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Special anaerobic exercises to develop some physiological variables with motor response speed in scoring accuracy from movement for handball players (15-16) years

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Abstract

The study included the preparation of special exercises according to anaerobic ability, one of the effective requirements of the energy system for this game, which develops physiological variables in handball according to the motor response in scoring accuracy from movement of this fast game, which requires different speeds according to the anaerobic ability according to what happens at work according to the requirements of the performance of game skills, that the emphasis on the use of exercises for anaerobic physical effort This is the first effective system for fast games of a motor nature, which works on development of some physiological variables of the first energy system (CP) for the speed of motor response to scoring accuracy from movement, the study using these exercises for anaerobic ability in some physiological variables according to the motor response in scoring accuracy from movement, and these exercises have an impact on handball skills, especially scoring skill from movement and methods of development, the study aimed to identify the impact of physical effort training anaerobic in development response speed abilities and scoring accuracy from movement in the effectiveness of handball for talented players, the study hypothesis that there is a statistically significant relationship to the pre-tests and post-tests as a result of the use of exercises physical effort anaerobic in some physiological variables of motor speed response and scoring accuracy from movement in Handball for the sample members, It was also concluded that the exercises for anaerobic ability according to these special exercises effectively and effectively affected the physiological variables of handball in the speed of motor response and scoring accuracy from movement, and also addressed recommendations using other exercises for other abilities to develop skill in other games.

Keywords: Anaerobic exercises, motor response speed, physiology, scoring, handball

Introduction

The great role played by sports in all its seasons and stages, whether individual or collective, has received great attention in these countries and institutions, so recent years have witnessed remarkable scientific progress in all areas of life, so the level of performance in sports activities has risen as a result of scientific studies and research and the interest of specialists and their work with a clear vision to study the influential and important aspects in the applied topics of various events, as training is a basic principle in the development of physical and physiological abilities in humans and in the development of performance of skills. It is understood from this new acquisition and continue to choose the type of correct and appropriate responses to performance, as this becomes interactive with the environment and this comes only through the good and accurate preparation of training units after taking into account the consideration of Hassan technical and physical development, especially when motor performance through practice is coordinated nerve instructors to the stage of performance of the type of skill and stages.

Handball is one of the collective games played by the world and is considered by many people a game derived from football, which is a game of speed and excitement together at the same time, as it combines running, jumping, receiving the ball and passing it in the shortest possible time, and scoring goals by throwing the ball into the opponent's goal and most of its practice needs physiological abilities for the role of body systems in working to develop high physical abilities, and despite the novelty of the game, it attracted many fans in

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All countries of the world have even become the third most popular in the world after the games of football and basketball, and handball is a sports event characterized by motor speed, anaerobic abilities and continuous interaction in the speed of motor response in the performance of its skills, as it is the ability to think, adapt functionally and harmonize with fast playing situations.

In this game, the motor response has a role in the accuracy of correction of movement for the sample members of the effective anaerobic physical effort for training according to the functional indicators according to this system for the speed of management of game skills and what its role in technical performance in the impact of special exercises because it is an important element in developing the accuracy of the shooting skill of movement is one of the general foundations in resolving situations, which is one of the basic skills that crown the team's effort with success or lead it to failure and loss of effort. There is a need for the game to aerobic capabilities in the development of some physiological variables of the energy system according to the speed of response and focus on them in the game of handball for the sample members. From that came the importance of the research the impact of special exercises for anaerobic physical effort in the development of some variables as an effective energy system to develop the speed of motor response in the accuracy of the skill of shooting from the movement of the sample members.

Research problem

The work of the anaerobic energy system to develop physiological abilities according to the requirements of the handball game, which has long been required by handball, which is one of the collective games that need physiological variables and effective basic physical abilities when mastered by the trainee and the player to reach the good level of performance of the skills called for by the coach to achieve the best results, through work and follow-up The researcher noted that the results of training and the player's special abilities according to the anaerobic energy capabilities in the physiological variables in the speed of motor response and the accuracy of aiming from The movement does not achieve appropriate results that correspond to the level and ambition that both the player and the coach aspire to achieve and reach achievement.

