PSYCHOMOTOR AND COGNITIVE ABILITIES IN U14 FOOTBALL PLAYERS: A COMPARATIVE ANALYSIS ACROSS PLAYING POSITIONS

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Abstract. *Depending on the football players' position on the field, athletes must meet specific requirements. Football players occupying different positions exhibit variations in the speed of their decision-making processes. The current study examines the psychomotor and cognitive abilities of U14 football players, focusing on the differences between playing positions (defenders, midfielders, forwards). The participants were 34 players, 17 for each team - Sport Team Academy (Series I) and Pro Team Academy (Series III), with positions distributed as goalkeepers, defenders, midfielders, and forwards. The PsiSelteva test battery was used to assess key psychomotor and cognitive abilities, including reaction times, perceptual-motor efficiency, and working memory. Moreover, two mental operations were addressed, namely the mental identification operation and the mental selection operation, providing additional insight into the players' cognitive efficiency. Testing conditions were standardized, and players were assessed individually. The results revealed significant differences between playing positions, with midfielders demonstrating superior performance in most psychomotor and cognitive indicators. Defenders showed strengths in tasks involving discrimination reaction time, while forwards registered a faster selection time – the time needed to select the appropriate motor response/ action, from multiple possibilities. The findings highlight the importance of adapting training to position-specific demands, contributing to the development of personalized approaches that optimize players' strengths and effectively address their weaknesses.*

Keywords: *psychomotor and cognitive abilities; defenders; midfielders; forwards; football.*

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Introduction

Sports performance in youth football is shaped by a variety of psychomotor and cognitive factors. Globally, it is widely acknowledged that the mental state and psychological well-being of athletes play a crucial role in their participation and success in sport at both the individual and team levels (Cox, 2007).

Numerous studies highlight that decision-making under time pressure is a key determinant in elite football (Machado & Teoldo, 2020; Cardoso et al., 2019). Due to the complexity of the game,

each position on the field entails specific functions, which in turn impose distinct demands on perception, information processing, and motor performance (Kannekens et al., 2011). These differences are particularly evident between defenders, midfielders, and forwards, as each positional role requires specific cognitive and psychomotor adaptations (Rechenchosky et al., 2017). Elite players occupying different positions exhibit variations in the quality and speed of their decision-making processes, which are influenced by their accumulated experience and the way they have been trained throughout childhood and adolescence (Ruschel et al., 2011).

Analyzing a sample of 328 participants, including 204 elite football players from top teams in Brazil and Sweden, Bonetti et al. (2025) found that elite players had exceptional cognitive abilities such as improved planning, memory, and decision-making skills. Hsieh et al. (2010) indicate the need for a high level of attention to obtain successful performance in sports.

From the age of 12, as players enter the specialization phase, training should focus on developing position-specific roles and functions. This stage marks the beginning of greater differentiation in players' characteristics and skills based on their positional roles (Andrade et al., 2021).

According to the Technical Strategy of the Romanian Football Federation (Federația Română de Fotbal, 2021), players in the U14 age category enter Phase 4 of development, where position specialization takes place. The game transition from a 9 vs. 9 to an 11 vs. 11 format involves the identification of performance-related skills, including psychomotor and cognitive ones, which becomes essential for success. Early identification of athletes with football-specific skills is a crucial aspect that coaches should be aware of. However, the predictive value of such assessments must take into account the players' biological development (Rubajczyk & Rokita, 2018) and psychomotor progression (Kannekens et al., 2009). Moreover, their relevance to the specific demands of playing positions is a key factor to consider (Mendez-Villanueva & Buchheit, 2013; Schumacher et al., 2018).

The psychomotor and cognitive abilities examined in the current study refer to: simple reaction time; recognition/discrimination reaction time; choice/complex reaction time (about reaction types, see Kosinski, 2013); inter-segmental coordination (in new circumstances, when there are visual disturbing factors in the environment and under time pressure); the mental identification operation (*Discrimination reaction time – Simple reaction time*) and mental selection operation (*Complex reaction time – Discrimination reaction time*). For the mental operations of identification (of the relevant stimuli) and selection (of the appropriate motor answers, from multiple possibilities) see, for example, Predoiu et al. (2016), Waldziński (2023).

