JoE

Journal of Expertise
2025. Vol. 8(2-3)

ISSN 2573-2773

Exploring Collaborative Dynamics in Sports Science and Sports Medicine Teams

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Abstract

This study investigates the perceived prevalence and dynamics of interdisciplinary collaboration within sports science and sports medicine teams. Recognizing the increasing specialization within sports science and medicine, we explore how practitioners perceive and engage in collaborative efforts to support athlete performance. Drawing on survey data collected from high-performance sport practitioners, we examine the perceived levels of interdisciplinarity, hierarchies within teams, and contextual factors influencing collaborative practices. Findings reveal a perceived importance and presence of interdisciplinarity among practitioners, despite variations in their experiences and opinions. Role clarity, shared mental models, continued professional development opportunities outside of one's discipline, and supportive leadership emerged as crucial factors for effective interdisciplinary practice. The study highlights the need for sports organizations to foster a culture that values and facilitates collaboration across disciplines, providing practical recommendations for practitioners and leaders to optimize team functioning and athlete support. This research contributes valuable insights into the complexities of interdisciplinary teamwork in elite sports, emphasizing the importance of organizational structures and leadership strategies that promote effective collaboration for enhanced athlete performance.

Keywords

interdisciplinarity, teamwork, leadership, professional development, sport performance

Introduction

In the increasingly complex and demanding fields of sports science and sports medicine (SSSM), collaboration is widely recognised as essential. Although individual expertise and talent may contribute to short-term achievements, sustained performance enhancement and comprehensive athlete care rely on a coordinated, interdisciplinary approach (Ferguson et al., 2025; Sporer & Windt, 2018). As such, the effective integration of diverse professional perspectives within SSSM teams is fundamental to optimising athlete performance (Brocherie & Beard, 2021; Gustafsson et al., 2008).

Interdisciplinary collaboration has gained increasing prominence in the past decade, as evidenced by high-performance sport organisations highlighting it as a strategic approach to achieving or sustaining competitive advantage (Hague et al., 2021; King et al., 2024; Salcinovic et al., 2022). While collaboration among diverse specialists presents inherent challenges for both practitioners and coaches, when effectively navigated, it can lead to substantial improvements in performance. Conversely, poor management of such

collaboration may significantly hinder outcomes (Brocherie & Beard, 2021). However, although the characteristics of interdisciplinary practice are well-documented in the existing literature, the processes through which such practices are developed and implemented remain an emerging area of interest (Burns & Collins, 2023; Otte et al., 2020; Yeung, 2016). Research on the specific role of interdisciplinary collaboration within SSSM teams remains limited and conceptual in nature. Furthermore, conceptual and operational definitions of high performance within SSSM teams have been limited in the scientific literature.

Echoing developments in the coaching literature, Nash (2012) argues that competitive results—such as an athlete's or team's standing—should not be the sole outcome used to evaluate the quality of support provided, including interdisciplinary collaboration. A more nuanced approach evaluates not only results, but also the processes, dynamics, and continuous development of the interdisciplinary team. Contributing to this nuanced understanding is the distinction between performance, outcome, and process (POP) as proposed by Collins (2022). In this framework, "outcome" refers to the final results, such as wins or losses; "performance" relates to the execution of specific objectives (e.g. number of passes completed or attacks made); while "process" encompasses the methods or strategies employed to reach those objectives (e.g., adopting a high-tempo style of play and prioritising physiological development in training). As noted by Nash et al., however, performance and outcomes *could* be achieved in SSSM teams with high levels of dysfunction or a lack of coherent processes (Roncaglia, 2016). To make the analogy explicit, optimal support through optimal coaching does not automatically produce excellent athlete performance, and excellent athlete performance does not automatically mean the support and coaching was optimal. Hence, SSSM team *effectiveness* is process-driven, concerned with *how* and *how well* the outcome was achieved (team processes, decision-making, culture, relationships, mechanisms). A logical argument can be made that enhancing the quality and coherence of performance-related processes increases the likelihood of successful outcomes. Moreover, even in the absence of success, well-defined processes enable more accurate and constructive post-performance evaluation and learning.

Effective leadership is crucial for shaping the processes that support athlete preparation, requiring the integration and coordination of efforts across coaches, SSSM staff, and performance leaders (Arnold et al., 2015; Verhagen et al., 2020). These processes do not occur in isolation, however. Rather, they are embedded within complex relational dynamics that significantly influence team functioning and performance outcomes (Gustafsson et al., 2008; King et al., 2024). As such, the quality of interactions among leaders, staff, coaches, and athletes warrants both critical investigation and ongoing reflection. In recent years, there has been a growing body of research exploring the components of high-performance sport environments—particularly team dynamics, leadership practices, and coach-SSSM relationships. The following sections provide a brief overview of these key areas, establishing the foundation for the present study.

SSSM Team Dynamics

Terminology used when describing teams of specialists working together can be confusing, and dogmatic in nature. Multiple researchers have explored these labels in more depth than we offer here (Graff, 2016; Roncaglia, 2016). Briefly, however, the term *multidisciplinary practice* refers to the collaboration of individuals from different disciplines, each working independently and contributing their expertise towards a common goal; e.g., "I have my task to complete (Dexa scan and diet plan), and [I am] aware this contributes to the bigger picture with input from other disciplines (S&C) of improving the athlete's body composition". *Interdisciplinary practice* goes beyond multidisciplinary practice, as it involves the active integration of knowledge, methods, and perspectives from different disciplines to create a unified approach towards addressing complex problems or projects (e.g., "I work with the S&C coach and technical coach to decide on

how we manage load, adaptations, and how that compliments the structure of the training week, so we maximise the body composition of the athlete.") *Transdisciplinary practice* takes interdisciplinary collaboration a step further by blurring the boundaries between disciplines, allowing for the creation of new frameworks and approaches that go beyond traditional (e.g., "We all know the athlete must improve body composition, and we all work across our disciplines to support that outcome without constraints.") We hope this adds clarity but must observe, however, that while the distinctions between multi- and inter- do seem clear, the extra dimensions and, indeed, value added of transdisciplinarity would seem both vague and highly dependent on the cross disciplinary expertise and openness of the domain-specific practitioners. We return to this later through the idea of "T-shaped" expertise.

These differences notwithstanding, various researchers have suggested high-performance sport currently operates a multidisciplinary approach, and have called for a move towards either interdisciplinary (Buekers et al., 2017; Burns & Collins, 2023; Doherty, 2013) or transdisciplinary practice (Otte et al., 2022). Conversely, there is an argument for practitioners maintaining some disciplinary boundaries and context-dependent variations in levels of integration (Graff, 2016). Thus, a practitioner may work with an athlete one-to-one in certain settings (general preparation phase in the gym) but then may work more closely in an interdisciplinary fashion on other challenges, such as when managing the complex return to sport process following an injury. A key area for further examination is the dynamic progression from multidisciplinary to interdisciplinary and, ultimately perhaps, to transdisciplinary modes of working. Clarifying the conditions under which teams operate across these collaborative forms would represent a meaningful step forward in shaping training and professional development within high-performance SSSM environments. Understanding how and when practitioners shift between these approaches has important implications for both team effectiveness and athlete outcomes. To support this understanding, the following section examines the core features that govern team dynamics and influence collaborative functioning within SSSM teams.

Factors Affecting SSSM Team Dynamics

Multiple scoping reviews have been conducted to develop an understanding of the features and factors affecting team dynamics in SSSM teams. Salcinovic et al. (2022) identified four key variables that were associated with team function and performance across a variety of industries. These were (1) leadership styles, (2) supportive team behaviour, (3) communication, and (4) performance feedback. Burns & Collins (2023) also identified four features from a scoping review, including (1) theoretical framework (programme philosophy), (2) facilitative leadership and culture, (2) organisational and logistical structures and processes, and (4) personal and interpersonal qualities of the team. SSSM teams wishing to improve performance may find value in examining these factors within their team and its environment. It is widely acknowledged that the dynamics of team function are important for outcomes in high-performance sport, yet there is little evidence to provide guidance. Notably, both scoping reviews identified a severe lack of empirical research exploring the realities of team functioning in sport.

Leadership in Sporting Organisations

Achieving success in high-performance sport requires leadership that can clearly communicate vision, manage group dynamics, and establish expectations and incentives at individual, operational, and strategic levels (Arnold et al., 2015). Central to this is a performance management approach that involves the ongoing assessment and development of individuals and teams in alignment with organizational goals (Alfano & Collins, 2021; Arnold et al., 2015).

The interactions between key stakeholders—leaders, coaches, SSSM staff, and athletes—have a significant influence on overall team functioning and performance (McLaren & Spink, 2022). These relationships are deeply interconnected and shape the collaborative

structures essential to effective performance environments.

Within this context, leadership emerges as a central force. Brocherie and Beard (2021) describe the performance director as an orchestrator, coordinating a holistic approach toward shared objectives. Understanding the dynamic relationships across all stakeholder groups—leadership and staff, coaches and SSSM professionals, coaches and athletes, and SSSM teams and athletes—is therefore critical. Leadership not only guides strategy but also fosters the culture of collaboration and communication required for integrated athlete care and sustainable performance (Burns et al., 2024).

