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Review Article

Use of Small-Sided Game Formats to Develop Cognitive Decision-Making Speed in Footballers

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Abstract

This review synthesizes recent evidence on how specific design choices in small-sided games (SSGs) in football influence decision-making speed. The objective is to map concrete manipulation levers—tactical formation, pitch geometry, player number and area per player, target distribution, and rule design, as well as cognitive or motor dual-task overlays—to mechanisms that shorten perception-action cycles and reduce option-selection latency, and to summarize outcomes across playing levels and roles. Methods comprise comparative analysis, narrative synthesis, and evidence mapping of studies published between 2023 and 2025 that report quantitative markers related to rapid choice behavior (e.g., one-touch actions, latency proxies, scanning frequency) and training loads. The literature indicates that formation and pitch geometry delimit scanning breadth and the emergence of first-option passing windows; target distribution and rule constraints steer information search; player number and area per player tune interaction density; and dual-task overlays expose attentional bottlenecks relevant for staged perturbation. Youth cohorts show greater tactical degradation under motor interference than under cognitive overlays, suggesting conservative progression when execution stability is developing. Reports on elite female groups associate multi-goal layouts with higher head-up scanning and improved decision-making indices, alongside increased exertional costs. Positional analyses imply distinct sensitivity profiles among defenders, midfielders, and forwards. On this basis, a practical sequencing emerges: begin by widening affordances to cultivate earlier cue pick-up, then compress time and space to consolidate rapid commitment while monitoring proxies of decision speed to avoid accuracy loss. The review consolidates transferable guidance for academies and professional environments seeking to program decision-speed adaptations through purposeful SSG architecture.

Keywords

Small-sided Games, Decision Speed, Constraint Design, Formation, Pitch Size, Player Number, Dual-task, Perceptual-cognitive Load

1. Introduction

Rapidly selecting workable solutions under uncertainty differentiates effective football decision-making. Training environments that emulate match-relevant informational problems provide a route to shorten perception-action cycles without sacrificing correctness. Recent work connects concrete small-sided game (SSG) parameters to measurable changes in the temporal window available for scanning, prioritization, and execution, making decision speed a programmable outcome rather than a diffuse coaching target.

The aim is to consolidate current evidence on how SSG

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constraint design shapes decision-making speed and to translate that evidence into programmatic guidance for different populations and roles. Three tasks structure the contribution: first, to relate discrete SSG levers (formation, pitch size, player number, target distribution, dual-task overlays) to hypothesized mechanisms that narrow time-to-act; second, to compare reported outcomes across age groups, sexes, and positional roles; third, to assemble a practical sequencing framework that preserves execution stability while accelerating choice.

Novelty rests on a constraint-mechanism-outcome synthesis that distinguishes between conceptually similar but practically distinct manipulations (e.g., larger pitch vs. fewer players), integrates dual-task interference hierarchies for youth programming, and aligns role-specific levers with observed sensitivity profiles.

Prior work on SSG-induced decision speed remains fragmented by inconsistent operational definitions (e.g., "decision-making index," "latency proxy," one-touch frequency), heterogeneous rule sets, and small or convenience samples that limit external validity. Several studies conflate cognitive load with locomotor intensity, making it difficult to attribute faster choices to informational design rather than fatigue. Sex- and role-specific responses are underreported, retention is rarely tested beyond short interventions, and combined manipulations (e.g., multi-goal layouts on enlarged pitches with reduced numbers) are seldom contrasted head-to-head. These discrepancies motivate a synthesis that maps concrete constraint levers to putative mechanisms and reports convergent directional effects rather than pooled magnitudes.

2. Materials and Methods

A focused literature review from 2023 to 2025 underpins the analysis and targets football-specific evidence on how small-sided game design influences decision-making speed.

