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Original Article

The Effect of Improving the Special Visual Abilities Using FitLight Technology on Some Integrated Skills in Soccer

Prof.Dr. Mahmoud Hassan Al-Houfy[1], Prof.Dr. Adel Ramadam Bakhit[2],

PhD Candidate. Ahmed Gamal Abdallah[3],

Affiliations: *1,2,3 Department of Theories and Applications of Team and Racquet Sports, Faculty of Physical Education, University of Sadat City, Egypt*

E-mail address : ag769348@gmail.com

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Abstract

The study aimed to design a training program utilizing FitLight technology to enhance specific visual abilities and integrated skills among junior soccer players. The objectives included evaluating the program's impact on these abilities and determining the improvement rates achieved in the research sample. The experimental method was applied, involving two groups: an experimental group and a control group. The participants were (24) juniors under 17 years old playing in Al-Nogoom Sport Club, who registered in Menoufia soccer region 2023–2024 season. The results revealed that the proposed training program had a positive impact on both the experimental and control groups, with statistically significant improvements observed in the post-measurement of all variables related to special visual abilities and integrated skills. Furthermore, the experimental group demonstrated significantly greater improvement compared to the control group. The post-measurement for the experimental group showed notable rates of change and improvement in both special visual abilities and integrated skills.

Keywords: ***Special visual abilities, FitLight trainer, soccer***.

Introduction

Sports have developed significantly in recent times due to its connection with other sciences such as health sciences, biomechanics, physiology, anatomy, engineering and others, which resulted in many opinions and studies that yielded results that provided sports with many theories and information that contributed in turn to developing the level of performance and opened horizons for new applied research that enabled the identification of many benefits of practicing organized sports activities, which was reflected in the levels ofAdisease.

Soccer has been positively affected by the development of sciences related to the field of sports, especially in the engineering and medical fields, which led to the development of

training methods, which contributed effectively to raising the physical and technical level of players.

Hassan Abu Abdo (2013) mentions: Modern soccer training is a planned educational process based on scientific foundations that aims to reach the highest levels of sports through the rapid rise in the player's physiological, functional, technical, psychological and mental abilities. Soccer training in its comprehensive sense defines the overall, organized, planned and directed process to raise the level of players through coordinated influences that aim to develop physical efficiency and readiness to exert effort to reachAAt a sporting level, and thus achieving the goal that the team aspires to and the general goal of sports training is achieved through continuous and organized training and the calm work of the coach with the players.hTo achieve the highest achievement and use successful experiences in achieving this, while working to complete and develop the physical qualities thatYIt has a positive impact on the development of moral and voluntary qualities.ATeam members choose the most appropriate training methods and evaluation methods. It can be said that the goal of training in soccer is the complete preparation of the player physically and skillfully. And plans, intellectually and psychologically, to achieve the highest levels of integrated performance. (Hassan.2019)

The world is witnessing a huge revolution in technology and vast scientific progress, such that competition between countries has become based mainly on Scientific and technological capabilities and potentials, so it was necessary for her efforts to combine for scientific activity and thought in the battle of scientific progress in order to be able to keep pace with this enormous technological revolution. (Mohammed.2016)

Basmat Muhammad Shams al-Din (2003) indicates that modern technology has invaded all areas of life, so it was necessary for it to reach...IThe sports field to raise the physical and skill levels to help players do their best by improving performance and developing learning methods. Sports technology is represented in many areas such as developing sports equipment and playground floors, as well as inventing the best devices and tools to aid learning and training. (Basmat.2003)

Isabel Walker points outIsabel Walker (2001)Sports coaches, players and sports scientists are constantly searching for modern training methods in order to improve sports performance, gain a competitive advantage and visual training.YIt is considered one of these technologies that is newly used in the sports field. It is a repetitive series of eye exercises aimed at improving basic visual abilities.YImportant for athletes in all competitive sports.(Isabel.2001)

With the development of training for sports performance, two areas that were previously ignored in sports training (visual training - perception and agility) are no longer ignored. The technique of (fit light)The latest training methods used in visual training, mental training, hand-eye coordination, foot-eye coordination and other variables. This technology is

available in three different packages (System 4Light - / System 8 – Light / System 24 – Light) Each system is fully expandable up to 32 lights, and includes a tablet computer controller. Its basic idea is based on using lights as targets for the player to neutralize them, whether using the hand, foot or head, and through full contact or proximity to them.28)

Muhammad Lutfi Al-Sayyid, Al-Sayyid Muhammad Ahmad, Muhammad Hussein Dakrouri (2008 AD) indicate that:ALight stimulation training improves the level of basic skills and increases the ability to perform in specialized sports. It also develops the physical and coordination abilities of players, which leads to producing a great deal of response speed, agility and coordination, which helps to create a distinguished athlete.. (Muhammad.2008)

