

Original Article

Strategies for Improving Game Speed in Small-Sided Football Among Children Aged 12-13 Years

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Abstract

This study examines the influence of game speed and the tactical efficiency of offensive actions on the performance of junior football players aged 12–13 years under small-sided game conditions. The research included 24 official matches played by an elite team (ET): 12 during the first half of the competitive season, representing the initial assessment, and 12 during the second half, representing the final assessment. Between the two evaluation stages, a specific training programme was implemented to develop execution speed, optimise offensive transitions and improve ball possession, passing accuracy, and finishing ability. Performance was assessed using the Game Speed Index (GSI%) and the Tactical Efficiency Index (TEI%), calculated through video analysis. The GSI increased from 57.06% to 77.28%, while the TEI rose from 51.11% to 75.86%. These findings indicate a direct relationship between an increased game tempo, improved tactical efficiency and the effectiveness of finishing actions.

1. Introduction

At the developmental stage of 12–13 years, game speed becomes a decisive factor in both technical–tactical and cognitive training. It also serves as a key criterion for assessing players' progress and their ability to adapt to the demands of modern football (Trecroci et al., 2022). In small-sided games, where reaction time is minimal and space is limited, players are constantly required to make quick decisions under intense spatial and temporal pressure (Dello Iacono, Beato, &

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Unnithan, 2021).

As a result, the speed of decision-making, movement, execution, and ball distribution takes on fundamental importance. At this age, when neuromotor development is in an advanced phase of consolidation, training sessions and matches played on reduced pitches naturally promote high-intensity actions (Clemente et al., 2022). Such conditions enhance the young players' ability to act and decide efficiently within tight spaces. In the scientific literature, *game speed* has been defined as "running speed without the ball" (Ionescu & Dinu, 1982), "movement speed with the ball," and "reaction and execution speed" (Espada et al., 2023).

Motor activity performed at maximal intensity stimulates the development of both physical and cognitive abilities—forming the foundation for future high-performance athletes (Arslan, Orer, & Clemente, 2020; Dragnea, 2002). Similarly, Motroc and Motroc (1996) notes that "*the reaction and execution speed acquired during the junior stage remains a valuable asset in achieving elite performance,*" even though high-speed actions account for only around 11% of the total distance covered during a match. As Reilly, Bangsbo, and Franks (2000) emphasize, "*these rapid actions are the ones that decisively contribute to regaining possession and completing attacking phases successfully.*"

According to Nicu (1999), "*modern football demands adaptability, efficient energy use, and the functional integration of all systems involved.*" A team capable of achieving fluidity in its play automatically becomes more competitive and effective.

Game speed reflects not only the players' overall technical and physical preparation but also their collective efficiency and ability to adapt to the intensity of competition. A deep understanding of this concept forms the basis for developing methodological strategies that optimize technical and tactical actions, increase passing tempo in the opponent's half, and enhance attacking efficiency through effective effort regulation (Calderón Pellegrino, et al., 2020).

Research shows that sprints between 10 and 20 meters are the most common during a football match. Andrzejewski, Chmura, Pluta, Strzelczyk, & Kasprzak, (2013) found that professional players cover 7% of sprint distances between 0–10 meters, 48% between 10–20 meters, and 45% over 20 meters. Similarly, Di Salvo et al. (2007) reported that most sprints in elite football average between 18 and 20 meters. In modern football, players with strong acceleration and deceleration capabilities have a major advantage in duels for ball possession (Zhang et al., 2022; Little & Williams, 2005; Konefal, Chmura, Zacharko, Zając, & Chmura, 2023). These skills are crucial for both attacking and defensive actions that require rapid changes of direction and pace in confined spaces. This ability-known as *Change of Direction (COD)*-is regarded as a key component of performance in contemporary football (Wragg, Maxwell, & Doust, 2000).

Sheppard and Young (2006) describe COD as a movement consisting of three phases: initial acceleration, deceleration, and renewed acceleration in a new direction. Popowczak et al. (2019) further showed that COD movements involve multidirectional displacements—forward, lateral, and backward—at varying angles, placing high demands on the neuromuscular system.

