

1 **Framework and consensus statement for the implementation of sided game training in**
2 **football (soccer)**

3

4 **Short title/running head:** Consensus statement on sided games in football

5

6 **Abstract**

7 **Background:** Sided games are very popular in football (soccer) training, designed to integrate
8 technical, tactical, and physical development through the manipulation of constraints such as
9 player numbers, pitch size, and rules, among other variables. However, inconsistent
10 terminology, methodological heterogeneity, and limited empirical guidance have hindered its
11 methodological advancement across research and practice.

12 **Objective:** This consensus aimed to establish a unified framework and evidence-based
13 recommendations for the design, monitoring, and application of sided games in football,
14 providing conceptual clarity and practical guidance for coaches and sport scientists.

15 **Methods:** A multidisciplinary group of 20 international experts in football science and
16 coaching developed the framework through a three-stage process: (1) theoretical model
17 development, (2) synthesis of priority areas based on an umbrella review of 12 systematic
18 reviews and meta-analyses, and (3) iterative drafting and blinded consensus voting on
19 statements using a 9-point Likert scale.

20 **Results:** Seven statements achieved consensus (scores 7-9), defining sided games in soccer,
21 delineating important influencing factors (coach philosophy, environmental, task, and
22 individual constraints), defining monitoring principles, and highlighting benefits and
23 limitations. The consensus confirmed sided games as effective for developing aerobic fitness
24 and tactical-technical behaviors but less effective for strength, power, and high-speed
25 performance adaptations.

26 **Conclusions:** This consensus provides the first framework for sided game training in football,
27 unifying terminology and guiding evidence-based design. Its implementation can enhance
28 training coherence, optimize player development, and inform future research addressing
29 existing methodological and population-specific gaps.

30

31 **Keywords:** small-sided games, soccer, physical, tactical-technical, team sport

32 INTRODUCTION

33 Sided games are an integral component of contemporary football (soccer) training, offering a
34 systematic approach to player development¹⁻³. While the existing literature occasionally
35 categorizes such activities according to size, referring to them as small-, medium- or large-
36 sided games, we deliberately use the more inclusive term “sided games” to reflect a broader
37 conceptual definition^{4,5}. This term captures a variety of game formats that differ in pitch size
38 and number of players but are governed by coaching principles inspired by the Newell's
39 constraints-led approach⁶. Central to this approach is the recognition that by manipulating
40 different constraints in sided games coaches can yield interrelated effects, synergistically foster
41 team tactical proficiency and enhance athletic performance. Sided-games are game-based drills
42 coaches and practitioners design to replicate the dynamics of match-play by modifying the task
43 constraints: by adjusting the number of players, pitch size, and playing rules, among other
44 factors (e.g., starting score, time limitations, decision making skills)⁷. Moreover, the
45 implementation of task constraints (e.g., unbalanced teams, number of ball touches allowed)
46 can affect players' behaviors in line with the coach's technical-tactical objectives for the
47 session^{2,3}. This approach aims to emphasize specific technical skills, tactical awareness and/or
48 physical demands that can be trained using an integrated training approach^{2,7}. Over time, the
49 benefits of sided games training have been recognized at all levels of the sport, from school-
50 children and youth academies to recreational and professional teams^{3,8,9}.

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52 The primary rationale of sided games training stems from their ability to simulate different
53 game scenarios (e.g., high-pressure situations) while promoting scanning and decision-making
54 opportunities as well as to achieve specific goals (e.g., more frequent and effective technical-
55 tactical actions) compared to a regular game^{10,11}. Therefore, sided games training aids players
56 refine their technical abilities, such as dribbling, passing, and shooting, in a motivating and
57 competitive setting¹². Moreover, coaches can design specific sided games to target technical
58 aspects, such as one-on-one duels, combination play, or scoring. By manipulating different
59 variables (e.g., tasks constraints), including but not limited to the number of players, field
60 dimensions, and rules, coaches can emphasize specific actions, decision-making and physical
61 demands^{2,7,13}. Moreover, the ecological training scenario of sided games, including various
62 phases of play, such as build-up, transition, and defensive organization, aligns with the concept
63 of training specificity (focusing on tactical, technical, physical and psychological elements)
64^{2,4,7}. An intended manipulation of these parameters allows players to practice their position and
65 tactical-related tasks, movements, and cognition in a controlled yet game-specific environment,
66 which is expected to facilitate training transfer. To illustrate, a purposeful manipulation of the
67 area per player (i.e., total pitch size divided by the number of players on the pitch, including
68 goalkeepers when they are present) can provide similar external load demands, such as high-
69 speed running and accelerations/deceleration distances¹⁴ and team tactical performance¹⁵.
70 However, sided games also present some limitations, as at times they fail to replicate the
71 external load demands of the game (e.g., high-speed running and number of accelerations)
72^{4,13,16}. Moreover, they do not appear to be as efficient as for example speed endurance training
73 in relation to causing high intensity performance and muscle physiological adaptations¹⁷. More
74 research should assess whether the nature and frequency of tactical-technical actions fully
75 match those required during the regular game. For example, coaches may design a sided game

76 with a specific goal in mind, but the unfolding of the game in practice may deviate from their
77 initial intention. Monitoring is thus paramount to ascertain this coherence between planned
78 versus actual behaviour.