Therefore, the researcher decided to prepare special exercises according to these abilities as a scientific study to find a solution to the problem of the players in the special exercises for anaerobic physical effort as a system of energy systems to address the research problem in terms of the impact of exercises and physiological variables of anaerobic physical effort in the development of physiological variables in the speed of motor response and accuracy of correction of movement for the members of the research sample, and when studying the problem, the researcher conducted training methods according to the anaerobic capacity of an energy system of energy systems working in sports work in effort Physical for some physiological variables to develop the speed of motor response and the accuracy of correction of movement to reach the most appropriate path in mastering the skill of the members of the research sample.

Research objectives

1. Preparing exercises according to the anaerobic ability of the members of the research sample.

2. The effect of these exercises on the development of some physiological variables and the speed of motor response and accuracy of correction of movement among the sample members.

Research hypotheses

1. There are statistically significant differences between the physiological variables and the speed of motor response in the pre- and post-tests of the sample members.
2. There are statistically significant differences between the pre- and post-tests between the physiological variables and the speed of motor response and the accuracy of correction of movement of the sample members.

Terms definition

1. **Anaerobic capacity:** The change and development of the level as a result of the nature of the development of the functional size devices, which emerged its role in the extent of readiness to carry out a normal function in terms of the efficiency of the circulation and breathing apparatus and the speed of food processing (Energy) for muscle tissue. (1: 24).
2. **Motor response:** It is the jump between the excitement and the appropriate full answer in the shortest time, and this depends on the instructions of the nervous system and the ability of the muscular system in motor execution. (2: 60).
3. **The skill of correction of movement:** It is one of the offensive skills on which the result of the match depends, there are those who see the correction as (The skill of termination) at the moment of correction is terminated represent the final page of those measures and actions aimed and can also know that the final diversification of all play configurations as he said (Mohamed Majid Mohamed).

Research Methodology

The researcher used the experimental approach with two control and experimental groups in order to suit the nature of the problem, which the path is leading to the goal or the invisible thread that pulls the researcher from beginning to end. He intends to reach his results. (4: 42) It is one of the true tests of the type of cause-and-effect relationships and the representation of the most honest approach that scientifically endures many scientific problems. (5: 217).

Research community and sample

The researcher selected the research sample in a deliberate way to conduct research tests and defines the research sample as "the objectives that it applies to its research and the procedures it wants to use, which determine the nature of the sample that will be chosen". (6: 41) The players who were selected were players of Baghdad handball clubs, and the selection was made on (14) players aged (15-16) years, and those who make up (50%) of the original research community, which numbered (12) players, were divided into two groups (6) for each group, and (2) was excluded to conduct the exploratory experiment on them.

Methods, devices and tools used in research

Means of gathering information

1. Arabic and foreign sources.

2. Assisting team.
3. Information Network (Internet).
4. Registration Form.

Devices and tools used in research

1. Legal handball court.
2. 5 handballs.
3. 8 Cones.
4. Stopwatch (2) types of Chinese manufacture.
5. Japanese (Sony) camera number (1).
6. Chinese medical balance number (1).
7. Electronic calculator (1) type (Dell).
8. American oxygen blood saturation device.

9. American heart rate measuring device.
10. A device to measure the percentage of lactic acid concentration in the blood of Japanese number (2).

Equivalence between experimental and control groups

The researcher conducted the equivalence between the experimental and control groups in the study variables and physiological indicators (Motor response speed - heart rate and blood oxygen percentage - accuracy of correction of movement), and all values appeared not statistically significant, thus achieving parity and one initiation line, as shown in Table (1).

Table 1: Shows the equivalence of the two groups

Variables	Measurement unit	Experimental group		Control group		Median	Error ratio	Significant
		M.	St. d	M.	St. d			
Motor response speed	Sec.	12.180	0.306	12.185	0.670	12.740	0.143	In sig.
Heart rate	Bpm.	69	1.201	71	1.380	69.11	0.490	In sig.
Blood oxygen ratio	mm Hg	92	0.51	91	1.01	92	0.405	In sig.
Scoring accuracy from movement	Rep.	4.5	0.375	4	1.11	4.1	0.451	In sig.