Akenhead, Hayes, Thompson, & French, (2013) found that top-level players perform, on average, over eight direction changes per minute, underlining the importance of speed, strength, and explosive power in sports performance. Indeed, lower-limb strength, explosive power, and reaction speed are now considered essential pillars of athletic success (Pavillon et al., 2021; Souilah & Kessouri, 2023).

In this research, *game speed* is viewed not merely as a measure of physical velocity, but as a complex concept encompassing the rhythm and fluidity of play: the speed of thought, decision-making, ball movement, and player positioning. In small-sided games—where space is tight and reaction time limited—game speed becomes a strategic element, essential for winning duels and executing rapid transitions.

Another key determinant of modern football performance is tactical efficiency, which reflects a team's ability to transform ball possession into coherent, goal-oriented actions. High tactical efficiency indicates an organized team whose players can execute complex tasks under pressure and within limited space (Memmert & Perl, 2009). Thus, enhancing tactical efficiency is a methodological priority, as it directly influences attacking effectiveness and competitive outcomes.

2. Material and methods

This research aimed to analyze the impact of *game speed and tactical efficiency* on the effectiveness of technical-tactical actions, as reflected in the results achieved during official matches by a team of 12–13-year-old players competing on reduced-size fields. Specifically, it sought to identify and evaluate objective performance indicators such as offensive and defensive transition rhythm, frequency of progressive passes, action duration, and player involvement across different phases of play.

The research was based on the hypothesis that a high level of game speed and tactical efficiency exerts a positive influence on team performance, as reflected in superior results achieved during official small-sided matches in the 12–13-year-old age category. The main objective of this study was to investigate the role of game speed and tactical efficiency as determining factors of sports performance in small-sided football within the 12–13-year-old age category. In this regard, the research aimed to identify and analyze objective indicators that reflect the level of technical-tactical preparation and the effectiveness of game actions, in relation to the official competitive context.

To achieve this objective, the following tasks were established: analysis of the specialized literature to define and clarify the concepts of *game speed* and *tactical efficiency*; definition and justification of the performance indicators used (the Game Speed Index GSI and the Tactical Efficiency Index TEI); development and implementation of a specific training program focused on improving execution speed, rapid transitions, and enhancing tactical efficiency; conducting initial tests through video analysis of the matches played during the first half of the

championship to establish a baseline level; applying the experimental program over a six-month period and performing final tests based on the matches played in the second half; comparing the results obtained between the two testing stages and highlighting the recorded progress.

To ensure the most objective possible data collection, the video recording method was employed for all 24 matches played by the team. The data subsequently extracted were compiled into Tables 3, 4, 5, and 6, which constituted the foundation of our research for analyzing and interpreting the values of the observed parameters. The study also employed statistical and mathematical methods. All collected information, both regarding the ET and their opponents across the 24 matches (12 in the first half of the championship and 12 in the second) was systematically organized into tables structured according to the monitored parameters. This statistical mathematical approach enabled a rigorous processing of the data, facilitating the formulation of relevant and objective conclusions. Furthermore, it provided a predictive framework for estimating future developments in game dynamics, highlighting the essential elements of our research.

In the analysis conducted based on video recordings of the matches, two essential indices were specifically monitored to evaluate the performance of the ET: the Game Speed Index (GSI) and the Tactical Efficiency Index (TEI). The calculation of the GSI was performed through the analysis of high-tempo actions (a minimum of three to four consecutive passes executed in less than 10 seconds), rapid offensive transitions (occurring within 5 seconds after ball recovery), and sprints with or without the ball over relevant distances (≥ 10 meters), all expressed as a ratio to the total number of observed tactical actions. In parallel, the TEI was determined through the analysis of completed actions (shots, penetrations, or decisive passes), rapid transitions, progressive passes, and recoveries made in the opponent's half all relative to the total number of possessions. The re-examination of the video footage allowed for an objective and systematic identification of each component element corresponding to the monitored indices, ensuring both quantitative and qualitative rigor in the evaluation process.

