

THE EFFECT OF SPECIAL EXERCISES USING TWO DESIGNED DEVICES IN DEVELOPING SOME DEFENSIVE HANDBALL SKILLS

Hanan Morad^{1*} and Huda Badwe Shbeeb²

¹College of Physical Education and Sports Sciences for Woman, University of Baghdad, Iraq; ²College of Physical Education and Sports Sciences for Woman, University of Baghdad, Iraq

Abstract

The purpose of this paper is to preparing special exercises (physical - skill) for handball players, and identifying the effect of special exercises (physical - skill) in developing some defensive handball skills. The two researchers used the experimental method with pre-post-measurement for one group due to its suitability and the nature of the research problem. The players of the specialized school in handball determined the research community, and they numbered 14 players, as the percentage of the sample from the community was (82.35%), and in order to ensure the homogeneity of the members of the research sample the two researchers used the measures of height, weight, and age on Wednesday, 1/26/2022, to conduct homogenization, as the value of the torsion coefficient ranged between (± 3). One of the most important results reached by the researcher is that: The exercises prepared by the two researchers contributed to the development of the defensive skills under study (covering, confrontation, blocking, and lateral moves), the exercises prepared by the two researchers are (physical - skill) exercises that contributed to the development of physical capabilities and their clear reflection on the defensive skills under study, and the exercises prepared by the two researchers had a positive effect, in addition to the use of the tools and the two devices designed to develop the defensive skills under study. One of the most important recommendations recommended by the researchers is that: Adopting the exercises prepared by the two researchers in developing the physical abilities under study, and adopting the devices designed by the two researchers in developing the physical abilities and offensive skills of the handball players.

Keywords: Handball. Defensive skills. Positioning device 6 cones. Triple optical device

Introduction

The science of sports training is one of the sciences that merged with most of the other life sciences, whether the sciences deal with the physical (kinetic) side or the psychological side for this reason, researchers created a large arena for preparing and applying a lot of research that aims to develop sports achievement. Therefore, those concerned with the training process were interested in the use of training devices and the aids are among the best approaches in developing the level of players according to the concepts and theories of sports training.

Exercises of all kinds are the only tool for development, and it is the responsibility of the coach to translate these exercises (the coach is an artist in choosing the method, training equipment, and means appropriate to the form of the sport in which he works, which can be used with the rest of the other methods in order to

Manuscrito recibido: 01/03/2023

Manuscrito aceptado: 15/03/2023

*Corresponding Author: Hanan Morad, College of Physical Education and Sports Sciences for Woman, University of Baghdad, Iraq

Correo-e: Hanan.Morad1104a@copew.uobaghdad.edu.iq

develop and improve any element of fitness and to achieve what should be Achieving it). (1:158).

The importance of the research lies in the use of modern training devices and their employment in the field of sports training to break the usual training line in developing some defensive skills in the handball game.

Research Problem

As for the research problem, and through the experience of the two researchers and their follow-up to the handball game, a weakness was noticed in the performance of the defensive skills of the game, and this is due to reasons that may be the coaches' interest in the physical aspects as well as the lack of use of training tools and devices, and thus this leads to the non-occurrence of diversity and change, which is considered one of the basic and important rules in training therefore, the two researchers decided to prepare special exercises using two devices designed to develop some defensive handball skills.

Research Objective

- Preparing special exercises (physical - skill) for handball players.
- Identifying the effect of special exercises (physical - skill) in developing some defensive handball skills.

Research Hypotheses

- There are statistically significant differences between the results of the pre and post-tests in the development of some defensive handball skills.

Research Methodology and Field Procedures

Research methodology

The two researchers used the experimental method with pre-post-measurement for one group due to its suitability and the nature of the research problem, since the experimental method gives real results (2:81).

Community and sample research

The research community was determined by the players of the specialized school in handball, and they numbered 14 players, as the percentage of

the sample from the community was (82.35%), and in order to ensure the homogeneity of the members of the research sample the two researchers used the measures of height, weight, and age on Wednesday, 26/1/2022, to conduct homogenization, as the value of the torsion coefficient ranged between (± 3). The results indicated that the sample was homogeneous, as shown in table 1. What the researcher must accurately determine is to select a sample that accurately represents the community of origin (3:96).