Studies were included if they: (i) investigated association between SSG design variables (formation, pitch size, player number, area per player, target distribution/rules, cognitive or motor dual-task overlays) and decision-speed-relevant outcomes; (ii) sampled football players of any competitive level; (iii) reported quantitative or mixed-methods markers linked to rapid choice behavior (e.g., time-to-pass after reception, one-touch actions, scanning frequency, decision indices) and/or concurrent internal/external load; (iv) were peer-reviewed journal articles in English; (v) were published between January 2023 and August 2025. Exclusions covered non-football sports, purely theoretical/commentary pieces without empirical data, acute fatigue or conditioning protocols without SSG manipulation, and studies that did not report any decision-speed proxy.

Searches covered Scopus and Web of Science Core Collection using Boolean strings combining "small-sided games" OR "SSG" with "decision," "scan," "one-touch," "latency," "dual-task," "formation," "pitch size," "player number." Reference lists of eligible papers were snowballed. Two reviewers independently screened titles/abstracts and full texts; disagreements were resolved by discussion. A PRISMA-style log was maintained (records identified, screened, excluded with reasons, included).

For each study, the following fields were charted: population (age group, sex, competitive level), SSG manipulation(s), measurement endpoints and instrumentation, decision-speed proxies, internal/external load metrics, session duration and frequency, main effects (direction/magnitude as reported), and limitations noted by authors.

Risk of bias was judged on sampling (randomization/assignment, baseline comparability), measurement validity/reliability of decision-speed proxies, ecological fidelity of SSG design, and statistical reporting (pre-registration or protocol availability, handling of missing data). Judgments were recorded as low/unclear/high with brief rationales.

Narrative synthesis privileged convergent direction of effects while assigning greater interpretive weight to: (a) controlled or crossover designs over single-group pre-post; (b) larger samples with objective timing/positional metrics; (c) higher ecological fidelity (e.g., goalkeeper present, competition-matched pitch ratios); and (d) studies reporting both decision-speed proxies and load co-movement. Sensitivity readings were stratified by population (youth, elite female, male professional) and by role group where available.

Operational definitions. "Decision speed" was operationalized a priori as any reported reduction in time between information pick-up and action commitment, indexed by: (i) time-to-pass after ball reception; (ii) proportion of one-touch or two-touch releases under pressure; (iii) validated scanning metrics (head-up scans per minute or per possession) with associated action quality; or (iv) composite decision indices used in the source studies. Where multiple proxies co-existed, precedence for interpretation followed temporal measures, then action-based proxies, then composite indices.

D. Alaune and co-authors reported that distributing multiple small goals widens the affordance field in elite female players, increases head-up scanning, improves decision indices, and raises exertional cost, which frames a performance-fatigue trade-off relevant to programming [1]. D. Coutinho and colleagues contrasted tasks with varying levels of decision demands in youth football. They demonstrated that increased option density shifts ball control and passing while elevating external load, thereby linking rule complexity to faster yet economical choices under constraint [2]. J. González-Rodenas and collaborators compared 2-3-1 and 3-1-2 structures in 7-a-side formats and documented systematic changes in team width, surface area, and block height that bound the first actionable passing window and biased the pace of choice creation [3]. T. Habekost and co-authors provided a cognition model for elite players that integrates rapid cue-driven heuristics with slower supervisory processes, supplying a mechanistic lens for why constraint-induced time compression favors swift commitment without wholesale accuracy loss [4]. R. Matos and