Coach and SSSM Team Dynamics

The relationship between the coach and the SSSM team is a critical dynamic within sport, and research has demonstrated multiple challenges in fostering an effective partnership (Waters et al., 2019). Burns et al. (2024) explored the characteristics of successful support team members as described by medal-winning coaches and athletes. Key factors affecting the relationships included positive contributions to curiosity, commitment, and willingness to explore the politics and culture of the sport (Burns et al., 2024). Despite the acknowledged importance of this relationship, there remains a surprising paucity of research examining how it can be effectively developed. Notably, there is a lack of intervention studies demonstrating successful strategies or approaches to enhance this aspect of interdisciplinary practice (Burns et al., 2024; Stewart et al., 2024).

Not only are there potential challenges in the coach-SSSM team dynamics, but there are also some considerations to be made within the SSSM team. The role of a practitioner within a support team often requires an ability to work with and through other individuals and organisational structures (Arnold et al., 2019). Indeed, support staff have been described as ‘performers’ within the context of high-performance sport. Sometimes being exposed to pressures of a similar nature to that of an athlete and coach within the daily training and competition environments. Ensuring the SSSM team members deliver support to the athlete/s in an integrated manner is highly complex (Arnold et al., 2019). Examples of the pressures that practitioners face include but are not limited to, relationships; physical resources; contractual, organisational structure, and operational practices; and professional development (Wagstaff et al., 2013, 2015). These pressures can be and indeed are felt across several levels of operations within sport, adding to the complexity of effective interdisciplinary practice (Arnold et al., 2019; Stewart et al., 2024.). For example, while many coaches are full time, a large proportion of SSSM practitioners are employed on fractional contracts and, therefore, may not be privy to the array of contexts within the daily training environments (Burns et al., 2024). Importantly, however, all these pressures must be dealt with against an outcome demand; in short, what the individual practitioners and support team are expected to achieve.

To date, the realities of working within high-performance sport have received limited empirical attention (Clark et al., 2018; Sanchez et al., 2005). While numerous publications offer philosophical or theoretical models for operationalising interdisciplinary practice (Balagué et al., 2017; Buekers et al., 2017; Rothwell et al., 2020), there remains a notable gap in understanding how interdisciplinary practice is enacted in applied settings. In response, the present study seeks to advance knowledge of the dynamics within sports science and sports medicine (SSSM) teams by capturing the perspectives of those working within them. Specifically, the study aims to (1) explore the interpersonal dynamics among diverse professionals within SSSM teams; (2) identify contextual factors that promote or inhibit collaboration; and (3) generate insight into the influence of leadership, management support, professional development, and role clarity on the effectiveness of interdisciplinary practice. These aims are intended to inform both future research and applied practice in high performance environments.

Methods

Participants

Sports science and sports medicine practitioners were the participants for this study. Specifically, we targeted practitioners who were operating in high-performance settings (encapsulating any teams or athletes that competed at national or international level, inclusive of Olympic, non-Olympic, and professional sport) (Schlawe et al., 2025; Sotiriadou & and De Bosscher, 2018). Using purposeful convenience sampling, we received 165 responses from participants representing 47 different sports and 16 countries. This included 14.7% who had a doctoral qualification, 57.2% who had MSc/MAs, and 19.8% who had completed an undergraduate degree programme. The sample almost evenly split between those who worked in professional and Olympic/Paralympic sport (52.5% and 47.5% respectively). A substantial proportion of participants (79%) reported working primarily in performance or professional sport settings, with 51% in full-time roles and 55% having held their current position for more than four years. Demographics of the sample are presented in Table 1.

The disciplines of strength and conditioning and psychology were highly represented within this sample, at 17.5% each, whereas there were no respondents for nutrition. Interestingly, over 30% of all respondents stated that the traditional practitioner titles did not encapsulate their role (see Figure 1, next page). Rather, the respondents fulfilled a role outside of a single discipline, such as a physiologist who would normally be employed within an institute of sport. Some role titles reported included the following: head of performance support, performance director, coach developer, talent manager, pathway manager, head of performance, head coach, and performance leadership.

Table 1. Participant demographics information

Variable	Category	Percentage (%)
Sport Type	Olympic	43.8%
	Paralympic	6.2%
	Professional	50.0%
Primary Location	United Kingdom	76.3%
	Ireland	5.0%
	Hong Kong	3.7%
	United States	2.5%
	Australia	1.3%
	Nigeria	1.3%
	China, USA, South America, UK (Global)	1.3%
	France	1.3%
	Other / Unspecified	7.5%
Role Type	Single Sport	58.8%
	Multisport	41.2%
Years of Experience	5–10 years	18.8%
	11–15 years	30.0%
	16–20 years	26.2%
	21+ years	25.0%

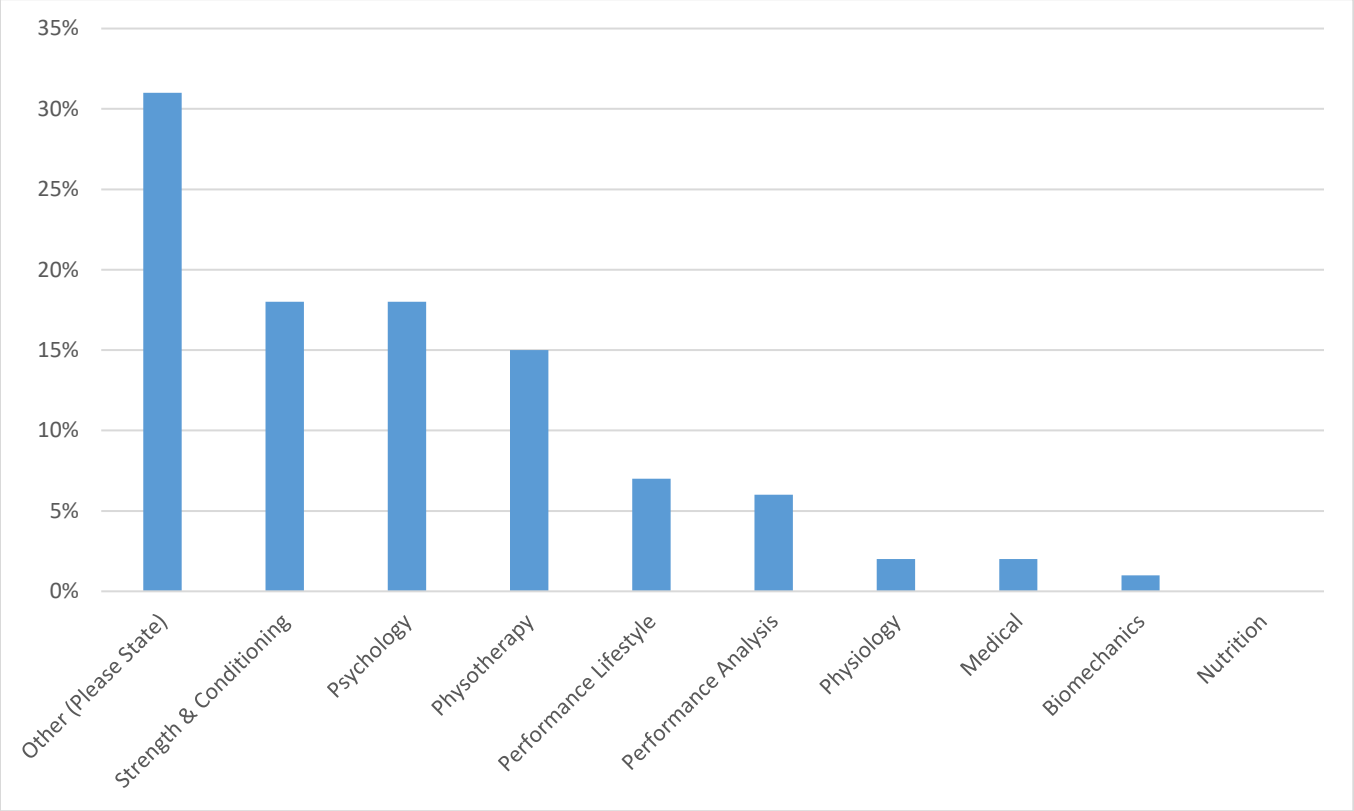

Figure 1. Roles within performance support teams represented within this sample.

Note. Examples of 'other' roles: talent manager, sport scientist, performance support lead, athlete health lead, multidisciplinarian, head of performance, performance director, researcher, performance support manager, sport scientist, soft tissue therapist.

Instrument

Based on previous work in the field (Clark et al., 2018; Sanchez et al., 2005), we developed a survey instrument to address the investigation's objectives. Section one (questions 1-8) collected demographic information about the practitioner's role, sport, level of operation and length in their role, academic qualifications, and employment status.

The second section contained two items (questions 9 and 10) aimed at identifying the other roles each respondent interacted with and how closely they worked with them. In this section a ranking scale was offered based on the number of roles.

The third section with one item (question 11) gathered responses on a scale of 1-10 regarding agreement levels within 16 statements focused on integration and teamwork within their roles, as well as an estimate of time spent operating collaboratively. Questions were designed based on perspectives identified within existing literature around interprofessional collaboration, and questions were grouped based on team dynamics, professional development, and leadership and management support (Alfano & Collins, 2021; Cassidy & Stanley, 2019; Collins et al., 2019; Fiore et al., 2008; Hu & Judge, 2017; Rousseau et al., 2006).

The fourth section included six items (questions 12-17; see Table 2, next page) exploring contexts that provided opportunities for integration and collaboration. This section provided three open-ended questions that asked participants about the contexts in which they either collaborate with others or work independently.

