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The Effectof Visuospatial Perception Exercises on Motor Anticipation and Some Offensivef Skills under Pressure in Young Football Players

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Abstract: *This study investigates the effect of special visual-temporal perception training on motor anticipation and some offensive skills under pressure among youth football players. The researcher employed the experimental method with a two-group design (experimental and control) to measure the impact of the training program while controlling for other influencing factors. The research population was deliberately selected and included the youth players of Diyala Governorate League for the 2022–2023 season, totaling 145 players. The sample consisted of 22 players from Al-Shaheed Arkan Youth Football Club, divided into an experimental group of 10 players and a control group of 10 players, randomly selected (lottery method), with goalkeepers excluded for statistical purposes. A pilot experiment was conducted on 5 players from the research population to verify the validity of the tools and procedures before actual application. The study concluded the effectiveness of visual–temporal perception training in enhancing performance and recommended adopting such programs within training plans for youth football players and conducting future research to further develop the exercises and link them to other factors affecting performance.*

Keywords: *Visual–Temporal Perception, Motor Anticipation, Football.*

Introduction

This study is one of the most widespread and popular sports in the world, combining physical, technical, tactical, and psychological aspects. This makes player performance dependent on a high level of basic skills such as passing, shooting, dribbling, and ball control, in addition to speed of response and tactical thinking under pressure. Football has evolved over time from a simple game to a professional sporting system. This included organizing tournaments, developing rules, and using scientific training methods based on the technical skills, motor perception, and physical abilities of the players. By leveraging modern technology for performance evaluation and designing customized training programs for different age groups, this development reflects a strong focus on improving the efficiency of young players.

The use of diverse and modern training methods enhances players' technical and tactical skills to meet the demands of modern matches. According toAbdel Hamid and Mohamed "the use of modern training methods in football has become a fundamental factor in developing players' skills and improving their performance" (Abdel Hamid & Mohamed, 2021, p. 175). These methods are based on scientific principles that combine technical,

physical, and tactical aspects, while taking into account the individual differences between players and the needs of the team. These methods include integrated training that simulates real match situations, interactive exercises to develop visual perception and motor coordination. This helps in making decisions quickly and accurately under pressure. Al-Hunaidi (2024) believes that "modern methods raise the level of motivation and psychological integration of players." And improving their ability to apply skills in actual game situations.

This makes training more effective and enhances the team's collective performance. Visiotemporal perception training is a modern and advanced method in the field of sports training. It focuses on developing the player's ability to process visual information quickly and over time. The player anticipated the movement and made the decision in a short time; he knew. Visiotemporal perception is defined as the ability to perceive the position of moving objects and the speed of their temporal changes (Diri& Byblos, 2023, 721). This enables the athlete to respond efficiently during play and competition.

These exercises help enhance motor anticipation, improve reaction speed, and increase accuracy in executing skills under pressure. Especially in sports that require quick movement and instantaneous decision-making, such as football, the ability to anticipate movement is one of the fundamental aspects upon which athletic performance in team sports depends. Players face fast-paced and changing situations that require immediate visual and mental processing, and this is achieved through specialized training. This ability can be developed in a way that raises the level of individual and collective performance. It reduces errors resulting from slow response or misjudgment of situations. According to Abdul-Moneim et al kinesthetic anticipation is the ability to estimate the movement of an object, ball, or other players in the near future (Abdul-Moneim et al., 2024, p. 24). This enables the athlete to respond quickly and accurately during different situations in the game. The importance of this study highlight the effect of specific training on developing motor anticipation for young football players, which enhances skill and offensive performance under pressure. It also, provides a scientific training methods supported by evidence to improve response and decision-making in real sporting situations, thus contributing to the development of effective training programs for coaches and young players.

Research Problem

Through close monitoring of the matches and training sessions of young football players in Diyala Governorate, especially at the Martyr Arkan Club, a clear weakness in ball control and a high percentage of errors in passing were observed. The reduced ability to score accurately under pressure suggests deficiencies in some cognitive and motor aspects of the players. Especially with regard to the ability to anticipate movements and make quick decisions during play , despite the traditional training programs applied. However, players still face difficulty in linking technical skills with immediate visual response to game variables, which limits the effectiveness of individual and collective performance. Therefore, the research question arises : To what extent can special visuospatial perception exercises contribute to the development of motor anticipation and some offensive skills under pressure among young football players?