Depending on their position on the field, athletes must meet specific requirements. By assessing psychomotor and cognitive abilities using the PsiSelteva test battery developed by RQPlus company, we aimed to determine whether there were significant differences between players occupying the defender, midfielder, and forward positions. We mention that the computerized tests used in the present research have also been used in previous studies with athletes (e.g., Teodorescu et al., 2012; Cojocaru et al., 2015a; Predoiu, 2015).

Methodology

Hypothesis

H_1: There are significant differences in psychomotor and cognitive abilities between playing positions – defenders, midfielders and forwards.

Participants

The research involved 34 football players registered with two football clubs in Bucharest: Sport Team Academy and Pro Team Academy. The players were aged between 12 and 14 years, with an average age of 13.61 years. All participants were officially enrolled in the championship organized by the Bucharest Municipal Football Association and held medical clearances issued by sports medicine specialists. Detailed information was collected for each player, including date of birth, playing position, and contact data. Somatic assessments, including height and weight measurements, were performed to calculate body mass index (BMI), and the results are shown in Table 1 and Table 2.

Table 1. *Research participants: Sport Team Academy*

No.	Research participant	Team	Age	Position	Height (cm)	Weight (kg)	BMI
1	1S	Sport Team Academy	14	Goalkeeper	165	49	18
2	2S	Sport Team Academy	13	Goalkeeper	170	51	17.65
3	3S	Sport Team Academy	14	Defender	170	53	18.34
4	4S	Sport Team Academy	14	Defender	159	45	17.8
5	5S	Sport Team Academy	14	Defender	165	50	18.37
6	6S	Sport Team Academy	14	Defender	165	44	16.16
7	7S	Sport Team Academy	14	Defender	170	48	16.61
8	8S	Sport Team Academy	14	Midfielder	169	43	15.06
9	9S	Sport Team Academy	14	Midfielder	163	43	16.18
10	10S	Sport Team Academy	14	Midfielder	174	55	18.17
11	11S	Sport Team Academy	14	Midfielder	166	51	18.51
12	12S	Sport Team Academy	14	Midfielder	170	52	17.99
13	13S	Sport Team Academy	14	Forward	153	36	15.38
14	14S	Sport Team Academy	14	Forward	157	46	18.66
15	15S	Sport Team Academy	14	Forward	164	49	18.22
16	16S	Sport Team Academy	14	Forward	163	50	18.82
17	17S	Sport Team Academy	12	Forward	150	40	17.78

Table 2. *Research participants: Pro Team Academy*

No.	Research participant	Team	Age	Position	Height (cm)	Weight (kg)	BMI
1	1P	Pro Team Academy	14	Goalkeeper	158	50	20.03
2	2P	Pro Team Academy	12	Goalkeeper	160	46	17.97
3	3P	Pro Team Academy	13	Defender	155	45	18.73
4	4P	Pro Team Academy	14	Defender	175	63	20.57
5	5P	Pro Team Academy	14	Defender	171	61	20.86
6	6P	Pro Team Academy	14	Defender	173	55	18.38
7	7P	Pro Team Academy	13	Defender	156	36	14.79
8	8P	Pro Team Academy	14	Midfielder	160	42	16.41
9	9P	Pro Team Academy	14	Midfielder	156	36	14.79
10	10P	Pro Team Academy	13	Midfielder	150	39	17.33
11	11P	Pro Team Academy	13	Midfielder	154	48	29.24
12	12P	Pro Team Academy	14	Midfielder	172	60	20.28
13	13P	Pro Team Academy	13	Forward	160	50	19.53
14	14P	Pro Team Academy	14	Forward	155	43	17.9
15	15P	Pro Team Academy	13	Forward	147	35	16.2
16	16P	Pro Team Academy	13	Forward	168	58	20.55
17	17P	Pro Team Academy	13	Forward	156	41	16.85

Competitive data:

- Sport Team Academy: competing in the top-value series, it ranked 13th on March 10, 2023. The team scored 21 goals and conceded 52 goals in 17 matches.
- Pro Team Academy: competing in the third-value series, it ranked 6th on March 10, 2023. The team scored 16 goals and conceded 22 goals in 14 matches.