Both Muhammad Shawq see Ykiosk, orderGodAhmed Al-BasatY(2000)The nature of the game during soccer matches, with its changing and diverse situations, imposes on players the use of many complex forms of the different skills in it (complex skills) or integrated skills, and they represent a form of construction consisting of several interconnected (integrated) skills performed in succession.YEach of them affectsYThe other has a reciprocal effect, and therefore coaches must prepare and equip players to face these situations through theARaising the level of skill performance according to the conditions and circumstances of the match, as the player's possession of individual skills and his mastery of them (passing – receiving – dribbling) is not as important as his ability to perform them in a complex manner (AReceive then run - dribble then pass -A(Receive, then dribble, then shoot) and in a precise manner that suits the nature of the situations during the match. (Mohamed.2000)

Muhammad Ibrahim Sultan (2004) adds that the player's experience plays a fundamental role in Type of motor performance Appropriate depending on the situations during the game, the player in possession of the ball often thinks aboutYSeveral possible variants based on the playing situation (passing – shooting – dribbling) with the ball, and through the reactions of the opponent or colleagues and the direction of the ball, he can execute the movement performance.The complex, where it stopsAThe player's choice of this performance according to the previous components and the extent to which the connection between all the expectations related to achieving the goal is achieved. (Muhammad.2004)

In light of the previous presentation and through the researcher's experiences as a player, coach and teaching soccer at the Faculty of Physical Education, Sadat City University, in addition to his follow-up of the youth soccer leagues in the Menoufia region, he noticed the weak level of performance of integrated skills and their mastery under conditions of speed in performance, and the weakness of competitors in a manner similar to what happens in various competitions, which reduces the chances of reaching the desired goal and the youth scoring goals in the opponents' goal. This may be due to the coaches of the buds and youth in teaching and training basic skills and neglecting to link some of these skills together in an integrated manner that keeps pace with the speed of performance in modern soccer, which prompted the researcher to try to select an appropriate group of visual abilities training in a standardized

training program that seeks to identify the effect of these training on some integrated skills for soccer youth.

Study Hypotheses

1- There are statistically significant differences between the averages of the measurements (pre- and post-test) of the groups (experimental, control) in aptitude tests Special visual and some integrated skills for young soccer in favor of dimensional measurements.
2- There are statistically significant differences between the averages of the post-measurements of the two groups (experimental - control) in the Special visual abilities tests and some integrated skills for young soccer players for the experimental group.
3- There are differences in the rates of improvement between the two groups (experimental - control) in the ability tests. Special visual and some integrated skills for young soccer players for the experimental group.

Materials and Method

The researcher used the experimental method by designing the (pre-post) measurement for two groups experimental and control.

Participants

The under-17 Juniors community were (210) juniors, which were registered in Menoufia region for soccer in 2023/2024 season. They were members in (Al-Shohada Sports Club - Menoufia Sports Club - Najum Al-Sadat Club - Al-Salam Sports Club - Mit Khaqan Club - Republic of Shebin Club - Ghazl Shebin Club).

All participants were from Al-Nugoom Sport Club, Sadat City, Egypt. They all were registered as under-17 juniors in the Menoufia soccer region in 2023/2024 season. The authors excluded two goalkeepers from participating (Table 1)

Table 1 Groups of the study

Groups	Number of participants (player)
Expermintal	**12**
Control	**12**
Pilot	**24**
Total	**48**

Homogeneity of the participants groups:

The author conducted homogeneity test for the members of the study groups before applying for the training program, from 1st to 3rd of July 2024. The adopted tests and variables in the study for the special visual abilities and the performance skills in soccer were drived from

the scientific review of the following studies, Basmat Muhammad Shams al-Din (2003),Hussein Ali Kanbar (2009),Randy Abdel Aziz Hassan (2012),Samir Jafar Mohsen (2013),Aziza Mohammed Hassan (2017),Mohammed Ibrahim Sultan (2004),Majed Mustafa Ahmed, Abdul The Benefactor Zakaria Ahmed (2006),Mohammed Saeed Al Safi (2016).

The variables were:
- Basic variables (age - weight - height - training age) (Table 2).
- Special Visual abilities (Table 3).
- Performance Skills (Table 4).

Table 2 Homogeneity test of basic variables of the three groups
(pilot– experimental – control) (n = 48)

Growth rates	Unit	mean	Median	SD	Skewness	Kurtosis
Age	year	15,625	16	0.484	-2,324	-0.551
height	cm	167,125	168.5	6,735	-0.612	-0.447
the weight	kg	65,292	65	5,934	0.147	0.08
Training experience	year	4,083	4	0.862	0.29	-0.172

Table (2) showes the values of the skewness and kurtosis coefficients for the three groups (exploratory - experimental - control) in some variables (age, height, weight, and training experience. The values between (±3), which indicates which indicates the homogeneity among the participants in the groups (pilot - experimental - control).

Table 3 Homogeneity test of Special visual ability variables of the three groups (exploratory - experimental - control) (n = 48)

Special visual Ability tests	Units	Mean	Median	SD	Skewness	Kurtosis
visual tracking	(degree)	1,417	1	0.702	1,780	-0.068
Dynamic visual acuity (right)	(degree)	1,125	1	0.599	0.626	-0.058
Dynamic visual acuity (left)	(degree)	1,042	1	0.455	0.275	0.179
Peripheral vision (right)	Sec.	1,583	1,5	0.640	0.391	0.683
Peripheral vision (left)	Sec.	1,625	1,5	0.696	0.539	0.705
visual reaction	(N of touches/min)	52,542	51,5	2,582	1,210	0.764

Table (3) shows the values of skewness and kurtosis for the three research groups (pilot - experimental - control) of the Special visual ability tests. The values indicat homoginity because they were between (±3).