79

80 Despite the widespread use and the research on sided games in football training, there is a lack
81 of standardized definitions (e.g., terminology used to define sided games)³, solid and shared
82 conceptual principles for their use (e.g., rationale of programming), and guidelines for their
83 implementation (i.e., evidence-based practice). Therefore, a theoretical framework and
84 consensus among experts about the use of sided games in football is warranted. A framework
85 is a basic structure that supports or underlies a system, construct, or concept¹⁸. It provides an
86 organized way to understand and approach a particular subject or problem. In the context of
87 research or practice, a framework often includes a set of guidelines, principles, or rules that
88 help to structure and guide the work being done. Furthermore, a consensus statement would
89 provide clear definitions of different types of sided games (e.g., terminology), and guidelines
90 for their implementation into training (on the basis of their aims). It would also outline best
91 practices for designing and implementing sided games to achieve specific training objectives.
92 Conversely, the current inconsistency can lead to varying interpretations and practices,
93 potentially affecting the effectiveness of sided games in player development. Therefore, there
94 is a pressing need for a consensus statement among researchers and practitioners in football to
95 establish a unified framework. Both framework and consensus would ensure that coaches and
96 sports scientists at all levels, ranging from recreational to elite, have a common understanding
97 of how to use sided games effectively, leading to more consistent and beneficial outcomes for
98 players.

99

100 The aim of this article was twofold: first, to present a comprehensive framework and a
101 consensus reached by expert researchers in football; second, to clarify terminology and refine
102 evidence-based guidelines underpinning the sided games programming.

103

104 **METHODS**

105 **Framework and practitioners' consensus**

106 The leading group (MB, FC, ADI, GMP, JA) met on January 15, 2024. The design of the
107 framework and consensus procedure of this article were agreed on among the leading group
108 during an official online meeting held on February 7, 2024.

109

110 During this meeting, the leading group agreed to develop this consensus across 3 stages:

- 111 1) The design of the theoretical framework around the definition and implementation of
112 sided games training in football;
- 113 2) The draft of specific statements and recommendations expanding beyond the most
114 recent umbrella review published on small sided games in football¹ and the theoretical
115 framework produced in point 1;
- 116 3) The framework and statements validated through a blinded consensus vote.

117

118 **Stage 1: Theoretical Framework**

119 Researchers explored the development of a theoretical framework to support practitioners in
120 the design and implementation of sided games training in football. Structured as a
121 multidimensional model, the framework integrates key considerations across all phases of
122 sided games programming, including coaching philosophy and training objectives, the
123 overarching training model, environmental and task constraints (e.g., pitch dimensions, team
124 size, playing rules), expected outcomes, short- and long-term training adaptations, and potential
125 transfer effects to match performance and long-term player development.

126

127 **First round discussion among the research group**

128 *Selection of research group members*

129 Before initiating this project, the leading group (MB, FC, ADI, GMP, JA) set the criteria to
130 identify potential experts. Experts included in this project were selected based on their
131 publication record (*i.e.*, to have a minimum of 10 published peer-reviewed articles in the field
132 of football science), and/or to be identified as a football practitioner implementing sided games
133 training in applied settings. Experts' recruitment was also based on their geographical location
134 to ensure a balanced representation of different cultures around the world (this is to avoid
135 having a bias due to the geographical and cultural characteristics of the researchers).

136

137 *Experts' demographics*

138 All experts were researchers in the field of sided games in football. Areas of expertise among
139 the participants included: strength and conditioning, sports science, and coaching. Work
140 experience (years), geographic locations, and gender of the researchers were also recorded.

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142

143 **Stage 2: Analysis of the umbrella review, selection of the areas of priority, design of** 144 **statements and guidelines**

145 In 2021, Clemente, Afonso and Sarmento¹ published an umbrella review on the overarching
146 topic of small sided games, encompassing all eligible systematic reviews and meta-analyses
147 based on specific criteria related to outcomes such as internal and external load (acute
148 responses to small-sided games), fitness variables (adaptations following a period of small-
149 sided games-based interventions), technical and tactical measures (acute responses or
150 adaptations), and psychological or pedagogical dimensions (acute responses or adaptations).

151 Among the twelve reviews analyzed, eight were solely focused on football, one on basketball,
152 and three on various team ball sports. Delving into the football reviews, four discussed internal
153 load outcomes, and three covered external load outcomes, suggesting that the current evidence
154 extends beyond just training load studies. In fact, five reviews provided insights into tactical
155 analysis, and five addressed technical performance. Regarding training responses and
156 adaptations, six reviews examined acute effects, while four focused on long-term adaptations
157 following training interventions. There was a notable absence of evidence on both acute and
158 medium-term psychological effects. Similarly, medium-term adaptations in tactical behavior
159 were not observed, with reviews only identifying acute responses from manipulating task
160 constraints¹⁹.

