female soccer academies in England is well-timed.

The aim of the present study is to understand the current TiD and TDev processes (i.e., objectives, provisions, structure) employed by female youth soccer academies in the highest three tiers of soccer in England. Given the limited literature examining TiD and TDev in female-only soccer (Curran et al., 2019), and the recent reformation of youth pathways of clubs in England, we have forgone making any *a priori* hypotheses.

Methodology

Participants

A total of 26 academy directors, heads of youth, and academy managers from clubs in the highest three tiers of the female soccer pyramid in England responded to the survey. Individuals in these specific roles were targeted due to their expertise and direct oversight of TiD and TDev processes within youth structures (Relvas et al., 2010). At senior level, the soccer pyramid consists of the Women's Super League (WSL; Tier 1); the Women's Championship (WC; Tier 2), the Women's National League Northern Premier Division (WNL-N; Tier 3), and Southern Premier Division (WNL-S; Tier 3), with each comprising 12 clubs (The FA, 2023a). From the 48 clubs that were initially invited via e-mail to participate, academy directors from 26 clubs in the WSL ($n = 7$), WC ($n = 8$), WNL-N ($n = 6$), and WNL-S ($n = 5$) responded to the survey (54% response rate).

Survey and Procedure

The online survey used by Ford et al. (2020b) to measure TiD and TDev processes in male soccer academies worldwide was modified to be appropriate for female soccer academies in England. The Ford et al. (2020b) survey was developed by practitioners with more than ten years of experience working within professional youth academies around the world and also having scientific backgrounds. The revised survey was reviewed for content validity (Stoszowski & Collins, 2016) via three rounds of discussions with the research team and was piloted by an experienced practitioner within the FA who had worked on the female talent pathway for more than 5 years. The survey was created and written in English and contained 31 questions including simple multiple choice ($n = 6$), multiple choice ($n = 7$), checkboxes ($n = 7$), free text ($n = 6$), and matrix/rating scale ($n = 5$) types. For 10 questions, the option "other" was provided, and, if that option was selected, participants were presented with a free text box to specify their response. The survey comprised five distinct sections: (1) respondent characteristics (e.g., experience in soccer; $n = 3$); (2) club characteristics (e.g., club departments; $n = 6$); (3) TiD characteristics and processes (e.g., processes used for player recruitment; $n = 9$); (4) TDev characteristics and processes (e.g., processes used for player development; $n = 9$); and (5) deselection characteristics (e.g., reasons for the loss/release of players; $n = 4$). For 6 questions, participants were asked to provide information on players at all applicable development phases to identify changes in TiD and TDev processes across development. Thus, questions were answered using grid/matrix questions for players aged 7-11 years (Foundation Development Phase), 12-16 years (Youth Development Phase), and 17-21 years (Professional Development Phase). Respondents were initially asked whether their club catered to players aged 7-11 years and customized survey routing ensured that respondents who answered "yes" to this simple multiple-choice question would be asked all questions relating to all age categories ($n = 21$ academies). Respondents that answered "no"

would be routed via questions relating only to the “12-16 years” and “17-21 years” categories ($n = 5$ academies). The survey was open from July 2022 to November 2023 (i.e., the 2022-23 and 2023-24 seasons). For each club, a primary and secondary contact were identified. The survey was initially emailed to the primary contact at all clubs, and if no response was obtained after three weeks, the survey was forwarded to the secondary contact. In total, the survey was distributed to 69 contacts from 48 clubs. No response was received from 38 contacts, and 5 responded to our email but did not complete the survey. The 26 respondents completed the survey at a time convenient for them and were advised to collaborate with other relevant academy staff members in completing the survey to ensure that responses were consistent, relevant, and transparent (Fowler, 2014).

