Integrated Decisions, By Design

A review of Rebelo, King, Valente-dos-Santos and Thorpe (2026) on decision making under uncertainty in sport support systems

A new open access review in Sports Medicine Open proposes a way of matching the weight of a decision process to the weight of the decision itself, and this piece sets out what the paper claims, how far its evidence reaches and where it connects to the frameworks already published here. It argues that published research of this kind earns close reading, and that the practical application and experience of the people who use it decide whether it works.

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01

What the Paper Says and Why It Matters

Rebelo, King, Valente-dos-Santos and Thorpe (2026) set out to answer a question that anyone who has sat through a performance meeting will recognize, which is how much collaboration a decision that touches several disciplines actually needs and who is responsible for what once the conversation ends. Their narrative review begins from the observation that greater expertise, more data and increased collaboration do not by themselves improve decisions in high performance sport, and it builds a framework around the decision as the organizing unit in place of the team or the department. A leader triages each issue into one of three working modes (discipline led, consultation or coordinated input, or an integrated process), keeps referral and escalation available from any of them, and runs the integrated route through five connected functions that carry the work from framing the problem through to learning from what happened (Rebelo et al., 2026, pp. 1, 11 to 15).

Research of this kind earns close reading for specific reasons. The review draws on a reference list of 78 sources spanning team science, sport science, leadership and decision science, was built from searches of four major databases up to June 2026, and then does something that many practice papers leave out, which is to state plainly what it has not shown. The authors describe the framework as conceptual, record that no formal risk of bias or certainty assessment was undertaken, acknowledge that some influential sources include one of the manuscript's own authors, and lay out a staged evaluation program that starts with content validity and usability and reaches health and performance effects last (pp. 3, 16 to 17). That candor is a form of rigor, and it hands practitioners something more useful than a confident model, namely a shared vocabulary that is honest about its own status.

Three contributions stand out for anyone who leads support staff. The paper separates four responsibilities that tend to blur in practice, namely providing information, making a recommendation, holding final authority and implementing the action (p. 7). It places athlete values and decision rights inside the process, including shared decision making and consent where they apply, and insists that athlete involvement begin before a preferred option has effectively been settled (pp. 7, 14). It also counts the cost of collaboration, warning that poorly specified teamwork adds delay, meeting burden and ambiguity about responsibility (p. 8), which gives a leader permission to keep a small decision small.

The authorship also matters to how the paper should be read. The four authors are affiliated with research centers in Lisbon, Porto, Phoenix and Manchester, and the listed affiliations include the Center of Sports Optimization at Sporting Clube de Portugal, so the framework comes from people with line of sight to applied environments as well as to the literature (p. 17).

02

What the Framework Proposes

Triage belongs to whoever is first responsible for an issue, whether that is a practitioner, a case lead or a leader, and it runs across six dimensions: urgency, uncertainty, risk and consequences, reversibility, interdisciplinary interdependence and stakeholder differences (p. 11). The result is qualitative and carries no score, so a single serious condition or several interacting concerns can justify broader input. Discipline led work suits a familiar and bounded problem in which expertise and authority sit in one place and the consequences are limited or readily reversed. Consultation suits a decision whose owner is clear but who needs bounded advice that can be absorbed without jointly reframing the problem. Integration suits situations in which interpretation has to be shared, recommendations or risk tolerances differ, consequences are serious or hard to reverse, or authority is unclear (p. 13). The authors position this synthesis alongside multidisciplinary support literature, return to sport models, shared decision making, bounded and naturalistic decision theory and structured decision analysis, and they decline to rank those approaches or claim superiority over them (pp. 3 to 4).

Escalation is treated as a separate action from broadening participation. It becomes necessary when an issue exceeds the available expertise or delegated authority, activates clinical, safeguarding, ethical, legal or organizational obligations, or cannot be resolved safely within the group, and it can occur from any working mode (p. 14). Urgency changes the cadence of a decision without lowering the minimum expertise or authority it requires, so a time critical integrated decision might be a brief huddle or a few direct conversations, and immediate protective action never waits for deliberation. The five functions that organize the integrated route are interdependent and carry no fixed order, which means new information, disagreement, an athlete's response or implementation feedback can send a team back to any of them or prompt fresh triage. Each one ends in a defined output: a decision question that guides who participates, a clear allocation of authority and accountability, a manageable set of options with their trade offs and uncertainty, an authorized and implementable plan with consent or refusal made explicit, and a record of lessons that triggers re triage whenever risk, authority or information changes (pp. 14 to 15).