161 The umbrella review highlighted that most studies concentrated on descriptive information
162 about how manipulating task constraints affects players' immediate responses. Compelling

163 evidence covered psychophysiological responses, such as heart rate and perceived exertion, to
164 various task constraints. This was followed by extensive coverage of locomotor and mechanical
165 demands, including distances covered at different speeds and accelerations. Among the acute
166 responses studied, technical performance was the third most explored topic, while tactical
167 behavior had the least evidence, showing fewer acute responses from task constraint
168 manipulation. Comparisons between different formats and pitch dimensions were the most
169 researched task constraints, whereas changes to task objectives and other rule manipulations
170 were less documented.

171 Few studies have examined long-term adaptations, with experimental studies prioritizing
172 physical fitness over technical skills or tactical behavior learning. Furthermore, most
173 experimental designs were not always randomized or controlled. No parallel studies compared
174 different small-sided formats; instead, comparisons were made against control groups without
175 training interventions, rather than regular training sessions or other modalities like high-
176 intensity interval training. Lastly, most studies involved men and youth cohorts, highlighting a
177 significant lack of experimental research at elite competitive levels and among women. Table
178 1 exhibits a summary of the research status and evidence derived from the umbrella review ¹.

179

180 **Table 1.** Mapping the research status and state of evidence from the umbrella review ¹.

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182 *****Add table 1 here*****

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184 *Areas of priority*

185 During a second meeting held on November 8, 2024, the leading group identified areas of
186 priority related to the main topic of this article. The following areas were identified for
187 consensus enquiry:

188

- 189 1. Definition of sided games;
- 190 2. Impact of coach philosophy, club culture and related factors on the design and
191 implementation of sided games;
- 192 3. Effects associated to constraints on acute and chronic physical adaptations and their
193 monitoring;
- 194 4. Effects associated with technical-tactical constraints;
- 195 5. Effects associated with environmental constraints;
- 196 6. Effects associated with individual constraints;
- 197 7. Limitations of sided games training.

198

199 Following this, the first draft of statements and guidelines were circulated amongst the experts
200 of this article. An online meeting among experts was held on the 10th of April 2025. A second
201 round of revision involving all authors was performed on the 9th of May 2025.

202

203 **Stage 3: Formulation of the statements and process of the consensus vote.**

204 All experts were contacted via email and requested to confirm availability to meet the leading
205 group in an online meeting to discuss the consensus statements. The first draft was emailed to
206 each expert at least 1 week before the meeting. Experts reported their observations during the

207 meeting and were invited to make recommendations in an open discussion. The experts who
208 did not participate in the meeting emailed their feedback and suggestions to the leading group,
209 who integrated such feedback into the recommendations. Experts who did not participate in the
210 meeting or submit their feedback were excluded from the final authors' list. Following this
211 step, a second draft of the consensus and statements was circulated among all experts to further
212 refine the recommendations. Furthermore, the researchers voted the final recommendations of
213 this consensus statement. This process was conducted anonymously, following the procedure
214 and scoring system used in a previous consensus statement²⁰. The score was performed using
215 a 9-point Likert scale, where 1 was the minimum, and 9 was the maximum. Overall, scores
216 from 1–3 were considered and defined as *inappropriate*, scores of 4–6 were considered
217 *uncertain*, and scores of 7–9 were considered *appropriate*. In addition to presenting the
218 descriptive consensus data, we provide the raw data in the supplementary materials. In the
219 discussion, we have highlighted key points of disagreement, particularly those associated with
220 lower agreement levels.

221

222 RESULTS

223 Framework. An illustrative version of the theoretical framework is displayed in Figure 1.

224

225 *****Add here Figure 1 (framework)*****

226

227 *Statement 1.* Definition: Sided games are game-based drills coaches use to replicate multiple
228 match-play scenarios by manipulating the number of players, pitch size, game rules, and/or
229 other constraints. These games have different formats: (i) direction of play, the aim is to score
230 (mini-goals or regular goals with goalkeepers); (ii) without direction of play, the aim is to
231 maintain or regain possession; (iii) mixed, formats with multiple aims incorporating both
232 directional and non-directional elements. Table 2 outlines some of the elements a coach can
233 manipulate to design sided games (illustrative, not exhaustive).

234

235 ***** Add here Table 2*****

236

237 *Statement 2.* Manipulating task constraints in football training influences the type and
238 frequency of learning opportunities related to game understanding and skill development.
239 However, relying on a single task is unlikely to foster the simultaneous advancement of
240 multiple technical and tactical skills effectively. Therefore, the design and implementation of
241 sided games should be informed by a range of contextual factors, including the coach's
242 philosophy, the club's culture, and player-specific variables such as skill level, tactical
243 awareness, and physical readiness. Additionally, practical considerations, such as the
244 availability of human, material, and temporal resources, play a crucial role in shaping task
245 design. Despite the relevance of these factors, empirical evidence on their specific impact
246 remains limited, highlighting the need for further research in this area.

