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A survey investigating professional soccer practitioners' perspectives on monitoring and training high-intensity locomotor actions in English professional football

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Abstract

Objectives: To investigate how practitioners working within English professional football monitor, interpret, and apply high-intensity locomotor actions (HILAs), and to identify key challenges influencing contemporary monitoring and training practices.

Methods: A cross-sectional online survey comprising 19 items was distributed to practitioners working in English Premier League (EPL) and English Football League (EFL) clubs. Twenty-seven practitioners completed the survey (EPL: n = 6; EFL: n = 21). Quantitative data were analysed using descriptive statistics, and qualitative responses were examined using inductive reflexive thematic analysis.

Results: All practitioners used GPS to monitor HILAs during training, and 85% used GPS during matches. Sprint running (82%) and high-speed running (67%) were rated as the most important metrics, whereas accelerations (30%) and decelerations (41%) were considered less important. Absolute threshold strategies predominated across metrics (63–85%), although 30–37% of practitioners reported using combined absolute-relative approaches. Large-sided games (67%) and position-specific drills (37%) were most frequently viewed as effective for preparing players for HILAs. Reflexive thematic analysis identified four themes: standardisation and comparability, integration challenges, individualisation, and communication and translation to practice, highlighting barriers to contextualising and applying locomotor data within professional football.

Conclusions: Although HILA monitoring is firmly embedded within English professional football, practitioners continue to face challenges contextualising, individualising, and communicating locomotor information to support coaching and performance decisions. Greater standardisation and integration of physical, tactical, and contextual information may enhance the applied value of HILA monitoring and support more representative training design.

Keywords

Acceleration, global positioning system, high-speed running, position specific drills, soccer, sprinting

Reviewer: John Radnor (Cardiff Metropolitan University, UK)

Introduction

High-intensity locomotor actions (HILAs), including high-speed running (HSR), sprinting, accelerations, and decelerations, are recognised as key contributors to performance in professional football.[1] These actions frequently underpin decisive match events such as attacking transitions, defensive recoveries, pressing actions, and goal-scoring opportunities,[2] and their frequency and intensity have increased alongside the evolving physical and tactical demands of the modern game.[3] Furthermore, the high mechanical and physiological demands associated with HILAs have important implications for fatigue management, training prescription, and injury risk reduction within professional football environments. Consequently, the monitoring and preparation of HILAs have become central components of applied performance practice within elite football environments.[4]

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While recent research has profiled acceleration and deceleration demands within the English Premier League (EPL),[5] evidence across lower professional leagues remains comparatively limited,[6] and little is known regarding how practitioners working across the English football pyramid interpret, monitor, and apply HILA information within daily performance practice.

The widespread adoption of wearable tracking technologies, particularly global positioning systems (GPS) and inertial measurement units (IMUs), has substantially improved the ability of practitioners to quantify HILAs during both training and competition.[7] In parallel, advances in optical tracking and event data have expanded opportunities to contextualise locomotor outputs alongside tactical and positional information.[8] Although the validity of contemporary tracking systems is generally considered acceptable, methodological inconsistencies relating to sampling frequency, filtering processes, threshold selection, and metric definitions continue to limit comparability across applied settings and research studies.[9–11] Such inconsistencies may limit practitioners' ability to benchmark players, compare data between clubs, and make informed training and performance decisions. Emerging evidence has therefore advocated greater use of relative or individualised thresholds to better account for player-specific physical capacities and contextual demands.[10] Furthermore, integrating physical outputs with tactical and positional information may provide more meaningful insight than physical metrics in isolation.[12] However, despite these technological advances, considerably less is known about how practitioners interpret these data, determine threshold strategies, and translate increasingly complex monitoring outputs into meaningful coaching decisions.

Match locomotor demands in professional football are well documented. EPL players typically perform approximately 700–1000 m of HSR (>19.8 $km \cdot h^{-1}$) and 150–250 m of sprinting (>25.2 $km \cdot h^{-1}$) per match,[3] with demands varying according to position and competition level.[13] Beyond average match outputs, recent research has increasingly focused on "worst-case scenarios" (WCS), representing the most demanding passages of play encountered during competition.[14] These peak locomotor demands are influenced by contextual factors including tactical strategy, match phase, fixture congestion, opposition quality, and playing position.[15] Training drills and game-based formats do not consistently replicate the locomotor demands experienced during competition, with both under- and over-exposure reported depending on drill design and tactical structure.[16] Although these studies have substantially improved understanding of the physical demands of football, they provide limited insight into how practitioners interpret and apply HILA metrics when designing training, selecting monitoring thresholds, and communicating performance information within interdisciplinary environments.