Six triage dimensions

- Urgency
- Uncertainty
- Risk and consequences
- Reversibility
- Interdisciplinary interdependence
- Stakeholder differences

Three modes plus escalation

- Discipline led decision
- Consultation or coordinated input
- Integrated process
- Referral or escalation from any mode

Five functions

- Frame the problem and the decision
- Identify contributors and governance
- Interpret information and generate options
- Commit to and communicate a course of action
- Act, monitor and learn

Four governance responsibilities

- Providing information
- Making recommendations
- Holding final authority
- Implementing action

The paper also treats sport science as an organizational capability for decision support. Collection should have a defined purpose, whether monitoring status, detecting change, investigating a problem or supporting a specified decision, and measurement needs attention to validity, reliability and error because numerical precision can otherwise create unjustified confidence (p. 10). The practical output of the sport science function is a decision relevant interpretation, an option or a stated uncertainty, and the paper separates the observation from its interpretation and from the recommendation that follows, while cautioning that a metric treated as the objective can invite behavior that improves the number without improving the process it represents (pp. 10 to 11).

Athlete voice and decision rights apply in every working mode, the coach translates recommendations into feasible training and competition plans, clinical staff remain accountable for assessment and advice, and an athlete can decline consent dependent treatment or participation (pp. 7, 14). Three hypothetical cases show the machinery running, covering a return to sport after a recurrent hamstring injury, a training modification on the morning of an important session and the adoption of a monitoring technology, and the authors are explicit that these demonstrate proposed processes and carry no observed outcomes (pp. 15 to 16).

03

Where the Evidence Stands

A framework can be well argued and still untested, and the paper is clear that this one sits in the second category. The search was targeted and iterative, the synthesis was narrative and interpretive, and the authors write that the resulting organization was neither derived through statistical aggregation nor tested as a complete model, that the approach is susceptible to selective citation, and that citation frequency should not be read as evidence strength (pp. 3, 16). The sources range from team science theory through qualitative studies, surveys and observational work to professional guidance, and the paper takes care to say what each can and cannot support, which is the habit a practitioner should copy when deciding how much weight to put on any single claim. The table below sets out how far a handful of the paper's load bearing claims reach, using the authors' own caveats.

CLAIM THE PAPER LEANS ON	TYPE OF SUPPORT	HOW FAR IT REACHES
Expertise has to be coordinated before a team can use it	Team science theory (Eccles and Tenenbaum, 2004, as cited)	Conceptual support. The paper adds that coordination theory establishes no single optimal arrangement for sport (p. 3).
Communication between medical staff and the head coach relates to injury burden and availability	Observational study of elite football clubs (Ekstrand et al., 2019, as cited)	An association. The paper states that causality is not established (p. 10).
Team structure, member attributes, shared mental models and social capital matter to effectiveness	Focus groups with 18 practitioners (Stewart et al., 2024, as cited)	Perceived conditions only. Effects on decision quality are not shown (p. 9).
Coaches and practitioners want evidence in different formats at different times	Case study of 20 coaches and an Australian survey (Reade et al., 2008; Schwarz et al., 2021, as cited)	Particular samples, not universal preferences (p. 5).
Triage plus five functions improves decisions	The authors' own synthesis	Conceptual and unvalidated. Evaluation is staged from content validity to health and performance effects (pp. 16 to 17).

The caution that deserves the most attention is the one the authors raise about themselves. Some influential sources include a manuscript author, and independent studies inform the supporting propositions without being able to remove the potential for intellectual self selection or to validate the synthesis (p. 16). The paper also concerns adult elite and professional settings with formal support structures, and equivalent transfer to youth sport, smaller budgets and different cultural or regulatory systems is explicitly not assumed.

A feature worth crediting separately is the standard the paper sets for judging decisions. Outcomes alone are insufficient, since a defensible process may precede an adverse result while a weak process may precede success, so review should ask what was reasonably known at the time, how uncertainty was handled and whether the action followed from that information (p. 11). That standard protects practitioners from hindsight and gives the evaluation of the framework itself a fair test. None of this reduces what the paper is worth, because its value lies in the clarity of its structure and the honesty of its status, although it does tell a reader how to hold it, as a disciplined hypothesis about how decisions should be organized together with a clear plan for how that hypothesis should be tested.