Table (4) Homogeneity tests of the performance skills of the study groups (n = 48)

Some testsIntegrated skills	Units	mean	Median	SD	skewness	Kurtosis
Receive and then shoot	Sec.	3,884	3,651	0.712	0.982	-1,698
	(degree)	1,756	1,630	0.478	0.791	-1,670
Receive then pass	Sec.	4,675	4,656	0.686	0.083	-1,732
	(degree)	0.934	0.940	0.651	-0.028	-1,729
Receive then run then shoot	Sec.	4,656	4,667	0.609	-0.054	-1,732
	(degree)	1,879	1,885	0.756	-0.024	-1,732
Receive then run then pass	Sec.	4,658	4,661	0.621	-0.014	-1,732
	(degree)	1,448	1,500	0.531	-0.294	-1,714
Receive, then dribble, then shoot	Sec.	4,569	4,445	0.460	0.809	-1,727
	(degree)	1,882	1,770	1,002	0.335	-1,626
Receive then dribble then pass	Sec.	5,641	5,550	0.548	0.498	-1,730
	(degree)	1,441	1,410	1,004	0.093	-1,701

Table (4) shows the values of skewness and kurtosis for the Performance skill which included 6 tests. The values indicat homoginity of the groups because they were between (±3).

Pilot Studies

The authors conducted this study from Saturday 7/5/2024 to Sunday 7/6/2024 on (24) junior. The purpose of the pilot study was to insure the validity of the tools and devices used and the places where the tests were applied in, safety factor, the appropriate times to apply each test, identify potential errors during application to avoid them in the main study, check specifications, conditions and procedures for applying measurements, training the assistants how to apply the test and record the results, in addition to test Reliability and the validity of the used tests of the study.

Testing the Validity

The tests were verified for proofing their validity, therefore, the (24) juniors of the pilot study were divided into two groups, each of (12) juniors, one is participated in previous championships, and the other is the non-distinguished group, numbering (12) soccer juniors who did not participate in previous championships. The validity of the tests of special visual abilities and some of the integrated skills were measured from Tuesday 8/7/2024 until Wednesday 9/7/2024, as shown in Table (5), (6).

Table 5. Significance of the differences between two groups of the Pilot study participants (distinguished and non-distinguished) of the special visual abilities tests (n1 = n2 = 12)

Ability testsSpecial visual	Unit	distinguished n1 = 12		non-distinguished n2 = 12		T Value*
		Q/	±A	Q/	±A	
visual tracking	(degree)	1,876	0.486	1,233	0.591	3,492*
Dynamic visual acuity (right)	(degree)	1,322	0.469	0.744	0.421	5,487*
Dynamic visual acuity (left)	(degree)	1,224	0.412	0.812	0.351	4,121*
Peripheral vision (right)	Sec.	1,312	0.465	1,533	0.488	4,574*
Peripheral vision (left)	Sec.	1,224	0.433	1,569	0.491	5,178*
visual reaction	(number of touches/minute)	53,221	2,119	51,723	1,768	4,554*

* Tabular value of "T" at (0.05) = 2.20

It is clear from Table (5) that there are statistically significant differences between the two groups of the special visual abilities tests where the calculated value of "T" was greater than the tabular value of "T" at (0.05), which indicates the validity of the studied tests.

Table 6. Significance of the differences between two groups of the pilot study participants (distinguished and non-distinguished) of the integrated skills tests (n1 = n2 = 12)

Integrated skills tests	Unit	distinguished n1 = 12		non-distinguished n2 = 12		T Value*
		Q/	±A	Q/	±A	
Receive and then correct	Sec.	3,772	0.605	4,087	0.701	6,436*
	(degree)	1,576	0.487	0.752	0.612	5,548*
Receive then pass	Sec.	4,477	0.576	4,612	0.423	4,127*
	(degree)	0.912	0.633	0.658	0.612	4,789*
Receive then run then shoot	Sec.	4,447	0.602	5,023	0.456	5,576*
	(degree)	1,821	0.893	1,081	0.745	4,995*
Receive then run then pass	Sec.	4,448	0.531	4,679	0.610	5,127*
	(degree)	1,321	0.613	0.748	0.578	6,823*
Receive, then dribble, then shoot	Sec.	4,234	0.401	4,326	0.389	4,661*
	(degree)	1,652	1,012	1,324	1,007	4,982*
Receive then dribble then pass	Sec.	5,235	0.327	5,423	0.342	3,668*
	(degree)	1,215	1,009	1,117	1,002	5,534*

* Tabular value of "T" at a significant level (0.05) = 2.20

It is clear from Table (6) that there are statistically significant differences between the two groups of the integrated skills tests where the calculated value of "T" was greater than the tabular value of "T" at (0.05), which indicates the validity of the studied tests.

Testing the Stability

The authors used test and re-test method to verify the stability of the tests of the same pilot stugy groups under the same conditions and instructions, where the test was **from** Saturday 12/7/2024 and Sunday 13/7/2024. While the re-test was a week after the first application, on Saturday 19/7/2024 and Sunday 20/7/2024.