Measures

The psychological tests used in this study are part of the PsiSelteva system developed by RQPlus and calibrated for the Romanian population. This system is designed to assess individuals' abilities to integrate and maintain operational efficiency in various professional settings, including high-risk environments. The PsiSelteva tests are certified by the Romanian College of Psychologists and were administered via computer, with participants using response devices such as levers, buttons, and pedals, rather than relying on traditional mouse or keyboard inputs. This approach ensured a dynamic and interactive testing process.

The three tests used in the current study are briefly described below (RQPlus, 2012):

Simple Reaction Time (TRS) measures basic reaction time (the speed of the nervous influx). Designed as a dynamic model consisting of 50 series, this test asks participants to respond to a visual input signal (a red circle) under a strict time schedule. Scoring is automated and provides raw and statistically-normalized results compared against a five-class benchmark system.

Discrimination Reaction Time (TRD) assesses sustained vigilance and the ability to discriminate between relevant and irrelevant stimuli over time. The test is made up of 100 series, during which participants have to differentiate a significant visual input (a red square) from other irrelevant signals (various shapes and colors). Inputs are presented randomly and unpredictably,

requiring precise responses using a lever. Results are immediately processed by the software, providing both raw and normalized scores within a structured benchmark system.

RCMV assesses motor coordination through bi-segmental and multi-segmental responses. Participants respond to square-shaped stimuli displayed in various positions (center-left, center-right, upward, or downward) at randomized intervals by pressing buttons or pushing pedals. A green circle in the upper-right corner turns red at intervals, requiring a single-hand response. The test is performed individually, takes about 10 minutes, and measures coordination and choice reaction time.

By applying these tests, we obtained the following 16 coefficients:

- Learning ability coefficient (RCMV)
- Working memory coefficient (RCMV)
- Perceptual-motor efficiency coefficient (RCMV)
- Performance coefficient (RCMV)
- Complex/ choice reaction time coefficient (RCMV)
- Disturbance resistance coefficient (RCMV)
- Personal best pace coefficient (RCMV)
- Time pressure resistance coefficient (RCMV)
- Perceptual field inspection coefficient (RCMV)
- Self-pacing coefficient (RCMV)
- Simple reaction time coefficient (TRS)
- Performance coefficient (TRS)
- Vigilance coefficient (TRD)
- Working memory coefficient (TRD)
- Performance coefficient (TRD)
- Discrimination/ recognition reaction time coefficient (TRD).

The raw scores obtained at the computerized tests (for each coefficient) are classified into 5 classes, where 1 = “Very poor results” and 5 = “Very good results” (class 3 referring to an average level).

Procedure

The research was conducted over approximately two months (January 8 - March 10, 2023). Seventeen players were selected from each team based on specific criteria: 2 goalkeepers, 5 defenders, 5 midfielders, and 5 forwards. To ensure objectivity, the selection prioritized players with the highest number of matches played during the championship. For instance, if eight players were eligible as midfielders, the top five with the most matches played were chosen.

Both teams used the 1-4-3-3 playing system. In this formation, the four defensive line players were categorized as defenders, the three midfielders (one defensive midfielder and two offensive midfielders) as midfielders, and the central forward and two wingers as forwards.

Testing sessions were conducted after the training sessions under strictly standardized conditions in a dedicated room, without interruptions or time pressure. Each athlete was tested individually using the PsiSelteva test battery developed by RQPlus. Each session lasted approximately 50 minutes, ensuring consistent testing conditions for all participants. The results were directly extracted from the testing software, and subsequently organized into tables by position (defender, midfielder, forward) and team. To maintain accuracy and consistency, the testing process was supervised by a UEFA A-licensed coach, a UEFA C-licensed coach, and one of the authors, a UEFA B-licensed coach. Also, the testing process took place in accordance with the recommendations of the psychologist Dr. Predoiu R. (Laboratory of Psychology and Psychomotricity of U.N.E.F.S. Bucharest). This rigorous procedure ensured the reliability of the collected data.