247

248 *Statement 3.* Sided games not only influence individual and collective technical-tactical
249 behaviors, but also impose varying acute physiological and physical demands, depending on
250 task design and contextual constraints. While coaches may use sided games to develop aerobic

251 capacity in youth players, current evidence supporting their training effectiveness in adult or
252 professional athletes is limited. Moreover, research on their impact on neuromuscular
253 adaptations such as muscular strength and power, and athletic performance metrics like
254 acceleration, peak speed, and change-of-direction ability remains scarce and inconsistent.

255

256 *Statement 4.1.* Sided games exhibit substantial variability in technical and tactical actions both
257 between and within players. Effectively managing this variability; through strategies such as
258 targeted feedback, guided reflection, and scenario adjustments, is crucial to support player
259 development and optimize competitive readiness.

260

261 *Statement 4.2.* Accurate monitoring of players' behaviors is essential for understanding how
262 constraints manipulation is associated with technical-tactical development. Monitoring should
263 also include the physical aspects of performance (e.g., accelerations, distances) while the
264 tactical-technical elements remain the priority. Resonating with the conceptual principles of
265 systematic coaching and training specificity, sided games monitoring should reflect players'
266 positional data to facilitate the analysis and understanding of individual and collective tactical
267 behaviors.

268

269 *Statement 5.* When designing sided games, coaches should account for a range of
270 environmental and contextual factors that may influence player readiness, performance, and
271 recovery. Key considerations include the timing and location of training sessions, as well as
272 ambient conditions such as temperature and humidity. In particular, extreme environmental
273 conditions may necessitate adjustments to training protocols to safeguard player health and
274 optimize performance outcomes.

275

276 *Statement 6.* When designing sided games, it is essential to consider each player's individual
277 constraints – including training background, physical condition, technical proficiency, tactical
278 understanding, and behavioral tendencies. By tailoring game design to these factors, coaches
279 can better support optimal development across physical, technical, and tactical domains,
280 ultimately enhancing overall performance.

281

282 *Statement 7.* Sided games are widely used in football training because they offer many benefits,
283 however, they also have limitations. While they aim to develop players holistically, they often
284 emphasize certain skills at the expense of others. This can lead to limited tactical depth,
285 unrealistic game dynamics, and physical demands that do not match real match conditions. For
286 this reason, coaches should use a variety of sided games (with different constraints) and avoid
287 relying on a limited set of them. Implementation can also be affected by challenges such as
288 limited resources, player readiness, coaching experience, and the need to balance different
289 training goals. Coaches should understand these trade-offs to adapt their training effectively.

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292 The consensus voting statement and qualitative interpretation of the recommendations are
293 reported in Figure 2.

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“Please, add here Figure 2 (vote on the final recommendations)”

The results indicate that the proposed framework and accompanying statements achieved consensus, with scores ranging from 7 to 8 on a 9-point scale—corresponding to a qualitative rating of *appropriate*. However, Statement 3 had a lower bound of its confidence interval at 6, suggesting that some researchers perceived it as *unclear*.

DISCUSSION

This consensus statement presents a comprehensive framework including statements and recommendations for the use of sided games training in football. Sided games are a key component of modern football training, providing a comprehensive method for player development. This training method can emphasize particular technical skills, tactical understanding, and physical attributes, allowing multiple aspects of the game to be trained simultaneously, with certain elements being prioritized over others if necessary^{3,8}. Although various terms can be used to describe sided games^{3,4,13}, it is important to understand them in a broader context rather than limiting them to 'small formats on small fields.' Sided games are better defined as game-based drills that coaches use to replicate multiple match-play scenarios by manipulating the number of players, pitch size, game rules, and/or other constraints. This approach may help the player's performance, ideally aligning with the specific objectives of the drill.

In relation to statement 1 and statement 2, evidence indicates that changes in game formats, field dimensions, configurations, or other rules (e.g., using different goals, imposing ball-touch limits, or restricting specific actions like dribbling) induce different physiological and physical demands on players^{14,21,22}. However, these effects are highly “context dependent”. The variety of conditions and interacting factors can lead to some outcomes being more pronounced and consistent than others²³. For instance, while certain physiological responses, such as heart rate, tend to be unaffected by within-player variability, others, like blood lactate levels, perceived exertion, or high-intensity locomotor demands, can exhibit significant variability even under similar conditions²⁴. This variability may account for contradictory findings in some acute response studies. To illustrate, large or smaller game formats consistently result in increased heart rate responses, likely due to shorter playing durations combined with higher individual involvement. In contrast, larger game formats are generally associated with greater locomotor demands, although this effect is contingent on the increase in pitch size²⁵. Thus, while modifying task constraints leads to variations in acute responses, coaches should accurately monitor the training response to assess the stimuli being delivered to players. Without such strategies, mismatches may arise due to contextual and situational factors inherent to the dynamic nature of the games, rather than solely from the manipulated task constraints. Coaches should be aware of the uncertainty regarding the effects of sided games training because they were implemented and analyzed as a training modality in isolation; future studies should investigate how sided games may affect the training session as whole.