Previous surveys examining athlete monitoring practices have highlighted similar applied challenges. Coaches and practitioners often prefer concise and actionable information, while previous research has reported widespread use of GPS and session rating of perceived exertion (sRPE) monitoring alongside limited consensus regarding data interpretation frameworks.[17] Despite continued technological development, substantial variability remains in metric selection, threshold application, data communication, and integration with tactical frameworks.[18,19] Ongoing debate also persists regarding whether HILA thresholds should be absolute, relative, or individualised according to player-specific physical capacities and contextual demands. Collectively, these issues suggest that the challenge within modern football is no longer simply collecting locomotor data, but effectively contextualising, individualising, and translating these data into coherent and practically meaningful coaching decisions.

Given the increasing complexity of performance monitoring and the evolving use of contextual, absolute, relative, and individualised approaches to HILA quantification, updated evidence is required to better understand how practitioners working within professional football environments interpret, monitor, and apply HILA information in practice. Therefore, this study investigated how practitioners working within the EPL and English Football League (EFL) monitor, interpret, and apply HILAs within professional football environments and identified key barriers and priorities influencing current practice.

Methods

Study design

An online cross-sectional survey was disseminated to obtain professional football practitioners' perspectives on the monitoring and training of HILAs in professional English football. A mixed-methods approach was adopted to provide both quantitative descriptions of current monitoring and training practices and qualitative insight into the contextual challenges influencing practitioner decision-making. Participants were recruited from clubs in the EPL and EFL. The survey was hosted on Qualtrics (Qualtrics XM, Provo, UT, USA) and remained open for four weeks during the 2024–2025 competitive season to ensure accessibility while minimising recall bias.[20]

Participants

Eligible participants were professional football practitioners with primary responsibility for the physical preparation, monitoring, or performance management of first-team players in the EPL and EFL (e.g., sport scientists, fitness coaches, performance coaches, strength and conditioning coaches). Participants were recruited using a purposive

sampling strategy to target practitioners with direct responsibility for first-team physical preparation and performance monitoring within professional football environments. Potential participants were identified through the researchers' professional networks and publicly available club contact information. This approach was adopted to recruit an information-rich sample of experienced practitioners capable of providing detailed insight into contemporary monitoring and training practices. All eligible participants were invited to complete the survey via email and received information outlining the study's purpose, confidentiality procedures, and voluntary nature before providing electronic informed consent. Ethical approval was granted by an institutional research ethics committee.

Survey development and structure

The survey comprised 19 items, developed from prior research examining monitoring practices and training load management in adult male professional football[17,19] and informed by contemporary discussions on monitoring HILA.[4] Item generation followed best-practice recommendations for applied sports science survey research.[17,19] Two experienced practitioners piloted the draft survey to evaluate clarity, face validity, and completion time. Feedback resulted in refinement of terminology (e.g., consistent definitions of HSR, sprint running, and acceleration), improved response order, and minor formatting adjustments to enhance usability.

The final version of the survey consisted of four sections: (1) participant role and characteristics, including job title, qualifications, years of experience, and competition level; (2) monitoring practices, covering the frequency and purpose of GPS monitoring, data handling, and key HILA metrics; (3) training prescription and threshold strategies, focusing on the use of absolute versus relative thresholds, integration of tactical considerations, and drill selection; and (4) challenges and priorities, relating to barriers to consistency, perceptions of data quality, and practitioner needs for future development.

Question formats included 12 closed-ended and 7 open-ended items. Closed questions employed five-point Likert scales to assess agreement and frequency. Open-ended responses allowed participants to elaborate on contextual challenges, rationales for threshold selection, and examples of best practice. The inclusion of both closed- and open-ended questions enabled quantitative assessment of current monitoring and training practices while facilitating a richer understanding of the contextual and applied challenges associated with HILA monitoring in professional football. Completion time ranged from 8 to 14 min.

Data analysis

Quantitative data were exported from Qualtrics to Microsoft Excel for analysis. Descriptive statistics and frequency analyses were used to summarise participant demographics and responses. Categorical data are presented as frequencies (n) and percentages (%), while continuous data are expressed as mean ± standard deviation (SD) or median (interquartile range, IQR), depending on data distribution.

Qualitative responses to Q16–Q19 were analysed using inductive reflexive thematic analysis, following Braun and Clarke's six-phase framework.[21,22] An inductive approach was adopted, with codes and themes developed through close engagement with participants' responses rather than through the application of a predefined coding framework. All 27 respondents provided at least one response across Q16–Q19. Questions 16, 17, and 18 were answered by all 27 respondents, while Q19 was answered by 24 respondents. The dataset comprised 105 open-text responses and 1953 words in total. Individual responses contained a median of 16 words (range: 1–77), while participants contributed a median of 64 words across the four questions (range: 5–161). Responses ranged from brief phrases to more detailed explanations and applied examples concerning monitoring practices, training prescription, internal-load assessment, and data integration.

Responses to the conditional open-text items concerning threshold selection, application, and implementation challenges (Q11–Q13) were reviewed descriptively to contextualise the corresponding quantitative findings but were not included in the development of the Q16–Q19 thematic framework.