Objectives of the Study:

1. Preparing a set of exercises related to visual-temporal perception that are appropriate to the abilities of young football players.
2. To identify the effect of these exercises on motor anticipation and some offensive skills under pressure among young football players.

Hypotheses of the study:

1. There are statistically significant differences between the pre-test and post-test results for the two groups (experimental and control).
2. There are statistically significant differences between the two groups(experimental and control) in the post-test results

Areas of Research:

1. Human field: Players of Al-Shaheed Arkan Football Club for Juniors for the 2022-2023 football season.
2. Time period: 9/7/2022 to 1/9/2024.
3. Spatial area: Martyr Arkan's football stadium.

Methodology

In this study , the researcher adopted the experimental method and used a two-group design (experimental and control). This method and design were chosen to enable the researcher to measure the differences between the two groups before and after the application and to control for other influencing factors. In addition to providing the possibility of evaluating the effectiveness of the training in an objective and accurate manner.

Population and Sample of the Study:

The study community was determined purposively and consisted of the players of the Diyala Governorate Junior League for the 2022-2023 sports season, numbering 145 players. The research sample consisted of the players of the Martyr Arkan Junior Club, numbering 22 players. The experimental group was distributed to 10 players and the control group to 10 players, who were selected randomly (by lottery) , with the exclusion of the two goalkeepers statistically only . A pilot experiment was also conducted on 5 players from the research community to verify the validity of the tools and procedures before actual application .

Sample homogeneity:

Table (1) shows the homogeneity of the sample in the variable (age, height, mass, training age).

twist	The mediator	standard deviation	arithmetic mean	variable
0.41	15	0.30	15.50	**Age (years)**
0.26	164.50	3.01	164.51	**Length (cm)**

0.28	54.55	2.85	54.96	**Mass (kg)**
0.09	3.95	0.63	3.94	**Training age (years)**

Sample equivalence:

Table (2) shows the equivalence of the sample in the research variables for the experimental and control groups.

Significance	**Error rate**	**Value (t)**	**c±**	**-Q**	**unit of measurement**	**Statistical processing / Variables**	
immaterial	**0.37**	**0.91**	**0.19**	**1.54**	**degree**	**Experimental group**	**Handling accuracy**
			0.20	**1.62**		**Control group**	
immaterial	**0.43**	**0.92**	**0.25**	**6.57**	**degree**	**Experimental group**	**Accuracy of scoring**
			0.18	**6.48**		**Control group**	
immaterial	**0.50**	**0.69**	**0.26**	**3.56**	**degree**	**Experimental group**	**Extinguishing**
			0.09	**3.50**		**Control group**	
immaterial	**0.53**	**0.59**	**1.37**	**2.66**	**degree**	**Experimental group**	**kinesthetic prediction**
			1.37	**2.33**		**Control group**	

Table (2) shows that the error percentage values are greater than the error percentage under the significance level of (0.05). This indicates the equivalence of the sample in the tests under investigation .

Information gathering methods, devices, and tools:

a. Methods of collecting information:
   i. Testing and measurement.
   ii. Arabic and foreign sources.
   iii. world wide web.
b. Devices and Tools:
   i. laptop calculator hp .
   ii. A camera.
   iii. (10) footballs
   iv. A small goal.

v. Whistle.
vi. Measuring tape.
vii. Stopwatch.
viii. Stationery.

Field research procedures:

A. Tests used in the research:

1. First test : Passing the ball towards a small target at a distance of (10) meters.
2. The purpose of the test : Measuring the player's passing accuracy .
3. Required tools : Footballs , markers to mark the path , a measuring tape to mark the distance , a small goal with dimensions (100 cm wide x 75 cm high) .
4. Performance description : The player stands holding the ball at a distance of (10) meters from the goal, and upon hearing the signal, he passes the ball while it is stationary towards the designated goal .
5. Scoring method- : Each player is given three attempts , and scores are calculated as follows :
   i. An attempt that hits the target is awarded two points .
   ii. An attempt that only touches the target is worth one point .
   iii. An unsuccessful attempt is recorded as zero .
6. Test Two : Accurate aiming test towards a segmented target
7. The purpose of the test : Measuring the accuracy of a player's aim towards different areas of the goal .
8. Requirements : Six footballs , a tape measure to mark the starting area , a football goal , and a suitable playing field for conducting the test .
9. How to perform : Six balls are placed on the penalty area line, 18 yards from the goal, with a distance of one meter between each ball. The player stands behind the first ball and, upon the starting signal, begins shooting the balls sequentially towards the designated areas within the goal, according to their importance and difficulty, using the shooting foot.
The player continues shooting in order from ball number 1 to ball number 6.
The attempt is not considered valid if the player fails to score in any of the three sections on each side of the goal, in addition to the center section .
10. Method of calculating grades : Points are calculated based on the number of hits that enter the goal or touch the edges of the designated areas within it, and each of the six balls is awarded a point according to the area in which the shot landed :
   i. 4 points upon registration in field number (4)
   ii. 3 points upon registration in field number (4)
   iii. (2) marks When registering in field number (4)
   iv. One mark (1) When registering in field number (4)
   v. Zero if the shot is unsuccessful .
The player is given only one attempt involving all six balls .

11. Third test: (Ball quenching test (stopping the ball's movement
12. Test objectiv : Measuring the player's accuracy in stopping and controlling the ball using the foot, knee, chest, or head, excluding the arms.
13. Required tools : Five footballs , a measuring tape .
14. Testing procedures :
   i. A square area of (2 × 2) meters is designated for conducting the test).
   ii. The player stands behind the designated area .
   iii. The coach stands holding the ball at a distance of (6) meters from the performance area .

Performance/description:

After hearing the starting signal, the coach sends a high ball towards the player, who advances from his position towards the designated area to try to absorb and stop the ball's movement using a permitted part of his body, then returns to the starting line to repeat the process.

The player performs five consecutive attempts .

1. If the coach makes a mistake in sending the ball, the attempt is repeated without counting .
2. The ball should be thrown from bottom to top using both hands .
3. The attempt is invalid if :
   a. The player failed to stop the ball .
   b. He crossed the boundaries of the test area by more than one foot .
   c. He used a method that violated the laws of football to control the ball .

Method of calculating grades:

1. Two points are awarded for each successful attempt .
2. The maximum score is 10 points for all five attempts .

Preparing the (spatial-temporal perception) exercises or drills used in the research:

After reviewing the previous studies that addressed the development of visual-temporal perception in football players, the researcher arrived at a set of principles that confirm the importance of this type of training in raising the player's ability to read the expected situation and make the appropriate decision at the critical moment. Based on this, the researcher prepared (20) specialized exercises, each of which aims to develop the processing of visual information and the speed of linking it with the required motor response .

These exercises included several types, including :

a. Activities that involve changing movement in response to visual cues that appear suddenly .
b. Exercises that require a rapid response to time-varying stimuli of varying temporal rhythm .
c. Organized playing situations allow the player to anticipate the direction of the ball's movement or the opponent's movement before it happens .

d. Exercises that combine visual focus and making the appropriate motor decision in the short time available .

These exercises were designed to suit the level of junior players. Taking into account the gradual increase in difficulty levels To ensure that their cognitive abilities are improved in a way that serves their offensive performance under pressure during actual competitions.

Exploratory Experiment:

On Saturday, July 9, 2022 The researcher conducted a pilot study involving five players from the research community. The aim is to determine the clarity of the procedures and instructions related to the tests and exercises, and to ensure the suitability of the measurement tools used to assess the skills to be evaluated. This also helps to determine the appropriate time for each test and to address any difficulties that participants may encounter during the performance, which helped the researcher to modify the instructions and improve the organization before applying the study to the actual sample .

Pre-tests:

On Wednesday, July 13, 2022, the support team conducted the pre-tests under the researcher's supervision, ensuring that all appropriate conditions were in place for the accurate performance of the tests. This includes preparing the necessary equipment, setting up the testing venue, and organizing the players. This is with the aim of creating a uniform and stable environment that can be re-provided later during post-tests to ensure measurement accuracy and the reliability of results .

Main Experiment:

The main trial was launched on Saturday, July 16, 2022 Three units per week (Saturday, Monday, Wednesday) for eight weeks, totaling 24 units. The last unit ended on 7/9/2022 . The units included visuospatial perception exercises in the main part of each unit, which lasted for 60 minutes, with four exercises applied in each unit. With a total time of up to 40 minutes dedicated to practical exercises , these exercises aimed to develop the players' ability to react quickly to visual and temporal stimuli. Enhancing motor prediction. It also focused on improving the accuracy of skill performance under pressure, as well as increasing concentration and attention.