Data Analysis

All survey data were exported to Microsoft Excel. Responses were divided into league tiers. As both the WNL-N and WNL-S are the same tier and divided only on a regional basis, data were combined to form a WNL tier ($n = 11$). Frequency counts were generated for data from simple multiple-choice, multiple-choice, and checkboxes questions. Consistent with Ford et al. (2020b), we adopted terminology to describe qualitatively the magnitude of the frequencies observed (all = 100% of respondents; most = $\geq 75\%$; majority = 55 to 75%; approximately half = $\sim 50\%$; approximately one third = $\sim 30\%$; minority = $< 30\%$; Starling & Lambert, 2017). Free text responses were thematically analyzed through an iterative process. Data were reviewed repeatedly to identify patterns, inductively generate codes, and develop and refine themes following discussions with the research team (Braun & Clarke, 2006; 2012). To address the challenges posed by the brief qualitative responses that were generated, a structured tabular approach to thematic analysis was employed, ensuring both flexibility and rigor in the analysis process (Robinson, 2021). Median and interquartile range (IQR) values were calculated for rating scale questions and

free text questions that gathered numerical answers (i.e., count data). IQR values were reported as a range (Q1 to Q3). Most rating scale questions required participants to rate the importance of specific characteristics or processes. The same 5-point Likert scale was used throughout the survey for these questions (1 = unimportant to 5 = very important). One question asking respondents to rank the level of support provided to deselected players required a different rating scale (1 = none to 5 = very high). Annual player turnover rate was measured using the equation: $((\text{number of entering players} + \text{number of leaving players})/2)/\text{total number of squad members}$ (Güllich, 2014).

Results and Discussion

Club Youth Structure

Youth development structures were overseen by academy directors, with most having more than 5 years of experience working within soccer (92%), and specifically in female soccer (85%). Consistent with male soccer (Relvas et al., 2010), the majority worked at full-time capacity (69%), although a minority held part-time (23%) or voluntary (8%) positions. The presence of part-time and voluntary roles, albeit limited, may stem from a current shortage of full-time staff on the girls' talent pathway within England. This often requires academy directors to combine duties with coaching responsibilities in a hybrid role, which is common in female soccer (FIFA, 2021). Nevertheless, their key responsibility was to oversee youth departments. Most clubs had medical departments (77%), with the majority having sports science departments (73%), and around half having departments of nutrition (46%), performance analysis (46%), and psychology (50%). A minority had a recruitment department (19%), which may have implications for TiD processes in female sport (Curran et al., 2019; Williams et al., 2020). While medical and sports science departments were prevalent, specialized staff roles such as nutrition and psychology were more frequent in WSL than lower tiers. These roles are universal within male soccer academies (Relvas et al.,

2010; Reeves, et al., 2023) yet are less common in female academies in England and globally (FIFA, 2021). Conversely, the presence of sports science departments substantially exceeds the global rate for female youth soccer ($\approx 25\%$; FIFA, 2023). Such discrepancies support the utility of sex and nation-specific inquiry into TiD and TDev processes.

Talent Identification

For WSL and WNL clubs, the primary objectives were to identify players for age-specific teams and those with the potential to play for the first team, with importance ratings increasing as a function of age. In contrast, TiD objectives differed slightly within WC clubs (Table 1). Identifying players for age-specific teams remained important across all ages, but identifying players with the potential to play for the first team became less important at 17-21 years. These differences in TiD objectives suggest variations in strategic focus between league tiers. WSL and WNL academies appear to prioritize the identification of players for long-term internal development and retention, emphasizing the progression of players toward the senior team. WC clubs, however, appear to adopt a more pragmatic approach, with a focus on immediate gains and suitability of the player to the club. This difference in priorities may reflect the unique challenges faced by WC clubs, such as financial constraints, increased competition from other clubs, and a small talent pool size, all of which were reported more frequently as barriers to current practices compared to other tiers. Such challenges may press WC clubs to adopt a short-term approach to TiD that focuses on addressing immediate needs.

