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# The effect of a stroboscopy visual training with senaptec glasses on reaction speed and ball control technique among goalkeepers for the U13 years old

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**Abstract**---The research aims to identify the impact of visual exercises on some basic skills of football players, to solve one of the problems facing the development of the game of football, which is the speed of reaction and the skill of holding the ball, where a group of goalkeepers were formed for the age group of 11-12 years to participate in this study. They were assigned vision-based Synaptic glasses to expose players to unique visual training. These glasses feature time control for the displayed images, causing disruptive clear vision for short periods during training the performance of the guards participating in different exercises before and after the training period was measured using stroboscope glasses. The data were also analyzed and performance results compared to determine the impact of stroboscopic visual training on goalkeeper performance. As the researchers used the experimental approach by designing experimental groups using the pre- and post-test, and the research sample was tested in a deliberate way from youth football players during the 2022/2023 sports season, where appropriate statistical means were used, which is the statistical fact, and the results resulted in significant differences between the pre- and post-tests in favor of the post-test, and it was recommended that visual exercises should be used during training units to develop the basic skills of football players.

**Keywords**---senaptec glasses, goal keeper, age group 13 old.

## 1- Introduction

Humans have a remarkable ability to learn and adapt, but surprisingly, little research has shown widespread learning, where new skills and strategies can be flexibly used in a range of tasks and contexts. (l. gregory appelbaum, julia e. schroeder, matthew s. kainfand stephen r. mitrove, 2011). in sports, the visual system plays a crucial role in capturing contextual information. it is one of the most important sensory systems in the practice of sports skills. Despite this important role, this function is rarely taken into account when designing a training program by coaches and athletes. Perhaps lack of time to include them as a factor in the training program or insufficient research results showing the importance of the visual system in the success of athletes. There may be reasons why he did not pay enough attention to her.

## 2- Problematic

1. Does the adoption of a program using stroboscope glasses in the training of goalkeepers have an impact on the development of reaction speed for the 11/12 age group in football?
2. Is the adoption of a program using stroboscope glasses an effect on the development of ball control or grab technique among goalkeepers for the age group of 11/12 years?

## 3- Research hypotheses

1. Stroboscope glasses have a role in communicating and influencing the development of reaction speed for the 11/12 age group among goalkeepers in football.
2. Optical stroboscope training has an effective effect in improving and developing the technique of holding and controlling the ball in goalkeepers, using astroboscopic glasses in the age group 11/12 years.

## Research objectives

Building a visual training program using a stroboscopic glasses for goalkeepers in the sport of football category U13 from the physical side (reaction speed and from the technical side) control or holding the ball (and this in the tactical stage).

The importance of research:

1. Visual training is one of the important topics that have not received much attention from researchers in the sports field in general and in football in particular, as the sense of sight is of great importance to goalkeeping players in football.
2. Brian Earel 2004 indicates that the sense of sight is the ability of a person to see and determine the distances of visuals, which is one of the senses that play an important role in sports activity, good visual ability provides the athlete with accurate and fast information and is the first step to information operations, which is one of the skills that can be developed by training. (BrianAriel, 2004, pp. 23-74)
3. Procedural identification of concepts contained in research: - Visual research: "Visual research is the process of directing visual attention to

identify relevant information in the environment that will allow a person to determine how to prepare and perform a skill in a given situation." (Maggill, 2003, p. 153).

Visual perception:

According to Williams et al. (1999), "Cognition involves detecting and interpreting changes in various forms of energy flow through the environment such as light rays, sound waves, and neural activation (p. 2)." There are many types of cognitive skills, including visual skills, auditory skills, tactile skills, and proprioceptive skills that all work together to interpret what is happening in the environment.

Visual ability:

Definition of Magille (2003): "It is a general ability of the individual that is a relatively permanent characteristic that serves to determine a person's potential for success in performing specific skills" (p. 38).

#### **4- Methodological procedures followed in the study:**

4-1 exploratory study:

The exploratory study was conducted on an experimental sample representative of the research community: preparing the necessary pedagogical means. Identify the workplaces where tests are conducted and training sessions are held. Use appropriate means for the proper conduct of tests.

4-2- Type of study:

In the field of scientific research, choosing the appropriate approach to solve the research problem depends mainly on the nature of the problem itself, and the approaches used vary according to the different goal that the researcher wishes to reach. (Muhammad Azhar Al-Sammak et al. 1989, p. 42) In this study, we used the experimental method, which is one of the most important methods used in the field of physical education and sports.

4-3- Research sample:

The sample is considered one of the basic tools in scientific research, and the main objective of it is to obtain information and data on the original community of the research. "The research sample is information about the number of units that are withdrawn from the original population of the study, so that they are honestly represented," says Abdel Aziz Fahmy. (Abdel Aziz Fahmy. 1994. p. 95) Our sample consists of 3 goalkeepers: class U13 of the UMC Multi-Sports Union Club.