colleagues analyzed three-a-side play and found positional differences in tactical knowledge and motor efficiency, indicating that defenders, midfielders, and forwards carry distinct cue libraries that shape how quickly they convert local patterns into actions [5]. P. E. D. Moreira and collaborators tested cognitive and motor dual-task overlays in U13 cohorts. They observed larger tactical decrements under motor interference than under cognitive loads, which identifies execution-channel competition as a limiting factor for speeded decision behavior in development settings [6]. N. A. Nunes and co-authors linked internal and external loads to technical actions during SSGs. They demonstrated that time-space compression facilitates one-touch solutions and rapid combinations, behavioral markers of shortened deliberation windows [7]. F. Skala and E. Zemková tracked neuromuscular and perceptual-cognitive responses in 4v4. They described increased reliance on pre-attentive cueing under higher acceleration and deceleration demands, reinforcing the coupling between physical strain and rapid choice [8]. H. Ramsey and colleagues synthesized the experiential accounts of professional players and highlighted early cue pick-up and structured search as sources of advantage during speeded selection, providing practitioner-level corroboration for constraint design principles [9]. R. M. Toivonen and co-authors disentangled pitch size from player number, showing that enlarging the field encourages earlier long-range anticipation. In contrast, reducing numbers intensifies duel density and trains quick conservative release, two distinct routes to tune decision tempo across a mesocycle [10]. Praça et al. compared single-task vs. cognitive/motor dual-tasks in 3v3 youth SSGs with GPS-based externals, isolating interference profiles relevant to time-compressed decision behavior [11]. Riboli et al. derived area-per-player prescriptions to replicate peak 4-min match intensities in elites, supplying load-equating parameters for constraint tuning [12]. Hintermann et al. implemented a 5-week scanning intervention in 4v4 female youth SSGs, quantifying increased head-up scans and retention, which links visual exploration training to downstream action quality [13]. Ueda et al. synthesized evidence on player-number manipulations, showing smaller formats foster greater exploratory and creative action counts—useful as a proxy for faster option selection under dense interactions [14]. Yılmaz and Soylu contrasted possession, mini-goal, and goalkeeper formats (2v2/4v4), relating internal load (RPE) and technical outputs to goal-target architecture, thereby informing rule design to steer search and release timing [15]. All extracted decisions-related variables, operational definitions, and study-level weightings were archived in a reproducible table (variable dictionary and study characteristics), enabling re-use and audit.

A comparative method, structured content analysis, and narrative synthesis were applied to extract constraint definitions, measurement endpoints (technical-tactical actions, spatial metrics, internal/external load, perceptual-cognitive indicators), and reported direction of effects; evidence mapping and cross-study triangulation were used to relate levers to mechanisms and outcomes; interpretive integration aligned population- and role-specific signals with programming sequences.

3. Results

The synthesis suggests that systematically manipulating small-sided game constraints shifts the temporal window available for perception, option generation, and action selection, thereby altering decision speed in footballers. Tasks engineered to raise decision-making requirements—by increasing option density or ambiguity—elevate external load while re-weighting technical behaviors toward quicker ball control and expedited pass selection in youth players, consistent with representative learning design. Empirical tests comparing low-, moderate-, and high-decision tasks report measurable changes in ball control and passing outputs together with altered locomotor demands, evidencing a training-sensitive coupling between cognitive and physical responses under SSG constraints [2]. A qualitative meta-synthesis of coach and player accounts converges on the exact mechanism: faster decisions emerge when task rules and affordances compress the time-to-act, forcing earlier information sampling and more economical action scripts [8].

Formational structure in SSGs recalibrates collective spacing variables that bound individual decision horizons. When U19 squads alternated between 2-3-1 and 3-1-2 formations in 7-a-side SSGs (with goalkeepers), offensive play in the 2-3-1 formation produced a higher team width and surface area than the 3-1-2 formation, while defensive phases under the 2-3-1 formation simultaneously raised block height and compressed the length and dispersion indices. Such shifts directly affect passing lines, numerical balance around the ball, and the “first legal option” time window, collectively biasing the speed at which viable solutions appear and can be executed [3]. At the micro level, three-a-side SSG observations confirm that decision quality and motor efficiency vary by positional group (e.g., defenders, midfielders, and forwards) under the same pitch and player constraints; this indicates position-specific procedural knowledge that modulates how rapidly players parse local interaction patterns into executable choices [5].

Dual-task SSGs—adding cognitive (e.g., arithmetic, memorization) or motor secondary tasks—transiently depress tactical performance scores relative to single-task SSGs in U13 cohorts, with larger decrements when the secondary demand is motoric rather than cognitive. The effect profile is consistent with limited-capacity accounts of attention: secondary tasks consume resources that would otherwise be devoted to target detection, prioritization, and action selection, thereby delaying decision commitment and slightly degrading correctness. Notably, the cost pattern implies that overloading action execution channels (motor dual-task) disrupts tactical output more than taxing working memory or calculation, which may still permit rapid cue pickup if visual sampling is preserved [6]. Figure 1 summarizes the reported dual-task

cost structure.