Table 2. Free text questions within survey

Question number	Type of question	Question wording
12	Multiple Choice	The proportion of time I would typically spend collaborating with other practitioners in my sport
13	Open	Are there any situations where you work collaboratively with other practitioners? (Please state YES/NO). If yes, please provide a sentence to describe the situation/s or contexts
14	Open	Are there any situations where you may work collaboratively, problem solve or help to problem solve outside of your discipline? (Please type YES/NO). If yes, please provide a sentence to describe the situation/s or contexts
15	Open	Are there any situations where you work alone or problem solve by yourself? (Please type YES/NO). If yes, please provide a sentence to describe the situation/s or contexts
16	Closed (Yes/No)	Do you consider the team that you are a part of (for your main sport) to be integrated?
17	Closed (Yes/No)	Do you think that integration is desirable?

A panel of experts comprising a national governing body (NGB) head of talent/coaching, an NGB head of performance support, a self-employed performance support professional, and a senior performance scientist from a national sports institute reviewed the survey for face validity and question clarity based on their understanding of the literature and their professional judgment. Their feedback to the researchers led to a total of eight modifications. Individual meetings with each reviewer resulted in two removed items, rewording one section and adding five new items. After these changes, a pilot study involving five practitioners was conducted to check readability/clarity using cognitive interviewing (Willis, 2005). The pilot study resulted in final agreement with no further change. A copy of the final survey is included in the appendix.

Procedure

Ethical approval was received from the host university ethics committee before commencement of the study. Based on similar previous research designs, we determined a minimum threshold of 100 participants (Anyadike-Danes et al., 2023). The survey used purposive convenience sampling (Ho & Yu, 2015) and was initially distributed using the authors' social media accounts (X and LinkedIn). Subsequently, this was shared and retweeted 142 times. Additionally, the three authors distributed the survey via e-mail to their existing networks of practitioners and gatekeepers of sport (technical directors at national institutes of sport, performance directors, and heads of performance support).

The information provided in the e-mail and survey home page (Quatrics) included an explanation of the study aims and the voluntary nature of participation, together with a link to the survey which was hosted on the university's online survey platform. The first page of the survey contained information explaining the study, participant anonymity, and a statement that the survey had been reviewed by the lead researcher's institution. Informed consent that the participant was willing to take part in the survey based on the provided information was gathered before any further questions were asked. Data were collected over eight weeks, and the completion time of the survey varied from 10-18 minutes recorded using the Qualtrics platform.

Data Analysis

Descriptive statistics—including mean, median, standard deviation, skewness, and kurtosis—were calculated for the closed-response survey questions to provide an overview of the data distribution (Ho & Yu, 2015). To visually summarise the distribution and central tendency of responses, box plots were employed. This method is particularly effective for large datasets and non-normal distributions, as it offers a non-parametric visualisation of data spread, highlighting the median, interquartile range, and potential outliers (Cleveland, 1993; McGill et al., 1978). Box plots therefore support a more efficient interpretation of differences and patterns of responding without assuming data normality, enhancing the transparency and accessibility of the statistical findings.

In addition to the quantitative data, three open-ended survey questions allowed for text-based responses. These qualitative responses were analysed using NVivo 12 (QSR International). Responses were initially grouped thematically, and, where appropriate, frequency tables were generated to summarise the key contexts in which practitioners reported engaging in interdisciplinary practice.

Results

Team Dynamics

This section describes the perceptions of SSSM practitioners' reality of collaboration within their working context. Emphasis was placed on who they collaborate with and in which circumstances. Questions were posed to understand the nature of collaboration that each practitioner experienced (with whom and how much). Notably, responses from this section of the survey are skewed towards affirming attitudes and experiences of interdisciplinary practice, and negatively towards a lack of collaboration (see Table 3).

Table 3. Questions relating to collaboration in SSSM teams

		N	Missing	Mean	Median	*SD*	Min	Max	Skewness	SkSE	Kurtosis	KurSE
Q1	I have clarity on my role (main sport) and where it fits within the wider team	*82*	10	8.21	9	*2.12*	1	10	-1.541	0.266	2.058	0.526
Q2	I work closely with other practitioners who are also working with the athletes I work with	*81*	11	8.28	9	*1.96*	0	10	-1.709	0.267	3.859	0.529
Q3	I feel I work an appropriate amount with other practitioners in my team	*81*	11	7.2	8	*2.49*	1	10	-0.862	0.267	-0.242	0.529
Q4	I tend to work on my own with the athletes	*70*	22	4.46	4	*2.82*	0	10	0.197	0.287	-1.072	0.566
Q5	As a support team we work closely to decide on the plan for the athletes/s	*80*	12	6.85	7	*2.8*	0	10	-0.898	0.269	-0.079	0.532
Q6	As a team we tend to work through the coaches to deliver the plan for the athlete/s	*82*	10	6.56	7	*2.83*	0	10	-0.643	0.266	-0.550	0.526
Q7	I see the coach as the key for the delivery of the plan	*80*	12	7.46	8	*2.84*	1	10	-1.092	0.269	0.086	0.532
Q8	I regularly collaborate with other members of the support team	*81*	11	8.09	9	*2.34*	0	10	-1.701	0.267	2.774	0.529
Q9	There is a hierarchy among the disciplines in respect of the athlete planning process	*78*	14	5.59	6	*3.07*	0	10	-0.277	0.272	-1.122	0.538
Q10	There should be a hierarchy among the disciplines in respect of the athlete planning process	*72*	20	3.72	3	*3.13*	0	10	0.478	0.283	-0.974	0.559
Q11	I set goals and objectives for the work I do with the athletes myself with no input from others in the support team	*77*	15	3.45	3	*2.83*	0	10	0.728	0.274	-0.351	0.541
Q12	My professional Development (CPD) is predominantly focused on my specific discipline	*79*	13	5.06	5	*3.04*	0	10	-0.053	0.271	-1.106	0.535
Q13	I try to stay informed and updated to date with the latest developments in other disciplines (either reading, courses, conferences, conversations with practitioners)	*82*	10	7.02	8	*2.67*	1	10	-0.772	0.266	-0.512	0.526
Q14	I often take part in team CPD with the practitioners from my sport	*76*	16	5.41	5	*3.09*	0	10	-0.030	0.276	-1.272	0.545
Q15	My direct line manager encourages me to work with other disciplines	*71*	21	7.11	8	*3.24*	0	10	-0.958	0.285	-0.274	0.563
Q16	The director of our programme encourages me to work with other disciplines	*62*	30	6.94	8	*3.01*	1	10	-0.612	0.304	-0.944	0.599

When considering the collaboration between disciplines, participants were asked which other disciplines they worked closest with. Three clear standouts appeared from the results: (1) coach, (2) strength and conditioning coach, and (3) physiotherapist. Concerning the roles that the practitioner worked closely with, the coach was cited most frequently (17.9%) followed by the physiotherapist and the strength and conditioning coach, both 13.13%.

Indeed, regarding working practices, 43.2% of practitioners reported that they spent over 50% of their time collaborating with other practitioners, highlighting what appears to be a significant level of collaboration within performance sport, at least based on the perceptions gained from our sample. Participants reported strong, if variable, levels of agreement that, as a support team, collaborative effort was needed to decide on plans for an individual athlete.

The results portray regular collaboration with other members of the performance support team; i.e., the group of individuals employed to support athletes/teams to bring about performance. This level of collaboration between practitioners was deemed appropriate by the sample, and this perception was conveyed when participants were asked for both negative and positive expressions of experiences and attitudes towards SSSS team dynamics (See Table 3).

For example, reverse items such as Q4 and Q11 received an average rating of 4.46 (*SD* = 2.88), and 3.45 (*SD* = 2.83) respectively. Conversely, both Q5 and Q3 were more positive in response, with 8.09 (*SD* = 2.34), and 7.20 (*SD* = 2.50) respectively. These data suggest that goal setting may often be a collaborative effort among practitioners in performance sport.

A large proportion (68%) considered the team in which they are a practitioner to be integrated. Notably, however, 32% either answered "Not," or "Definitely Not," while every question displayed a response from lowest to highest. Taken together with the levels of skewness on several questions, this does show that, despite an overall positivity towards ID practice, views within our sample were notably varied.