4-4 Experimental variables:

Independent variable:

Visual training Stroboscope.

Dependent variable:

Reaction speed and goalkeepers ball taking technique in football.

4-5. Protocol:

Our work program (tests + classes) was implemented from 06/19/2023 to 06/24/2023, at Dar Al-Shabab Siddiq Athamna Stadium in the fourth kilometer

neighborhood with goalkeepers (11-12) years Multi-sports Union team Constantine UMC Constantine. Training protocol Over the course of a week, with an average of two training sessions per day, the sessions consist of exercises on reaction speed and ball handling technique (ground, medium height and aerobic).

### **5- Means and methods of research:**

In order to understand all aspects of this research, we used the following means and methods:

#### 5-1 Teaching aids:

- Means and devices used: strawboscopic glasses, smartphone, stopwatch, whistle, balls, tennis balls .... Etc.

#### 5-2. Bibliographic analysis method:

This method allowed us to collect as much information as possible on the subject of our research to better predict the problem that interests us by identifying the most useful knowledge about this topic and identifying the basics of the practical part.

#### 5-3- Test method:

The test is an essential means of controlling the study and training process during the different periods and stages of preparation.

This method allowed us to determine the level of development of reaction speed, ball pick-up technique for goalkeepers of the junior category in football and we used: Reaction test (Réaction test pro) Nelson motor response test Individual test for goalkeepers (French Football Federation)

#### 5-4-1 Means of statistics:

This is one of the scientific methods that allowed us to make an accurate interpretation of the results of educational observation (tests).

Note: The statistical processing was carried out using the statistical package "Spss. V 24". The mean, Wilcoxon test, effect size, and rate of development were also calculated.

#### 5-4-2- Presentation and analysis of results:

This chapter is one of the most important chapters that deal with the problem of our study in a direct way and we will address the results obtained in previous tests, from the initial results to the results of the scientific formula after processing us statistically using the program (SPSS).