Results

To verify the research hypotheses, the Mann-Whitney (U) test was applied in order to determine statistical significance. Results were organized into tables and graphs to provide a clear and illustrative representation of the observed phenomena and their relationships.

Table 3 shows the results of Sport Team Academy and Pro Team Academy athletes in the three tests (RCMV, TRS, TRD).

Table 3. *Results of Sport Team Academy and Pro Team Academy athletes in RCVM, TRS, and TRD tests*

	Sport Team Academy and Pro Team Academy							
	Goalkeepers		Defenders		Midfielders		Forwards	
	Mean Score	Mean Level	Mean Score	Mean Level	Mean Score	Mean Level	Mean Score	Mean Level
T1	0.71075	3	0.7383	2.9	0.7922	3.2	0.7918	3
T2	0.914	3	0.9202	3.2	0.9429	3.5	0.8968	2.8
T3	0.8415	2.75	0.8803	3.2	0.9158	3.5	0.8581	2.9
T4	0.59075	2.25	0.6217	2.3	0.6314	2.3	0.6009	2.3
T5	1.02025	3.5	0.9791	3.6	1.0202	3.4	0.9801	3.6
T6	1.00275	3.5	1.0653	4.1	1.0781	4.4	1.043	4.2
T7	0.04675	3.5	0.1184	2.8	0.1093	3.3	0.1656	2.6
T8	0.88125	3.5	0.8806	3.3	0.9053	3.6	0.8527	3
T9	0.917	3.75	0.9133	3.9	0.96	4.4	0.8199	3.3
T10	40.018	2.75	40.7463	3	33.5595	3.6	36.516	3.4
T11	0.2885	1	0.3106	1	0.291	1.1	0.307	1
T12	3.43525	1	3.2411	1.2	3.3699	1.2	3.2625	1
T13	0.8945	3.25	0.8694	3.2	0.9041	3.6	0.8616	3.1
T14	1	5	0.9924	5	0.9924	5	0.9924	5
T15	2.94025	3	2.9849	3.1	2.9911	3.1	2.7208	2.4
T16	0.337	2	0.325	2.3	0.324	2.4	0.3461	2

Note: T1-T16 represent the 16 coefficients automatically generated by the computerized tests, in the order described in Measures

After applying the U test to identify significant differences between playing positions: defenders, midfielders and forwards (the groups were compared two by two), significant differences were observed for the following coefficients:

1. Working memory coefficient (RCMV): $U = 19.5$, $p = 0.023$ ($p < 0.05$)
   - Significant differences were found, with midfielders demonstrating superior working memory abilities compared to forwards in tasks requiring intersegmental coordination.
2. Perceptual-motor efficiency coefficient (RCMV): $U = 21.5$, $p = 0.034$
   - Midfielders showed higher perceptual-motor efficiency than forwards in tasks involving intersegmental coordination.
3. Perceptual field inspection coefficient (RCMV): $U = 14$, $p = 0.007$
   - Midfielders exhibited superior perceptual field inspection skills compared to forwards in tasks requiring intersegmental coordination.
4. Self-pacing coefficient (RCMV): $U = 18$, $p = 0.017$
   - Significant differences were observed, with midfielders performing better than defenders in tasks related to self-pacing coordination.
5. Performance coefficient (TRD): $U = 22$, $p = 0.037$
   - Defenders showed higher performance levels (the ratio between accuracy of answers and response time/speed) than forwards in discrimination reaction time tasks.
6. Discrimination reaction time coefficient (TRD): $U = 21$, $p = 0.031$
   - Midfielders demonstrated superior discrimination reaction times (the response speed) compared to forwards.

These results highlight the differences in psychomotor and cognitive abilities between players occupying different positions in the two teams. Midfielders consistently showed superior results on coordination tasks, while defenders excelled in discrimination performance. Detailed results are presented in Table 4. We mention that due to very small sample size the results of goalkeepers are presented only at descriptive level.