To achieve these objectives, clubs utilized TiD processes primarily centered around observing players during trials across all ages, indicating a reliance on a traditional player recruitment approach involving observation followed by subjective coach reports (Larkin & Reeves, 2018; Finnegan et al., 2024). This approach relies on coach instinct, which can be insightful (Christensen, 2009; Jokuschies et al., 2017), but can be arbitrary, challenging to

articulate, and may result in unsubstantiated and inconsistent interpretations when used in isolation (Larkin & O'Connor, 2017; Roberts et al., 2019). Combining subjective interpretations alongside objective evaluations of player attributes for a holistic and multidisciplinary assessment has been advocated (Höner et al., 2021; Bar-Eli et al., 2023), as that approach can yield more refined selection predictions than either approach in isolation (Sieghartsleitner et al., 2019). In addition to trials, recruitment processes became more frequent and professionalized at higher ages, albeit to a lesser extent than in male soccer (Ford et al., 2020b). Processes employed at WSL and WC levels changed as a function of age, from open-door scouting events at 7-11 years (67%; 50%) to medical (71%; 63%), performance analysis (86%; 75%), and physical (71%; 88%) assessments at 17-21 years, further demonstrating that a multidisciplinary approach to TiD is prioritised at older ages (Ford et al., 2020b). Whereas WNL clubs were limited to trials for players aged 7-16 years, and physical assessments for those aged 17-21 years (55%). A minority of clubs integrated psychological, physiological, and background assessments into player recruitment procedures. Consequently, certain aspects of player assessments are currently untapped during recruitment processes. Clubs may seek to encourage interdepartmental collaboration to reinforce the subjective evaluations of coaches, and promote multidisciplinary recruitment decisions (Sieghartsleitner et al., 2019).

Selection decisions predominantly involved coaches at most clubs (92%) and academy directors at the majority (69%). For the minority of clubs with recruitment departments, scouts (19%) and heads of recruitment (12%) were also involved. The final decision on player recruitment was typically made by the academy director (73%), with some coaches also involved (50%). Recruitment decisions were evaluated via staff meetings (77%), reflective practice (65%), and analysis of performance metrics (54%), with all methods considered important or very important. A minority of clubs did not evaluate recruitment decisions (12%).

Table 1. Median (IQR) importance rating of talent identification objectives at each age category and league tier from 1 (unimportant) to 5 (very important).

	WSL	WC	WNL
Identifying players with the potential to play for the first team			
7-11	Important 4.0 (3.0-4.0)	Important 3.5 (3.0-4.0)	Moderately important 3.0 (1.0-3.5)
12-16	Important 4.0 (3.0-5.0)	Important 4.0 (4.0-4.0)	Important 4.0 (2.0-4.0)
17-21	Very important 5.0 (4.0-5.0)	Moderately important 3.0 (1.0-5.0)	Very important 5.0 (5.0-5.0)
Identifying players who could eventually be sold on to other clubs for financial gain			
7-11	Unimportant 1.0 (1.0-1.0)	Moderately important 3.0 (2.0-4.0)	Unimportant 1.0 (1.0-3.0)
12-16	Unimportant 1.0 (1.0-4.0)	Important 3.5 (3.0-4.5)	Unimportant 1.0 (1.0-4.0)
17-21	Of little importance 2.0 (1.0-4.0)	Moderately important 3.0 (2.0-4.0)	Unimportant 1.0 (1.0-3.0)
Identifying players to meet the needs of age-specific teams			
7-11	Important 4.0 (1.0-4.0)	Important 4.0 (3.0-5.0)	Moderately important 3.0 (1.5-4.0)
12-16	Important 4.0 (4.0-5.0)	Important 4.0 (3.5-4.5)	Important 4.0 (2.0-4.0)
17-21	Very important 4.5 (4.0-5.0)	Important 4.0 (3.5-4.5)	Important 4.0 (2.0-5.0)
Identifying players best suited to the club's playing style			
7-11	Of little importance 2.0 (1.0-2.0)	Of little importance 2.0 (2.0-2.0)	Moderately important 3.0 (1.0-4.0)
12-16	Moderately important 3.0 (2.0-4.0)	Important 3.5 (3.0-4.0)	Moderately important 3.0 (2.0-4.0)
17-21	Important 4.0 (4.0-5.0)	Important 4.0 (4.0-4.5)	Moderately important 3.0 (3.0-4.0)