The calculation formulas for the Game Speed Index (GSI) and the Tactical Efficiency Index (TEI) were as follows:

- For the Game Speed Index (GSI):

$$GSI = [(High-tempo\ actions + Rapid\ transitions + Sprints \geq 10\ m) / Total\ number\ of\ actions] \times 100$$

High-tempo actions (A_{ht}) included all game situations in which the players of the C.S.S. Craiova team, after gaining ball possession, completed a minimum of four passes within a 10-second interval.

Rapid transitions (T_r) referred to the number of team actions initiated within less than 5 seconds after gaining possession of the ball, but which did not conclude with a shot on goal or resulted in ball loss.

Sprints over short distances (S_r) $< 10\ m$ were also recorded, including those performed by players who made off-the-ball runs into open spaces without actually receiving the ball.

A_t = total number of tactical actions observed

Table 1. Interpretation Scale for the Game Speed Index (GSI%)
in the Context of Small-Sided Games (Age Category 12–13 Years)

GSI (%) Interval	Level of Game Speed	Specific Interpretation (Technical–Tactical–Physical Perspective)
> 75%	Very High	1. The team displays a fast and dynamic game tempo characterized by quick transitions, rapid decision-making, and high-intensity actions that can destabilize opponents. Players show strong physical conditioning, and their technical–tactical coordination is well consolidated.
60–75%	High	2. A consistently high tempo with effective attacking actions that create tactical advantages. The team demonstrates a solid performance level within the small-sided game format.
45–59%	Moderate	3. The tempo alternates between fast and slow phases. Improvements are needed in transitions and reaction time to increase the overall efficiency of play.
30–44%	Low	4. The tempo is generally slow, limiting the team's ability to reorganize tactically and surprise opponents. Training should emphasize quicker execution, sharper tactical thinking, and improved team synchronization.
< 30%	Very low	5. The game tempo proves insufficient to meet the demands of high-level competition. Players' tactical responses are slow, and team actions are rarely completed within an optimal time frame. An intervention is therefore required, focused on developing the speed of technical–tactical execution, the quickness of off-the-ball movements into open spaces, and the ability to identify optimal solutions in the shortest possible time.

- For the Tactical Efficiency Index (TEI). The Tactical Efficiency Index (TEI) is a composite indicator expressing the frequency of predefined offensive tactical behaviours relative to the total number of ball possessions. Because a single possession may include multiple tactical behaviours (e.g., progressive passes followed by an efficient transition and a shot on goal), the TEI reflects the cumulative tactical efficiency of offensive play rather than the percentage of successful possessions.

$$TEI = [(Completed\ actions + Efficient\ transitions + Progressive\ passes + Recoveries\ in\ the\ opponent's\ half) / Total\ possessions] \times 100$$

Completed actions included all phases of play by ET that concluded with a shot on goal, regardless of whether or not the action resulted in scoring.

Efficient transitions were defined as those actions that, although not entirely rapid, were initiated within a maximum of 5 seconds after gaining ball possession, allowed for backward passes, and nevertheless achieved maximum tactical efficiency by concluding with a shot on goal.

Progressive passes (forward or through passes) were considered those intentionally directed forward, contributing significantly to advancing the ball into the penalty-area zone, surpassing at least one of the opponent's organizational lines

(midfield or defensive line), thereby increasing the likelihood of finishing or initiating a dangerous action.

Recoveries in the opponent's half referred to collective or individual actions executed in the opponent's territory through which ball possession was regained from the opposing team.

Total Possessions represented the number of situations in which the ET was in control of the ball.