> HOW TO HOLD IT
>
> Read the framework as a well built map that nobody has yet walked from end to end. It tells you what to look for and where to be careful, and the walking still has to be done by people inside real organizations.

04

Where It Meets Our Existing Work

Performance support team effectiveness

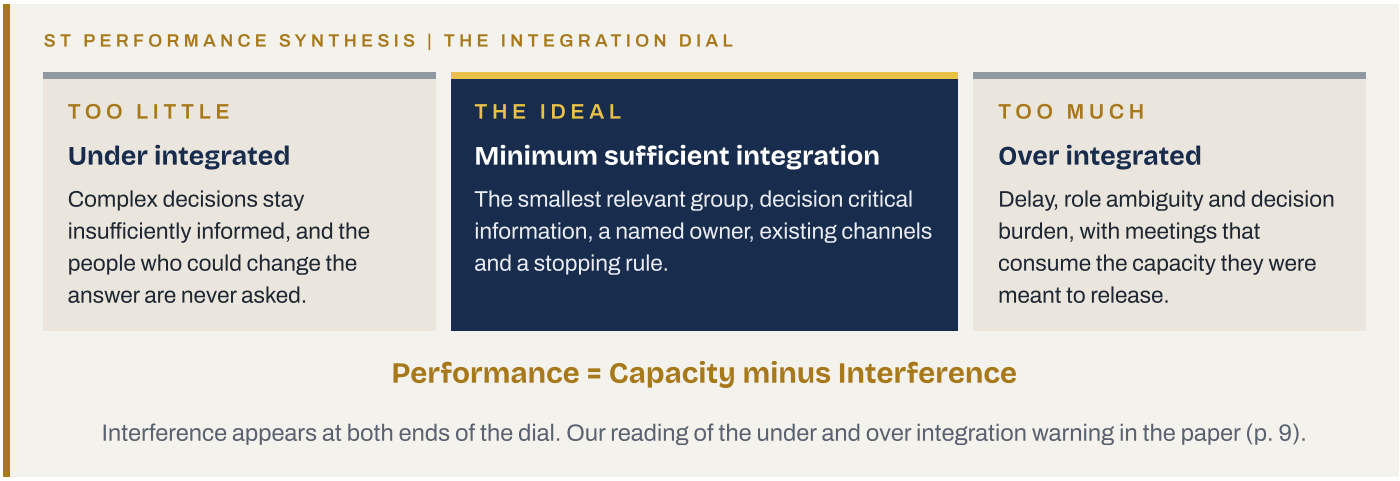
The review sits directly on top of the research behind our rewrite of Performance Support Team Effectiveness, because the Stewart and colleagues narrative review of performance support teams (Stewart et al., 2026, as cited) is one of its anchors (p. 3). That article asked what makes these teams work, what gets in the way and how to audit and improve them deliberately, and it described the disciplines as separate areas whose crossovers are where the gold sits in a thriving environment and where unresolved friction lives in a poor one. Rebelo and colleagues take the same body of work one step further into the moment of decision. Where the team effectiveness literature describes inputs and mediating processes such as coordination, communication and shared mental models, this paper asks what those conditions are for, and answers that they exist so a decision can be framed, owned, communicated and reviewed. It also supplies an operating rule for those endless crossovers, which is to integrate selectively and only where the interdependence is real.

The team behind the team

Our staff performance support work, set out in The Team Behind the Team, ranked three ways of supporting the people who support athletes, with a hybrid lead at the top, a dedicated development role second and a shared system third, and it argued that the shared system leans on a cultural norm that may not exist and does not appear simply because it is stated and encouraged. The review gives that argument independent footing from the decision side. It treats integrative leadership as a function that a discipline head, a case lead or a distributed group can enact and not as a job title (p. 7), it describes role clarity, psychological safety and communication quality as conditions that have to be built (pp. 9 to 10), and it cites Brocherie and Beard's (2021) argument that executives and coaches must enable interaction between departments (p. 6). Our piece argued for deliberate structure around those who support others, and this paper supplies the decision mechanics that structure should carry, namely named owners, recorded dissent and a time limit.