338 The body of evidence from experimental controlled and parallel study designs—comparing
339 sided games with high-intensity interval training, other aerobic-based training methods, or
340 control groups only involved in regular training—is relatively extensive for youth male soccer
341 players^{3,26,27}. In relation to statement 3, recent meta-analyses consistently show that sided
342 games elicit similar levels of aerobic adaptations as high-intensity interval training²⁶ or
343 traditional endurance training²⁸ supporting their effectiveness in enhancing aerobic capacity.
344 However, evidence gaps remain. For example, it has been shown that speed endurance training
345 performed as running drills with ball actions is more efficient in inducing adaptations in muscle
346 mitochondria biogenesis and high intensity performance than sided game football training¹⁷.
347 There is a scarcity of studies involving female players²⁹, and randomized experimental studies
348 on adults, particularly elite athletes, are almost nonexistent. This creates uncertainty about how
349 factors such as baseline fitness levels or physiological plateaus may influence the magnitude
350 of adaptations. Additionally, the evidence for the effectiveness of sided games in improving
351 other physical capacities, such as muscle strength, power, speed, and change-of-direction
352 ability, is limited and often contradictory²⁷. Therefore, coaches should consider programming
353 specific, evidence-based approaches to develop these physical capacities rather than relying on
354 sided games as the primary training method. While sided games are effective for improving
355 aerobic capacity, they should not be viewed as an all-in-one training tool. Their use should be
356 integrated into a comprehensive, multi-component training program that addresses the diverse
357 physical demands of the sport.

358
359 Empirical studies and systematic reviews have indicated that manipulating constraints during
360 small-sided games elicits different technical and tactical behaviors (statement 4.1)^{1,12,15},
361 suggesting that no single sided game format can universally meet all pedagogical objectives.
362 Most research has focused on simultaneously manipulating a limited number of constraints
363^{16,30}; an approach that is methodologically necessary from a scientific standpoint but may be
364 overly reductionist from an applied perspective. In practice, coaches often manipulate multiple
365 constraints concurrently to design tasks that align with the specific context and intended
366 pedagogical objectives. For instance, sided games with offensive numerical superiority are
367 likely to increase the percentage of successful passes³¹, whereas imposing a limitation on ball
368 touches tends to negatively affect this outcome³². It remains unclear what outcomes can be
369 expected from a game combining numerical superiority and ball-touch limitations compared to
370 a control condition with numerical equality and no ball-touch restrictions. This gap in the
371 literature underscores the need for caution when simultaneously manipulating multiple
372 constraints, as the combined effects remain poorly understood.

373
374 Several factors influence the selection of the most suitable sided game(s) for a given training
375 session. A coach's philosophy^{33,34}, for instance, plays a pivotal role in shaping training and
376 gameplay strategies. While a possession-oriented coach may prioritize sided games that
377 enhance passing and ball control, a counter-attacking coach might emphasize quick transitions.
378 Collaborative environments often foster creativity and experimentation, whereas results-driven
379 cultures may focus on structured and competitive formats. Additionally, variables such as
380 players' skill levels³⁵, available resources (available space and equipment), and environmental
381 conditions (weather conditions, grass quality) significantly influence the design of-sided games

382 (statement 5). Collectively, these elements guide the integration of sided games into training
383 programs, ultimately shaping player development and team performance.

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386 Coaches often use sided games to develop tactical and technical skills, with physical
387 conditioning as a secondary goal (statement 4.2). However, studies have reported poor
388 reliability of technical and tactical actions assessment within and between small-sided game
389 sessions^{24,36}. While this challenges player assessment, it also creates an enriched learning
390 environment. Traditional closed tasks may offer stable practice opportunities for specific
391 movements but often neglect decision-making, limiting opportunities for self-organization and
392 movement adaptation³⁷. The variability of sided games can promote valuable learning
393 experiences³⁸, but their inherent variability should not excuse neglecting the repetition rate of
394 the session's targeted content. Although full-size official games provide high variability, they
395 may reduce opportunities for experimentation and learning due to fewer on-the-ball actions
396 and tactical decisions in near-the-ball areas³⁹. Variability should, therefore, support task
397 repetition aligned with training objectives.

398

399 Sided games have an advantage over full-sided games in directing players' actions toward
400 specific goals while preserving variability. This allows players to experiment with movement
401 solutions multiple times in similar contexts, reflecting the "repetition without repetition"
402 approach. However, practitioners must be aware that the high variability of sided games limits
403 the coaches' ability to control difficulty and repetition rates precisely (statement 4.1)²³.
404 Creative tactical-technical movements are generally more frequent on smaller pitches³⁹, but
405 individual and environmental constraints also influence their occurrence, complicating
406 prediction during planning. Task difficulty varies with these constraints, meaning what suits
407 one group may be too easy or too difficult for another. Continuous monitoring is crucial for
408 managing repetition and difficulty, but real-time tracking of technical-tactical actions in sided
409 games is challenging^{34,40,41}. Video analysis is a standard practice, but its lengthy processing
410 times often hinder prompt intervention. Nonetheless, rapidly evolving AI and video-based
411 methods present new avenues for improvement^{42,43}. To mitigate this, coaches should adopt
412 individualized and specific observational tools rather than one-size-fits-all methods (statement
413 6)⁴⁴. For example, focusing on specific actions, such as progression passes when aligned with
414 training objectives, can save time and provide actionable insights for future sessions.
415 Simplified data, like the frequency of specific behaviors, can also be collected in real-time to
416 guide task adjustments and better align training with learning goals³⁰.