Table 4. *Mann-Whitney (U) test results comparing the playing positions of Sport Team Academy and Pro Team Academy*

No.	Analyzed coefficient	Sport Team Academy/ Pro Team Academy Mann-Whitney (U) / Inter-compartment comparison					
		D vs. M		D vs. F		M vs. F	
		U	p	U	p	U	p
1	Learning capacity coefficient (RCMV)	33.5	0.226	37	0.347	40.5	0.496
2	Working memory coefficient (RCMV)	36	0.307	37.5	0.362	19.5	0.023
3	Perceptual-motor efficiency coefficient (RCMV)	34.5	0.258	40.5	0.496	21.5	0.034
4	Performance coefficient (RCMV)	45	0.727	41.5	0.548	45	0.727
5	Complex reaction time coefficient (RCMV)	45.5	0.764	43	0.624	40	0.471
6	Disturbance resistance coefficient (RCMV)	49.5	1	49	0.968	47.5	0.880
7	Personal best pace coefficient (RCMV)	41.5	0.548	34.5	0.258	33	0.211
8	Time pressure resistance coefficient (RCMV)	47	0.849	33.5	0.226	26.5	0.081
9	Perceptual field inspection coefficient (RCMV)	33	0.211	29.5	0.131	14	0.007
10	Self-pacing coefficient (RCMV)	18	0.017	33	0.211	34	0.242
11	Simple reaction time coefficient (TRS)	32.5	0.197	45	0.727	41.5	0.548
12	Performance coefficient (TRS)	38	0.384	44	0.674	49	0.968
13	Vigilance coefficient (TRD)	39	0.429	48.5	0.936	39	0.429
14	Working memory coefficient (TRD)	50	0.968	50	0.968	50	0.968
15	Performance coefficient (TRD)	50	0.968	22	0.037	29.5	0.131
16	Discrimination reaction time coefficient (TRD)	49.5	1	27	0.089	21	0.031

Note. D = Defender; M = Midfielder; F = Forward.

The results for mental identification operation (*Discrimination reaction time – Simple reaction time*) and mental selection operation (*Complex reaction time – Discrimination reaction time*) were, also, analyzed for both inter-positional comparisons (defenders, midfielders, forwards).

- Mental identification operation – Figure 1 (lower values indicate better performance):
  - Defenders: 0.014 (seconds)
  - Midfielders: 0.034
  - Forwards: 0.039

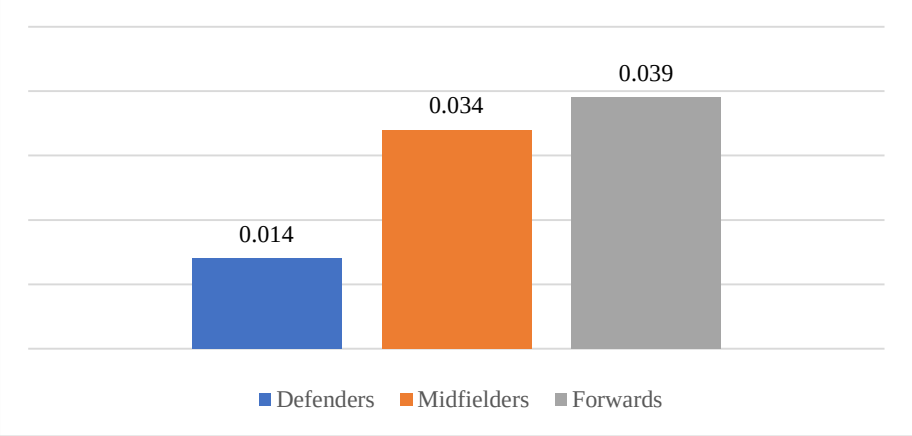

Figure 1. Mental identification operation for defenders, midfielders, and forwards

Defenders recorded the best performance, followed by midfielders, while forwards showed the highest value, indicating the slowest mental identification operation (identification of the relevant information in the environment).