By looking at the sources, references and previous studies in handball and sports training, the two researchers determined the defensive skills in handball and tested them. The researchers prepared special exercises (Appendix 2) were using two designed devices (Appendix 1), and the two researchers conducted the pre-tests on the research group on Monday 7/2/2022 in the handball court of the Specialized School at exactly ten o'clock in the morning for defensive skills (blocking, speed of short defensive moves, confrontation, Coverage) (4:104)(5:143-144)

Then, the exercises that were prepared were implemented, taking into account the available capabilities that are commensurate with the level, capabilities and capabilities of the research sample, as the exercises prepared by the two researchers focused on developing the defensive skills used in the research, and the vocabulary of the various exercises for the skills provides more rest time, which can allow the player to recover Healing (6: 180) Training method used: high intensity interval training intensity used: (80 - 90%)(7:15).

As the exercises were carried out on (13/2/2022) until (14/4/2022) and during the special preparation stage, at a rate of three units per week, i.e. the total units were (24) training units and on days (Sunday, Tuesday, Thursday) and for a period of 8 weeks. The post-tests were conducted on (4/16/2022), taking into account the same temporal and spatial conditions as the pre-tests, and the two researchers used the (spss) statistical program to analyze the samples and extract the results (8:7-8).

Results and Discussion

Discussion

Table 2 shows that there are significant differences between the pre and post-tests of the research sample in the defensive skills under study the researchers attribute the significant differences to the nature of the exercises that were

Table 1: Shows the arithmetic mean, standard deviation, and skewness coefficient for the homogeneity of the sample.

Variables	Measuring unit	Mean	Median	Std. Deviations	Skewness
Chronological age	Year	15.87	16.00	0.80	0.42
Length	Cm	1.70	1.70	0.57	0.02
weight	Kg	67.25	67.50	3.56	0.21

Table 2: shows the results of the pre and post-tests of the defensive skills under study

Defensive skills	Measuring unit	Pre-test		Post-test		arithmetic mean of difference	standard deviation of differences	T value calculated	Level Sig	Type Sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation					
Blocking	Degree	1.62	1.18	4.00	0.75	2.37	0.74	9.02	0.00	Sig
Coverage	Sec	5.50	0.92	9.50	0.92	4.00	1.69	6.69	0.00	Sig
confrontation	Number of correct attempts within 15 seconds	2.12	0.64	4.75	0.70	2.62	0.74	9.97	0.00	Sig
Lateral moves	Number of correct attempts within 15 seconds	16.25	2,81	8.87	1.12	7,37	1.92	10.85	0.00	Sig

Significant under significance level < 0.05 and below 13 degree of freedom.

prepared by the researchers, as well as the use of the two devices designed for the purpose of developing the defensive skills under discussion and moving away from what is familiar and traditional in training. This is consistent with what (Muhammad Hassan Allawi) mentioned, "The good performance of motor skills, in addition to good tactical thinking, is not successful in implementation unless it depends to a large extent on the required physical capabilities." (9:283) (Table 2).

The exercises prepared by the two researchers were characterized by the diversity as well as the variation in the use of repetitions to perform the exercises as well as the specificity in which the exercises intended for the development of the basic defensive skills of the handball player (covering, confrontation, blocking, the lateral moves) were characterized by the defensive skills of handball. The exercises were prepared in a consistent manner. In addition, balanced with giving full importance and sufficient time in choosing the appropriate exercises to carry out the defensive duty during the training units. In addition, the development of defensive skills is nothing but a reflection of the development of the player's physical capabilities mainly, "since the effectiveness of the individual in many games and activities is determined by a degree of muscle strength, endurance, overall body flexibility, or the flexibility of a specific joint (10: 55)."

Repeating the performance of the prepared exercises has a clear effect on the development of defensive skills, and this is consistent with what (Jamil Qasim Muhammad and Ahmed Khamis Rad) mentioned that the defenders must recognize early the intention of the attacker who is scoring to take the appropriate position to block the ball (11:192).

The covering is one of the defensive skills that must be mastered as one of the basic defensive skills for handball players. The covering is "supportive and supportive movements performed by the defenders closest to their opponent who has advanced to confront the more dangerous attacking player who is trying to shoot more direction of the attacker" (12:213).