417

418

419 The timing and location of training sessions are usually dictated by programming goals and
420 can influence player performance (statement 5). For example, training closer to match day may
421 require lighter sessions to avoid fatigue, while off-season periods might focus on building
422 fitness and skills⁴⁵⁻⁴⁷. The weekday and the specific month can also affect player readiness
423 and recovery. Recent studies have thoroughly described the recovery kinetics after sided game
424 training in relation to pitch density is key to ensure a proper periodization strategy⁴⁸. Extreme
425 temperatures and humidity levels can reduce football players' endurance and increase

426 physiological stress ⁴⁹. In hot conditions, hydration breaks, and reduced intensity may be
427 necessary, while cold weather might require longer warm-ups and appropriate clothing
428 (however, there is insufficient evidence regarding how these factors related to injury risk). The
429 type of playing surface, whether natural grass or synthetic turf, may affect the game's speed.
430 Coaches should adapt drills and exercises to suit the field conditions, ensuring player safety
431 and effective training, and this concern should be extended to sided games as well. The team's
432 current standing, recent wins or losses, and overall morale can influence player motivation and
433 performance ⁵⁰. Coaches should consider these factors when designing training sessions, using
434 positive reinforcement and team-building activities to maintain a healthy and motivated squad.
435 By accounting for these environmental factors, coaches can create more effective and safe
436 training sessions that cater to the specific needs and conditions of their players.

437
438 Experienced players are likely to be capable of handling more complex and demanding game
439 scenarios, allowing for advanced technical and tactical challenges (statement 6) ⁵¹. Less
440 experienced and youth players may benefit from simpler setups that focus on fundamental skills
441 and confidence-building; however, future research could verify if growth and maturation are
442 factors to account for. Players' fitness levels influence the intensity and duration of sided games
443 ³. Coaches can adjust the size of the playing area, the number of players, and the rules to match
444 the physical capabilities of the participants, maximizing engagement ^{14,26}. Moreover, the
445 technical proficiency of players dictates the complexity of the drills ³⁰. Higher-skilled players
446 can be challenged with more intricate tasks that require precise ball control and advanced
447 techniques, while beginners might focus on basic skills like passing and dribbling.
448 Furthermore, players with a strong understanding of tactics can engage in games that
449 emphasize strategic thinking and decision-making ^{3,4}. For those with less tactical awareness,
450 games can be simplified to highlight basic positioning and movement principles. Coaches
451 should be aware that players' behavior, including their attitude and teamwork, affects the
452 dynamics of sided games ⁵². Coaches can design games that promote positive behaviors, such
453 as cooperation and communication, and adapt the rules to encourage desired behaviors and
454 discourage negative ones ¹¹. By considering these players' attributes, coaches can tailor sided
455 games to meet the specific needs of their players, fostering development and optimizing
456 performance.

457
458 Practitioners should be aware of some barriers that could affect the implementation of sided
459 games in their practice (statement 7). Implementing sided games requires adequate space,
460 equipment, and sometimes additional coaching staff to manage multiple games simultaneously.
461 Not all players may be accustomed to the intensities and requirements of sided games ^{44,53}, and
462 they may struggle to adapt to the faster pace and different dynamics of such training (therefore,
463 their implementation to players coming from other clubs, who are not accustomed, should be
464 monitored) ⁵³. Effective use of sided games requires coaches to have a good understanding of
465 how to design and modify games to meet specific training objectives (the collaboration between
466 coaches and sport scientists plays a critical role here) ^{3,21,23}. This can be a barrier if coaches
467 lack the necessary experience or training. Coaches need to carefully balance the use of sided
468 games with other training methods to ensure comprehensive player development ⁵⁴. Over-
469 reliance on sided games might neglect other important aspects of training. Despite these

470 challenges, sided games remain a valuable tool in football training when used appropriately
471 and in conjunction with other training methods.

472

473 *Limitations and future directions*

474 Research on sided games has provided valuable insights into their effects on
475 performance, fitness, and tactical understanding in soccer^{27,54}. A major limitation is the
476 inconsistency in methodologies, such as variations in game design, player population, and
477 environmental factors. Thus, it is challenging to generalize findings across different contexts.
478 Studies often rely on small sample sizes or focus on specific groups, reducing the applicability
479 of their results to broader populations and scenarios. Additionally, the constraints of the games,
480 such as player numbers or pitch size, are often not standardized, further complicating
481 comparisons and limiting the robustness of conclusions^{3,30}. Another major limitation is the
482 lack of longitudinal studies exploring the long-term effects of small-sided games in specific
483 populations, such as elite players or women²⁹. While short-term benefits are frequently
484 highlighted, the sustainability of these effects remains uncertain. Moreover, most experimental
485 research primarily focuses on physical performance measures, neglecting other critical aspects,
486 such as psychosocial development or tactical growth. The absence of a holistic approach leaves
487 the full spectrum of benefits and drawbacks of small-sided games largely unexplored.