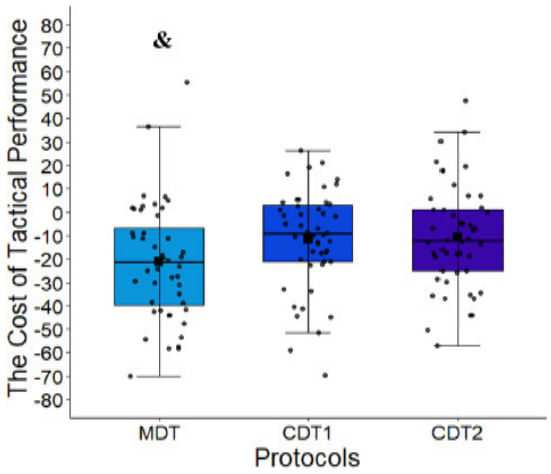

Figure 1. *Dual-task cost in tactical performance during SSGs (youth players): single-task (ST) vs. cognitive dual tasks (CDT1/2) vs. motor dual task (MDT); a larger cost is observed under MDT compared to CDT, with all conditions below ST (Single-task) [6].*

These findings suggest a load-progression logic: begin with cognitive secondary tasks to perturb decision speed without excessively impairing execution, then introduce motor interference once scanning and anticipation are robust under compression [6], informed by contemporary models of elite cognition that emphasize fast, cue-driven type-1 processing scaffolded by strategic, slower type-2 correction in volatile phases [4].

Reconfiguring scoring targets modifies exploration strategy and information search. In elite female players, increasing the number of small goals during SSGs broadens passing affordances, encourages frequent head-up scanning, and improves decision-making indices while elevating perceived exertion—an expected trade-off when option sets expand and action selection accelerates. The intervention appears especially effective where creative solutions are incentivized by spatially distributed targets, thereby accelerating the recognition of weak-side options and facilitating quick release decisions [1]. When the constraint changes, youth footballers adjust by simplifying their first touch and narrowing their pass choice sets, achieving faster, more conservative selections under higher uncertainty—again linking task rule design to decision tempo and outcome quality [2, 8].

Pitch-environment parameters determine the absolute tempo of interactions and thus the feasible decision window. Evidence partitioning the effects of pitch size versus player number shows that enlarging the field more closely reproduces the physical demands of official matches and widens spatial affordances, pushing players toward earlier scanning, longer-range anticipatory passing, and quicker trigger thresholds to exploit emergent space before it collapses. Conversely, reducing numbers (e.g., 4v4) at a given area per player sharpens local dueling density, compressing perception-action cycles and training early, high-pressure release behaviors; in practice, both levers are used to tune decision speeds at different points in a mesocycle [10]. Complementary load analyses confirm that internal and external responses scale with such manipulations and that technical-tactical actions (e.g., one-touch passes, wall passes) increase under tighter time-space compression, a signature of shortened deliberation windows [7]. Neuromuscular and perceptual-cognitive monitoring during 4v4 formats shows parallel adjustments: as accelerations and decelerations increase, athletes rely more on pre-attentive cueing and simplified heuristics to maintain decision tempo under fatigue, underscoring the interdependence of physical strain and rapid option selection [9].

Across studies, convergent quantitative and qualitative signals indicate that speeded decision behavior is tractable to design: formations and pitch geometry set the macro envelope for scanning and option availability; scoring targets and rule tweaks steer search strategies; player number and area per player manipulate interaction density; and dual-task overlays expose attentional bottlenecks that can be progressively trained. Position-specific data advise differential dosing—e.g., defenders profit from drills that accelerate recognition and interruption of progression cues under compact blocks. At the same time, midfielders benefit from multilateral target layouts that require constant re-prioritization and preview of third-man options [5]. In youth development, decision-time compression should respect maturational bandwidths to avoid chronic overload; evidence on age-grouped workloads and technical actions recommends staging constraint severity so that cognitive speed gains are consolidated without eroding execution stability [2, 7]. Finally, practitioners' narratives emphasize that durable improvements in decision speed arise not from generic "faster play," but from repeated exposure to well-specified informational problems that demand earlier pick-up of reliable cues and rapid commitment to satisficing solutions consistent with team principles.