- **Réaction test pro:**

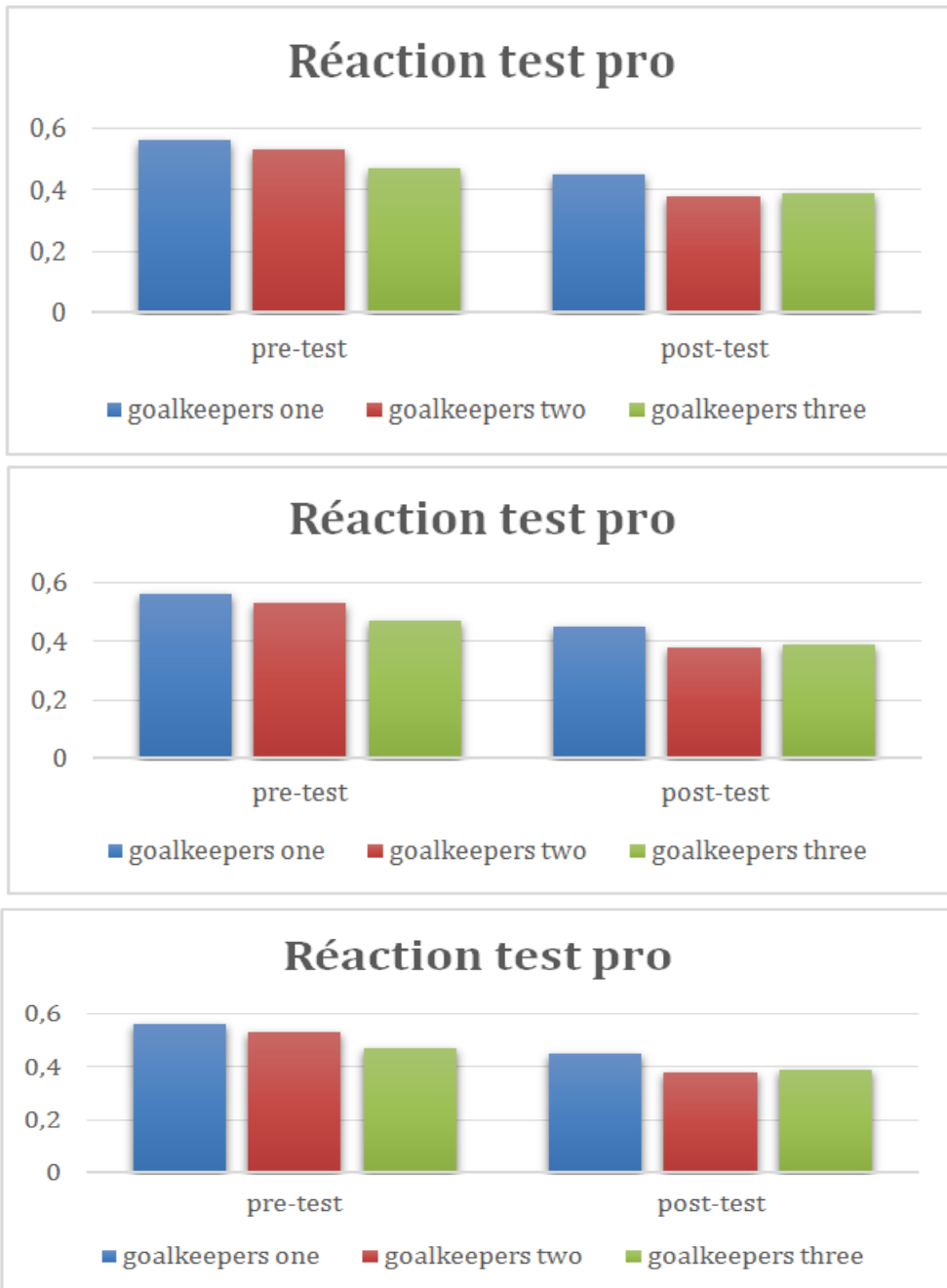


Figure 01: Graphical columns representing the results of the pre- and post-test of the professional reaction test

- **Nelson Test:**

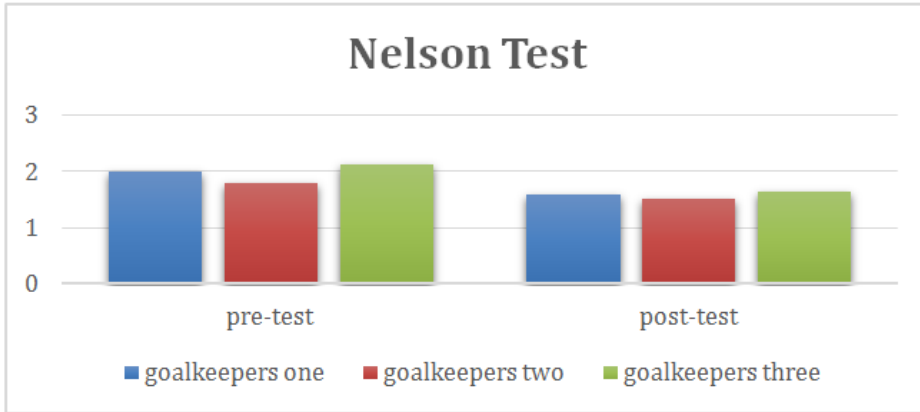


Figure 02: Graph bars representing the results of the pre- and post-test of the Nelson test

- **Technical test holding the ball:**

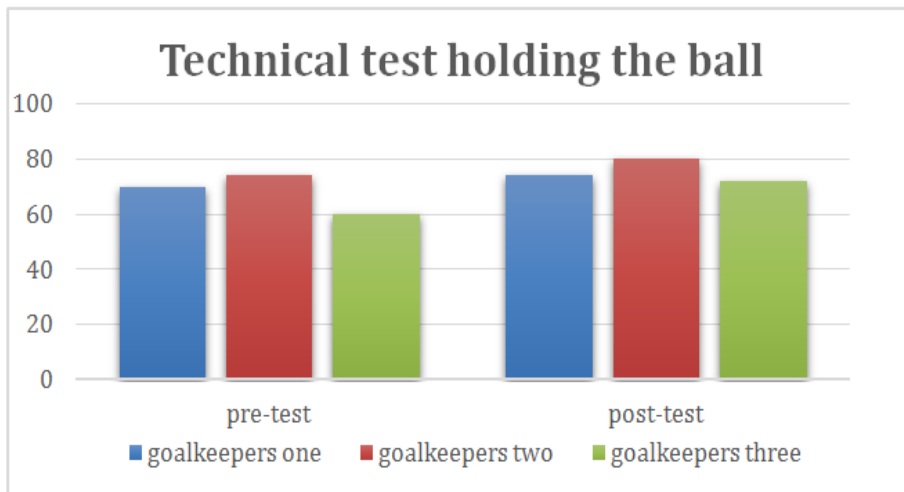


Figure 03: Graph bars representing the results of the pre- and post-test of the technical test holding the ball

The first guard:

Table No. 01: The table represents the results of the Wilcoxon test compared to the average ranks of the pre- and post-tests

Probability of test	The result test Z	test
0.080	1.753-	Professional Reflex Test
0.042	2.032-	Nelson test

Table n° 02: The table represents the rate of development of the technical test holding the ball

Average development	test
12.5%	the technical test holding the ball

Second guard:

Table No. 03: The table represents the results of the Wilcoxon test compared to the average ranks for the pre- and post-tests