- Mental selection operation – Figure 2 (lower values indicate better performance):
  - Defenders: 0.654 (seconds)
  - Midfielders: 0.696
  - Forwards: 0.634

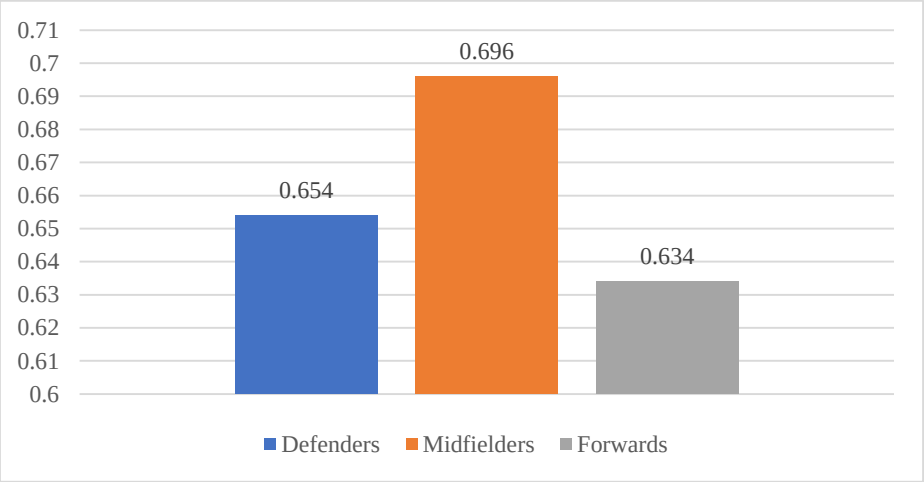

Figure 2. Mental selection operation for defenders, midfielders, and forwards

Forwards achieved the lowest value, demonstrating superior performance in response selection (the selection of the appropriate action/ motor response, from several existing possibilities), followed by defenders and midfielders.

These coefficients do not belong to a standardized classification, as they were derived from calculations based on other coefficients. However, they provide valuable insights into players' cognitive processes, particularly their efficiency in identifying adequate stimuli (in the environment) and selecting appropriate motor responses.

Discussion and Conclusions

Our study is consistent with previous research emphasizing the role of psychomotor and cognitive abilities in football performance. Szwarc et al. (2021) highlight that the relevance of these abilities "decreases with age and increases with time devoted to training and sports experience" (p. 1747). This supports the idea that structured psychomotor assessments, such as those conducted in this study, can be particularly valuable for talent identification at younger ages. The RCMV, TRD, and TRS tests provide essential data for assessing intersegmental coordination, reaction time, and perceptual-motor efficiency, contributing to the psychological training of young football players.

Cojocaru et al. (2015a) used the RCMV test to assess intersegmental coordination and found significant correlations between time pressure resistance, complex reaction time, and the performance of junior football players in dynamic game scenarios. Also, as highlighted in the study by Cojocaru et al. (2015b), the RCMV test can serve as complementary tool in psychological training, providing valuable insights into the psychomotor and cognitive abilities of football players. Similarly, the three tests used in our research (RCMV, TRD, and TRS) can support the training process by offering relevant data on intersegmental coordination, reaction time, and perceptual-motor efficiency. In addition, the age range of the athletes in the referenced study, namely between 14 and 15 years old, is close to that of the participants in our research, further validating the relevance of the comparisons made.

The influence of positional role on decision-making speed has been well documented in football. Andrade et al. (2021) state that U-13 midfielders display superior game-reading abilities and faster decision-making than defenders and forwards in both offensive and defensive contexts. Our findings reinforce this perspective, as midfielders in our study achieved the highest scores on perceptual-motor efficiency and discrimination reaction time. Their role requires constant situational awareness and rapid information processing, distinguishing them from other positional roles. Kannekens et al. (2011) emphasize the tactical significance of midfielders in linking defense and attack. They are responsible for positioning, decision-making, and creating optimal conditions for team transitions. This corresponds with our results, according to which midfielders demonstrated higher scores on different cognitive and psychomotor indicators: learning ability coefficient (adaptation of coordinated movements at new circumstances), working memory coefficient, perceptual-motor efficiency coefficient, disturbance resistance coefficient (realization of coordinated movements in the context of visual disturbing factors in the environment), time pressure resistance coefficient (realization of coordinated movements in the context of increasing the dynamics of the situations), self-pacing coefficient (the speed of coordinated movements), and discrimination/recognition reaction time, pointing out their ability to adapt quickly and efficiently in situations requiring coordinated movements and quick reactions. However, in terms of mental selection operation, the forwards achieved the best results (but the differences between playing positions were very small), while regarding the mental identification operation (fast identification of relevant stimuli) the defenders registered superior values.