Table 7. Correlation coefficient between the test and re-test of the Special visual abilities (n = 24)

Special visual abilities tests	Unit	Test		Re-test		Correlation coefficient (r)*
		mean	SD	mean	SD	
visual tracking	(degree)	1,423	0.486	1,267	0.591	0.830
Dynamic visual acuity (right)	(degree)	1,010	0.465	0.998	0.421	0.772
Dynamic visual acuity (left)	(degree)	1,101	0.415	0.995	0.351	0.693
Peripheral vision (right)	Sec.	1,421	0.467	1,539	0.488	0.796
Peripheral vision (left)	Sec.	1,447	0.438	1,572	0.491	0.663
visual reaction	(number of touches/minute)	53,288	2,210	52,634	1,768	0.729

* Value of "r" at a significant level (0.05) = (0.380)

Table (7) indicated that the values of the correlation coefficients are statistically significant test and re-test of the special visual abilities, where the values of the correlation coefficient ranged between (0,663 and 0,830), the values showes positive strong correlation, which indicates the stability of the tests.

Table (8) indicated that the values of the correlation coefficients are statistically significant test and re-test of the special visual abilities, where the values of the correlation coefficient ranged between (0,639 and 0,899), the values showes positive strong correlation, which indicates the stability of the tests.

Table 8. Correlation coefficient between the test and re-test of integrated skills tests (n = 24)

Some testsIntegrated skills	Unit	Test		Re-test		Correlation coefficient (r)*
		mean	SD	mean	SD	
Receive and then shoot	Sec.	3,556	0.609	3,834	0.612	0.734
	(degree)	1,684	0.483	1,559	0.489	0.639
Receive then pass	Sec.	4,687	0.675	4,734	0.555	0.657
	(degree)	0.918	0.638	0.905	0.616	0,800
Receive then run then shoot	Sec.	4,572	0.614	4,668	0.609	0.861
	(degree)	1,995	0.778	1,734	0.898	0.652
Receive then run then pass	Sec.	4,546	0.643	4,498	0.535	0.773
	(degree)	1,437	0.528	1,501	0.621	0.660
Receive, then dribble, then shoot	Sec.	4,548	0.441	4,447	0.431	0.734
	(degree)	1,878	1,007	1,771	1,019	0.899
Receive then dribble then pass	Sec.	5,503	0.431	5,483	0.320	0.668
	(degree)	1,337	1,011	1,412	1,019	0.831

* Value of "t" at (0.05) = (0.380)

Equivalence of the two groups (expermintal and control)

Tables (9) and (10) show the equivalance between the experminat and the control groups evedince. Where there were no significant differences of “T” value in Special visual abilities and the integrated skills beteen the mean results of the two groups.

Table 9. Equivalence of the two groups (experimental - control) in the special visual abilities test (n = 24)

Special visual Ability tests	Unit	Experimental group		Control group		value "T"
		Mean	SD	Mean	SD	
visual tracking	(degree)	1,583	0.759	1,250	0.595	0.832
Dynamic visual acuity (right)	(degree)	1,583	0.493	0.750	0.433	0.777
Dynamic visual acuity (left)	(degree)	1,250	0.433	0.833	0.373	1,543
Peripheral vision (right)	Sec.	1,833	0.687	1,333	0.471	0.889
Peripheral vision (left)	Sec.	2,083	0.640	1,250	0.433	1,721
visual reaction	(number of touches/ minute)	53,333	2,953	51,750	1,831	1,732

***** Tabular t-value at significance level (0.05) = 2.07

Table 10. Equivalence of the two groups (experimental - control) in the integrated skills tests (n = 24)

Integrated skills tests	Unit	Experimental group		Control group		"T" value
		Mean	SD	Mean	SD	
Receive and then shoot	Sec.	4,063	0.701	4,093	0.709	0.834
	(degree)	0.833	0.687	0.750	0.722	1,991
Receive then pass	Sec.	4,108	0.701	4,500	0.598	0.773
	(degree)	1,583	1,037	0.667	0.624	0.912
Receive then run then shoot	Sec.	5,093	0.451	5,036	0.459	1,528
	(degree)	1,333	1,027	1,083	0.759	0.884
Receive then run then pass	Sec.	4,492	0.418	4,697	0.616	1,342
	(degree)	1,083	0.862	0.750	0.595	0.734
Receive, then dribble, then shoot.	Sec.	4,831	0.450	4,821	0.508	1,536
	(degree)	1,750	1,362	2,250	1,639	0.810
Receive then dribble then pass	Sec.	5,731	0.514	5,621	0.408	0.663
	(degree)	1,583	1,382	1,583	1,256	1,583

***** Tabular t-value at significance level (0.05) = 2.07

Main Study

Pre- measurements

The pre-measurements were conducted on Tuesday and Wednesday 30,29/7/ 2024, at Al-Nogoom Sport club's playgrounds in Sadat City..

Training Program

The main study lasted 10 weeks from Saturday3/8/2024 until Thursday11/10/2024.