Developing the speed of appropriate motor decision-making for each situation during play, and the specifications of the exercises were taken into account so that they are progressive in terms of difficulty and feasible for all players. It is physically safe, and integrates motor skills and cognitive response in a scientifically organized way to ensure effective training and achieve the best desired results .

Post-tests:

The post-tests were conducted on Saturday, September 10, 2022, by the research assistant team under the supervision of the researcher. All conditions were adjusted to be identical to the pre-tests in terms of the test location and the tools used. Organizing the

players To ensure the uniformity of the experimental environment and the reliability of the results .

Statistical methods:

The researcher relied on the SPSS statistical package for science to perform the necessary calculations, including calculating means, standard deviation, t -test for related and independent samples, and determining the significance of differences between the pre-test and post-test and between the experimental and control groups, in order to interpret the effect of visual-temporal perception exercises on the research variables in a scientifically accurate manner.

Result and Discussion

Presenting the results of the experimental and control groups in the pre- and post-tests:

Table (3) shows the results of the experimental and control groups between the pre-tests and post-tests in the research variables.

Significance	Error rate	Calculated value of t	Post-test		Pre-test		unit of measurement	Variables
			A	S	A	S		
moral	0.000	17.4	0.30	2.75	0.19	1.54	**degree**	**Handling accuracy**
moral	0.000	46.9	0.35	12.5	0.25	6.57	**degree**	**Accuracy of scoring**
moral	0.000	48.02	0.18	6.61	0.26	3.56	**degree**	**Extinguishing**
moral	0.000	9.48	1.31	8.08	1.37	2.66	**degree**	**kinesthetic prediction**
Control group								
moral	0.001	4.75	0.25	2.07	0.20	1.62	**degree**	**Handling accuracy**
moral	0.000	21.3	0.30	8.63	0.18	6.48	**degree**	**Accuracy of scoring**
moral	0.000	22.1	0.20	4.83	0.09	3.50	**degree**	**Extinguishing**
immaterial	0.42	1.73	1.38	2.91	1.38	2.33	**degree**	**kinesthetic prediction**

Discussion of the results:

After presenting the results, and through Table (3) for the experimental group between the pre-tests and post-tests, it became clear that there were statistically significant differences in favor of the post-tests. The researcher attributes this to the effectiveness of the visual-temporal perceptual training or exercises, as they are an essential part of the process of developing athletic performance, since they aim to improve the athlete's ability to interact with different stimuli. Whether visual, temporal, or spatial Making appropriate motor

decisions at the right time. According Romeu & Morales (2025) " visual-temporal perception exercises help improve response speed and motor decision-making in athletes by training them to react to sudden visual stimuli and determine their timing" (Al-Diri and Jubail, 2025, p. 83).

Thus, their ability to predict and execute movements accurately under pressure is enhance. This confirms , adding that visuospatial cognitive exercises " improve visual responses and spatial recognition, which translates into better performance in integrated skills such as passing or motor anticipation during the game. " "The gradual progression and variety in exercises , through changing shapes, directions, colors, and movement dimensions, contributes significantly to improving motor learning." The learner is forced to process diverse stimuli and make repeated decisions. This enhances his ability to adapt quickly and efficiently in real-life gaming situations , as Al-Malak stated " Visual-temporal perception exercises are more effective if they are designed progressively from easy to difficult and include a variety of stimuli and challenges" (Al-Malak ,2021, p. 253).

Because gradual progression helps the learner first to build a foundation (such as a simple response to time-based visual stimuli) and then move towards more complex responses. This enhances skill consolidation and reduces frustration and distraction. " Also, balancing the components of the load (intensity, volume, rest periods) scientifically achieves the required training adaptation without exhausting the players' bodies . This is also confirmed by Al-Mousawi, (2019) who said that " organizing the training load in terms of intensity is very important because it determines the extent of the effort that the coach focuses on the players within a training session. High intensity gives a strong effect on physiological adaptations." While balancing intensity and volume helps avoid overexertion and injuries. Thus, the researcher believes that the visuospatial perception exercises applied were scientifically organized and progressed from easy to difficult, with a variety of stimuli and challenges. It contributed to enhancing response speed and accurate motor decision-making under pressure. Furthermore, regulating the training load in terms of intensity, volume, and time enabled players to develop the required skills efficiently without excessive strain. This made these exercises an effective means of improving the skill performance of the research sample.