The lead researcher initially familiarised himself with the data through repeated reading of participant responses before generating initial codes and iteratively developing candidate themes. Themes were subsequently reviewed, refined, and defined through an ongoing reflexive process. The lead researcher is an experienced practitioner and doctoral researcher working within professional football. This background informed interpretation of the data while necessitating ongoing reflexive consideration of potential assumptions and biases throughout the analytical process. Reflexive notes were maintained during coding and theme development.

Coding and theme development were performed by one researcher experienced in qualitative analysis, with peer debriefing throughout the process to enhance credibility and reflexivity. Consistent with reflexive thematic analysis, peer-debriefing discussions focused on challenging interpretations, refining theme definitions, and ensuring coherence between the coded data and final thematic framework. These discussions resulted in the grouping of overlapping codes, refinement of the scope and names of candidate themes, and clearer differentiation between individualisation, data integration, and communication-related challenges. No candidate theme was removed entirely during this process. Representative verbatim quotations were selected to illustrate each theme and are presented in the following section.

Results

Respondents

Twenty-seven practitioners completed the survey, representing a selective and experienced cohort from English professional football environments (Table 1). Respondents included staff from the EPL (22%), EFL Championship (26%), EFL League One (37%), and EFL League Two (15%). Over half of the participants (52%) reported having more than 10 years of experience working in adult male professional football.

Collectively, these findings indicate that the survey captured perspectives from an experienced sample of practitioners working across multiple levels of the English professional football pyramid.

Table 1. Characteristics of survey respondents (n = 27). Data are presented as frequencies and percentages of practitioners by league level and years of experience working with adult male professional footballers.

Characteristic	Category	n	%
League	English Premier League	6	22%
	EFL Championship	7	26%
	EFL League One	10	37%
	EFL Legaue Two	4	15%
Number of years working with adult male professional footballers	< 5 years	6	22%
	5–10 years	7	26%
	> 10 years	14	52%

EFL = English Football League.

Monitoring practices used to measure high-intensity locomotor actions

All practitioners reported using GPS technology to monitor HILAs during training sessions, highlighting its universal adoption across professional EPL and EFL clubs. GPS was used by 85% of practitioners during competitive matches, indicating strong integration of wearable tracking systems into match-day monitoring. Among those who specified their GPS provider (n = 16), Catapult was the most used system in training (n = 12), followed by STATSports (n = 4). A similar pattern was observed in official matches, where Catapult was again the most frequently used system (n = 12), with STATSports also represented (n = 3). In addition to GPS, four practitioners reported using optical tracking systems during matches, specifically Second Spectrum (n = 3) and SkillCorner (n = 1). These findings demonstrate widespread practitioner reliance on GPS technology, with a smaller proportion integrating optical tracking systems to support match analysis.

Importance of GPS-derived metrics for monitoring high-intensity locomotor actions

Practitioners rated sprint running and HSR as the most important GPS-derived metrics for monitoring HILAs during both training and matches (Figure 1). Sprint running received the highest "high importance" ratings during training (n = 22; 82%) and matches (n = 24; 89%), while HSR was also consistently prioritised across training (n = 18; 67%) and matches (n = 19; 70%). In contrast, accelerations were perceived as less important, receiving "high importance" ratings from 30% (n = 8) of practitioners during training and 33% (n = 9) during matches. Overall, practitioners placed greater emphasis on high-speed and sprint locomotor outputs than acceleration- and deceleration-based metrics.

Thresholds used to quantify high-intensity locomotor actions

Threshold strategies used to quantify HILAs are presented in Figure 2. Absolute thresholds were the predominant approach across all locomotor metrics, particularly for accelerations and decelerations. For accelerations and decelerations, 85% of practitioners (n = 23) reported using absolute thresholds, while the remaining practitioners (n = 4; 15%) used combined absolute-relative approaches. For HSR, 63% of practitioners (n = 17) used absolute thresholds, 30% (n = 8) used combined approaches, and 7% (n = 2) used relative-only thresholds. Similarly, for sprint running, 56% (n = 15) used absolute thresholds, 37% (n = 10) used combined approaches, and 7% (n = 2) used relative-only thresholds. Among practitioners who adjusted relative thresholds (n = 8), thresholds were typically recalibrated throughout the season, with a median update interval of 6 weeks (IQR: 6–8 weeks; mean ± SD: 11 ± 14 weeks).

Perceived effectiveness of training formats for exposing players to HILAs

Practitioner perceptions regarding the effectiveness of different training formats for exposing players to HILAs are presented in Figure 3. Large-sided games were most frequently identified as highly effective for exposing players to match-representative locomotor demands (n = 18; 67%). Position-specific drills (n = 10; 37%) and small-sided games (n = 10; 37%) were also commonly perceived as effective training formats.