The Performance Engine

The framework behaves like the equation at the center of The Performance Engine, where performance equals capacity minus interference. A support system holds a great deal of capacity in its specialists, its data and its relationships, and the paper warns that research or technology may add little if the organization cannot act on what it produces (p. 5). It also describes both failure modes in the language of interference: under integration leaves complex decisions insufficiently informed, while over integration adds delay, role ambiguity and decision burden (p. 9). The paper's answer of minimum sufficient integration, meaning the smallest relevant group, decision critical information, a named owner, existing channels and a stopping rule (p. 14), reads as an interference reduction method for the meeting room.



Caution, escalation and the balcony

The Risk Avoidance Cascade describes how caution compounds through the layers of an organization until nobody is making the decision the moment requires. The paper builds the interruption into its design by separating the act of broadening participation from the act of escalating authority, by stating that risk alone does not determine how many disciplines should take part (p. 11), and by requiring a designated decision owner together with an identified route for unresolved disagreement (p. 7). Escalation is reserved for limits of expertise or authority and for safety and professional obligations, so it cannot serve as a place to park a decision. Triage itself is what The Balcony Discipline would call balcony work, the moment before the meeting in which a leader steps off the dance floor and asks what this decision requires before anyone starts talking.

Candour and pressure

The review gives the courageous communication taught in Candour By Design a concrete job to do. Where consensus is absent, material dissent travels with the options to the decision owner and is recorded alongside the rationale (pp. 8, 14), psychological safety is expected to coexist with accountability and professional standards (p. 10), and poorer perceived communication between medical staff and the head coach has been associated with greater injury burden and lower availability in elite football, though causality is not established (p. 10). The paper's treatment of urgency speaks to Pressure By Design, since pressure changes the cadence of a decision and never lowers the expertise or authority it needs (p. 14).

Roles and the values culture gap

The four governance responsibilities are role architecture applied to a single decision, and they make the case in Role Architecture for a senior integrative function easier to see, because someone has to hold the work of accessing, challenging and synthesizing expertise even when no title says so. The line that most closely echoes The Values-Culture Gap is the authors' observation that a meeting which invites input and then consistently disregards it offers little real opportunity for challenge or athlete participation (p. 10), which is the distance between a stated value and a lived one in a single sentence.

The four stage model

The table maps the paper's working modes onto the ST Performance four stage progression from practitioner to executive leader. The mapping is our interpretation and carries no claim from the paper, which does state that practitioners need disciplinary competence and the judgment to recognize when another perspective could change an interpretation (p. 3).

STAGE	TYPICAL DECISION WORK	WHAT THE FRAMEWORK ASKS OF IT
Practitioner	Discipline led decisions inside scope	Supply information and recommendations, and recognize when another view could change the answer.
Discipline leader	Owns the discipline route and requests consultation	Protect standards and accountability, and decide when a bounded issue stays in the department.
Multidisciplinary leader	Runs triage and integrated work	Convene the smallest relevant group, assign the four responsibilities and carry dissent forward with the options.
Executive leader	Authorizes resources and holds the escalation route	Build the conditions of role clarity, safety and time that the lower stages depend on (pp. 6 to 7).

> ST PERFORMANCE SYNTHESIS
>
> Each stage of the progression uses a different working mode as its home ground, and a leader who moves up a stage inherits the responsibility for the conditions that keep the stage below them functioning.

05

Why Practice and Experience Still Decide

None of this diminishes published research, and if anything it argues for reading it more closely, because a framework is only as useful as the questions it lets a practitioner ask and the authors have worked hard to make those questions precise. The point to hold alongside that value is that a conceptual framework has not yet met the thing it describes. Its own authors say evaluation should begin with whether people can use it, whether different people triage the same decision the same way, how much burden it adds and whether it fits existing routines, all before anyone claims an effect on athlete health or performance (pp. 16 to 17). Those questions only get answered in working environments, by people willing to try the thing in real meetings with real consequences, which places practitioners inside the evidence base as well as at the receiving end of it.