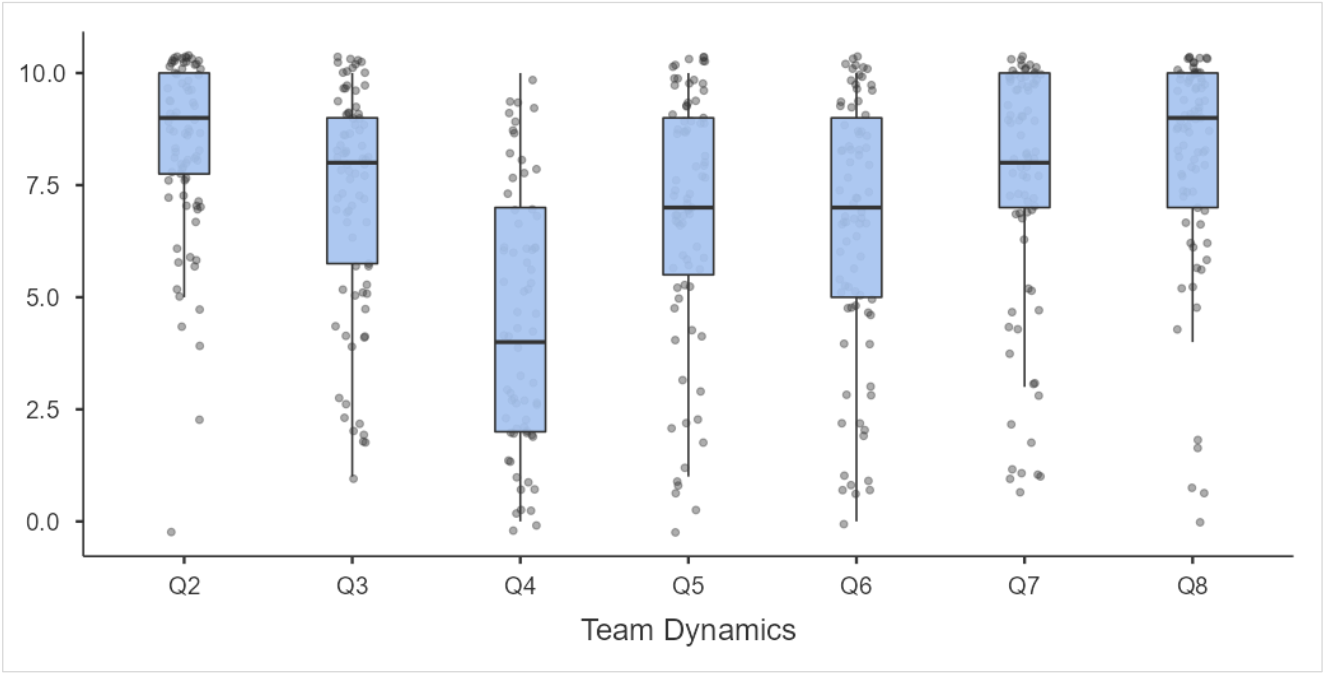

Figure 2. Box plot results for team dynamics

Note. Q2 = I work closely with other practitioners who are also working with the athletes I am working with. Q3 = I feel I work an appropriate amount with other practitioners in my team. Q4 = I tend to work on my own with the athletes. Q5 = As a support team we work closely to decide on the plan for the athlete/s. Q6 = As a team we tend to work through the coaches to deliver the plan. Q7 = I see the coach as the key for the delivery of the plan. Q8 = I regularly collaborate with other members of the support team.

Contextual Drivers

We asked participants the question "*Are there any situations where you work collaboratively with other practitioners? If so, please describe them*?" We provided free text for participants to provide answers to this question and grouped answers based on similarity. The first author created these groupings, and the other authors provided checks based on their reading of the data. Once grouped, the categories were ranked based on frequency, with four standing out as most prominent: Performance Planning, Injury Prevention and Rehabilitation, Performance Reviewing, Selection and Talent ID.

Table 4. Frequency table for free text responses to the question, "Are there any situations where you work collaboratively with other practitioners? If so, please describe them.

Theme	Frequency as a percentage of responses	Raw Data Examples
Performance Planning	27%	"Writing development plans and trying to get coaches to agree to them"
		"Performance planning, outcome and objective setting"
		"Involvement in performance planning with the wider team"
Injury Prevention And Rehabilitation	18%	"Return to play timelines with physios"
		"Injury prevention strategies. Load management"
		"Periodization of injury management"
Performance Reviewing	15%	"In answering specific performance questions particularly relation to gaining clarity around what it will take to win and reviewing our squad against that"
		"Player IDP's, player season planning, player reviews both post match & set reviews during the season"
Selection and Talent ID	13%	"Planning, selections, summer camp logistics"
		"Programming/planning/athlete updates and changes during weekly MDT meetings, selecting the team"

Note. 73% of responses fit into these themes; 27% of answers were unrelated.

Role Clarity

Participants reported positive responses to their perceptions of role clarity (see Figure 3). When asked about team function, participants largely perceived that they worked with and through the coaches to deliver on the individual and collective plan (see Figure 2). This builds on the response suggesting the coach as the key point of contact within the team. Participants also suggested that, when it comes to delivery, the coach is vital. That said, and as a rather confusing contrast, only 18% of the practitioners reported "working closely" with the coach, suggesting that the interactive roles of both would merit further investigation, especially concerning both situational context and timing of the preparation cycle.

A mean rating of 5.59 (SD = 3.07) was apparent around the statement Q9, "There is a hierarchy among the disciplines". 21.8% of respondents rated either 1 or 2/10 suggesting the environments in which they operate are not hierarchical. Conversely, however, 20.5% rated either 9 or 10/10 indicating that hierarchies were prevalent among their working environments. The suggestion that there is a hierarchy within the performance support team around athlete planning correlates with the proportion of practitioners who

highlighted the coach, the physiotherapist, and the strength and conditioning coach as the three key personnel they connected with. Likewise, although the pattern of ratings on whether there *should* be a hierarchy within high-performance teams (M = 3.72) suggests that there should not be, still 11.1% of respondents rated 9 or 10/10 suggesting that within their context they would prefer a hierarchy.

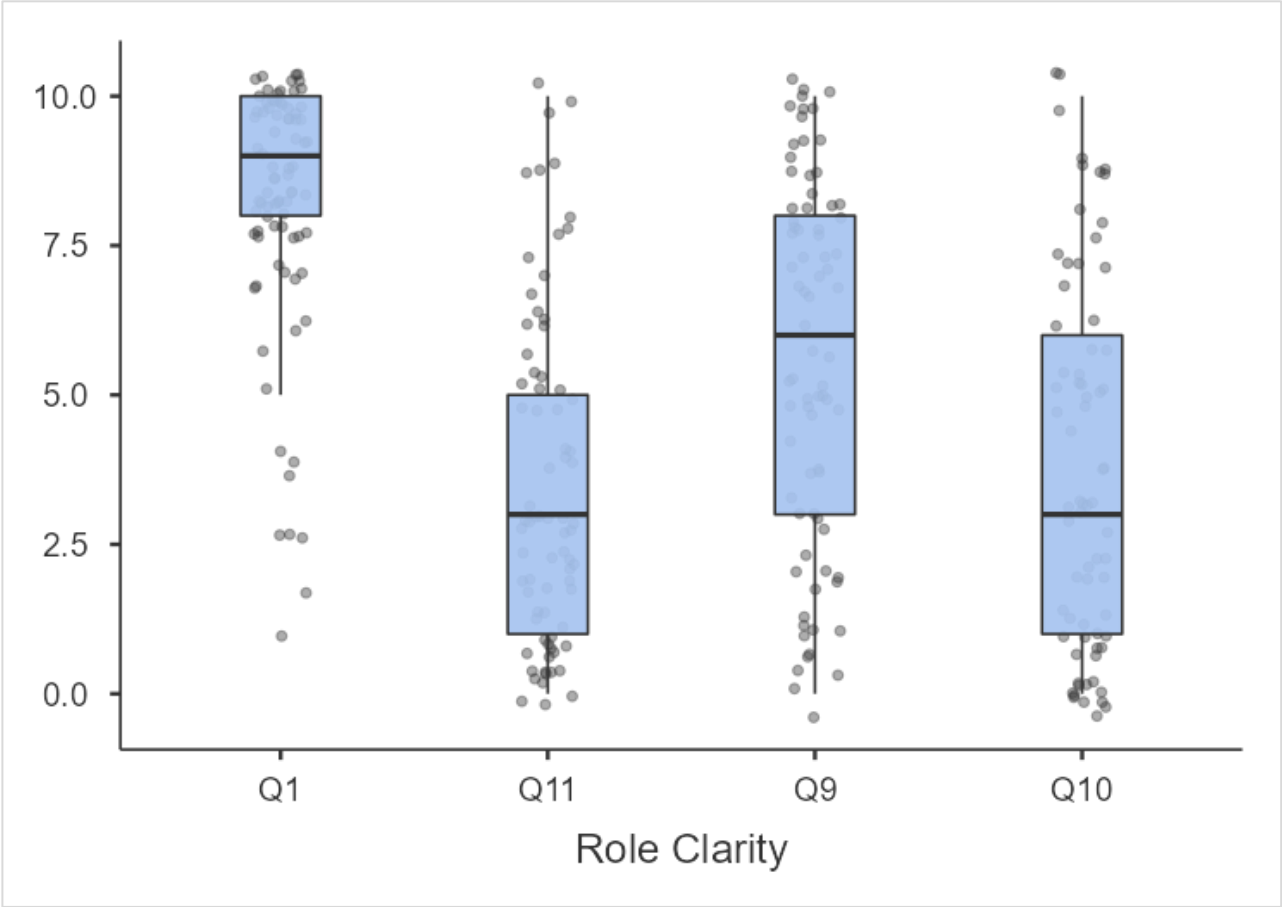

Figure 3. Box plot results for role clarity

Note. Q1 = I have clarity on my role and where it fits within the wider team. Q11 = I set goals and objectives for the work I do with athletes with no input from others in the support team. Q9 = There is a hierarchy among the disciplines in respect of the athlete planning process. Q10 = There should be a hierarchy among the disciplines in respect to athlete planning.

Continued Professional Development

Questions on Continued Professional Development (CPD) were included to ascertain the practitioners' experiences of how and where they spent their time developing their practice (within a discipline or across a discipline). Of this sample, CPD was balanced and inconclusive between the practitioner's specific discipline and interdisciplinarity. Furthermore, the spread of data here highlights a wide range of experiences within the demographic, with professional development clearly happening both inside and outside of the respondent's specific discipline (see Figure 4, next page). Additionally, *team* CPD within a sport appears to be mixed in practice among those working in performance sport, suggesting a degree of variation based on the environment they operate within.