In contrast, isolated conditioning drills were rated as highly effective by 30% of practitioners (n = 8), while medium-sided games received the lowest effectiveness ratings overall (n = 5; 19%). Collectively, these findings suggest that practitioners favour more representative and

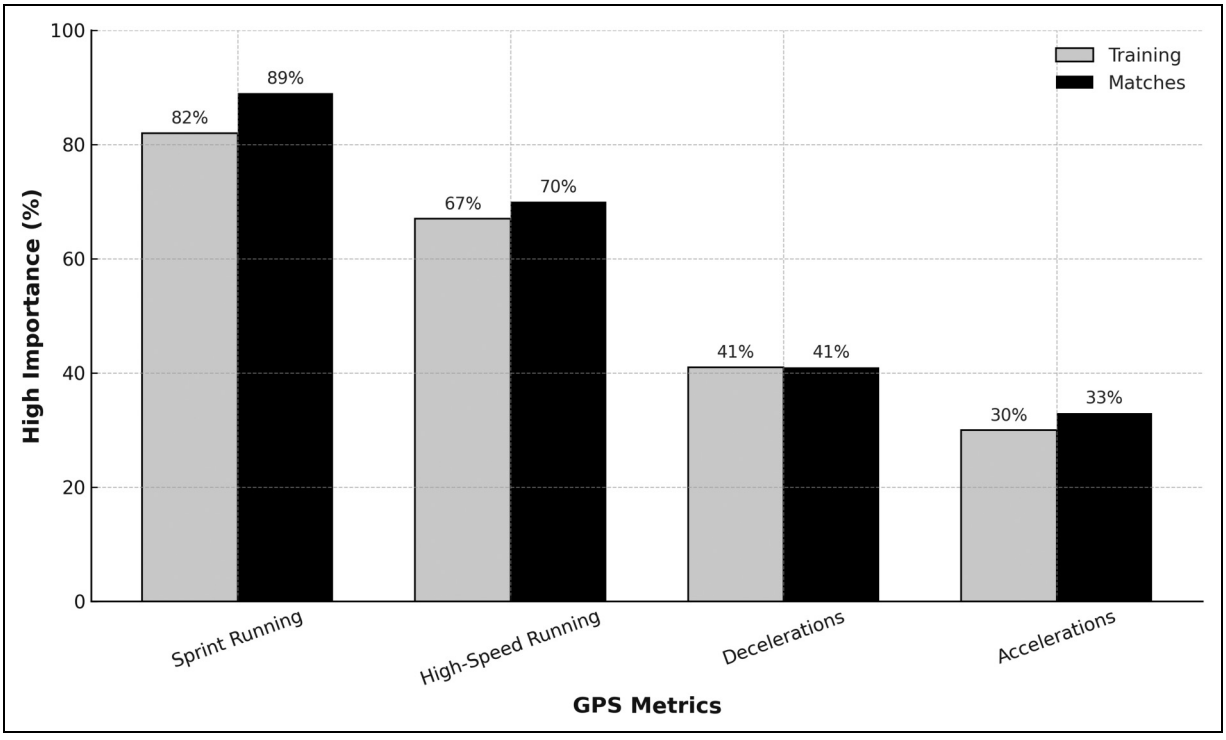

Figure 1. Percentage of practitioners (n = 27) rating GPS-derived metrics as being of "high importance" for monitoring during training and matches in English Premier League (EPL) and English Football League (EFL) clubs. Metrics shown include sprint running, high-speed running (HSR), accelerations, and decelerations.

football-specific training approaches when preparing players for HILAs.

Qualitative themes

Reflexive thematic analysis of practitioners' open-ended responses to Q16–Q19 resulted in the development of four key themes (Table 2). Collectively, these reflect the practical, methodological, and conceptual challenges of monitoring and training HILAs in adult male professional football. The four themes were highly interconnected and collectively highlighted ongoing challenges relating to standardisation, data integration, individualisation, and the translation of complex monitoring information into meaningful coaching practice.

The first theme, Need for *standardisation and comparability*, highlighted practitioner concerns regarding inconsistent thresholds, definitions, and GPS reporting conventions. Participants emphasised that the absence of shared benchmarks restricts cross-club comparisons and hinders evidence-based communication.

The second theme, *Integration challenges*, captured frustrations with fragmented monitoring systems and the difficulty of combining internal and external load data. Practitioners expressed the need for automated, interoperable systems capable of linking wellness, GPS, and heart rate measures to support timely feedback and applied decision-making.

The third theme, *Individualisation*, reflected the importance of tailoring HILA exposure and monitoring thresholds to the unique characteristics of players, including position, playing style, injury history, and biomechanical profile. Practitioners stressed that contextualised, player-specific metrics enhance both performance and injury prevention strategies.