Talent Development

The median (*IQR*) importance rating of TDev objectives for each age and tier showed minimal differences between tiers (Table 2, next page). Fostering positive personal growth in players was the salient TDev objective across all ages. There was also an increasing emphasis on nurturing potential first team players and remaining competitive across all competitions and ages. This approach to player development

is welcoming, since it provides benefits to player wellbeing and efficient preparation for life outside of soccer in addition to technical and tactical growth (Vallée & Bloom, 2005; Musculus & Lobinger, 2018). In contrast, primary objectives in male soccer have varied, including the development of players for the first team and/or financial gain through sales (Relvas et al., 2010), fostering well-rounded individuals (Mills et al., 2014), and development as soccer players (Brown &

Potrac, 2009). However, profit-driven player development was not a priority within female soccer, only gaining significance at higher age categories for WC clubs. This may be a result of inadequate compensation systems that prevent clubs from receiving any financial gain from players transferring to other clubs, thus reducing

the incentive. Only from the 2023-24 season have The FA introduced a system entitling clubs to a “recognition fee” for departing youth players (Ovaisi, 2023), and this does not extend to WNL clubs, which is reflected by the unimportance of player sales within these youth structures.

Table 2. Median (IQR) importance rating of talent development objectives at each age category and league tier from 1 (unimportant) to 5 (very important).

	WSL	WC	WNL
Developing players with the potential to play for the first team			
7-11	Moderately important 3.0 (2.0-4.0)	Moderately important 3.0 (2.0-4.0)	Moderately important 3.0 (1.5-4.0)
12-16	Important 4.0 (4.0-4.0)	Important 4.0 (4.0-4.0)	Important 4.0 (4.0-4.0)
17-21	Very important 5.0 (5.0-5.0)	Very important 5.0 (4.5-5.0)	Very important 5.0 (4.0-5.0)
Developing players who could eventually be sold on to other clubs for financial gain			
7-11	Unimportant 1.0 (1.0-1.0)	Unimportant 1.5 (1.0-3.0)	Unimportant 1.0 (1.0-3.5)
12-16	Unimportant 1.0 (1.0-3.0)	Of little importance 2.5 (1.0-3.0)	Unimportant 1.0 (1.0-4.0)
17-21	Of little importance 2.0 (1.0-4.0)	Important 3.5 (2.0-4.0)	Unimportant 1.0 (1.0-4.0)
Having a positive impact upon the personal development of players			
7-11	Very important 5.0 (5.0-5.0)	Very important 4.5 (4.0-5.0)	Very important 5.0 (3.5-5.0)
12-16	Very important 5.0 (5.0-5.0)	Very important 5.0 (4.0-5.0)	Very important 5.0 (4.0-5.0)
17-21	Very important 5.0 (5.0-5.0)	Very important 5.0 (4.0-5.0)	Very important 5.0 (4.0-5.0)
Remaining competitive across all competitions and age groups			
7-11	Moderately important 3.0 (3.0-4.0)	Moderately important 3.0 (1.0-4.0)	Of little importance 2.0 (2.0-3.0)
12-16	Important 4.0 (3.0-4.0)	Important 4.0 (3.0-4.0)	Important 4.0 (3.0-4.0)
17-21	Important 4.0 (4.0-4.0)	Important 4.0 (3.5-5.0)	Important 4.0 (3.0-5.0)

To achieve these goals, clubs implemented TDev processes akin to those in male youth soccer (Ford et al., 2020b). All clubs provided frequent coach-led practice, games-based practice activities, and organized competition to develop players (Güllich, 2019). Small-sided

games (96%), fitness-based (92%) and drill-based (76%) practice activities, strength and conditioning support (88%), and performance analysis (76%) were provided by most clubs, and educational support (72%) by the majority. Approximately half provided nutritional (52%)