Table 2. *Interpretation Scale for the Tactical Efficiency Index (TEI%) in the Context of Small-Sided Games (Age Category 12–13 Years)*

TEI (%) Interval	Level of Tactical Efficiency	Technical–Tactical and Decision-Making Interpretation
> 75%	Very High	Excellent coordination between units of play. Actions are rational, fluid, and clearly aligned with modern tactical principles.
60–75%	Efficient (High)	Sound decision-making and well-chosen tactical solutions across most phases of play. Executions are precise and consistent with positional and collective principles.
45–59%	Moderate	Alternating phases of well-organized and disorganized play. Tactical principles are applied inconsistently, showing potential still under development.
30–44%	Low	Weak tactical organization, poor decision-making in key situations, and limited coordination between players. Individualism disrupts collective efficiency.
< 30%	Very low	Minimal tactical coherence and poor application of basic principles. Team play is uncertain and fragmented. A methodological redesign of training is strongly recommended.

3. Results and Discussion

To assess the actual level of play of the ET within an official competitive framework, the initial testing was conducted through the analysis of 12 official matches played during the first half of the 2024–2025 county championship season, in the small-sided format (8+1 players on a 70×50 m field). Each match was structured into four 30-minute periods, in accordance with the regulations specific to the 12–13-year-old age category, with the coach being required to rotate players after each 10-minute break.

It should be noted that only the first two 30-minute periods, during which the primary group of players participated were observed and recorded for analysis.

All matches were fully recorded using a fixed wide-angle camera positioned laterally to the central axis of the field, ensuring maximum visibility of both collective positioning and individual actions. Subsequently, the recordings were analyzed in detail, allowing for the coding of relevant game actions corresponding to the two indicators under investigation: the Game Speed Index (GSI%) and the Tactical Efficiency Index (TEI%).

The collected data were compiled into Tables 3 and 4 for each match, after

which the arithmetic mean of the values across all 12 games was calculated. The results indicated an average Game Speed Index ranging between 54.55% and 59.26%, while the Tactical Efficiency Index varied between 54.1% and 57.45%, confirming the classification of ET within the moderate level for both components (see Tables 3 and 4). This initial testing stage allowed for the establishment of the team's baseline performance level, providing a foundation for assessing subsequent progress resulting from methodological interventions applied during the training process.

Based on the video analysis and the centralized data from the final testing phase, the ET recorded the following performance results: five matches won, particularly those in which the values of both indices (GSI and TEI) exceeded 50%, characterized by a higher frequency of efficient transitions and sprints in dangerous areas; three matches drawn, marked by fluctuating game speed and moderate tactical efficiency, with difficulties in finishing and inconsistency in regaining possession in the opponent's half; and four matches lost, mainly those in which both the GSI and TEI fell below the 55–57% threshold, revealing disruptions in tempo, lack of synchronization between playing units, and an increased number of ineffective actions.

The values of these results are consistent with the overall moderate level identified through the analysis of the two main indicators. The Game Speed Index (GSI%) recorded an average of approximately 57.06%, indicating a moderate game tempo, characterized by alternating phases of high intensity and slower or hesitant moments.

Table 3. *Values of the Specific Components Used in Calculating the Game Speed Index (GSI%) for the ET Across 12 Matches During the Initial Testing Phase*

Team results /Game	High-tempo actions	Rapid transitions	Sprints <10m	Slow, non-relevant actions	Total actions	GSI (%)
1	15	9	13	27	64	57,81
2	11	7	10	22	50	55,67
3	14	10	14	27	65	58,33
4	12	8	11	23	54	57,45
5	16	11	15	29	71	59,26
6	10	6	9	21	46	54,88
7	13	9	13	25	60	58,18
8	12	7	11	23	53	56,86
9	11	7	10	23	51	55
10	17	10	14	28	69	59,05
11	13	8	12	24	57	57,78
12	10	6	9	21	46	54,55
Average	12,83	8,17	11,75	24,41	57,16	57,06

The Tactical Efficiency Index (TEI%) showed an average value of around 51.11%, reflecting a partial application of modern tactical principles, as well as

instances of incorrect positioning and marking during key phases of play.

Therefore, it can be concluded that the team's efficiency, as expressed through its match outcomes, was consistent with the levels indicated by the two analyzed indices.