Finally, the *Communication and translation to practice* theme described the challenge of converting complex datasets into concise, actionable insights. Participants identified a need for clear Key Performance Indicators (KPIs), visualisation tools, and stronger collaboration between performance staff and coaches to ensure data-driven decisions are effectively communicated and implemented.

Discussion

This study explored practitioner approaches to monitoring and training HILAs in English professional football (EPL and EFL), highlighting key challenges and priorities for applied practice and research. The findings provide a contemporary applied perspective that complements and extends recent empirical and review evidence concerning the quantification, contextual variation, and methodological challenges associated with HILAs in professional football,

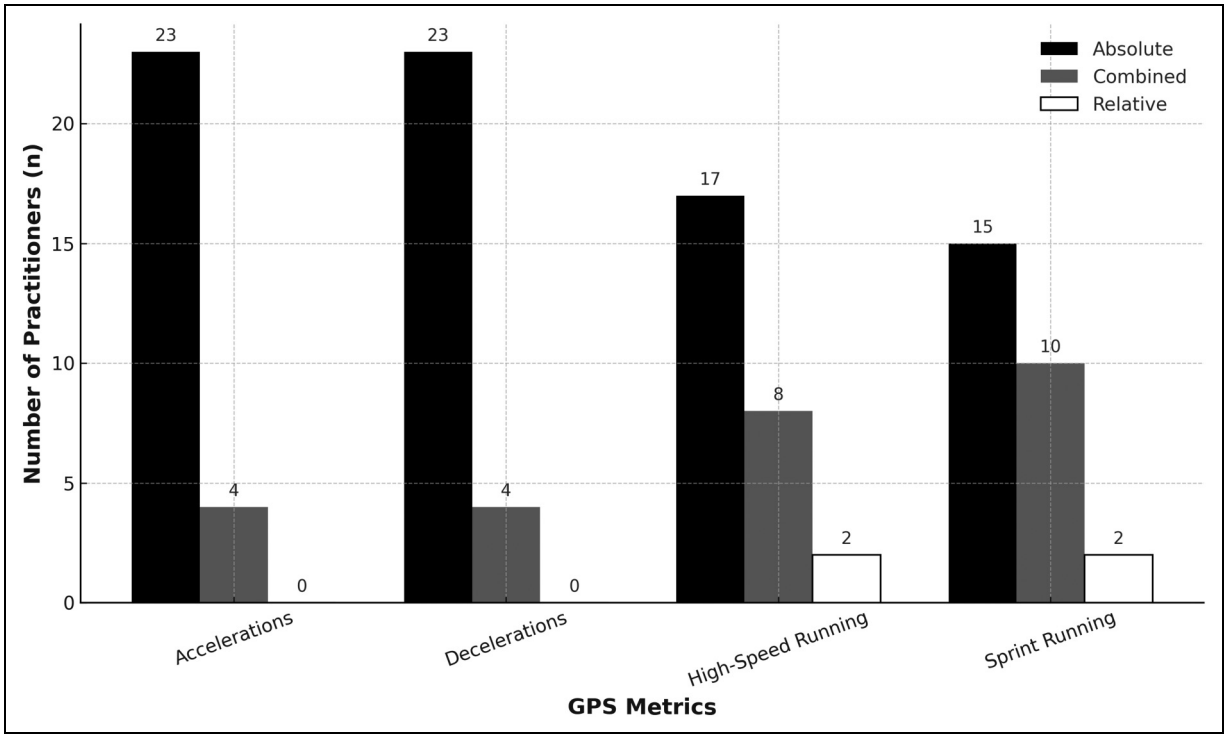

Figure 2. Threshold strategies reported by practitioners (n = 27) for accelerations, decelerations, HSR, and sprint running. Bars represent the number of practitioners using absolute, combined, or relative-only thresholds.

particularly in relation to threshold selection, data-processing inconsistencies, and the limited integration of contextual and tactical information.[23] Practitioners reported universal use of GPS technology during training and widespread use during matches, reinforcing its status as the dominant tool for external load monitoring in professional football. Sprint running and HSR were consistently prioritised, whereas accelerations and decelerations were considered of comparatively lower importance. Absolute thresholds predominated across metrics, although approximately one-third of practitioners reported using combined absolute-relative approaches, with a median recalibration interval of 6 weeks. Large-sided games were perceived as the most effective training modality for developing HILAs, supplemented by position-specific and small-sided formats. Finally, qualitative findings revealed four overarching practitioner concerns: (1) standardisation and comparability, (2) integration challenges, (3) individualisation, and (4) communication and translation to practice. Overall, monitoring technology appears well established, but practitioners continue to experience difficulties interpreting and applying the information it produces. Importantly, the present findings extend previous descriptive investigations by providing insight into how practitioners interpret, contextualise, and apply HILA information within daily performance environments. The integration of quantitative and qualitative findings suggests that although monitoring technologies and analytical capabilities have advanced substantially, practitioners continue to face challenges translating increasingly complex datasets into meaningful coaching and performance decisions.