488 A limitation regarding the use of sided games is that they often involve fewer players and
489 smaller pitches, which can limit the realism of match situations: sided games do not fully
490 replicate the spatial and tactical complexities of a full-sized game^{23,55}. While evidence suggests
491 positive impacts of sided games training for developing technical skills and quick decision-
492 making, they may not provide the same level of tactical depth and positional understanding
493 that larger-sided games offer. From a physical load point of view, the high intensity and
494 continuous play in sided games can be physically demanding (e.g., greater acceleration and
495 deceleration number per unit of time than during matches)^{13,56}, potentially leading to chronic
496 fatigue and increased risk of non-contact injury if not managed properly. Moreover, small-
497 sided games provide limited space for acceleration, which constrains the attainment of higher
498 speeds and the execution of sprints¹⁶. Consequently, these components may receive
499 insufficient stimulus for adaptation unless supplemented by other training methods.

500 Furthermore, experimental studies often fail to monitor physiological, neural, or other
501 underlying mechanisms that could explain the observed adaptations over time. This
502 methodological gap hinders our understanding of how sided games contribute to long-term
503 changes in performance and fitness, as the specific processes driving these adaptations remain
504 unexplored. To advance the field, future research should aim to incorporate diverse populations
505 (including varying experience levels, age groups, and genders) and explore the long-term
506 effects of sided games, including the mechanisms that explain adaptations. Research should
507 also adopt a more comprehensive framework that assesses both physical and psychological
508 outcomes, such as skill development and decision-making abilities. To enhance ecological
509 validity, it is essential that research designs embrace heterogeneity, incorporating diverse
510 methodologies, populations, and contexts. However, heterogeneity alone is insufficient:
511 equally critical is a robust culture of replication. This entails not only the continuous generation
512 of novel studies across varied conditions, but also a systematic effort to replicate existing
513 findings. In other words, scientific progress depends on two parallel commitments: (1) the

514 pursuit of a wide array of original investigations, and (2) the deliberate execution of replication
515 studies to verify and consolidate prior results. Finally, there is a need for studies that investigate
516 how various modifications to sided games (e.g., game duration, rest periods, or tactical
517 constraints) impact specific performance outcomes and adaptations.

518

519

520 **PRACTICAL APPLICATIONS**

521 These statements define the concept of sided games, identify key influencing factors, such as
522 coaching philosophy, environmental conditions, task demands, and individual constraints, and
523 outline principles for monitoring and evaluation. The consensus highlights sided games as
524 effective tools for enhancing aerobic capacity and tactical-technical development, while
525 acknowledging their limitations in promoting strength, power, and high-speed performance
526 adaptations. Moreover, they should be used in complement to, not in substitution of, other
527 exercises targeting tactical-technical skills or physical capacities. By unifying terminology and
528 promoting evidence-based design, this framework offers a valuable reference for practitioners
529 and researchers alike. Its implementation can improve training coherence, support targeted
530 player development, and guide future investigations aimed at addressing methodological
531 limitations and tailoring approaches to diverse populations.

532

533 **CONCLUSIONS**

534 This consensus statement offers a clear framework for understanding and applying sided games
535 in football training. By defining sided games as adaptable, game-based drills rather than simply
536 small-format exercises, it emphasizes their versatility in targeting technical, tactical, and
537 physical objectives simultaneously. Through the manipulation of player numbers, pitch
538 dimensions, rules, and other constraints, coaches can replicate diverse match-play scenarios
539 and align training tasks with specific developmental goals. This framework supports more
540 coherent practice design and reinforces the value of sided games as an integral component of
541 modern football training.

542

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710 **Data availability statement**

711 This manuscript does not have associated data.

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Table 1. Mapping the research status and state of evidence from the umbrella review.

	Internal load	External load	Tactical behavior	Technical performance
Format	Consistent tendencies	Inconsistent tendencies	Inconsistent tendencies	Consistent tendencies
Pitch configuration	Consistent tendencies	Consistent tendencies	Consistent tendencies	Consistent tendencies
Scoring method	Consistent tendencies	Consistent tendencies	Inconsistent tendencies	Consistent tendencies
Action restriction	Consistent tendencies	Inconsistent tendencies	A research gap has been observed	Consistent tendencies
Tactical/strategic mission	Consistent tendencies	Inconsistent tendencies	Consistent tendencies	Consistent tendencies
Training regimen	Inconsistent tendencies	Consistent tendencies	A research gap has been observed	Consistent tendencies
Contextual factor	A research gap has been observed	Consistent tendencies	Consistent tendencies	Consistent tendencies

Table 2. Table outlining some of the elements a coach can manipulate to design sided games (this is not exhaustive).