Perhaps importantly, when participants were asked about self-directed CPD, specifically outside of the practitioner's main discipline, for example, "Q13" there was a positive response in the mean rating (M = 7.02) with 36.6% rating either 9 or 10/10. Next, we asked participants to consider the support they receive to encourage or facilitate collaboration with other team members.

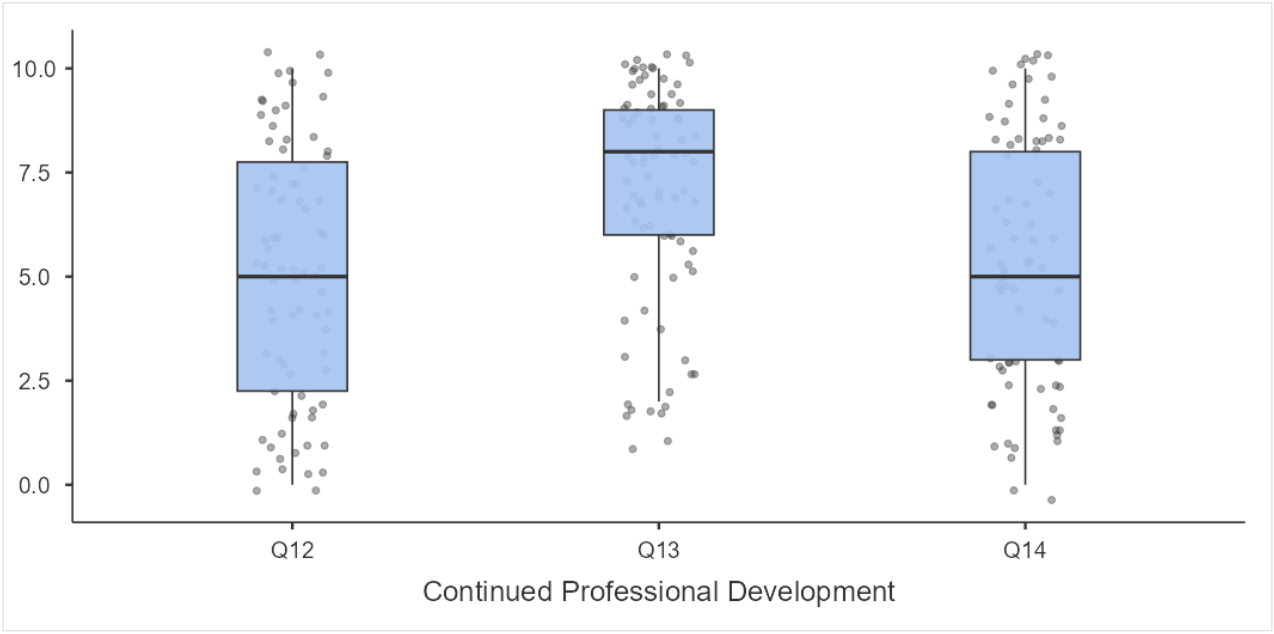

Figure 4: Box plot results for continued professional development

Note. Q12 = My professional development is predominantly focused on my specific discipline. Q13 = I try to stay informed and up to date with the latest developments in other disciplines (either reading, courses, conferences, conversations with practitioners). Q14 = I often take part in team CPD with the practitioners from my sport.

Leadership and Management Support

Participants were asked how supportive and collaborative they felt managers and colleagues were in relation to interdisciplinary work (see Figure 5 related to Leadership and Management Support, next page). They reported that both the director of their organisation and their direct line manager showed support for working in an interdisciplinary way.

Practitioners were asked to reflect on the level of support they received from leadership within the performance support team structure. Perceptions of leadership support were evident across the sample, suggesting that organisational direction and openness to collaborative working across disciplinary boundaries are relevant considerations. However, the wide range of ratings provided (spanning 0–10) indicates notable variability in how this support is experienced. So, while the pattern *trends* towards leadership support for interdisciplinary, it is clear the perception is not unanimous.

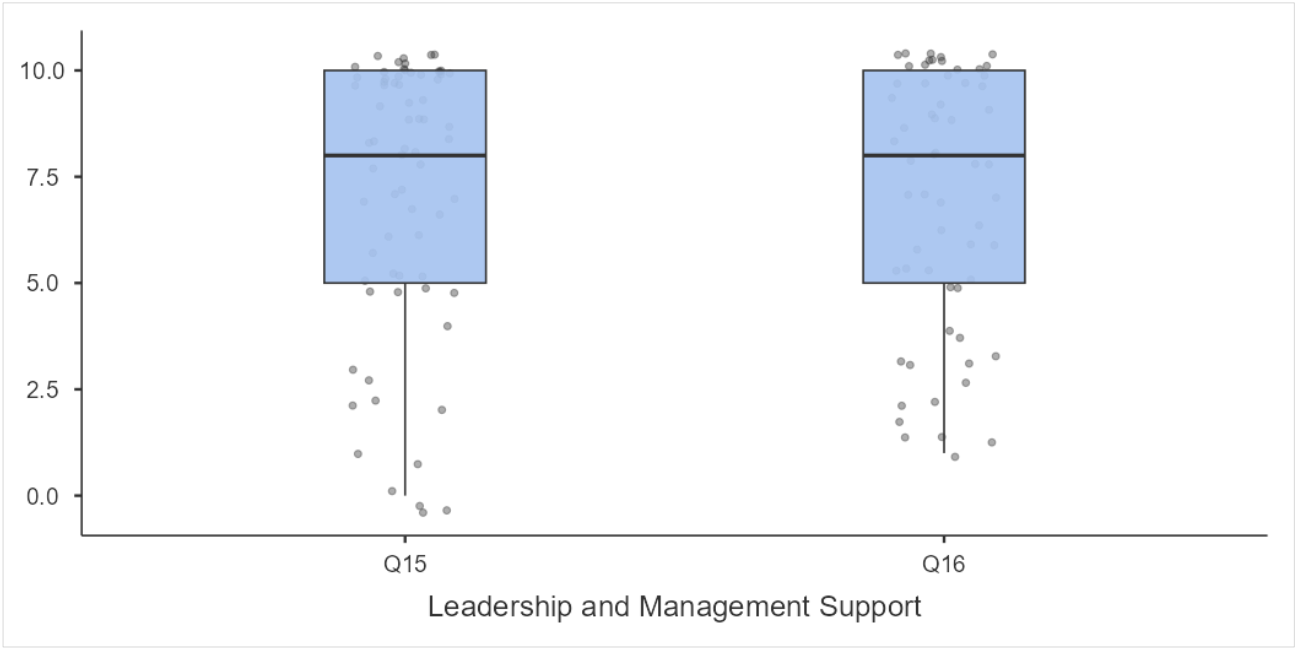

Figure 5: Box plot results for leadership and management support

Note. Q15 = My direct line manager encourages me to work with other disciplines. Q16 = The director of our programme encourages me to work with other disciplines.

Discussion

Sports performance and health outcomes are said to depend on the seamless integration of various disciplines within SSSM (Dietl et al., 2023; Ferguson et al., 2025; Gabbett et al., 2018). While existing research offers theoretical guidance on the value of interprofessional collaboration, there is limited evidence regarding the actual teamwork within SSSM departments, especially at elite levels such as Olympic, Paralympic, and Professional Sport. This study provides new insights into the collaborative dynamics, perspectives, and experiences of SSSM practitioners.

Team Dynamics

In contrast to recent position papers suggesting that practitioners continue to operate in siloed ways (Otte et al., 2022; Rothwell et al., 2020), our data indicate a more integrated approach within high-performance environments. Sixty-eight percent of respondents reported that their team functions in an integrated manner, and responses reflected generally positive perceptions of team-based engagement. Notably, 43% of participants indicated that they collaborated with other team members for at least half of their professional responsibilities, suggesting that collaborative working is a common and embedded feature of practice in this context.

Of interest, while the more traditional titles associated with performance support (Physiologist, Strength & Conditioning) were represented, a plethora of alternative roles emerged from this sample. Examples such as performance pathway scientist, sport scientist, head of performance support, and multidisciplinarian may indicate a shift towards pan-disciplinary functions in high performance sport, as indicated by the various roles collated through free text answers in this survey, the growth and type of such roles may have multiple interpretations. It could be either end of a spectrum between funding constraints, such that practitioners are required to hold positions that encapsulate multiple specialisms, or a growth in targeted funding leading to more such positions being created. Alternatively, this might reflect a conscious progression in the nature of skills and knowledge expected. For example, a strength in developing ‘T-shaped’ expertise (breadth across related disciplines *and* a depth in one specific

domain) increases the applicability of the practitioner and reduces the number of voices 'in the room' (Gustafsson et al., 2008; Verhagen et al., 2020). It would also seem to be an essential precursor if the aims of transdisciplinarity are to be achieved.