The widespread adoption of GPS observed in the present study aligns with earlier findings by Akenhead and Nassis,[17] who reported similar practices nearly a decade ago, and reflects the continued evolution of monitoring infrastructure across the EPL and EFL. However, the present study extends this work by providing insight into how practitioners interpret and apply GPS-derived metrics in practice, an area that has received limited attention previously. Specifically, the qualitative responses showed that several practitioners wanted monitoring outputs to provide greater information about how and why high-intensity actions occurred. Participants called for GPS to be integrated with video, greater detail concerning the characteristics of individual actions, and clearer visual representations that placed physical outputs within their drill, tactical, and technical contexts.[24] These findings indicate that some of the challenges experienced by practitioners now concern the contextualisation and communication of monitoring outputs rather than data collection alone. The prioritisation of sprint running and HSR mirrors contemporary trends in match-play demands, with increases in both the frequency and intensity of these actions reported across top European leagues.[25] These observations are consistent with the predicted

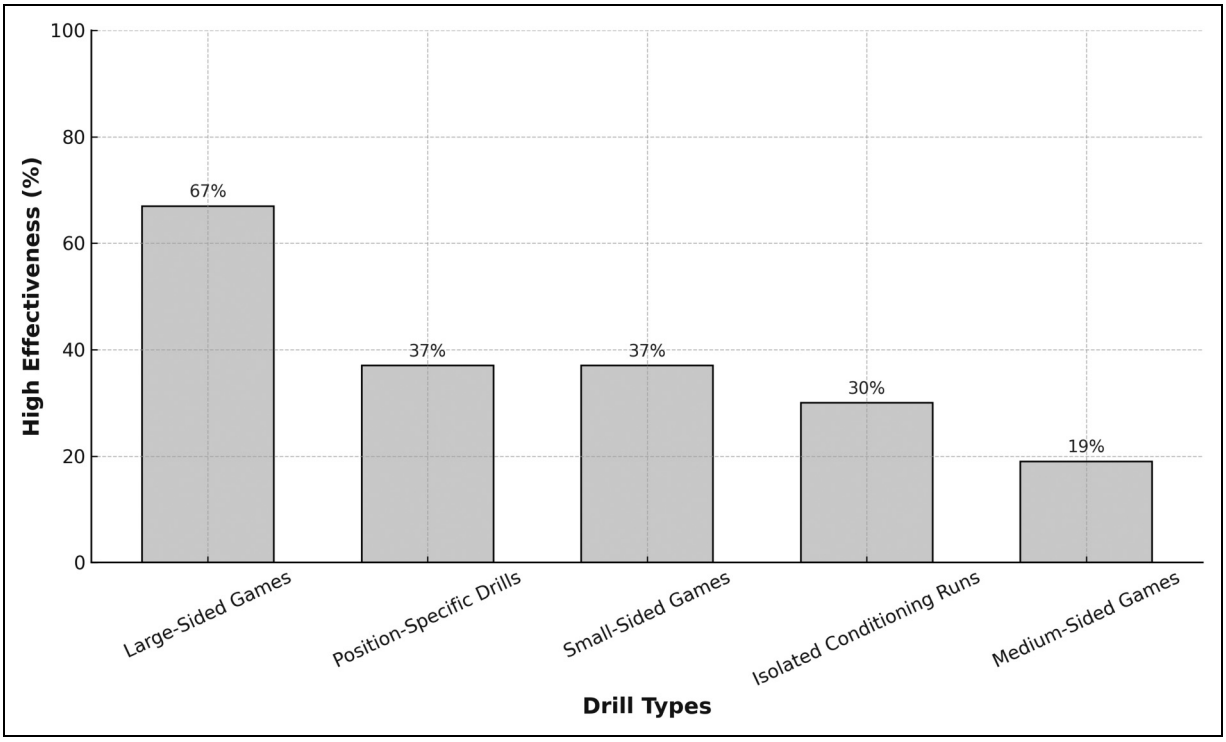

Figure 3. Percentage of practitioners (n = 27) rating different drills and conditioning formats as being of "high effectiveness" for preparing players for high-intensity locomotor actions (HILAs) in EPL and EFL clubs.

trajectory outlined by Nassis et al.,[26] suggesting that sprint- and HSR-based indicators will remain central components of physical performance in professional football through to 2030.

In contrast, the comparatively lower emphasis placed on accelerations and decelerations diverges from a growing body of evidence demonstrating that these actions contribute substantially to overall mechanical load and injury risk.[27] In the current study, fewer than half of practitioners rated decelerations as highly important, with even fewer prioritising accelerations. The qualitative responses provided some insight into this finding. Practitioners questioned the accuracy of GPS when assessing acceleration and deceleration demands, requested more customisable relative acceleration and deceleration zones within GPS software, and highlighted the need for greater information regarding the biomechanical and contextual characteristics of these actions. These responses suggest that the comparatively lower prioritisation of acceleration and deceleration may partly reflect uncertainty concerning measurement accuracy and how these data should be interpreted and applied.