Presenting the results of the two groups (experimental and control) in the post-test:

Table (4) shows the results of the two groups (control and experimental) in the post-tests

Significance	Error rate	Calculated value of t	Control group		Experimental group		unit of measurement	Variables
			A	S	A	S		
moral	0.001	5.50	0.25	2.07	0.30	2.75	**degree**	**Handling accuracy**
moral	0.000	26.55	0.30	8.63	0.35	12.5	**degree**	**Accuracy of scoring**
moral	0.000	20.9	0.20	4.83	0.18	6.61	**degree**	**Extinguishing**

moral	0.000	9.65	1.38	2.91	1.31	8.08	**degree**	**kinesthetic prediction**

Discussion of the results in the post-tests:

Table (4) shows statistically significant differences between the two groups (control and experimental) in the post-tests, favoring the experimental group in the research variables. The researcher attributes this to the fact that visual-temporal perception exercises focus on developing players' ability to quickly recognize and respond appropriately to visual and temporal stimuli during play . They also improve motor anticipation and the ability to make effective decisions under pressure(Abdul-Amir, 2021, p. 117) .

This contributes to the development of technical skills in conjunction with increasing the level of focus and attention , as confirmed by Mohammed and Hashem " Visual-temporal perception exercises contribute to the development of motor anticipation and offensive skills because they force the player to deal with changing visual and temporal stimuli" (Mohammed & Hashem, 2023, p. 46). This enhances the player ability to analyze situations quickly. Predicting the direction of the opponent's or ball's movement before it actually happens indicates that exercises based on processing changing visual stimuli It improves the player's ability to anticipate movements and make quick decisions.

Because it develops the efficiency of the central nervous system in reading situations and distinguishing between appropriate motor signals, thus enhancing the speed of neural processing and the accuracy of decision-making ," the clear superiority of the experimental group over the control group is due to the fact that the exercises provided a learning environment rich in changing stimuli. This made the players more able to analyze situations and make appropriate decisions faster compared to the control group , which adopted the traditional teaching method and the planned progression of exercises from easy to difficult. Diversifying visual and kinetic perspectives It helped improve motor anticipation and performance accuracy. This led to improved offensive skills under pressure. Furthermore, integrating visual and temporal stimuli within the skill context contributed to developing the integration between perception and execution. This was not available to the same extent in the control group. This led to clear differences in favor of the experimental method .

Conclusion

1. Integrating skill-based exercises with situations involving visual-temporal change has improved the link between perception and motor execution. Thus, it improves the quality of skill performance under pressure .
2. The results showed that interactive exercises contribute to developing motor confidence and reducing errors when performing fine motor skills during competition.

Recommendations:

1. It is recommended to incorporate visual-temporal perception-based exercises into training units for young people due to their effective role in developing predictive abilities. And skill under pressure.

2. Coaches are advised to incorporate mini-game situations that rely on a sudden change in the direction of the ball or the movement of a teammate or opponent to increase the efficiency of motor anticipation, handling accuracy and scoring .

References

Abdul Rahman Al-Malak (2021); The diversity of training methods and their impact on developing motor skills among basketball players. Journal of Studies and Research in Physical Education, 31 (4) .

Ahmed Mohamed Ibrahim Al-Hunaidi, (2024); The effect of using varied passing drills in different parts of the field on the efficiency of some visual-motor variables in young football players. Scientific Journal of Sports Sciences.