The proposed program aims to design a training program for special visual abilities to determine its impact onSome integrated skillsFor soccer juniors under 17 years old

1- Basis of the training program

a. Gradual increase in training load in line with the age group and level of the research sample.
b. Use interval training method in its two parts (low - high), and repetitive training.
c. The proposed training program for special visual abilities was implemented at a rate of 4 training units per week for 8 weeks, starting from the third week untilITenth during the preparation period.
d. Consider the gradual intensity of the loads
e. Both experimental and control groups perform the same training program, except for the time allocated for exercises. For special visual abilities, which is done in the experimental group program only, and the control group performs exercises in the traditional way.

f. The first and second weeks of the program aim to provide training for the special preparation elements.
g. Relying onIResults of a pilot study in determining appropriate starting doses.
h. Designing training programs according to the special visual abilities of soccer juniors under 17 years old.
i. Perform the training program exercises immediately after the warm-up to ensure that the juniors are free from fatigue.
j. Perform all exercises at the highest rate of speed, accuracy and rhythm.
k. It is important that the time for performing one repetition is between10-20second.
l. The rest period between repetitions ranges between16-19Second, while between groups of 32-38minutes.

Table 11. Time and load distribution during the training program weeks

Stage		The first		Second				Third				Total
Period		General preparation		Special preparation				Preparing for matches				
Weeks		1	2	3	4	5	6	7	8	9	10	10 weeks
degree Pregnancy	maximum					●			●			2
	High		●		●			●		●		4
	middle	●		●			●				●	4
Weekly time		-	-	320	370	420	320	370	420	370	320	2910
Special visual abilities		—	—	70	80	90	70	80	90	80	70	630
Warm up		480										480
Physical preparation		243										243
Skill preparation		632										632
Preparing my plans		765										765
Conclusion		160										160
Total time for preparation period		-		1430 minutes				1480 minutes				2910 minutes

Table (11) shows distribution of the weekly training load and the physical preparation time 30%, skill 30%, and tactical 40% of the team's training program during the preparation period.

Post measurements

The Post measurements of all tests were carried out after applying the training program by the same way that was done in the pre-measurements, on 12th and 13th november 2024.

Tools and devices

***FitLight Technology*:** It is the latest training method used in visual training, mental training, hand-eye coordination, foot-eye coordination and other variables. This technology is available

in three different packages (System 4Light - / System 8 – Light / System 24 – Light) Each system is fully expandable up to 32 lights, and includes a tablet computer controller. Its basic idea is based on using lights as targets for the player to neutralize them, whether using the hand, foot or head, and through full contact or proximity to them.27)

Statistical Analysis

According to the objectives and hypotheses of the study, the author used the following statistical analysis methods :

Arithmetic mean, Standard deviation, Skewness, kurtosis, Pearson's simple correlation coefficient, Z-test to calculate the significance of difference, and Percentage of improvement in performance level.

Results and Discussion

First the results of the first hypothises which discuss the statistical significance differences between the average of the two measurements (pre-post) and the effect of the training program on the Special Visual abilities and the studied integrated skills of soccer .

Table (12) indicates to the statistically significant differences between the averages of the measurements (pre- and post-test) of the experimental group of participants in the Special visual abilities' tests and some integrated skills in favor of post measurements, where the calculated "t" value was greater than the tabular "t" value at a significance level of (0.05) for all variables.

The author attributed the results to the evolutionary progress achieved in the group's performance, which was influenced by the training program's empirically grounded approach. The proposed program included structured training specifically designed to enhance visual abilities. It was characterized by inclusivity, integration, and a gradual implementation process, progressing from simple to complex exercises. Initially, the training focused on straightforward activities, and over time, more challenging exercises were introduced. These exercises were tailored to develop specific visual skills and effectively meet the program's objectives.

The program was carefully designed with gradual increases in workload and was implemented flexibly to suit the period of application. It was also adapted to align with the characteristics of the targeted age group (under 17 years). The diversity and integration of training exercises, combined with their application in various soccer scenarios, contributed significantly to achieving the desired outcomes.

This aligns with the findings of Munira Al-Sayed (2018), who suggested that training athletes in visual skills can enhance and improve performance across various methods. Hassan Masoud Al-Durra (2001) further emphasized that players require a strong sense of sight. Scientifically, a clear image is perceived through the eye's central focus. For dynamic scenes, such as the movement of players on a field, the eye relies on the shifting of the pupil and the

retina's assistance. The retina, positioned centrally, helps distinguish player jersey colors, enabling players to identify teammates and opponents during a game. Thus, sharp, healthy vision is essential for executing accurate passes, shots, or coordinated team play, whether in training sessions or competitive matches.