Differences in reaction times across positions further highlight the cognitive demands specific to each role. Schumacher et al. (2018) found that midfielders excelled in visual and acoustic reaction times, defenders worked more accurately and avoided mistakes, while forwards were inclined to take risks but performed less well in sustained attention tasks. Our study corroborates these results in the case of midfielders, who showed superior (overall) performances in visuomotor tasks.

The impact of mental fatigue on cognitive and psychomotor performance is another key consideration. Thompson et al. (2020) have concluded that pre-match preparation, travel, and external commitments influence mental fatigue but do not significantly impact performance in academy football players. The relationship between tactical intelligence and playing time is also

crucial. According to Abate Daga et al. (2024), psychomotor and cognitive abilities are key factors in talent identification, with tactical skills and game intelligence influencing coaches' perceptions of player performance.

Training and early exposure to structured football-specific exercises are vital for developing these abilities. Roca et al. (2012) have demonstrated that training time during youth directly influences long-term success. This reinforces the need for early cognitive and psychomotor development in youth academies, ensuring that players can adapt to increasing match demands. Predoiu et al. (2016) claim that trait anxiety influences the mental operations of identification and selection in football players. In our study, the RCMV, TRD, and TRS tests provide meaningful data for monitoring and improving these abilities, supporting personalized interventions to optimize performance.

The findings of the current study provide a deeper understanding of how psychomotor and cognitive abilities differentiate playing positions. They also emphasize the need for position-specific training programs that develop perceptual-motor efficiency, reaction speed, and cognitive flexibility. Young athletes need to understand their psychomotor and cognitive levels, while for coaches, these assessments can serve as key selection criteria, ensuring long-term performance optimization. Moreover, a more detailed analysis by specific playing positions (such as central defenders vs. full-backs, defensive vs. attacking midfielders, and central forwards vs. wingers) could provide a more objective and comprehensive understanding of each player's profile. Finally, correlating psychomotor and cognitive data with external load metrics from GPS monitoring, along with other performance indicators, could contribute to a more efficient and individualized training process, helping young players develop according to their specific positional demands.

This study confirms that playing position influences cognitive and psychomotor abilities in U14 football players. Midfielders performed best in coordination tasks, excelling in working memory, perceptual-motor efficiency, perceptual field inspection, and self-pacing control. Their role requires smooth transitions and precise execution, making these skills essential.

Defenders demonstrated superior discrimination reaction times, showing strong abilities in recognizing and selecting relevant stimuli. This skill is critical for anticipating opponent movements, intercepting passes, and maintaining the defensive structure. Instead, forwards had better results for the mental operation of selection – the selection of the appropriate motor response, from multiple possibilities.

Study limitations and further directions

- Small sample size: The study involved 34 athletes, which restricts the generalizability of the findings. Future research should include larger samples to improve the validity of the results.
- Classification of performance levels (in the case of the computerized tests): The software used classified participants based on standards for the general population. However, athletes regularly engage in activities that enhance their psychomotor and cognitive abilities. This

suggests that a player classified as level 3 (average result) might be at level 2 (weak result) based on the performance requirements.

- The participants' physical and mental condition, including factors such as fatigue and motivation, might have affected their motor responses, which poses a limitation to this study, especially since the athletes were assessed after completing their regular training sessions.

Future research should expand the findings by analyzing full-match performance, while taking into account the influence of fatigue on cognitive function and exploring the interaction between cognitive training and tactical execution. In addition, female soccer players may be investigated and athletes of different ages (e.g., seniors).

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Informed Consent Statement: Written informed consent was obtained for all participants involved in this study.

Data Availability Statement: Data can be made available upon request to the contact author.

Conflicts of Interest: The authors declare no conflict of interest.

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