Ali Mohsen Al-Dairi and Ali Hamid Jubail (2023) ; Impact Exercises perceptual-visual according to strategy Supports Educational in some Abilities visual And skill Compact early foot I have Students. Wasit Journal of Mathematical Sciences , 25 (Third

Araújo, D., Hristovski, R., Seifert, L., Carvalho, J., & Davids, K. (2019). Ecological dynamics of decision making in sport. Psychology of Sport and Exercise, 42, 1–10. https://doi.org/10.1016/j.psychsport.2018.10.004

Broadbent, D. P., Causer, J., Williams, A. M., & Ford, P. R. (2020). Perceptual–cognitive skill training and its transfer to expert performance. Sports Medicine, 50(12), 2171–2184. https://doi.org/10.1007/s40279-020-01342-0

Cañal-Bruland, R., & Mann, D. L. (2020). Time-to-contact judgments in interceptive actions. Human Movement Science, 72, 102636. https://doi.org/10.1016/j.humov.2020.102636

Farrow, D., & Robertson, S. (2021). Development of anticipation skills in team sports. Sports Medicine, 51(7), 1473–1484. https://doi.org/10.1007/s40279-021-01451-1

García-González, L., Moreno, A., Gil-Arias, A., Moreno, M. P., & Del Villar, F. (2020). Effects of decision-training on perceptual skills in youth football players. Journal of Sports Sciences, 38(15), 1759–1766. https://doi.org/10.1080/02640414.2020.1754119

Hadlow, S. M., Panchuk, D., Mann, D. L., Portus, M. R., & Abernethy, B. (2020). Modified perceptual training in sport. Journal of Experimental Psychology: Applied, 26(1), 68–81. https://doi.org/10.1037/xap0000234

Hani Saeed Abdel Moneim et al. (2024); The effect of motor anticipation on the physical abilities of football referees . Scientific Journal of Sports Sciences . 33(1)

Hassan Kamel Abdel-Amir (2021); The effect of visual perception exercises on motor anticipation and performance accuracy among young athletes. Journal of Sports Science, 14 (3) .

Hussam Mohammed Jaber and others (2024); The effect of interlocking exercises on developing speed and endurance in football performance. Journal of Physical Education and Sports, University of Basra.

Hüttermann, S., Memmert, D., & Raab, M. (2020). Attention, perception, and decision making in sports. Psychology of Sport and Exercise, 49, 101706. https://doi.org/10.1016/j.psychsport.2020.101706

Mann, D. L., Causer, J., Nakamoto, H., & Runswick, O. R. (2019). Visual anticipation and expert performance. Journal of Sport and Health Science, 8(1), 7–14. https://doi.org/10.1016/j.jshs.2018.06.004

Memmert, D., & Roca, A. (2019). Tactical creativity and decision making in sport. Journal of Sports Sciences, 37(6), 1–9. https://doi.org/10.1080/02640414.2018.1526039

Mohamed Abdel Hamid (2023); The effect of smart training exercises on developing some complex skills of young football players . Journal of Studies and Research in Physical Education, 31(4) .

Renshaw, I., Davids, K., Newcombe, D., & Roberts, W. (2020). The constraints-led approach: Principles for sports coaching and practice design. Routledge.

Romeas, T., Guldner, A., & Faubert, J. (2019). 3D multiple object tracking training improves anticipation. Journal of Sports Sciences, 37(9), 1020–1026. https://doi.org/10.1080/02640414.2018.1526038

Romeu Llabres , E., & Morales, A. (2025). Does visual training enhance athletes' decision making skills and sport specific performance? A systematic review and metaanalysis. Journal of Sports Sciences.

Saham Qasim Al-Mousawi (2019). The Concept and Components of Training Load, Lectures in Sports Training Physiology, College of Physical Education, University.

Salah Hassan Mohamed and Ali Hussein Hashem (2023); The effectiveness of visual perception exercises in developing the speed and accuracy of visual perception among young football players. Al-Qadisiyah Journal of Physical Education Sciences, 23 (2.1)

Savelsbergh, G. J. P., van der Kamp, J., Williams, A. M., & Ward, P. (2019). Anticipation and visual search behavior in sport. International Journal of Sport Psychology, 50(4), 1–20.

Smeeton, N. J., & Huys, R. (2021). Anticipation of movement patterns in football. Human Movement Science, 76, 102768. https://doi.org/10.1016/j.humov.2021.102768

Williams, A. M., & Jackson, R. C. (2019). Anticipation in sport: Fifty years on. Psychology of Sport and Exercise, 42, 1–8. https://doi.org/10.1016/j.psychsport.2018.12.004

Zwierko, T., Puchalska-Niedbał, L., Krzepota, J., Markiewicz, M., & Lubiński, W. (2020). Visual training effects on motor performance in soccer players. Journal of Sports Sciences, 38(3), 1–8. https://doi.org/10.1080/02640414.2019.1695589