Table 12. The significance of the differences between the average of the two measurements (pre-post) of the experimental group in on the special visual abilities and the studied integrated skills of soccer (n = 12)

Tests of studied variables		Unit	Pre-measurement		Post measurement		"T" value
			Mean	SD	Mean	SD	
Special Visual Abilities	visual tracking	(degree)	1,583	0.759	3,417	0.759	5,773*
	Dynamic visual acuity (right)	(degree)	1,583	0.493	2,750	0.433	4,098*
	Dynamic visual acuity (left)	(degree)	1,250	0.433	2,583	0.493	5,453*
	Peripheral vision (right)	Sec.	1,833	0.687	3,750	0.829	4,692*
	Peripheral vision (left)	Sec.	2,083	0.640	3,750	0.924	4,640*
	visual reaction	(N of touches/mim)	53,333	2,953	61,417	3,252	5,768*
Integrated skills	Receive and then correct	Sec.	4,063	0.701	3,399	0.546	0.931
		(degree)	0.833	0.687	3,083	0.640	1,675
	Receive then pass	Sec.	4,108	0.701	3,002	0.698	1,448
		(degree)	1,583	1,037	2,583	0.493	0.734
	Receive then run then shoot	Sec.	5,093	0.451	3,406	0.369	1,223
		(degree)	1,333	1,027	3,250	0.722	1,008
	Receive then run then pass	Sec.	4,492	0.418	3,357	0.406	1,112
		(degree)	1,083	0.862	2,583	0.493	0.885
	Receive, then dribble, then shoot	Sec.	4,831	0.450	3,619	0.442	1,363
		(degree)	1,750	1,362	2,750	1,010	0.563
	Receive then dribble then pass	Sec.	5,731	0.514	3,313	0.262	1,483
		(degree)	1,583	1,382	2,333	0.850	1,234

* Tabular value of "T" at a significant level (0.05) = 2.20

Jim Brown (2001), in his book The Athletic Talent, highlighted that optical vision is a scientific discipline naturally arising from the demands of sports performance. Its contributions are evident across various sports: for instance, a soccer defender requires strong vision to observe the entire field, while basketball players use peripheral vision to monitor opponents and teammates.

These findings are also supported by studies from Calder & Noakes (2000), Magda Ismail and colleagues (2006), and Mahmoud Metwally and Haitham Fathallah (2007). They demonstrated the effectiveness of specialized visual training using technologies like FitLight, an eye-training program. This approach significantly improved complex skill performance in young soccer players, enhancing their abilities by connecting motor system components and refining motor behavior. Such training has a profound impact on achieving optimal results in sports performance.

Table (13) indicates to the statistically significant differences between the averages of the measurements (pre- and post-test) of the experimental group of participants in the Special visual abilities' tests and some integrated skills in favor of post measurements, where the calculated "t" value was greater than the tabular "t" value at a significance level of (0.05) for all variables.

The authors attribute the differences in the pre- and post-measurement averages of the control group, favoring the post-measurements in special visual abilities and certain integrated skills, to the traditional training program. This program, implemented with the control group, considers the requirements of skill performance and benefits from the players' consistent training regimen. Additionally, the quick and accurate visual responses to fast-paced events contribute to the improvement in these abilities, which is reflected in the enhanced performance of the integrated skills under study. These factors are seen as key in improving the control group's results in the post-measurement evaluations.

This aligns with Hassan Masoud Al-Durra's (2001) assertion that players need strong vision. Scientifically, a clear image is processed through the central focus of the eye. For dynamic movements, such as player motion on the field, the eye relies on the retina and pupil movements to track players and distinguish their jersey colors. These capabilities enable players to accurately pass, shoot, and coordinate team play, whether in training or official matches.

Jim Brown (2001), in his book *The Athletic Talent*, highlights that optical vision is a science that naturally evolved from the demands of sports performance. Its contributions are evident in various sports: soccer defenders rely on good vision to scan the entire field, while basketball players utilize peripheral vision to monitor opponents and teammates.

Munira Al-Sayed (2018) also noted that training athletes in visual skills can enhance and develop their performance through diverse methods.

These findings are consistent with the research of Magda Ismail and colleagues (2006) and Mahmoud Metwally and Haitham Fathallah (2007), who demonstrated the effectiveness of specialized visual training using FitLight technology. This eye-training program significantly improved the complex skills of young soccer players, positively influencing their overall

abilities. Such training plays a vital role in achieving optimal results by connecting different parts of the motor system and refining motor behavior.

Table 13. The significance of the differences between the average of the two measurements (pre-post) of the control group in on the special visual abilities and the studied integrated skills of soccer (n = 12)

Tests of studied variables		Unit	Pre-measurement		Post measurement		"T" Value
			Mean	SD	Mean	SD	
Special Visual Abilities	visual tracking	(degree)	1,250	0.595	1,417	0.493	4,645*
	Dynamic visual acuity (right)	(degree)	0.750	0.433	1,333	0.471	5,639*
	Dynamic visual acuity (left)	(degree)	0.833	0.373	1,250	0.433	5,112*
	Peripheral vision (right)	Sec.	1,333	0.471	1,583	0.493	4,842*
	Peripheral vision (left)	Sec.	1,250	0.433	1,583	0.493	3,998*
	visual reaction	(N of touches/min)	51,750	1,831	53,250	2,126	4,684*
Integrated skills	Receive and then correct	Sec.	4,093	0.709	3,765	0.607	0.784
		(degree)	0.750	0.722	1,583	0.493	1,553
	Receive then pass	Sec.	4,500	0.598	4,635	0.488	1,453
		(degree)	0.667	0.624	0.917	0.640	0.834
	Receive then run then shoot	Sec.	5,036	0.459	4,459	0.608	1,232
		(degree)	1,083	0.759	1,833	0.898	1,092
	Receive then run then pass	Sec.	4,697	0.616	4,525	0.544	1,120
		(degree)	0.750	0.595	1,333	0.624	0.990
	Receive, then dribble, then shoot	Sec.	4,821	0.508	4,673	0.443	1,231
		(degree)	2,250	1,639	2,083	1,552	1,656
	Receive then dribble then pass	Sec.	5,621	0.408	4,382	0.261	0.878
		(degree)	1,583	1,256	1,750	1,164	1,074

Second, the results of the statistical significance differences between the average of the two measurements (pre-post) of the two groups (experimental - control) in the Special visual ability tests and some integrated skills for young soccer players.