A key dimension of effective interdisciplinary practice that warrants further exploration is the nature, perception, and exchange of expertise within high-performance sport environments. Robust collaboration depends not only on structural integration but also on interpersonal factors such as mutual respect and recognition of each practitioner's specialised knowledge (Ekstrand et al., 2018; Waters et al., 2019). In such settings, however, expertise is not uniformly regulated or credentialed across roles. For instance, while professions such as physiotherapy, psychology, and strength and conditioning are typically governed by formal accreditation bodies, prescribed and enforced codes of conduct and established training pathways (e.g., UKSCA, BASES, NSCA), coaching—though central to athlete development—often lacks consistent regulatory guidance or oversight across national contexts (Collins et al., 2015; Kingsbury, 2022). These disparities can create tension or asymmetries in perceived authority, influence, or legitimacy within interdisciplinary teams (Reid et al., 2004) . As such, successful collaboration requires not only clarity of role but also an environment in which diverse forms of expertise are both respected and effectively shared (McCalla & Fitzpatrick, 2016). Within the environments that teams operate in, there are multiple contexts by which the path to collaboration is more apparent, which is explored in the next section.

Contextual Drivers

Injury prevention and rehabilitation appear to be a key context by which teams collaborate. For example, different specialists are needed along the developing stages of injury management, from acute diagnosis to return to competition. This is coherent with a literature base that suggests that performance health practitioners need to develop leadership capabilities to better navigate the other parties involved in performance (Gustafsson et al., 2008; Verhagen et al., 2020).

The identification and selection of talent (TID), based on current performance or a uni-disciplinary perspective (such as physiological testing), limits the efficacy of decision-making (Bailey & Collins, 2013; Matthys et al., 2011). Conversely, by adopting an interdisciplinary approach the team can work through and combine the methods, concepts, and perspectives from participating disciplines to reach selection and identification outcomes that are holistic and developmental in nature (Otte et al., 2020; Reilly et al., 2000). The talent identification process is influenced by numerous confounding factors that can challenge even experienced selectors. Successfully navigating this complexity requires the careful integration of diverse perspectives, priorities, and personalities (Collins et al., 2016; Johnston et al., 2018).

Performance planning as a contextual driver relates to the distribution of work among the team members based on the short, medium, and long terms objectives, the order and timing of task-related activities, and the methods used to integrate the actions of team members to produce a coherent approach (Rousseau et al., 2006). The high frequency of reference to this aspect within our study indicates that practitioners appear to value and regularly take part in collective planning. *How* this is operationalised warrants further investigation, however, as well as an investigation to see if there are sport-based or national divergencies. Notably, involvement in collective planning supports the development of shared mental models (SMMs); essentially a shared understanding of the task to be performed and the involved teamwork required, which again can lead to enhanced and coherent decision-making and support team effectiveness (Jonker et al., 2011.; Richards et al., 2017).

In a similar vein, *performance reviews* appeared to be a circumstance in which practitioners can coalesce around an event, performance, or athlete to debrief the efficacy of the planning and execution. By intentionally reflecting on the outcomes and, more importantly, the strategies, processes and quality

of integration (cf. the POP model highlighted earlier), a team of practitioners can refine and develop more effective ways of working. Using performance reviews, interdisciplinary teams can invest efforts into how they combine and integrate their skills and develop their SMMs to promote learning and more effective decision-making in supporting short, medium, and long-term objectives of the programme in which they operate (Bisbey et al., 2021).

The contexts identified appear to reflect naturally occurring situations in which practitioners engage in interdisciplinary collaboration. As illustrated in Table 5, when these practitioner-derived contexts are considered alongside findings from a recent scoping review of features identified in the extant literature (Burns & Collins, 2023), they may serve as a useful framework for reviewing and reflecting on current collaborative practices.

Table 5. Themes and Contexts of interdisciplinary practice (themes from Burns & Collins, in press)

Themes	Contexts
Theoretical Frameworks/ Programme Philosophy (e.g., long-term athletic development, FTEM, ecological dynamics, biopsychosocial approaches)	Performance Planning (e.g., individual/team action plans, annual planning and periodisation)
Facilitative Leadership and Culture (e.g., values, beliefs, multi-lingual leadership)	Injury Prevention and Rehabilitation (e.g., pre-habilitation, load monitoring, return to play)
Organisational Structures and Processes (e.g., case conferencing, organisational hierarchies, working patterns, and locations)	Performance Review (e.g., competition analysis, trend detection, training load)
Personal and Interpersonal Qualities (e.g., communication, time to work as a team, role clarity, personal values, openness to collaboration)	Talent Identification, Selection, and Profiling (e.g., selection meetings, comparative analysis, team recruitment)

Role Clarity

Beyond the specific contexts in which practitioners collaborate on performance issues, role clarity emerged as a critical factor for effective interdisciplinary practice. Notably, high variance across participant responses suggests inconsistency or uncertainty regarding optimal team functioning. This aligns with previous research on task, relationship, and process conflict, which highlights the importance of clearly defined roles and team structures in fostering constructive dynamics (Arnold et al., 2019; Collins et al., 1999; van den Oever & Schraagen, 2021). Collaborative engagement in core tasks—such as performance planning, selection, rehabilitation, or reviews—can facilitate the development of shared mental models (SMMs), improving coordination by enabling team members to anticipate needs and pressures (Cassidy & Stanley, 2019; Gilboa et al., 2008; O'Neill & McLarnon, 2018). In addition, shared goals, aligned values, and open, respectful communication are essential to building trust, collective responsibility, and the integration of disciplinary perspectives (Ekstrand et al., 2018; Roncaglia, 2016). The concept of R3—role clarity, role acceptance, and role support—has recently been proposed as

a foundational triad for promoting effective team functioning (Collins et al., 2019).

Working collaboratively with coaches was also highlighted as vital by several participants. Despite this, limited research exists on coach–support team interactions. Understanding how coaches perceive and experience interdisciplinary collaboration could address this gap (Collins et al., 2019; Dietl et al., 2023). A potential barrier lies in structural instability: practitioners are often employed part-time or experience high turnover, whereas coaches tend to have longer tenures. This mismatch may hinder continuity and mutual understanding within performance teams (Brassler & Dettmers, 2017; Burns et al., 2024).

Continued Professional Development

The strong agreement with items related to cross-disciplinary learning suggests a genuine interest among practitioners in remaining informed about developments in other fields. This aligns with earlier findings from the survey, which indicate that such collaborative practice is perceived as valued within high-performance sport. Considerations regarding professional development for organisations may focus on how can learning across disciples be targeted, for example, our results suggest there is an opportunity to explore cross disciplinary CPD for SSSM teams as it appears SSSM practitioners are already directing their own development outside of their discipline. Organisations may facilitate learning outside of disciplines by developing case study type sessions and exploring how other industries navigate ID. Building on this, the leadership support for interdisciplinary practice appears to be a key factor in enabling such collaborative efforts within performance sport teams.

Leadership Support

Effective interdisciplinary practice requires commitment from many parties in order to deliver effectively as a team. This is often facilitated by strong leadership (Gabbett et al., 2018a; Salas et al., 2005). Salconovic (2022) highlighted leadership as one of four key factors associated with team performance, stating that effective leadership is pivotal for effective team function. Interestingly, both the managers and performance directors within this sample reported to be supportive of higher levels of collaboration. This position, as per previous literature, suggests that practitioners within these teams are supported by leadership to work in an interdisciplinary fashion. The high level of expertise and the proximity to high-performance sport may contribute to the perception of effective leaders supporting interdisciplinary practice. Indeed, the literature emphasizes the importance of leadership in fostering an environment that encourages and facilitates cross-disciplinary collaboration within performance teams. Effective leaders can promote a culture of open communication, shared decision-making, and mutual respect, which are essential for successful interdisciplinary working (Gabbett et al., 2018; Salas et al., 2005). Furthermore, strong leadership can ensure that the necessary resources, training, and support are in place to enable practitioners from different disciplines to integrate their knowledge and skills effectively.

Study Limitations and Future Research

To the best of our knowledge, this is the first survey to explore the perceptions of SSSM practitioners relating to collaborative dynamics in their work. We acknowledge, however, the study's limitations, such as the lack of depth of information the data provides and the risks associated with conclusions derived from incomplete results (e.g., there is no information from the important discipline of nutrition). Furthermore, there is an overrepresentation of UK-based participants perhaps due to the sampling approach, and to English-language communication the only option for participants. Despite these limitations we contend that gaining perspectives of SSSM practitioners operating in performance sport is of value and worthwhile, and this approach provides a useful platform for future research to delve deeper into the lived experiences of coaches, SSMM practitioners, and other leaders in sports organizations to gain better understanding of interdisciplinary practice. The direction of research from descriptive and scoping studies in this field towards a more nuanced and in-depth

view of SSSM team effectiveness is a promising. We believe that more case studies, narrative accounts, and qualitative exploration of various dynamics will be welcome additions to the field; e.g., (1) how sports organization leaders perceive team effectiveness and the strategies they currently utilise to foster teamworking, (2) an athlete's view of the SSSM team, and (3) a longitudinal case study of the interventions in developing effective SSSM teamwork in a sport setting. Finally, future research should examine how interdisciplinary practice may evolve, particularly in response to advances in data technologies, artificial intelligence, and increasing disciplinary specialisation, and how these developments might influence team composition, dynamics, and performance.

Conclusions

From the results of this study, one might conclude that among SSSM practitioners, there is recognition of the need for interprofessional collaboration and integration of disciplines. Furthermore, this study suggests that there is awareness among practitioners that depth of expertise developed within individual SSSM disciplines may come at the cost of breadth of expertise available to a sporting organisation.