4. Discussion

Across the included reports, convergent evidence supports a design-based pathway by which small-sided game manipulations compress or expand the time available for perception, option generation, and action execution, yielding reproducible shifts in decision speed. Increasing the number of scoring targets broadens the distribution of affordances, stimulates frequent head-up scanning, and shortens the latency to select a workable pass, albeit with a concurrent rise in perceived exertion in elite female players; the trade-off suggests that faster choices co-occur with increased exploratory search and consequent psychophysiological load [1]. Tasks engineered with higher decision requirements—via rule constraints that increase option density or ambiguity—produce measurable changes in ball control and passing while elevating external load in youth cohorts, indicating that cognitive and physical

responses are coupled under representative SSG constraints [2]. Tactical reconfiguration at the meso level, such as alternating 2-3-1 and 3-1-2 in 7-a-side SSGs, modifies team width, surface area, and block height; these spatial reorganizations bound the temporal window for first actionable options and thereby bias the pace of choice without requiring explicit instructions to "play faster" [3].

A theoretical lens grounded in elite cognition helps reconcile why apparently distinct constraints produce similar outcomes: when rules, spacing, or target structure reduce the tolerance for delayed commitment, players lean more heavily on fast, cue-driven heuristics while reserving slower, corrective processes for volatility spikes or breakdowns in structure [4]. Position-specific differences observed in three-a-side formats imply unequal prior knowledge and cue catalogs: defenders, midfielders, and forwards vary in how quickly they parse local patterns into executable choices under identical environmental parameters, reinforcing the need for targeted dosing of constraints by role group [5, 13]. Dual-task overlays clarify attentional bottlenecks. In U13 players, adding cognitive or motor secondary tasks depresses tactical performance relative to single-task SSGs, with larger decrements under motor interference. This pattern aligns with limited-capacity accounts, in which execution-channel loading degrades both the speed and correctness of tactical solutions more than working-memory taxation alone [6]. This hierarchy recommends a progression: perturb decision speed first with cognitive overlays to stress early information pickup and prioritization, then introduce motor interference to harden rapid selection under execution noise [6].

Load analyses synthesized with technical-tactical tracking show that time-space compression (e.g., fewer players or a reduced effective playing area per player) scales internal and external loads while shifting the action repertoire toward one-touch releases and rapid wall combinations—behavioral signatures of shortened deliberation windows [7]. First-person accounts from coaches and players echo these patterns: durable improvements in decision speed accrue when SSGs repeatedly present well-specified informational problems that reward earlier pick-up of reliable cues (e.g., weak-side outlets under multi-goal layouts) and penalize delayed commitment, rather than from generic exhortations to accelerate play [8, 14]. Perceptual-cognitive and neuromuscular observations converge on a similar point: as acceleration-deceleration demands rise in 4v4 formats, athletes increasingly rely on pre-attentive cueing and simplified "satisficing" rules to sustain rapid choice under fatigue, tying physical strain to decision tempo [9]. Disentangling the individual effects of pitch size versus player number clarifies planning logic: enlarging the pitch at constant numbers tends to widen spatial affordances and promote earlier scanning for longer-range options, whereas reducing numbers at constant area intensifies local interaction density and trains faster, conservative releases; both levers are proper at different mesocycle points to tune the speed-stability balance of decision behavior [10].

The practical synthesis below organizes these mechanisms into a constraint-mechanism-outcome map to guide applied design and to make explicit where evidence is strongest.

Entries report consistent directional effects rather than pooled magnitudes, as the underlying studies vary in age group, sex, competitive level, and micro-rules. Where appropriate, multiple sources anchor a single row to reflect replication across contexts (see Table 1).