Moreover, the variation in the use of repetitions to perform the exercises within the allowed time is considered a "helping" factor that increased the trainees' ability to perform the duties, which led to harmony between the trainees in taking the right place and achieving the purpose sought by the team members (13: 74). And the clear focus on vertical jump training gave more resistance, which helped to develop physical abilities and is clearly reflected in the skillful performance (14: 738), the development of physical abilities, especially those that combine strength and speed, is important and essential for games that need to overcome resistance, speed of movement and movement, which is done through complex and varied exercises, as well as jumping exercises and lateral movements (15:16).

In addition, the use of the two devices designed by the two researchers had a clear impact on developing the basic defensive skills of the handball player as the exercises with the help of the tools help in the occurrence of adaptation in the skill technique as a result of the repetition of the performance that is applied with strictness and appropriate repetitions and periods of rest, which has a positive impact on the development and development of the physical and functional capabilities and as a result works to improve and develop the

level of technical and skillful performance (16:61).

Here, the emphasis is on the need to use means, tools, and multimedia to improve defensive skills, or devices and auxiliary tools have contributed to improving the trainees' motivation for training (17: 178) that the program prepared by the researchers has positively affected the research variables the two researchers attribute this development of the experimental group and its superiority over the control group in the skill of learning forward transmission (18:15).

Conclusions and Recommendations

Conclusions

- The exercises prepared by the two researchers contributed to the development of the defensive skills under study (covering, confrontation, blocking, and lateral moves).
- The exercises prepared by the two researchers are (physical - skill) exercises that contributed to the development of physical capabilities and their clear reflection on the defensive skills under study.
- The exercises prepared by the two researchers had a positive effect, in addition to the use of the tools and the two devices designed to develop the defensive skills under study.

Recommendations

- Adopting the exercises prepared by the two researchers in developing the physical abilities under study.
- Adopting the devices designed by the two researchers in developing the physical abilities and offensive skills of the handball players.
- Carrying out similar studies on offensive handball skills and other individual and team games.

References

Dr. Huda Badawi, H. N. (2020). The effect of using multimedia in learning the skill of passing from the bottom of volleyball. *Modern Sport*, 19(3), 0178. <https://doi.org/10.54702/msj.2020.19.3.0178>.

Rand Issa, & Dr. SuhadQassim. (2022). The effect of special exercises to develop explosive power, speed and anaerobic endurance for soccer players. *Modern Sport*, 21(3), 0074. <https://doi.org/10.54702/msj.2022.21.3.0074>.

Kamal Abdel Hamid Ismail and Mohamed Sobhi Hassanein. 2019. *Quadruple Modern Handball*. [Editor] 1. Cairo: Al-Kitab Center for Publishing.

Dr. Suhad Qassim, D. H. (2020). Exercises based on the phosphogenic energy system to develop the ability to perform with precision and accuracy. *Modern Sport*, 19(3), 0001. <https://doi.org/10.54702/msj.2020.19.3.0001>.

Juma., Badawi Shabib A. H. B. Sh., & Abdel-Hussein A. (2023). The effect of physical effort training according to the anaerobic threshold to avoid excessive training in the development of rapid strength and shooting skill