and psychological (44%) support. Most (81%) reported training provision for foundation phase players (7-11 years), exceeding the global rate (35%; FIFA, 2021), which may be attributed to enhanced popularity, demand, and youth structure capacity, or an increased propensity for early specialization or engagement in soccer within England (e.g. Ford et al., 2012; Kelly et al., 2023). Moreover, both frequency and duration of weekly practice sessions increased as a function of age and league tier (Table 3, next page). WSL clubs offered the most comprehensive practice provision for all ages, providing approximately one extra session per age group. TDev processes were more holistic and multifaceted at higher tiers. For instance, all WSL and WC clubs provided strength and conditioning support, compared to the majority of WNL clubs (70%). Nutrition support was provided by the majority of WSL (71%) and WC (75%) clubs compared to a minority of WNL clubs (20%), and psychological support was largely provided in WSL (71%) over WC (25%) and WNL (40%) clubs. Data on player attributes were also collected by clubs during development, with an emphasis on physical and skill-based metrics. Most clubs (80%) collected physical data (e.g., speed, endurance, body composition), and the majority (72%) recorded skill data (e.g., technical abilities, tactical understanding). In contrast, psychological (e.g., motivation, self-regulation) and sociological data (e.g., background, education) were collected by only 40% of clubs, despite these areas having distinct predictors of talent (e.g., grit; Larkin et al., 2015; 2023). This disproportionate focus on physical and skill-based attributes mirrors longstanding trends in soccer talent literature, which has historically prioritized these domains over psychological and sociological dimensions (Williams et al., 2020). Moreover, a minority of clubs (8%) did not collect any data, highlighting variability in current practices. To enhance TDev processes, future research should explore the specific attributes that clubs collect data on within these areas, as well as the methods used to gather and analyze this data. Such insights could provide a more holistic understanding of talent and inform more effective strategies (Ford et al., 2020b).

Together with TDev processes, clubs supported dual-careers of players aged 17-21 years through partnerships with TASS (Talented Athlete Scholarship Scheme) or universities in the United Kingdom (UK), with varying degrees of provision across tiers. These collaborations support talented players in balancing professional sport with education, occupation, or professional development to maximize potential, and they hold particular importance for female players given the prevalent challenges in financial security and career development despite the professionalization of soccer (McCormack & Walseth, 2013; Harrison et al., 2020). In pursuing dual-careers, players face demands such as role strain, identity, and balancing soccer with education commitments, which can ultimately lead to dropout (Gledhill & Harwood, 2015; Harrison et al., 2020; McGreary et al., 2021; Simpson et al., 2022). In the present study, most WSL clubs were supported by TASS or partnered with a UK university (71%), compared to half of WC (50%) and less than a third of WNL clubs (20-30%). While provision increased as a function of tier, less than half of clubs offered it. Further club provisions included dual-registration (i.e., playing for another team in a different league for additional development opportunities), provided by all clubs as required by The FA (2024). Residency programs were present in nearly half of WSL (43%) and a minority of WNL clubs (20%), and transportation services were available for most WSL (86%) and half of WNL clubs (50%). No WC clubs reported the provision of a residency program or transportation services. While such services are customary within male youth soccer environments (Mills et al., 2014; Ford et al., 2020b), they appear to be less common in female youth soccer, particularly in lower tiers. For staff involved with player recruitment and development, most clubs (88%) provided development opportunities to coaches and approximately a third for recruitment staff (31%). Total, age-specific and gender-specific experience, club knowledge and philosophy, and formal coaching qualifications were perceived as important attributes, yet previous playing experience was not.

Table 3. Median (IQR) number and duration of weekly practice sessions at each league tier.

	WSL	WC	WNL
No. of weekly practice sessions			
7-11	2.0 (2.0-2.0)	1.0 (1.0-2.0)	1.0 (1.0-2.0)
12-16	3.0 (3.0-3.0)	2.5 (2.0-3.0)	2.0 (1.0-3.0)
17-21	4.0 (4.0-4.0)	3.0 (3.0-5.0)	3.0 (2.0-3.0)
Duration (mins) of weekly practice sessions			
7-11	90.0 (60.0-120.0)	90.0 (90.0-90.0)	90.0 (60.0-97.5)
12-16	105.0 (90.0-120.0)	112.5 (90.0-120.0)	90.0 (90.0-120.0)
17-21	90.0 (90.0-120.0)	120.0 (90.0-120.0)	120.0 (90.0-120.0)