Element	Description
<i>Format</i>	
Direction of Play	Games played having a clear direction (e.g., attacking and defending) with the aim to score in goals.
Non-Direction of Play	Possession games without goals, with the aim to maintain or regain ball control.
Mixed Rules	Combination of directional and non-directional elements (e.g., possession games with goals).
<i>Dimensions and number of players</i>	
Sizes of the Pitch	Width and length of the playing area (e.g., 20x30 meters, 40x60 meters).
Shape	Geometry of the playing area (e.g., rectangular, square, hexagon).
Number of Players	Total number of players participating (e.g., 10 in a 5v5 sided game).
Relative Area per Player	Space allocated per player (e.g., 50 m ² per player in a 5v5 played in 500 m ²).
Numerical Imbalance	Unequal number of players in each team (e.g., 5v4, 6v3).
Goalkeepers	Inclusion or exclusion of goalkeepers.
Jollies or floaters	Players playing for both teams within the playing area or around the perimeter.
<i>Rules</i>	
Technical Rules	Specific skills or required techniques (e.g., one-touch passing).
Tactical Rules	Strategies or formations used (e.g., high press, zonal marking).

Figure 1. An illustrative version of the theoretical framework. *The conceptual framework was first devised by Sigrid Olthof and later enhanced through contributions from the remaining authors of this paper.*

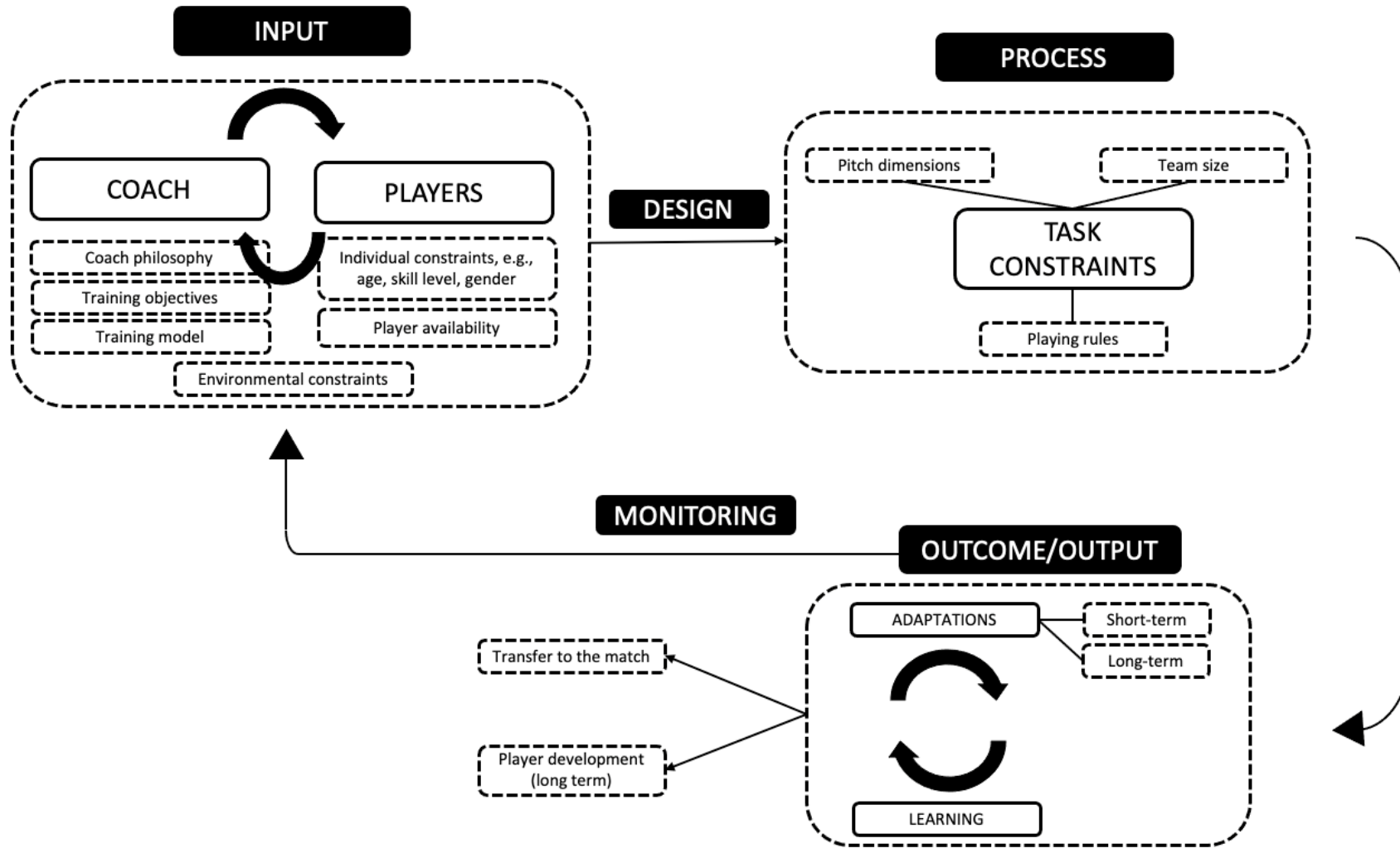


Figure 2. Consensus voting outcomes and qualitative interpretation. Each statement was classified as appropriate, unclear, or inappropriate. Q1 represents the score of the theoretical framework, while S1 to S7 correspond to the individual statements.