This interpretation is supported by known limitations in GPS validity during short, high-intensity and multidirectional movements.[28] Similar observations were reported by McGrath et al.,[23] who found that acceleration and deceleration demands remained underrepresented in the match-analysis literature despite their biomechanical relevance. Inconsistencies in hardware, sampling frequency, and manufacturer-specific algorithms may also contribute to this issue, with validation studies demonstrating substantial between-system error during rapid changes in velocity.[9,10] Collectively, these findings indicate that improvements in technological precision and clearer applied interpretive frameworks may enhance practitioner confidence in GPS-derived acceleration and deceleration metrics. They also indicate that higher-frequency technologies, including local positioning systems (LPS) and wearable inertial measurement units (IMUs), may be more appropriate for quantifying these actions, given their superior responsiveness to rapid, multi-planar locomotor movements.[8] Importantly, recent EPL analyses using higher-fidelity optical systems have demonstrated substantial contextual variation in acceleration and deceleration loads according to possession, pressing behaviours, and opponent strength,[5] highlighting the potential insights that may be overlooked when relying solely on lower-sampling-frequency GPS technology.

Most practitioners reported the use of absolute thresholds to quantify accelerations, decelerations, HSR, and sprint running, with a smaller proportion employing blended absolute-relative approaches. These findings closely mirror those of McGrath et al.,[23] reinforcing the strong alignment between scientific convention and applied practice. Responses to Q11–Q13 helped explain the continued preference for absolute thresholds. Practitioners described absolute thresholds as simple and consistent, useful for comparisons between

Table 2. Summary of qualitative themes and illustrative verbatim quotations derived from reflexive thematic analysis of practitioners' free-text responses to Q16–Q19 (n = 27).

Theme	Representative quotations
Need for standardisation and comparability	"Standardised measurements across training and matches (all competitions)." – Practitioner 12 "More standardised reporting protocols." – Practitioner 16
Integration challenges	"There could be an AMS system which has the subjective and objective feedback in a scoring system so that everyone is across internal and external load." – Practitioner 9 "Having a better integrated HR and GPS system." – Practitioner 23
Individualisation	"Individualised practice based on their positional demands." – Practitioner 3 "Improved specificity and individualisation of gym work. An extensive library of drills has been critical in understanding expected outputs for all individuals within the training week." – Practitioner 12
Communication and translation to practice	"Make this data easy to understand for coaches using colour coding or thresholds." – Practitioner 13 "Better visual representations of the actions in context of the drill, session or game and understanding how tactical/technical requirements will impact high intensity actions." – Practitioner 5

players, positions, squads, seasons, normative data, and opponents, and easier to communicate to coaches. In contrast, reported barriers to implementing relative thresholds included uncertainty regarding the appropriate reference value or cut-off, the time and staffing required to monitor and update individual thresholds, limited functionality within GPS software, and difficulty communicating individualised outputs to coaches. Therefore, the predominant use of absolute thresholds appeared to reflect practical and communicative considerations in addition to methodological preference.

Large-sided games were identified as the most effective training format for preparing players for HILAs, followed by position-specific and small-sided games. These perceptions align with previous work demonstrating that larger pitch dimensions and player numbers facilitate greater exposure to HSR and sprint running.[29] Larger formats may also permit higher-magnitude accelerations and decelerations due to increased movement space, whereas smaller-sided games are more likely to promote frequent exposures owing to spatial constraints and higher interaction density.[29] However, training-based formats may still under-represent the most demanding match-specific acceleration and deceleration loads.[30] McGrath et al.[23] similarly concluded that large-sided and position-specific drills most effectively replicate match HILA demands, while smaller formats may constrain sprint opportunities. The combined use of multiple game formats reported by practitioners therefore appears to reflect a pragmatic balance between physical stimulus and tactical relevance. This finding further highlights the integrated nature of contemporary practice, whereby practitioners are increasingly required to balance locomotor exposure with tactical objectives, player availability, and broader periodisation demands. Nonetheless, evidence suggests that training tasks do not consistently replicate match worst-case scenarios, particularly during congested fixture periods.[16] Furthermore, recent season-long analyses have demonstrated substantial between-player and positional variability in exposure to peak locomotor demands, reinforcing the need for individualised and context-specific approaches to preparing players for worst-case scenarios and supporting practitioner preferences for blended and player-specific monitoring strategies.[31]

Qualitative findings further highlighted persistent challenges in translating GPS-derived data into applied practice. Practitioners reported difficulty presenting complex datasets in formats that were accessible and meaningful for coaches. Specific participant suggestions included using colour coding or thresholds to simplify feedback, developing better visual representations of actions within their drill or match context, and creating integrated systems that combined GPS with internal-load information. Participants also advocated integrating physical GPS metrics with synchronised video to enable high-intensity actions to be interpreted within their tactical and technical context, including counter-attacks, pressing sequences, and defensive transitions.