It is clear from the table (14), there are statistically significant differences between the averages of the post-measurements of the two groups (experimental - control) Special visual ability tests and some integrated skills for young soccer players, the experimental group benefited from the calculated “t” value, which was greater than the tabular “t” value at a significance level of (0.05) in all variables.

Table 14. The significance of the differences between the average of the post measurements for the two groups of the special visual abilities and the studied integrated skills of soccer (n = 24)

Tests of studied variables		Unit	Experimental group		Control group		value "T"
			Mean	SD	Mean	SD	
Special Visual Abilities	visual tracking	(degree)	3,417	0.759	1,417	0.493	4,908*
	Dynamic visual acuity (right)	(degree)	2,750	0.433	1,333	0.471	5,332*
	Dynamic visual acuity (left)	(degree)	2,583	0.493	1,250	0.433	6,208*
	Peripheral vision (right)	Sec.	3,750	0.829	1,583	0.493	6,773*
	Peripheral vision (left)	Sec.	3,750	0.924	1,583	0.493	4,429*
	visual reaction	(N of touches/min)	61,417	3,252	53,250	2,126	5,098*
Integrated skills	Receive and then correct	Sec.	3,399	0.546	3,765	0.607	5,212*
		(degree)	3,083	0.640	1,583	0.493	6,112*
	Receive then pass	Sec.	3,002	0.698	4,635	0.488	6,557*
		(degree)	2,583	0.493	0.917	0.640	5,834*
	Receive then run then shoot	Sec.	3,406	0.369	4,459	0.608	4,998*
		(degree)	3,250	0.722	1,833	0.898	4,845*
	Receive then run then pass	Sec.	3,357	0.406	4,525	0.544	4,821*
		(degree)	2,583	0.493	1,333	0.624	5,893*
	Receive, then dribble, then shoot	Sec.	3,619	0.442	4,673	0.443	6,776*
		(degree)	2,750	1,010	2,083	1,552	5,634*
	Receive then dribble then pass	Sec.	3,313	0.262	4,382	0.261	5,998*
		(degree)	2,333	0.850	1,750	1,164	5,098*

* Tabular value of "T" at (0.05) = 2.07

The researcher attributes the differences in the post-measurement averages between the experimental and control groups, favoring the experimental group in some integrated skills, to the specialized visual abilities training program utilizing FitLight technology. This program, applied to the experimental group, was designed to meet the demands of tactical performance and integrated skills. It emphasizes visual motion accuracy, which enables players to track and see targets clearly during movement, as well as peripheral vision, allowing players to perceive elements outside their focus area, including both sides, above, and below. This broader field of vision helps players monitor the ball and surrounding players. Additionally, quick and accurate visual responses to fast-paced events are enhanced, leading to improved integrated skill

performance. These abilities are considered key factors in the experimental group's superiority over the control group in these variables.

This aligns with Hassan Masoud Al-Durra's (2001) observation that players require sharp vision to succeed in soccer. Scientifically, a clear image is processed through the central focus of the eye. For moving targets, such as players on the field, the retina and pupil shifts help the eye track motion and distinguish jersey colors. This ability enables players to accurately pass, shoot, and coordinate team play, both during training and official matches.

Hussein Ali Kanbar (2009) further highlights the importance of visual exercises in soccer, particularly for enhancing skill and tactical performance. He emphasizes that visual training must address all sensory systems, especially vision, and should integrate mental processes like perception, attention, and concentration, which are interconnected with the visual system. These processes contribute significantly to achieving high-level skill performance, particularly for attackers. Therefore, coaches and sports scientists have developed modern training methods to improve visual abilities, advance sensory-motor integration, and provide a competitive edge.

These findings align with research by Abernethy & Wood (2004), Asseman et al. (2005), and Samer Jafar Mohsen (2014), all of whom demonstrated the effectiveness of visual training using FitLight technology. This eye-training program improved the complex skill performance of young soccer players, positively impacting their abilities. Such training enhances the connection between motor system components, refines motor behavior, and contributes to achieving optimal athletic performance.

Third, the results of the improvement percentage of the special visual ability tests and some integrated skills of the two groups (experimental - control), where table (15) showes the improvement of studied variables of the two groups (experimental and control).

The authors attribute the results to the notable improvement in performance observed in the experimental group, which can be credited to the proposed training program. This program incorporated structured training to develop specialized visual abilities and enhance integrated skills. It was designed with inclusivity and integration in mind, following a gradual approach that progressed from simple to complex exercises. Initially, the training involved straightforward activities, with increasingly challenging exercises introduced over time. This step-by-step progression targeted various visual abilities, achieving specific objectives while carefully managing training loads throughout the program's duration.