Homegrown players are defined as those who have been registered within the youth structure of their club for at least three years and have progressed to make a first-team appearance (The FA, 2022). WSL clubs developed more homegrown players (*med* = 2, *IQR*, 1-2) per season (since 2018) than WC (*med* = 1, *IQR*, 1-2) and WNL (*med* = 1, *IQR*, 0-5) clubs. The more multifaceted TDev processes within WSL clubs may contribute toward these higher homegrown player counts compared to lower tiers. This is consistent with previous research indicating that the number of hours accumulated in academy practice sessions is a key factor in determining which players progress to WSL status, as opposed to those who do not advance beyond the academy level (Andrew et al., 2024). Despite this, clubs across all league tiers continue to face significant challenges in producing homegrown players for their senior teams. The current homegrown player quota requires WSL clubs to field 8 players, and WC clubs to field 15, yet many struggle to meet these requirements. The primary challenges faced in player development were financial constraints (84%) and competition from other clubs (76%). WC and WNL clubs faced similar challenges, and more frequently so, than WSL clubs. For instance, lower staff numbers (48%) and working hours (44%) were more prevalent

in WC and WNL structures. Similarly, financial constraints, which can hinder the development of players (Andrew et al., 2021), affected all WC and most WNL (90%) academies. In contrast, competition from other clubs was the primary challenge reported by WSL clubs (71%). Therefore, the lesser financial and resource limitations in WSL clubs may also partially explain their higher homegrown player counts. However, it is important to note that a range of factors may influence player development and progression to senior level. Large inter-individual variability may exist in player pathways (Hendry et al., 2019; Ford et al., 2020; Andrew et al., 2024), therefore it cannot be ascertained that provision of more multifaceted processes was solely responsible for higher homegrown player counts, highlighting the complexities of TiD and TDev in soccer.

The median number of registered players in WSL (112, *IQR* = 75-144) and WC (111, *IQR* = 77-140) clubs was similar, and slightly higher than in WNL clubs (100, *IQR*, 90-108), due to registering approximately twice as many players aged 7-11 years (Table 4, next page). Overall, clubs had 34 registered players in the foundation development phase (7-11 years), 53 in the youth development phase (12-16 years), and 23 in the professional development phase (17-21 years),

which is notably fewer players than male academies (8-11 years = 80, 12-16 years = 100, 17-21 years = 66; Ford et al., 2020b). WSL clubs recruited (19, *IQR*, 16-37) and lost (14, *IQR*, 9-19) the fewest players during the most recent full season, leading to the lowest player turnover rate of 22%. The annual player turnover rate for all clubs was 39%, exceeding that of male soccer (25-30%; Güllich, 2014; Ford et al., 2020b). However, the turnover rate is likely associated with a larger player intake rather than losses. Recent structural changes to the youth pathway may have expedited the

expansion of youth structures and training provisions within clubs, allowing more players to enter the system annually. For example, since the reformation of high-quality practice environments hosted by clubs and organizations for players aged 8-16 years in 2022, the number of registered players has increased by 87% in 2023 (The FA, 2023b). Like male youth soccer, player turnover was highest at the youngest age category, typical for clubs forming initial age group squads (Ford et al., 2020b).

Table 4. Descriptive statistics for responses on registered players and player turnover at WSL, WC, and WNL league tiers.

	WSL	WC	WNL
Median (IQR) no. of registered players			
7-11	40 (23-60)	43 (40-60)	20 (18-30)
12-16	60 (45-65)	52 (48-78)	57 (50-60)
17-21	24 (22-25)	23 (18-25)	25 (18-40)
All Age Categories	112 (75-144)	111 (77-140)	100 (90-108)
Median (IQR) no. of players recruited (last full season)			
7-11	19 (2-22)	40 (30-60)	19 (18-20)
12-16	10 (5-14)	26 (17-40)	40 (20-55)
17-21	7 (4-15)	13 (6-24)	8 (7-29)
All Age Categories	19 (16-37)	84 (49-100)	67 (40-87)
Median (IQR) no. of players lost/dismissed (last full season)			
7-11	4 (0-5)	8 (3-10)	4 (0-5)
12-16	8 (2-12)	9 (6-20)	14 (5-20)
17-21	8 (5-10)	5 (2-10)	5 (4-16)
All Age Categories	14 (9-19)	19 (11-37)	22 (8-31)
Player turnover rate (last full season)			
7-11	21%	61%	66%
12-16	15%	32%	46%
17-21	37%	53%	54%
All Age Categories	22%	52%	55%