Indeed, "interdisciplinary practice" seems to be moving from being merely a buzzword to being recognized as a necessity with meaningful, systematic collaboration across disciplines a means to achieve the optimal balance of breadth and depth of expertise required for successful sporting organisations. There appears to be a strong desire among practitioners to learn outside of their own disciplinary boundaries and employed roles, which is also understood to be the case in other fields, as evidenced within the academic literature. How this interprofessional learning and development is systematically supported and enabled within a sporting context would be an interesting and important avenue to explore further.

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

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References

Alfano, H., & Collins, D. (2021). Good practice delivery in sport science and medicine support: Perceptions of experienced sport leaders and practitioners. *Managing Sport and Leisure*, *26*(3), 145-160. https://doi.org/10.1080/23750472.2020.1727768

Anyadike-Danes, K., Donath, L. & Kiely, J. (2023). Coaches' perceptions of common planning concepts within training theory: An international survey. *Sports Medicine - Open*, *9*(1), 109. https://doi.org/10.1186/s40798-023-00657-6

Arnold, R., Collington, S., Manley, H., Rees, S., Soanes, J., & Williams, M. (2019). "The team behind the team": Exploring the organizational stressor experiences of sport science and management staff in elite sport. *Journal of Applied Sport Psychology*, *31*(1), 7-26. https://doi.org/10.1080/10413200.2017.1407836

Arnold, R., Fletcher, D., & Anderson, R. (2015). Leadership and management in elite sport: Factors perceived to influence performance. *International Journal of Sports Science & Coaching*, *10*(2-3), 285-304. https://doi.org/10.1260/1747-9541.10.2-3.285

Bailey, R., & Collins, D. (2013). The standard model of talent development and its discontents. *Kinesiology Review (Champaign, Ill.)*, *2*(4), 248-259. https://doi.org/10.1123/krj.2.4.248

Bisbey, T. M., Traylor, A. M., & Salas, E. (2021). *Transforming teams of experts into expert teams: Eight principles of expert team performance*. Journal of Expertise, *4*(2), 190-207.

Brocherie, F., & Beard, A. (2021). All alone we go Faster, together we go further: The necessary evolution of professional and elite sporting environment to bridge the gap between research and practice. *Frontiers in Sports and Active Living*, *2*. https://doi.org/10.3389/fspor.2020.631147

Buekers, M., Ibáñez-Gijón, J., Morice, A. H. P., Rao, G., Mascret, N., Laurin, J., & Montagne, G. (2017). Interdisciplinary research: A promising approach to investigate elite performance in sports. *Quest (National Association for Kinesiology in Higher Education)*, *69*(1), Article 1. https://doi.org/10.1080/00336297.2016.1152982

Burns, A., & Collins, D. (2023). Interdisciplinary practice in performance sport: A scoping review of evidence of collaboration. *European Journal of Sport Science*, 23(9), 1877-1891. https://doi.org/10.1080/17461391.2023.2201812

Burns, A., Collins, D., & Nolte, L. (2024). *Coaches' experiences of performance support teams*. *International Journal of Sports Science & Coaching, 19*(3). https://doi.org/10.1177/17479541241228814

Burns, L., Stanimirovic, R., & Donaldson, A. (2024). Characteristics of successful performance support team members at the Olympic games. *International Journal of Sports Science & Coaching*, *19*(5), 17479541241227684. https://doi.org/10.1177/17479541241227685

Cassidy, S. A., & Stanley, D. J. (2019). Getting from 'me' to 'we': Role clarity, team process, and the transition from individual knowledge to shared mental models in employee dyads. *Canadian Journal of Administrative Sciences*, *36*(2), 208-220. https://doi.org/10.1002/cjas.1493

Clark, D. R., Lambert, M. I., & Hunter, A. M. (2018). Contemporary perspectives of core stability training for dynamic athletic performance: A survey of athletes, coaches, sports science and sports medicine practitioners. *Sports Medicine - Open*, *4*(1), 1-10. https://doi.org/10.1186/s40798-018-0150-3

Collins, D., Burke, V., Martindale, A., & Cruickshank, A. (2015). The illusion of competency versus the desirability of expertise: Seeking a common standard for support professions in sport. *Sports Medicine*, *45*(1), 1-7. https://doi.org/10.1007/s40279-014-0251-1

Collins, D., Cruickshank, A., & Jordet, G. (2019). *Routledge Handbook of Elite Sport Performance*. Taylor and Francis.

Collins, D. J., Macnamara, A., & McCarthy, N. (2016). Putting the bumps in the rocky road: Optimizing the pathway to excellence. *Frontiers in Psychology*, *7*, 1482-1482. https://doi.org/10.3389/fpsyg.2016.01482

Collins, D., Moore, P., Mitchell, D., & Alpress, F. (1999). Role conflict and confidentiality in multidisciplinary athlete support programmes. *British Journal of Sports Medicine*, *33*(3),208-211. https://doi.org/10.1136/bjsm.33.3.208

Dietl, J. E., Derksen, C., Keller, F. M., & Lippke, S. (2023). Interdisciplinary and interprofessional communication intervention: How psychological safety fosters communication and increases patient safety. *Frontiers in Psychology*, *14*, 1164288. https://doi.org/10.3389/fpsyg.2023.1164288

Doherty, A. (2013). "It takes a village:" Interdisciplinary research for sport management. *Journal of Sport Management*, *27*(1), 1-10. https://doi.org/10.1123/jsm.27.1.1

Ekstrand, J., Lundqvist, D., Davison, M., D'hooghe, M., & Pensgaard, A. M. (2018). Communication quality between the medical team and the head coach/manager is associated with injury burden and player availability in elite football clubs. *British Journal of Sports Medicine*, *53*, 304-308.

Ferguson, C., Collins, D., & Carson, H. J. (2025). Developing the interdisciplinary scope of golf strength and conditioning coaching: Learning from practitioners' conceptualization and use of athletes' errors.

Applied Sciences, *15*(4), 1889. https://doi.org/10.3390/app15041889

Fiore, S. M., Hoffman, R. R., & Salas, E. (2008). Learning and performance across disciplines: An epilogue for moving multidisciplinary research toward an interdisciplinary science of expertise. *Military Psychology*, *20*(S1), S155-S170. https://doi.org/10.1080/08995600701804939

Gabbett, T. J., Kearney, S., Bisson, L. J., Collins, J., Sikka, R., Winder, N., Sedgwick, C., Hollis, E., & Bettle, J. M. (2018b). Seven tips for developing and maintaining a high performance sports medicine team. *British Journal of Sports Medicine*, *52*(10), 626–627. https://doi.org/10.1136/bjsports-2017-098426

Gilboa, S., Shirom, A., Fried, Y., & Cooper, C. (2008). A meta-analysis of work demand stressors and job performance: Examining main and moderating effects. *Personnel Psychology, 61*(2), 227-271. https://doi.org/10.1111/j.1744-6570.2008.00113.x

Graff, H. J. (2016). The "problem" of interdisciplinarity in theory, practice, and history. *Social Science History*, *40*(4), 775-803. https://doi.org/10.1017/ssh.2016.31

Gustafsson, H., Holmberg, H.-C., & Hassmén, P. (2008b). An elite endurance athlete's recovery from underperformance aided by a multidisciplinary sport science support team. *European Journal of Sport Science*, *8*(5), 267-276. https://doi.org/10.1080/17461390802195652

Hague, C., McGuire, C. S., Chen, J., Bruner, M. W., Côté, J., Turnnidge, J., & Martin, L. J. (2021). Coaches' influence on team dynamics in sport: A scoping review. *Sports Coaching Review*, *10*(2), 225–248. https://doi.org/10.1080/21640629.2021.1874096

Ho, A. D., & Yu, C. C. (2015). Descriptive statistics for modern test score distributions: Skewness, kurtosis, discreteness, and ceiling effects. *Educational and Psychological Measurement*, *75*(3), 365-388. https://doi.org/10.1177/0013164414548576

Hu, J., & Judge, T. A. (2017). Leader-team complementarity: Exploring the interactive effects of leader personality traits and team power distance values on team processes and performance. *Journal of Applied Psychology*, *102*(6), 935-955. https://doi.org/10.1037/apl0000203

Johnston, K., Wattie, N., Schorer, J., & Baker, J. (2018). Talent identification in sport: A systematic review. *Sports Medicine, 48*, 97-109. https://doi.org/10.1007/s40279-017-0803-2

Jonker, C. M., van Riemsdijk, M. B., & Vermeulen, B. (2010). *Shared mental models: A conceptual analysis* (Vol. 6541, pp. 132-151). Springer Berlin Heidelberg.