Table 4. *Values of the tactical components used in calculating the tactical efficiency index (TEI%) for the ET across 12 matches during the initial testing phase*

Team results /Game	Completed actions	Efficient transitions	Progressive passes	Recoveries in own half	Inefficient actions	Total actions	TEI (%)
1	6	7	8	4	28	53	47,17
2	6	8	7	4	29	54	46,3
3	7	9	7	4	20	47	57,45
4	6	9	6	3	21	45	53,33
5	6	8	6	3	28	51	45,1
6	6	9	8	4	25	52	51,92
7	8	9	7	4	25	53	52,83
8	6	7	7	4	22	46	52,17
9	8	7	7	4	27	52	48,08
10	8	7	8	3	20	46	56,52
11	6	7	7	3	26	49	46,94
12	7	9	6	3	20	45	55,56
Average	6,67	8	7	3,5	24,25	49,42	51,11

Immediately after the conclusion of the first half of the county championship, in agreement with the management of the Sports School and the two coaches of the group, a specific technical-tactical training program was implemented, structured around 10 exercises focused on ball possession, progressive passing, and rapid finishing. These exercises were systematically integrated into the weekly training schedule, with two exercises practiced per session over a period of approximately six months.

At the beginning of the second half of the county championship, the final testing phase was conducted through the video recording of 12 official matches played by the ET. The analysis of these matches, carried out using the same observation grid applied during the initial testing, allowed for the objective calculation of the two performance evaluation indicators (see Tables 5 and 6). The Game Speed Index (GSI%) recorded an average value of 77.28%, corresponding to a very high level, characteristic of teams with enhanced capacity for offensive and defensive transitions, rapid reactions, and an intense game tempo throughout most phases of play. The Tactical Efficiency Index (TEI%) reached an average value of 75.86%, placing it within a high-performance range, which reflects a well-structured and methodologically consistent application of modern tactical principles marked by a significant number of effective passes, recoveries in the opponent's half, and efficiently completed actions.

Against the backdrop of this evident progress in objective indicators, the team's competitive efficiency also showed clear improvement. Thus, the ET's record over the 12 matches of the second half of the season was as follows: 8 matches won,

characterized by a higher game tempo, increased transition intensity, and a greater frequency of clear finishing opportunities; 2 matches drawn, tactically balanced encounters in which the team displayed initiative but failed to capitalize on territorial or possession advantages; and 2 matches lost, mainly due to defensive errors, well-organized opponents, and moments of decreased concentration in finishing or defensive transition phases.

Table 5. Values of the Specific Components Used in Calculating the Game Speed Index (GSI%) for the ET Team Across 12 Matches During the Final Testing Phase

Team results /Game	Games	High tempo actions	Rapid ransitions	Sprints < 10m	Slow, Nonrelevant actions	Total actions	GSI (%)
1	1	17	15	13	10	55	81,82
2	2	12	12	10	13	47	72,34
3	3	16	14	12	10	52	80,77
4	4	13	13	11	11	48	77,08
5	5	18	16	14	9	57	84,21
6	6	15	14	12	11	52	78,85
7	7	11	11	10	14	46	69,57
8	8	12	12	11	13	48	72,92
9	9	16	15	13	10	54	81,48
10	10	15	14	12	11	52	78,85
11	11	13	12	11	13	49	73,47
12	12	14	13	11	12	50	76,0
Average		14,33	13,42	11,42	11,42	50,83	77,28

Table 6. Values of the Tactical Components Used in Calculating the Tactical Efficiency Index (TEI%) for ET Across 12 Matches During the Final Testing Phase

Team results /Game	Completed actions	Efficient transitions	Progressive passes	Recoveries in own half	Inefficient actions	Total actions	TEI(%)
1	12	13	11	6	10	52	0,77
2	11	10	10	5	17	53	7,92
3	12	13	8	6	7	46	4,78
4	12	11	10	4	8	45	2,22
5	10	11	9	6	14	50	2,0
6	11	13	10	5	10	49	9,59
7	10	10	10	6	10	46	8,26
8	10	13	9	4	14	50	2,0
9	12	10	9	4	14	49	1,43
10	10	11	10	4	17	52	7,31
11	12	13	9	6	11	51	8,43
12	10	11	9	4	11	45	5,56
Average	11	11,58	9,5	5	11,92	49	5,86