Loss Of Players/Deselection

Over the course of development, the two primary reasons for players leaving the pathway were player-initiated departures (player decided to leave the club; $n = 24$) or club-initiated releases (club decided to dismiss the player; $n = 20$). Free text responses indicated that the most frequently cited reason for player-initiated departures was transferring to other clubs ($n = 8$), which was more prominent in the lower tiers, and appears to be a universal challenge regardless of gender or tier (Reeves et al., 2018; Ford et al., 2020b). Despite club-university partnerships, players still departed to pursue higher education opportunities, such as university in the UK or student-athlete scholarships in the United States (US), which are desirable due to the institutions' significant investment in supporting student-athletes (Markovits & Hellerman, 2003). Youth players from England purposely plan to attend university to develop their dual-careers; thus, clubs are continually challenged to retain players within England, in addition to supporting dual-career aspirations (Harrison et al., 2020). Increasing the quantity and quality of club-university partnerships may help retain players, widen the talent pool, and appropriately support dual-career ambitions (Gledhill & Harwood, 2015). Consistent with previous research, female youth players withdrew from soccer due to challenges in balancing commitments with soccer, such as their private life, part-time employment, studies, or other sports (Gledhill & Harwood, 2015). Travel demands also contributed to the loss of players, highlighting accessibility issues around the nation for players and parents.

Free text responses outlined that the salient reason for club-initiated releases was due to players not possessing the skills required to meet the demands of the game ($n = 8$; Williams & Reilly, 2000). Deselection based on performance quality poses a risk of diminishing both the size and quality of the talent pool (Dugdale et al., 2021). Physical data, which were frequently collected, can often influence (de)selection decisions, yet their longer-term predictive value is less certain (Vaeyens et al.,

2006; Figueiredo et al., 2009; Coelho-e-Silva et al., 2010; Deprez et al., 2015). Later born and maturing players with less pronounced physical attributes may compensate in other areas (i.e., technical, tactical), eventually resulting in broader performance profiles and a greater likelihood of progressing to professional status (Bennett et al., 2019; Kelly et al., 2020). Equally, club staff should be aware that growth and maturation can disrupt technical and tactical skills, and they should be cautious of deselecting players based solely on physical performance quality (Radnor et al., 2023). This is important for female players, as they experience natural post-pubescent increases in fat mass that may affect their motor skill development (Lloyd & Oliver, 2012). Furthermore, filtering from a single (e.g., U14s = 13-14 years) to a dual band age group (e.g., U16s = 14-16 years) impelled clubs to release players to ensure that squad sizes comply with regulations. Therefore, governing bodies and clubs may consider reviewing their current youth structure to help increase the talent pool size to align with the growth of the female game. In developing systems, broadening the talent pool by facilitating access to high quality coaching environments has been recommended to reduce deselection and dropout rates (Bennett et al., 2019). WSL clubs reported provision of a high level of support ($med = 4$, IQR , 3-4) to deselected players, compared to a moderate level in WC ($med = 3$, IQR , 2-3) and WNL clubs ($med = 3$, IQR , 3-4). Exit pathway processes were frequently employed but varied between clubs, generally including a combination of initial meetings with players and parents regarding the rationale for deselection, performance plan reviews, feedback, and assessment of exit options. Parts of these processes, such as the communication of rationale and feedback, have been previously documented in female youth sport (Neely et al., 2016), however clubs took additional steps by assisting players in securing alternative opportunities either inside (i.e., aiding reselection) or outside of soccer (e.g., education). Notably, there was limited psychological and wellbeing support for

deselected players, despite evidence of the distress that can be induced by the process, such as anxiety, depression, humiliation, and identity disruption (Brown & Potrac, 2009; Blakelock et al., 2016; 2019; Neely et al., 2017; Wilkinson, 2021). Offering or allocating psychological support to players is vital for enhancing transition quality and ensuring that players are equipped to cope effectively with deselection (Williams & MacNamara, 2020).