- from jumping high with handball. *Wasit Journal of Mathematical Sciences*, 13(1), 10–23. <http://doi.org/10.31185/wjoss.180>.
- Shaker, Ali Sadiq, Hussein Mhaibes Tuama, and Mahmoud Nasser Radhi. 2022. "The Effect of Using E-Learning Technology in Learning the Skill of Clean and Jerk in Students of Physical Education and Sports Sciences." *SPORT TK-Revista EuroAmericana de Ciencias del Deporte*: 4. <https://revistas.um.es/sportk/article/view/509331>.
- Muhammad Hassan Allawi and Dr. Suhad Qassim. (2022). The effect of Cross Fit exercises on the development of explosive power, speed of Kinesthetic response, and performance accuracy of the skill of crush beating for volleyball players. *Modern Sport*, 21(2), 0010. <https://doi.org/10.54702/msj.2022.21.2.0010>.
- Kamal El Din Abdel Rahman Darwish and others. 2002. Measurement, evaluation and match analysis in handball. Egypt: Al-Kitab Center for Publishing.
- Jamil Qasim Muhammad and Ahmed Khamis Rad. 2011. *The World Handball Encyclopedia*. Baghdad: Arab Book House.
- Ahmed Khamis Al-Sudani and Muhammad Mahmoud Kazem. 2017. *Modern Handball, Skill Principles, Tactics, Methods*.
- Dr. Huda Badawi, R. I. (2020). The effect of rehabilitative exercises accompanied by aids to improve muscle strength and range of motion for people with dislocated shoulder joint. *Modern Sport*, 19(3), 0134. <https://doi.org/10.54702/msj.2020.19.3.0134>.
- Hadeel Talib Mohammed, & Dr. Suhad Qassim Saeed. (2021). The effect of physical exertion training using a vertimax device in developing the characteristic strength with speed and the skill of shooting by jumping in front - high with the hand ball for youth. *Modern Sport*, 20(1), 0158. <https://doi.org/10.54702/msj.2021.20.1.0158>.
- Hashem, Nuha Y, Doaa F Al Edhary, Mahmoud N Radhi, and Mohamed G Hmeid. 2022. "The Effect of Dynamic Lactic Exercises in the Maximum Oxygen Consumption and Lay-up Shot Endurance of under-20 Basketball Players." *SPORT TK-Revista EuroAmericana de Ciencias del Deporte*: 2. <https://revistas.um.es/sportk/article/view/509331>.
- Diana Haider, & Dr. Widad Kadhum.(2021) The Effect of compound exercises using the (RANDOM SHOT) device and the electronic goal In developing the speed of the motor response and the rapid ability of the two goal keepers youth football halls. *Modern Sport*, 20. (3), 0022 <https://doi.org/10.54702/msj.2021.20.3.0022>.
- Zainab Shakir Hammood, & Widad Kadhim Majeed .(2021) .The relationship of some physical variables and performance angles to the strength of the straight serve in tennis. *Modem Sport*, Vol. 15 (4) ,0061. <https://doi.org/10.54702/msj.2021.20.4.0061>.
- Hadeel Talib Mohammad, Prof.Dr. Suhad Qassem Al-Mousawi. The Effect of Maximum Physical Exertion Exercises According to The Anaerobic Threshold On The Development of Explosive Ability and The Skill of Shooting by Jumping High in Front of Handball for Youth. *International Journal of Research in Social Sciences and Humanities . (IJRSSH)* 2020, Vol. No. 10, Issue No. IV, Oct-Dec e-ISSN: 2249-4642, p-ISSN: 2454-4671. <http://doi.org/10.37648/ijrssh.v10i04.034>.
- Prof. Dr. Suhad Kasem AL-Musaay, Prof. Dr. Moayad Abdullah Jassim, Prof. Dr. Najah Mahdi Shalash. Training In Diverse Style And Its Effect In Improving Some Biomechanical Variables Of The Skill Of The Aces In Volleyball. *Journal of Positive School Psychology*. 2022. 7., Vol. 6, No. 7. <https://journalppw.com/index.php/jpsp/article/view/12350>.
- Dr. Moad Abdullah Jasm, Dr. Suhad Qasem Saeed Almusawi, Dr. Najah Mahdi Shalash** .Effectof the opposite hierarchical training method todeveloping explosive power, which is characterized by speed and some functional variables for basketball players. *Annals of the Romanian Society for Cell Biology*, Vol. 25, Issue 6, 2021, Pages. 730-738, View at: Publisher Site | Google Scholar.

Appendix 1: Shows the designed devices

1. Triple Response Device

The device consists of three light plastic cones in three colors (yellow, red and blue) with a height of 50 cm. At the top of each cone, there is a switch that works as soon as the player's hand passes over it (an infrared sensor). The device also consists of a sensor pole that sends a wireless signal to one of the cones. Randomly, and when the signal reaches the specified funnel, this funnel lights up, so the player rushes to it to pass his hand over it to turn it off, then returns to the sensor column to continue the work.