Table 1. *Constraint-mechanism map for accelerating decision speed in football SSGs [1-3, 6-12].*

Manipulated variable	Implementation examples	Putative mechanism narrowing time-to-act	Observed decision-speed outcome
Scoring target number	Multiple small goals distributed laterally	Broader affordance field → more frequent scanning, faster weak-side recognition	Shorter latency to pass selection with higher perceived exertion
Decision-demand level	Rule sets increasing option density/ambiguity	Earlier cue sampling to avoid late conflicts	Faster, more economical pass choice; adjusted ball control; higher external load
Tactical formation	2-3-1 vs 3-1-2 in 7-a-side	Reorganized team width/surface area bounding first-option window	Shift in timing of viable options and execution readiness
Dual-task overlay	Cognitive vs motor secondary tasks	Resource competition; execution-channel loading > memory loading	Larger performance cost and slower decisions under motor than cognitive load
Pitch size (constant numbers)	Larger field in 5v5-7v7	Wider spatial affordances → earlier, longer-range anticipation	Quicker triggers to exploit emergent space
Player number (constant area)	4v4 vs 6v6 on the same area	Higher dueling density; compressed perception-action cycles	Faster conservative releases; more one-touch solutions
Time-space compression	Reduced area per player	Elevated accelerations/decels; heuristic reliance under strain	Maintained decision tempo via simplified choice rules

The map underscores that no single constraint "causes" faster decisions in isolation; rather, clusters of rules, space, and reward signals jointly alter the timing landscape in which players search and commit. For programming, the implication is to sequence constraints so that scanning breadth, early prioritization, and rapid release are trained without eroding execution stability: for instance, begin a microcycle with expanded targets to widen search and hasten recognition, then progress to reduced numbers to compress cycles and stabilize fast release under pressure, and finally overlay a motor secondary task once single-task speed-accuracy benchmarks are met [1, 7, 10, 6].

Generalizability requires attention to population and role-group differences. Youth players demonstrate greater sensitivity to dual-task interference—particularly motor overlays—than to purely cognitive perturbations, advising conservative dosing when the goal is to accelerate decision speed without destabilizing tactical choices [6, 12]. Elite female players respond positively to distributed targets, with improved decision-making indices, but report higher exertion, which should be anticipated in session design and recovery planning [1]. Three-a-side observations suggest that positional prior knowledge influences the speed at which local cues are converted into actions under the same constraint set. For instance, defenders benefit from compact-block drills that accelerate the recognition of progression cues. In contrast, midfielders benefit from multilateral target layouts that require continual reprioritization and preview of third-man options [5].

To make these population- and role-specific considerations operational for staff, the following synthesis collates decision-speed targets with concrete design levers and evidence anchors (see Table 2).

Table 2. *Population/role-specific decision-speed targets and recommended SSG levers [1, 2, 5-7, 9, 10-15].*

Population / Role focus	Sensitivity or target	Recommended SSG lever	Decision-speed emphasis
U13-U15	Higher decrement under motor dual-task than cognitive	Start with cognitive overlays; delay motor secondary tasks	Earlier cue pickup and prioritization without execution overload
Elite female	Faster choices with multi-goal layouts, higher RPE	Increase the number of small goals; distribute laterally	Quick recognition of weak-side options; rapid release
Defenders	Need earlier recognition of progression cues under compact blocks	Reduce numbers in central channels; constrain forward lanes	Fast interruption/clearance decisions under pressure
Midfielders	Continuous reprioritization of outlets	Multilateral targets; variable pressing triggers	Quick third-man identification and one-touch combinations
Youth development (general)	Coupled cognitive-physical response to decision-level tasks	Rule complexity progression across mesocycles	Stable, fast selection with preserved ball control
All playersare under fatigue	Reliance on pre-attentive cueing and heuristics	Time-space compression with monitored load	Sustained rapid choice despite acceleration/deceleration load
Match-demand replication	Distinguish pitch-size vs number effects	Alternate larger-pitch same-numbers with smaller-numbers same-area	Early long-range anticipation vs fast conservative release