Implications, Limitations and Future Research Directions

The survey data presented provides valuable insights that can serve as a benchmark for the current landscape of TiD and TDev within female soccer academies in England. These findings hold significant implications for stakeholders across the sport, particularly in providing the following: (1) an understanding of the current state of youth structures, (2) identification of key areas requiring investment and development, and (3) a reference point for assessing the success and progress of changes implemented in recent years. Additionally, this approach could be adopted by other soccer nations to understand, assess, and refine their own talent pathways and youth structures (Bennett et al., 2019).

Furthermore, the data highlights the expansion of youth structures, aligning with the broader growth of female soccer in England. This development may have encouraged the recent inauguration of female teams and talent pathways in some well-established men's soccer clubs. Some of these clubs, currently operating in the lower tiers of the pyramid, may possess more refined processes and greater investment capabilities that possibly surpass those of their competitors within the same tier, or even some clubs in higher tiers, as they strive to ascend the female soccer pyramid. Therefore, reinvestigation post-stabilization of the soccer pyramid would offer further understanding of the evolving landscape.

The survey provided valuable insights by exploring an under-researched area, using a representative sample of 54% of clubs from the highest three tiers across England. Despite its

contributions, this study has some limitations. One key limitation is the reliance on self-reported data from academy directors, which may introduce bias, as respondents could unintentionally or intentionally filter the information they provide. Thus, it is difficult to ascertain whether the responses accurately reflect the factual action of the academy, rather than the viewpoint of the respondent. Additionally, some responses may align with perceived best practices or expectations, thus making the data potentially vulnerable to social desirability bias. To mitigate these limitations, future research could benefit from triangulating data sources by incorporating direct interviews, observations, or other methods to provide a more comprehensive perspective of these practices.

Further research is needed to explore how clubs define and evaluate TiD and TDev objectives across different stages of development, to account for potential overlaps in objectives and to specifically identify how they shift as players progress through age categories. Moreover, future studies could explore the elements and phases of the TiD and TDev process that were not investigated within the present research but could provide a broader understanding of the talent pathway, such as initial participation, detection of talent from other sports, and selection processes (Williams et al., 2020). Finally, this study provides a descriptive account of TiD and TDev processes within female soccer academies. As such, it does not evaluate the effectiveness of these processes in progressing players into senior squads, enhancing their performance, or improving their overall wellbeing (Ford et al., 2020). To address this, future research should evaluate the effect of these academy characteristics on later senior success. This could involve analysis of individual factors, such as specific development strategies or support structures, or by exploration of the interplay between various factors on player outcomes.

Conclusion

In summary, this study examined TiD and TDev processes within the youth structures of female soccer academies in England. Higher-tier clubs exhibited a greater number of specialized departments, increased training provision, lower player turnover, enhanced support for deselected players, and lesser financial constraints. There was an increasing focus on recruiting and developing players for the senior team at older ages, however clubs prioritized the personal development of all players. Players typically departed for other clubs or higher education, or they were deselected due to their not possessing the skills required by clubs and due to current talent pathway structure issues. Talent identification processes may currently be hindered by a lack of specialized recruitment personnel or dedicated departments. The integration of specialized staff such as scouts, psychologists, and nutritionists can potentially refine these processes, yet financial constraints may pose a significant barrier to their implementation and advancement. This underscores the challenge for clubs to navigate resource limitations while striving to optimize player development pathways for the future of female youth soccer in England.

Authors' Declarations

The authors declare that there are no personal or financial conflicts of interest regarding the research in this article.

The authors declare that they conducted the research reported in this article in accordance with the Ethical Principles of the *Journal of Expertise*.

The authors declare that they are not able to make the dataset publicly available but are able to provide it upon request.

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