Triage is a judgment, and the paper's own account of judgment explains why experience matters to it. Intuitive expertise is dependable where cues are sufficiently regular and experience provides reliable feedback, whereas novelty, conflicting interpretations or poorly understood consequences call for more analysis or consultation (p. 5, citing Kahneman and Klein, 2009). Deciding whether a hamstring return is a discipline led call or an integrated one, or whether a poor readiness reading deserves a conversation or only a note, takes a person who has seen enough of these cases, with enough feedback on how they turned out, to recognize which kind of situation is in front of them. A checklist can prompt the question while experience supplies the answer, and the six triage dimensions are deliberately qualitative for that reason, which hands the final weighing to the people in the room.

Governance on paper is the easier half of the problem. The authors note that professional identity, hierarchy, power dynamics and limited understanding of other disciplines can keep relevant knowledge out of a discussion even when formal channels exist (pp. 9 to 10). Whether a junior practitioner will voice a dissenting read of an athlete's data in front of a head coach depends on a culture that a leader has built over years of ordinary days, and no decision framework can install that culture, although it can reveal very quickly whether it is there.

Scale adds a further test, and two decades of embedded work across professional rugby union and professional baseball player development have made it familiar to me. In the baseball system I work within, practitioners are embedded at several sites in more than one country, operate with genuine autonomy and report functionally to the coaches and staff they work alongside, so the question of which decisions stay discipline led and which deserve a wider conversation arrives daily as a design problem. The work lives in the tension between consistency of systems and the autonomy of the people running them, and the four governance responsibilities become practical tools when a practitioner at one site needs to know whether their part in a given decision is to inform, to recommend or to implement what a coach has decided. Experience also supplies the counterweight the paper asks for in its attention to burden, since leaders who have lived through enough meetings learn to tell a conversation that clarifies from a ritual that merely consumes time, and the authors suggest judging success by whether the work produces useful clarification instead of by attendance or frequency (p. 10).

A sensible way for an organization to treat the paper is to run its own small version of the first evaluation stage the authors propose. Take a handful of recent decisions, have several staff triage them independently across the six dimensions, and then examine where the classifications differ and why, since the authors suggest that disagreement may reflect ambiguity in the aid or legitimate contextual judgment (p. 16). The exercise costs little, produces local evidence that the literature cannot supply, and builds the common vocabulary the review identifies as supporting collective work (p. 9).

> **THE FRAMEWORK IN ONE LINE**
>
> Match the weight of the process to the weight of the decision, name who owns each part of it, and review it against what was reasonably known at the time.

> **RESEARCH AND PRACTICE**
>
> Published work gives a field its map, its vocabulary and its honest limits. Practice tests the map against the terrain, trains the judgment the map depends on and tells the authors where to look next.

06

Putting It to Work: A Decision Audit

The audit below is an ST Performance synthesis built from the paper's triage dimensions, governance responsibilities and five functions, written for a leader about to walk into a hard decision. It is a prompt for the conversation and has not been validated, which makes it a fair candidate for the small local test described above. The questions run roughly in the order the decision unfolds, though the paper is clear that real decisions loop back, so any answer that changes should send the group to an earlier question and to fresh triage wherever the stakes have moved.

ST PERFORMANCE SYNTHESIS | DECISION AUDIT

01 **What is the decision, precisely, and by when?** Turn a broad concern such as reduced readiness into a choice about training exposure, availability or further assessment, and state it as a question the group can answer (p. 14).

02 **Who holds each of the four roles?** Name who provides information, who recommends, who holds final authority and who implements, and if nobody holds final authority, fix that before anything else (p. 7).

03 **Could another discipline materially change the interpretation, the risk, the options or the plan?** If the answer is no, keep the decision discipline led and add nothing to anyone's calendar, and if the answer is yes, invite the smallest group that can change it (p. 14).

04 **Where does the athlete's voice enter?** Check that it entered before a preferred option had effectively been settled, and that any consent dependent choice rests on a voluntary yes or no (pp. 7, 14).

05 **What is the stopping rule?** Agree a time limit, the point at which further information is unlikely to change the choice, and the route for disagreement that cannot be resolved inside the group (pp. 13 to 14).

06 **How will we judge this decision later?** Record the rationale, the dissent and the review criteria now, then judge the result against what was reasonably known at the time with the outcome as one input among several (p. 11).