The program was also characterized by flexibility, adapting to the application period and aligning with the developmental needs of the age group under study (under 17 years).

Additionally, it emphasized diversity in training methods, integrating various exercises with soccer gameplay scenarios to maximize effectiveness.

Table (15) Improvement rates between the two groups (experimental - control) in special visual ability tests and some integrated skills (n = 24)

Tests	Experimental group				Control group				improvement rate %
	pre	post	Differences	Improvement rate %	pre	post	Differences	Improvement rate %	
visual tracking	1.6	3.4	1.8	115.9	1.25	1.4	0.167	13.4	143.8
Dynamic visual acuity (right)	1.6	2.8	1.17	73.7	0.75	1.3	0.58	77.7	3.5
Dynamic visual acuity (left)	1.3	2.6	1.3	106.6	0.8	1.3	0.42	50.1	54.7
Peripheral vision (right)	1.8	3.8	1.92	104.6	1.3	1.6	0.25	18.8	120.8
Peripheral vision (left)	2.1	3.8	1.67	80	1.25	1.6	0.33	26.6	80.1
visual reaction	53.3	61.4	8.1	15.2	51.8	53.2	1.5	2.9	117
Receive and then correct	4.1	3.4	0.7	16.3	4.1	3.8	0.3	8.0	51.5
	0.8	3.1	2.3	270.1	0.8	1.6	0.8	111.1	64.6
Receive then pass	4.1	3.0	1.1	26.9	4.5	4.6	0.1	3.0	145.3
	1.6	2.6	1.0	63.2	0.7	0.9	0.3	37.5	37.2
Receive then run then shoot	5.1	3.4	1.7	33.1	5.0	4.5	0.6	11.5	77.3
	1.3	3.3	1.9	143.8	1.1	1.8	0.8	69.3	52.8
Receive then run then pass	4.5	3.4	1.1	25.3	4.7	4.5	0.2	3.7	132.6
	1.1	2.6	1.5	138.5	0.8	1.3	0.6	77.7	41.3
Receive. then dribble. then shoot.	4.8	3.6	1.2	25.1	4.8	4.7	0.1	3070.0	141.0
	1.8	2.8	1.0	57.1	2.3	2.1	0.2	7.4	138.1
Receive then dribble then pass	5.7	3.3	2.4	42.2	5.6	4.4	1.2	22.0	46.7
	1.6	2.3	0.8	47.4	1.6	1.8	0.2	10.6	107.6

These findings are consistent with the observations of Jim Brown (2001) in his book The Athletic Talent, where he highlighted that optical vision is a science naturally derived from the demands of sports performance. Its contributions are evident across various sports: soccer defenders rely on good vision to monitor the entire field, while basketball players use peripheral vision to track movement across the court.

Hassan Masoud Al-Durra (2001) also emphasized the importance of strong vision in sports. He explained that clear images are processed through the central focus of the eye, and dynamic scenes, such as the movement of players on the field, are tracked using the retina and pupil movements. These visual abilities are essential for accurate passes, goal attempts, and coordinated team play, whether during training or in competitive matches.

Munira Al-Sayed (2018) similarly pointed out that vision training significantly contributes to the improvement and development of athletic performance through various methods.

This aligns with research by Mahmoud Metwally and Haitham Fathallah (2007), Randy Abdel Aziz Hassan (2012), Samer Jafar Mohsen (2014), and Quevedo et al. (2009). They demonstrated the effectiveness of visual training using FitLight technology, an eye-training program that significantly improved the complex skill performance of young soccer players. These exercises positively impacted the players' abilities by enhancing motor system coordination and refining motor behavior, ultimately contributing to superior athletic results.

Conclusion

Based on the research objectives, hypotheses, and within the limits of the research sample, the researcher reached the following conclusions through statistical analysis and the results obtained:

1. The proposed training program for developing visual abilities, utilizing FitLight technology and applied to the experimental group, had a positive effect on enhancing specific visual abilities and certain integrated skills in junior soccer players.
2. The traditional training program implemented by the control group also influenced the development of visual abilities and integrated skills due to the consistency of their training during the program.
3. The experimental group outperformed the control group, with statistically significant differences observed in visual ability tests and some integrated skills in the post-measurements.
4. The proposed training program using FitLight technology led to notable improvements in the experimental group compared to the control group across all variables. Improvement rates for visual abilities ranged from 3.501% to 143.77%, while for offensive tactical principles, they ranged from 3.405% to 151.761%.

Recommendations

Based on the findings of this research, the researcher has outlined several recommendations to enhance work in the field of soccer:

1. Emphasize the integration of special visual abilities training into general training programs, with particular focus on soccer.
2. Prioritize the use of exercises targeting visual abilities to improve the level of integrated skills in players.
3. Utilize the proposed training program and visual abilities training, including the use of FitLight technology, for other age groups to develop both offensive and defensive aspects of play.
4. Share the results of this study, including the training program and its implementation steps, with professionals working in the training of youth soccer players to support their development efforts.

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