King, R., Yiannaki, C., Kiely, J., Rhodes, D., & Alexander, J. (2024). Multi-disciplinary teams in high performance sport, the what and the how: A utopian view or a darker reality. *Journal of Expertise, 7*(4), 149-174

Kingsbury, Damian (2022). *Coaches' acquisition of sport science knowledge and the role of education providers.* Doctoral, Sheffield Hallam University. [Thesis] https://doi.org/10.7190/shu-thesis-00469

Matthys, S. P. J., Vaeyens, R., Vandendriessche, J., Vandorpe, B., Pion, J., Coutts, A. J., Lenoir, M., & Philippaerts, R. M. (2011). A multidisciplinary identification model for youth handball. *European Journal of Sport Science*, *11*(5), 355-363. https://doi.org/10.1080/17461391.2010.523850

McCalla, T., & Fitzpatrick, S. (2016). Integrating sport psychology within a high-performance team: Potential stakeholders, micropolitics, and culture. *Journal of Sport Psychology in Action*, *7*(1), 33-42. https://doi.org/10.1080/21520704.2015.1123208

O'Neill, T. A., & McLarnon, M. J. W. (2018). Optimizing team conflict dynamics for high performance teamwork. *Human Resource Management Review*, *28*(4), 378-394. https://doi.org/10.1016/j.hrmr.2017.06.002

Otte, F., Rothwell, M., & Davids, K. (2022). Big picture transdisciplinary practice - extending key ideas of a Department of Methodology towards a wider ecological view of practitioner-scientist integration. *Sports Coaching Review*, 1-24.

https://doi.org/10.1080/21640629.2022.2124001

Otte, F. W., Rothwell, M., Woods, C., & Davids, K. (2020). Specialist Coaching Integrated into a Department of Methodology in Team Sports Organisations. *Sports Medicine - Open*, *6*(1), Article 55. https://doi.org/10.1186/s40798-020-00284-5

Reid, C., Stewart, E., & Thorne, G. (2004). Multidisciplinary sport science teams in elite sport: Comprehensive servicing or conflict and confusion? *The Sport Psychologist*, *18*(2), 204-217. https://doi.org/10.1123/tsp.18.2.204

Reilly, T., Williams, A. M., Nevill, A., & Franks, A. (2000). A multidisciplinary approach to talent identification in soccer. *Journal of Sports Sciences*, *18*(9), 695-702. https://doi.org/10.1080/02640410050120078

Richards, P., Collins, D., & Mascarenhas, D. R. D. (2016). Developing team decision-making: a holistic framework integrating both on-field and off-field pedagogical coaching processes. *Sports Coaching Review*, *6*(1), 57-75. https://doi.org/10.1080/21640629.2016.1200819

Roncaglia, I. (2016). A practitioner's perspective of multidisciplinary teams: Analysis of potential barriers and key factors for success. *Psychological Thought*, *9*(1), Article 1. https://doi.org/10.5964/psyct.v9i1.145

Rousseau, V., Aubé, C., & Savoie, A. (2006). Teamwork Behaviors: A Review and an Integration of Frameworks. *Small Group Research*, *37*(5), 540-570. https://doi.org/10.1177/1046496406293125

Salas, E., Sims, D. E., & Burke, C. S. (2005). Is there a "Big Five" in Teamwork? *Small Group Research*, *36*(5), 555-599. https://doi.org/10.1177/1046496405277134

Salcinovic, B., Drew, M., Dijkstra, P., Waddington, G., & Serpell, B. G. (2022). Factors influencing team performance: What can support teams in high-performance sport learn from other industries? A systematic scoping review. *Sports Medicine - Open*, *8*(1), Article 1. https://doi.org/10.1186/s40798-021-00406-7

Sanchez, X., Godin, P., & De Zanet, F. (2005). Who delivers sports psychology services? Examining the field reality in Europe. *The Sport Psychologist*, *19*(1), 81.

Schlawe, A., Christiansen, A., & Henriksen, K. (2025). The high-performance sport environment: Laying the foundation for a new research topic. *Frontiers in Sports and Active Living*, *7*. https://doi.org/10.3389/fspor.2025.1503199

Sotiriadou, P., & and De Bosscher, V. (2018). Managing high-performance sport: Introduction to past, present and future considerations. *European Sport Management Quarterly*, *18*(1), 1-7. https://doi.org/10.1080/16184742.2017.1400225

Sporer, B. C., & Windt, J. (2018). Integrated performance support: Facilitating effective and collaborative performance teams. *British Journal of Sports Medicine*, *52*(16), 1014-1015. https://doi.org/10.1136/bjsports-2017-097646

Stewart, P., Fletcher, D., Arnold, R., & McEwan, D. (2024). Performance support team effectiveness in elite sport: A narrative review. *International Review of Sport and Exercise Psychology*, 1-24. https://doi.org/10.1080/1750984X.2024.2411215

van den Oever, F., & Schraagen, J. M. (2021). Team communication patterns in critical situations. *Journal of Cognitive Engineering and Decision Making*, *15*(1), 28-51. https://doi.org/10.1177/1555343420986657

Verhagen, E., Mellette, J., Konin, J., Scott, R., Brito, J., & McCall, A. (2020). Taking the lead towards healthy performance: The requirement of leadership to elevate the health and performance teams in elite sports. *BMJ Open Sport & Exercise Medicine*, *6*(1). https://doi.org/10.1136/bmjsem-2020-000834

Wagstaff, C. R. D., Gilmore, S., & Thelwell, R. C. (2015). Sport medicine and sport science practitioners' experiences of organizational change. *Scandinavian Journal of Medicine & Science in Sports*, *25*(5), 685-698. https://doi.org/10.1111/sms.12340

Wagstaff, C. R. D., Hanton, S., & Fletcher, D. (2013). Developing emotion abilities and

regulation strategies in a sport organization: An action research intervention. *Psychology of Sport and Exercise*, *14*(4), 476-487. https://doi.org/10.1016/j.psychsport.2013.01.006

Waters, A., Phillips, E., Panchuk, D., & Dawson, A. (2019). The coach–scientist relationship in high-performance sport: Biomechanics and sprint coaches. *International Journal of Sports Science & Coaching*, *14*(5), 617-628. https://doi.org/10.1177/1747954119859100

Willis, G. B. (2005). *Cognitive interviewing: A tool for improving questionnaire design / Gordon B. Willis*. Sage Publications.

Yeung, J. (2016). Transforming a team of experts into an expert team. *Resuscitation*, *101*, A1-A2. https://doi.org/10.1016/j.resuscitation.2016.02.001

Received: 10 January 2025
Revision received: 22 March 2025
Accepted: 27 July 2025

Appendix A – Survey Questionnaire

1. Which sport or sports do you currently work with?
2. Please select where you currently operate as a practitioner
   - UK
   - Other (Please state)
3. Please select from the following which best represents the area of sport you work in
   - Olympic
   - Paralympic
   - Professional
4. What competitive level of sport do you mostly work?
   - Podium/Professional
   - Podium Potential/Academy
   - Performance Foundations
   - First selective stage
5. What role do you currently operate as in your main sport?
   - Biomechanics
   - Strength and Conditioning
   - Physiology
   - Psychology
   - Nutrition
   - Performance lifestyle
   - Performance analysis
   - Physiotherapist
   - Medical
   - Other (Please state)
6. How long have you worked in this role?
   - 0-1 Years
   - 1-2 Years
   - 2-4 Years
   - 4 Years +
7. What type of employment do you conduct this role in?
   - Full-time employment (institute)
   - Full-time employment (sport)
   - Part-time employment (institute)
   - Part-time employment (sport)
   - Self-employed
   - Other (please state)
8. Please select the level of formal education you have completed
   - Doctorate
   - MSc
   - PG Cert/Dip
   - BSc/BA
   - A-levels/BTEC
   - Secondary education
   - Other (please state)
9. Other the other roles, please select the ones you feel you work closely with
   - Biomechanics
   - Strength and Conditioning

- Physiology
- Psychology
- Coach
- Nutrition
- Performance lifestyle
- Performance analysis
- Physiotherapist
- Medical
- Other (Please state)

10. Please rank the roles based on how closely you feel you work with them
    - Biomechanics
    - Strength and Conditioning
    - Physiology
    - Psychology
    - Nutrition
    - Performance lifestyle
    - Performance analysis
    - Physiotherapist
    - Medical
    - Coach
    - Other (Please state)
11. Please use the slider to answer how much you agree with the following statements (0-10 with 10 being strongly agree)
    - I have clarity on my role (main sport) and where it fits within the wider team
    - I work closely with other practitioners who are also working with the athletes I work with
    - I feel I work an appropriate amount with other practitioners in my team
    - I tend to work on my own with the athletes
    - As a support team we work closely to decide on the plan for the athletes/s
    - As a team we tend to work through the coaches to deliver the plan for the athlete/s
    - I see the coach as the key for the delivery of the plan
    - I regularly collaborate with other members of the support team
    - There is a hierarchy among the disciplines in respect of the athlete planning process
    - There should be a hierarchy among the disciplines in respect of the athlete planning process
    - I set goals and objectives for the work I do with the athletes myself with no input from others in the support team
    - My professional Development (CPD) is predominantly focussed on my specific discipline
    - I try to stay informed and updated to date with the latest developments in other disciplines (either reading, courses, conferences, conversations with practitioners)
    - I often take part in team CPD with the practitioners from my sport
    - My direct line manager encourages me to work with other disciplines
    - The director of our programme encourages me to work with other disciplines
12. The proportion of time I would typically spend collaborating with other practitioners
    - Less than 10%
    - 10-30%
    - 30-50%
    - 50-70%
    - 70-100%
13. Are there any situations where you work collaboratively with other practitioners? (Please state YES/NO). If yes, please provide a sentence to describe the situation/s (for example - return to play from an injury)

14. Are there any situations where you may problem solve or help to problem solve outside of your discipline? (Please type YES/NO). If yes, please provide a sentence to describe the situation/s (for example - Performance planning for a new season)
15. Are there any situations where you may problem solve or help to problem solve by yourself? (Please type YES/NO). If yes, please provide a sentence to describe the situation/s (for example - programming or analysis)
16. Do you consider the team that you are part of for your main sport to be integrated?
    - Yes
    - Not sure
    - Might or might not
    - Probably not
    - Definitely not
17. Do you think that integration is desirable?
    - Yes
    - Not sure
    - Might or might not
    - Probably not
    - Definitely not