HOW TO USE IT

Run the audit at the start of any decision that has moved beyond routine, keep to the time limit agreed in question five, and file the answers with the decision record so that the later review has something concrete to test.

Not by chance. By design.

Published research of this kind gives practitioners a shared map, a precise vocabulary and a disciplined way of talking about decisions that would otherwise be argued in the moment from competing instincts, and it deserves the respect that comes with reading it carefully and noticing what it does and does not claim. The practitioners who then take that map into real rooms, with real athletes and real consequences, give it the one thing the literature cannot supply for itself, which is the evidence that it works or the information needed to improve it. The strongest version of this field has both groups at the table, with authors willing to say what they have not shown and practitioners willing to find out.



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References

Rebelo, A., King, R., Valente-dos-Santos, J. and Thorpe, R. T. (2026). Integrated Decision-Making Under Uncertainty in High-Performance Sport Support Systems. Sports Medicine Open, 12, 175. Received 26 July 2026, accepted 2 November 2026. doi.org/10.1186/s40798-026-01149-z

Brocherie, F. and 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. doi.org/10.3389/fspor.2020.631147

Burns, A. and Collins, D. (2023). Interdisciplinary practice in performance sport: a scoping review of evidence of collaboration. European Journal of Sport Science, 23(9). doi.org/10.1080/17461391.2023.2201812

Dijkstra, H. P., Pollock, N., Chakraverty, R. and Alonso, J. M. (2014). Managing the health of the elite athlete: a new integrated performance health management and coaching model. British Journal of Sports Medicine, 48(7). doi.org/10.1136/bjsports-2013-093222

Eccles, D. W. and Tenenbaum, G. (2004). Why an expert team is more than a team of experts: a social-cognitive conceptualization of team coordination and communication in sport. Journal of Sport and Exercise Psychology, 26(4). doi.org/10.1123/jsep.26.4.542

Edmondson, A. C. and Bransby, D. P. (2023). Psychological safety comes of age: observed themes in an established literature. Annual Review of Organizational Psychology and Organizational Behavior, 10. doi.org/10.1146/annurev-orgpsych-120920-055217

Ekstrand, J., Lundqvist, D., Davison, M., D'Hooghe, M. and Pensgaard, A. M. (2019). 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(5). doi.org/10.1136/bjsports-2018-099411

Kahneman, D. and Klein, G. (2009). Conditions for intuitive expertise: a failure to disagree. American Psychologist, 64(6). doi.org/10.1037/a0016755

King, R., Alexander, J., Yiannaki, C., Rhodes, D. and Kiely, 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).

Reade, I., Rodgers, W. and Spriggs, K. (2008). New ideas for high performance coaches: a case study of knowledge transfer in sport science. International Journal of Sports Science and Coaching, 3(3). doi.org/10.1260/174795408786238533

Schwarz, E., Harper, L. D., Duffield, R., McCunn, R., Govus, A., Skorski, S. et al. (2021). Practitioner, coach, and athlete perceptions of evidence-based practice in professional sport in Australia. International Journal of Sports Physiology and Performance, 16(12). doi.org/10.1123/ijspp.2020-0835

Stewart, P., Fletcher, D., Arnold, R. and McEwan, D. (2026). Performance support team effectiveness in elite sport: a narrative review. International Review of Sport and Exercise Psychology, 19(1), 126 to 149. doi.org/10.1080/1750984X.2024.2411215

Stewart, P., Fletcher, D., Arnold, R. and McEwan, D. (2024). Exploring perceptions of performance support team effectiveness in elite sport. Sport Management Review, 27(2), 300 to 321. doi.org/10.1080/14413523.2023.2284987

Thomas, S. (2026). Integrated Decisions, By Design: a review of Rebelo et al. (2026). ST Performance Global, November 2026.

NOTES ON USE

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Where to look in the paper: governance and athlete decision rights sit on page 7, the working modes on pages 8 and 9, triage and the five functions on pages 11 to 15, and the limits and evaluation plan on pages 16 and 17.

For the conditions behind integrated work, the most direct next reads are the Burns and Collins (2023) scoping review of collaboration evidence, the King and colleagues (2024) account of power and professional identity in multidisciplinary teams, the Dijkstra and colleagues (2014) integrated health and coaching model, and the Edmondson and Bransby (2023) review of psychological safety, each cited here as the paper uses it.