These findings are consistent with previous research identifying communication as a challenge within the coach–sport scientist relationship[18,32] and demonstrating that shared KPIs and clear visualisation tools can improve interdisciplinary collaboration.[18,19] Based on the present responses, concise dashboards, colour-coded KPIs, contextual video, and brief feedback processes may help convert monitoring data into more accessible and actionable information for coaches. The main challenge may therefore be less about collecting additional data and more about combining physical, tactical, and contextual information in a form that supports timely decision-making.

The four qualitative themes provided further insight into the operational challenges experienced by practitioners. Participants reported that inconsistent definitions, thresholds, reporting conventions, and drill structures limited comparisons across players, sessions, and clubs. This

supports the methodological variation previously identified within the literature,[23] while showing that standardisation is also a practical issue within professional football.

Practitioners also described difficulties integrating GPS data with heart rate, RPE, wellness, and other measures of player response. Disconnected systems, limited staff time, poor heart-rate data quality, athlete compliance, and insufficient analytical support were identified as specific barriers. Participants therefore called for more automated and user-friendly systems capable of linking multiple data sources. These findings add to previous research on the integration and communication of monitoring information.[18,19]

Individualisation was another clear priority. Practitioners described tailoring HILA preparation and monitoring according to positional demands, physical capabilities, match demands, and individual responses to training. Individualised drill selection, player targets, progressive exposure, and relative thresholds were among the approaches reported. This supports emerging evidence favouring player-specific load prescription.[33]

Finally, participants reported difficulty converting complex monitoring information into meaningful guidance for coaches and players. Suggested solutions included simpler visual representations, colour-coded outputs, contextual video, and closer communication between performance and coaching staff. These findings reinforce the importance of coach–scientist communication and shared KPIs.[18,19,32] Overall, the themes were interconnected and reflected a broader challenge concerning how monitoring information is contextualised and translated within professional football.

Conclusion

This study provides contemporary insight into how practitioners monitor, interpret, and train HILAs within English professional football environments. While GPS monitoring and absolute threshold approaches remain firmly embedded within applied practice, practitioners continue to face challenges relating to the standardisation, integration, individualisation, and communication of locomotor information. Importantly, the present findings suggest that the principal challenge within modern professional football is no longer the collection of monitoring data, but rather the effective contextualisation and translation of increasingly complex information into meaningful coaching and performance decisions. The qualitative findings provide novel insight into the interconnected challenges practitioners face and reinforce the need for integrated, contextually informed, and individualised approaches to HILA monitoring and training.

Practical applications

- GPS monitoring remains the dominant method for quantifying HILAs in professional football; however, practitioners should place greater emphasis on how locomotor data are contextualised and communicated rather than solely on data collection.
- Absolute thresholds continue to predominate in applied practice, although periodic recalibration of relative thresholds and integration of player testing data may improve monitoring sensitivity and ecological validity.
- Acceleration and deceleration metrics should be interpreted cautiously due to ongoing technological and methodological limitations and should be considered alongside contextual information and player-specific characteristics.
- Large-sided and position-specific training formats appear most effective for exposing players to HILA demands, although practitioners should recognise that no single drill format consistently replicates match worst-case scenarios.
- The integration of physical outputs with tactical and contextual information (e.g., synchronised video, possession status, and match phase) may improve the applied relevance of monitoring data and facilitate more informed coaching decisions.
- Developing concise dashboards, coach-friendly KPIs, and clear visualisation strategies may enhance communication and support the translation of complex monitoring information into meaningful training and performance interventions.
- Future developments in HILA monitoring should prioritise integrated, individualised, and contextually informed decision-making frameworks rather than the collection of additional metrics in isolation.

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Ethical considerations

Ethical approval for this study was granted by the University of Lancashire Research Ethics Committee (reference: HEALTH 01147). The study was conducted in accordance with the approved protocol and relevant ethical guidelines.

Consent to participate

All participants received information about the study and provided informed electronic consent before completing the survey. Participation was voluntary and participants could withdraw before submitting their responses.

Consent for publication

Not applicable. No identifiable personal information is included in this manuscript.

Authors' contributions

PM led the study design, data collection, and manuscript preparation. DH and JA provided supervisory guidance and contributed to manuscript revision. All authors read and approved the final manuscript.

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Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data availability statement

The data are not publicly available because they contain potentially sensitive information relating to practitioners working in professional football. Anonymised data may be made available by the corresponding author upon reasonable request, subject to ethical and confidentiality considerations.

Supplemental material

Supplemental material for this article is available online.

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