Compared to the initial testing phase, when the team exhibited a moderate level both in terms of game speed (mean value: 57.06%) and tactical efficiency

(mean value: 51.11%), the current results confirm a significant and sustained improvement, attributed to the systematic implementation of the training program. This progression validates the effectiveness of the methodological intervention and confirms that enhancing game speed and tactical efficiency has a direct and measurable impact on competitive performance and match outcomes.

The training methods systematically implemented in the preparation of the ET were selected for their relevance in developing both game speed and tactical efficiency. These methods were consistently practiced at the beginning of training sessions, being carefully adapted to the age level, the specifics of small-sided football, and the objectives pursued throughout the program. The main objectives in performing these exercises were: developing game speed through rapid progressive passing actions; creating automatisms related to passing, receiving, off-the-ball movement, and shooting situations, particularly in numerical superiority contexts. The specific objectives included: improving progressive passing under pressure; practicing coordination between offensive players (midfielders and forwards); increasing reaction speed and offensive mobility; enhancing tactical efficiency in the finishing area. Exercise duration and intensity: 5 sets $\times$ 4 executions (with role rotation after each set); Active rest of 1–3 minutes between sets; Intensity: 80–90% of maximal effort (particularly in the penalty and finishing areas). Monitored indicators: total duration of the action (from the first pass to completion); players' reaction to changes in the direction of attack.

Example of an Exercise Used in the Program Designed to Improve Game Speed The players are positioned on the field as shown in Figure 1. The exercise focuses on creating scoring opportunities and finishing. The ball starts from the defensive central midfielder, number 6 (DCM), who passes it forward to the right inside midfielder, number 10 (RIM), who in turn plays a through pass to the right forward, number 11. After gaining possession of the ball, the latter will choose one of the following options: deliver a cross for finishing or penetrate the penalty area and pass back to teammates positioned in the box for the final shot. The exercise is first performed without opposition, and then against one or more defenders.

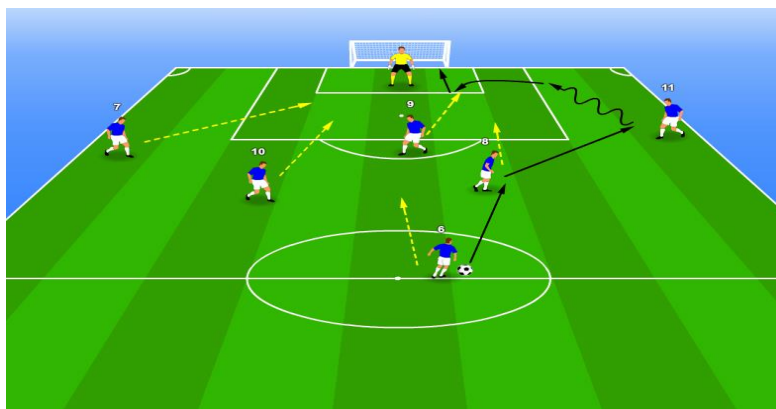


Figure 1. *Finishing Exercise from a Cross*

Discussion

The present study demonstrated that a training intervention specifically designed to accelerate game speed and optimize offensive tactical behavior substantially improved both the Game Speed Index (GSI) and the Tactical Efficiency Index (TEI) in elite youth football players aged 12–13 years. The parallel increase in these two indicators suggests that game speed should not be interpreted solely as a physical attribute but rather as a multidimensional construct resulting from the interaction between technical execution, perceptual-cognitive processes, tactical decision-making, and coordinated team behavior. Consequently, the improvement in offensive performance observed in this study appears to reflect enhanced functional efficiency within representative game contexts rather than isolated gains in motor execution.