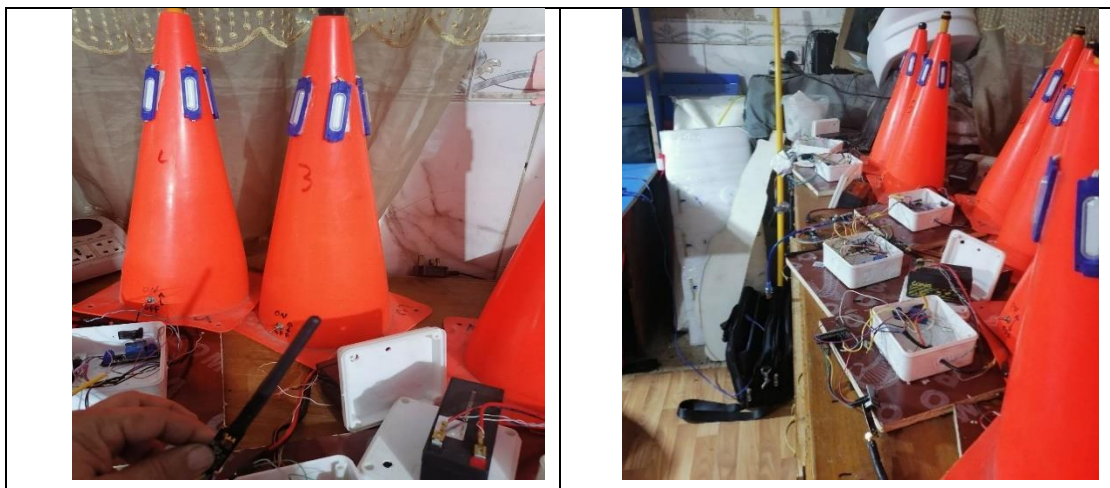


Figure 1: Triple Response Device.

2. Centering device 6 cones

The device consists of six light cones in one color with a wireless control panel each funnel consists of a system for receiving the wireless signal coming from:

- Sensor pole.
- The receiver system in each funnel consists of an Arduino Nano microcontroller
- Wireless module NRF24I01
- Relay 5 volts
- 12-volt lithium battery.



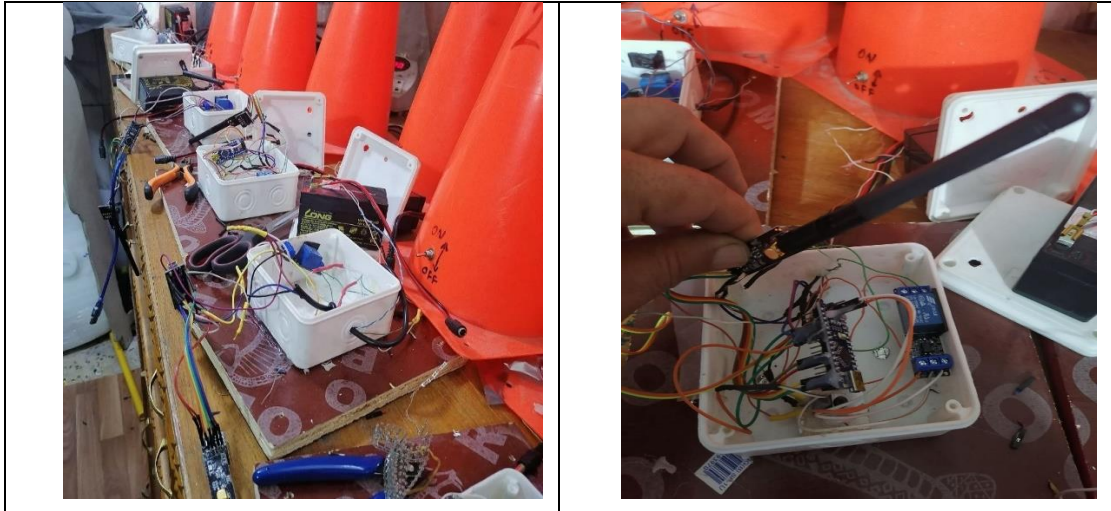


Figure 2: Centering device 6 cones.

Appendix 2: Sample exercises used in the training unit

Training units	Exercises	Volume	Total volume
First training unit intensity 75%	- From the stop, forward movements towards the luminous cone and back.	2(4*7)	30min
	- From standing, moving and turning off the optical sensors according to the sequence of their appearance.	full rest 2*4 Full rest	