Following this organization, the present synthesis favors a double-progression principle: widen the search space to train earlier recognition under low ambiguity, then compress interaction density to train fast commitment under high ambiguity. Across both phases, staff should monitor the co-movement of internal/external load with decision-speed proxies (e.g., one-touch frequency, time-to-pass after reception) to prevent unwanted drift toward hurried but low-quality choices [2, 7]. Narrative accounts from coaches suggest that players internalize faster decision-making habits when informational regularities repeat across sessions—e.g., the predictable emergence of weak-side lanes under multi-goal layouts—supporting the use of stable mesocycle "signatures" rather than constantly novel drills [8]. Theoretical framing of elite cognition suggests that such regularities scaffold cue-response libraries, enabling fast, satisficing choices that are later refined by slower oversight processes during unstable phases of play [4, 11].

The interaction between constraint design and developmental stage, as well as sex composition, merits caution. Youth cohorts vary in attentional bandwidth and execution stability; aggressive motor dual-tasking can degrade tactical correctness more than intended and slow the learning of rapid yet appropriate choices [6]. Conversely, elite groups tolerate broader exploration with distributed targets but incur higher exertional costs; such loads may be beneficial for match-like

arousal when scheduled judiciously, yet they require deliberate recovery to maintain the quality of rapid decision-making behavior across a training week [1, 10]. Finally, spacing rules derived from formation tweaks should be viewed as framing tools rather than toggles for speed: by shifting team width and block geometry, staff set the boundaries of the first-option window; the acceleration of individual choice follows when informational access improves and when reward structures align with intended behaviors [3, 8, 15].

Interpreting across methodologies and samples, the pattern is robust: decision speed is trainable through constraint architecture that exposes players to repeated, time-compressed informational problems and rewards earlier, reliable cue usage. What remains underexplored are dose-response curves for combined levers (e.g., multi-goal layouts on larger pitches with reduced numbers) and the long-term retention of speeded behaviors without loss of correctness; both directions call for controlled comparisons that preserve ecological validity while capturing a richer set of temporal decision markers.

5. Conclusions

Evidence from recent studies converges on a trainable pathway for making faster football decisions via a purposeful SSG architecture. Formation and pitch geometry set the envelope for scanning breadth and first-option emergence; target distribution and rule design steer information search; player number and area per player tune interaction density; dual-task overlays reveal attentional bottlenecks suitable for staged perturbation. Youth cohorts benefit from initial cognitive overlays before motor interference, while elite female groups respond favorably to multi-goal layouts with manageable exertional costs. Positional differences suggest the need for role-specific dosing that enhances cue recognition where it matters most. A double-progression sequence emerges for practice design: begin by expanding affordances to cultivate earlier recognition under low ambiguity, then compress time and space to stabilize rapid commitment under pressure, monitoring decision-speed proxies to prevent drift toward hurried inaccuracy. This sequencing provides a transferable template for academies and professional environments seeking sustainable improvements in decision-making speed.

Limitations and future directions - the synthesis is bounded by publication years (2023-2025), English-language indexing, and substantial heterogeneity in how decision-speed proxies are defined and measured, which precluded meta-analysis. Small samples and short interventions are common, while combined constraint packages are rarely contrasted systematically. Future work should standardize temporal markers of decision speed (e.g., frame-accurate time-to-pass post-reception, scan-to-action latency), run longer retention follow-ups, and test dose-response for coupled levers (e.g., multi-goal layouts on enlarged pitches with reduced numbers). Sex- and role-specific randomized comparisons are needed, as are protocols that disaggregate informational design from fatigue by co-monitoring internal/external load and using instrumentation such as eye-tracking synchronized with local positioning systems. Transfer to competitive match behavior and safety outcomes under time-compressed decisions warrants targeted evaluation.

Abbreviations

SSG	Small-sided Games
RPE	Rating of Perceived Exertion
ST	Single-task
CDT	Cognitive Dual-task
MDT	Motor Dual-task

Author Contributions

Batsula Andriy is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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