These findings are consistent with the ecological dynamics framework, which proposes that performance emerges through continuous interactions between players, teammates, opponents, and environmental constraints (Davids, K., Araújo, D., Correia, V., & Vilar, L., 2013). Within this perspective, small-sided games create representative learning environments that encourage players to perceive relevant information, make faster decisions, and execute technically appropriate actions under temporal and spatial pressure. The substantial increase in GSI (57.06% to 77.28%) indicates that repeated exposure to such environments enabled players to process game information more efficiently, thereby reducing execution time without compromising technical quality.

The improvement in tactical efficiency (TEI: 51.11% to 75.86%) further supports previous evidence that SSG-based training enhances collective tactical organization, synchronization of offensive movements, and decision-making accuracy (Hill-Haas, S. V., Dawson, B., Impellizzeri, F. M., & Coutts, A. J., 2011). Rather than simply increasing the intensity of play, the implemented training program appears to have promoted better coordination between ball circulation, off-ball movement, and offensive transitions. These adaptations are particularly important during early adolescence, when players experience rapid cognitive development and become increasingly capable of recognizing tactical patterns and anticipating game situations.

Another relevant aspect of the present findings is the apparent relationship between game speed and finishing effectiveness. Faster offensive progression creates temporal advantages by reducing the defensive team's opportunity to reorganize, thereby increasing the probability of creating high-quality scoring opportunities. This interpretation is supported by systematic reviews showing that well-designed SSGs simultaneously improve technical performance, tactical behavior, and sport-specific decision-making while maintaining high ecological validity (Sarmiento, H., Clemente, F. M., Harper, L. D., Costa, I. T., Owen, A., & Figueiredo, A. J., 2018; Clemente, F. M., Afonso, J., & Sarmiento, H., 2021). Therefore, training programs emphasizing rapid ball circulation, immediate offensive transition, and efficient collective organization may represent an effective methodological approach for accelerating long-term player development.

Despite these encouraging findings, several limitations should be acknowledged. The investigation involved a single elite youth team, which limits the generalizability of the results to broader competitive populations. Moreover, performance evaluation relied primarily on video-derived tactical indicators, without integrating external load monitoring systems such as GPS or local positioning technology. Future investigations should combine tactical indices with locomotor, physiological, and perceptual-cognitive variables to provide a more comprehensive understanding of the mechanisms through which increased game speed contributes to football performance. Longitudinal studies across different developmental stages would also clarify whether these improvements are maintained over time and transferred to higher levels of competition.

4. Conclusions

The comparison between the two testing stages clearly demonstrates the effectiveness of the methodological intervention conducted between the first and second halves of the competitive season. The integration of targeted exercises emphasizing progressive passing, rapid transitions, and high-intensity finishing led to:

- A significant improvement in game speed, from a moderate tempo (57.06%) to a fast and efficient rhythm (77.28%);
- An increase in tactical efficiency, from fragmented applications of game principles (51.11%) to a nearly optimal level (75.86%);
- Superior competitive results: in the final testing phase, the team achieved 8 victories, 2 draws, and only 2 defeats, compared to the initial testing (5–3–4 record wins, draws, losses), confirming the direct impact of both indices on overall performance.

These improvements were corroborated by objective video observations, which showed clearer coordination between units, greater offensive flexibility, and faster management of transitions. Collectively, these findings confirm a marked advancement in both technical execution and tactical organization.

It can therefore be concluded that game speed and tactical efficiency are not merely performance indicators but determinant factors in competitive success within small-sided football for youth players. Their enhancement through age-appropriate, specific training methods yields tangible progress in collective play and match performance.

Both the Game Speed Index (GSI) and the Tactical Efficiency Index (TEI) proved to be relevant and effective tools for highlighting the evolution of sports performance, with the obtained values serving as useful benchmarks for both quantitative and qualitative evaluation of the team's overall efficiency under competitive conditions.

Based on the research findings, it can be stated that there is a direct proportional relationship between the frequency of high-tempo actions (GSI) and the number of successfully completed or tactically efficient actions (TEI), confirming that an increased game speed enhances the likelihood of success in offensive phases.

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