Probability of test	The result test Z	test
0.043	2.023-	Professional Reflex Test
0.042	2.032-	Nelson test

Table 04: The table represents the rate of development of the technical test holding the ball

Average development	test
13%	the technical test holding the ball

Third guard:

Table No. 05: The table represents the results of the Wilcoxon test compared to the average ranks for the pre- and post-tests

Probability of test	The result test Z	test
0.042	2.032-	Professional Reflex Test
0.043	2.023-	Nelson test

Table No. 06: The table represents the rate of development of the technical test holding the ball

Average development	test
16%	the technical test holding the ball

## 6-1. Discussion and interpretation of the results

For the first hypothesis:

In light of the results obtained in our study, and with regard to the first hypothesis, which states that "the goggles have a role in communicating and influencing the development of reaction speed for the 11/12 age group of goalkeepers in football".

The results presented in charts 1 and 2 of the professional reflexes test and the Nelson test in both stages (pre- and post-test) in relation to the three goalkeepers, showed us that there was an improvement in reaction speed.

The tables showed that there are statistically significant differences for the professional reaction test and the Nelson test with a significant level of less than 0.05 between the pre- and post-test (in favor of the post-test) to develop the reaction speed of the three goalkeepers, except the first goalkeeper in the professional reaction test and we obtained that there are no statistically significant differences between the pre- and post-test. These results can be explained by the fact that stroboscope glasses have a role in communicating and influencing the development of reaction speed for this age group among goalkeepers in football.

As for the first guard, the stroboscope glasses did not affect a large percentage in the development of reaction speed, and this is due to the irregularity in attendance, frequent absences and lack of concentration during the training program used. This is consistent with what was referred to in previous studies: the study conducted by Mahaya Muhammad Ayoub under the supervision of Dr. El-Hachemi el Hadj haimmiche 2021/2022 on the effect of disturbance visual training with SENAPTEC looks on the reaction speed and ball taking / picking skill among goalkeepers in football under 17 years old.

- Visual training allowed the following results to be achieved:  
We found an improvement in the level of development of the goalkeepers' reaction speed as well as their style of taking the ball. To this end and from what has been presented theoretically and practically, we can confirm that our hypotheses are found supported by the results of the tests obtained.

To this end, we can say that we have come up with hypothesis 1, which states that "stroboscope glasses have a role in communicating and influencing the development of reaction speed for this age group in goalkeepers in football".

For the second hypothesis:

According to the results obtained in our study, and with regard to the second hypothesis, which states that "stroboscope visual training has an effective effect in improving and developing ball control technique in goalkeepers, by means of goggles in the age group 11/12 years".

Graph 3 shows that the results obtained from the technical test (taking the ball) in both stages (pre- and post-test) for the three goalkeepers, that there is an improvement in the technique (taking the ball), that there are differences between the pre-test and the post-test (in favor of the post-test) of the technical test (taking the ball), and this is confirmed by the rates of change in tables 2, 4 and 6 for the three goalkeepers.

These results can be explained by the fact that the use of stroboscope optical training has an effective effect in improving and developing the technique of holding and controlling the ball in goalkeepers, with stroboscope glasses.

This is consistent with what has been pointed out in previous studies:

The study conducted by Zawad Rumisa under the supervision of Dr. El-Hachemi El Hadj Hammiche 2019/2020 showed that the effect of visual stroboscope training by (Vima Rev) on the technique (dollyochagui) with 6 taekwondo players aged 13-14 years that:

Visual training allowed the astroboscopy to improve technical techniques (dollyochagui) in taekwondo players However, we recognize that our study has limitations, such as highlighting duration factors to create a more effective



program and in the end we can add the fact that vision influenced these results independently.

To this end, we can say that we have come up with hypothesis 2, which states that "stroboscope visual training has an effective effect in improving and developing the technique of holding and controlling the ball in goalkeepers, by means of astroboscopic glasses in the age group 11/12 years".

## **7-Conclusion**

At the end of our conclusion, the main lesson to be learned from our study and research is that visual training with stroboscopic glasses has become one of the most important factors in football practice. The analysis of bibliographic sources we conducted has helped us a lot and has allowed us to determine the importance of visual readiness to improve football efficiency.

For this purpose and from what has been presented in theory and practice, we can claim to say that our hypotheses are supported and confirmed by the results of the tests obtained and by referring to the dynamics of these results acquired during the experiment, we found that there is some improvement in the level of development of the speed of reaction of the goalkeepers as well as the techniques of taking the ball. And this is despite the shortcomings and unforeseen events we have experienced, in particular the lack of means and infrastructure to carry out our mission.

Finally, it should be noted that training with stroboscopic (disturbed) glasses has acquired great importance in relation to the athletic performance observed in athletes in recent years.

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