Exploratory experiment

The researcher conducted the exploratory experiment on 20-21/2/2024 on a sample of research in the variables under study.

Research tests

Motor Response Speed Test: (7:125)

Purpose of the test: To measure the ability to respond kinetically at the moment of departure

Devices and tools: 20 m long yard width 2 m with tape measure, stopwatch, cones

Method of performance: The tester stands at the end of the center line to face the referee, who stands at the end of the other end of the line and holds the stopwatch to raise his hand to the laboratory and then moves his arm in front to the left or right and at the same time turns on the clock and at that time the tester runs at maximum speed to the line indicated by the arbitrator and when he reaches the line and the referee stops the clock.

Recording: The player has two attempts to record the best attempt.

Physiological variables Tests

First: Heart rate test: (8:133)

Objective of the test: To measure heart rate after exertion by running on a treadmills in the maximum oxygen consumption test.

Second: Blood Oxygen test: (9:135)

Objective of the test: to measure the percentage of oxygen in the blood.

Scoring accuracy from movement test: (10:23)

Purpose of the test: Measurement of aiming accuracy from movement.

Devices and tools: Legal handball court, 50 cm×50 squares hanging in the top corner of the goal, handballs (5).

Performance specifications: The player stands in front of the 6 m line so that the goal is behind the tested player and his face towards his colleague who stands in front of him handling the ball to receive the ball and turn to face the goal, tilt and aim towards the squares in the accuracy of shooting on the ground so that he aims 3 balls on each square.

Registration: The number of successful attempts is recorded for the laboratory and the grades are calculated as follows

- If the ball enters the square, it is given (2) two degrees
- If the sides of the square are hit, one (1) is given.
- If the ball is outside the goal, it is given zero. The highest value of the laboratory is calculated as 12.

Pre-tests

The pre-test for the physiological variables under study was conducted on 22-23/2/2024 at four in the afternoon for the tests under study.

Training approach

The researcher designed programs for exercises in anaerobic ability in the development of some physiological variables and the speed of motor response and the accuracy of correction of movement for a period of (8) weeks by two training units per week (Monday and Wednesday) of each week for intensity (80% - 95%), where the program included units of repetitions, stress and rest between repetitions and between groups, where the program was graded with intensity for the vocabulary of the program and training units for a period of (8) weeks for the experimental group, while the control used the method prepared by the trainer followed by him, where the program included Exercises in the manner of interval training of high intensity and repetitive within the requirements of anaerobic ability exercises in jumping and jumping exercises and skills to develop the accuracy of shooting from the movement according to anaerobic ability exercises for the requirements of intensity and size of these exercises and the movement of ripples in the training volume used for the units of the training program prepared by the researcher Anaerobic ability exercises and some physiological variables of the

speed of response in the accuracy of shooting from the movement of the sample members.

Post-test

The researcher conducted the post-test of the research variables under study for the experimental research sample on 22-23/4/2024 and for the same conditions that were carried out in the pre-tests of the experimental sample members.

Statistical Methods

The researcher used the statistical bag (SPSS) to extract the results of the tests.

Presentation, analysis and discussion of the results

Presentation, analysis and discussion of the results of pre- and post-tests of the control group

Table 2: Shows the values of the arithmetic media, standard deviation, value of (T) and percentage of error in the pre- and post-test of the search variables of the control group

Variables	Measurement unit	Pre-test		Post-test		Tabular (t) value	Error ratio	Significant
		M.	St. d	M.	St. d			
Motor response speed	Sec.	12.185	0.670	12.180	0.306	3.13	0,41	Sig.
Heart rate	Bpm.	71	1.38	69	0.120	3.11	0,24	Sig.
Blood oxygen ratio	mm Hg	91	0.103	92	0.51	2.50	0,029	Sig.
scoring accuracy from movement	Rep.	4	1.120	4.5	0.375	3.13	0,25	Sig.

Through Table (2) and by comparing the values of the median, it is clear that the values of the pre-tests were greater in terms of variables for the values of the differences, and thus came in favor of the post-tests. It is that the differences impact in the requirements of exercises anaerobic ability and the development of the level and thus attribute the researcher to the evolution of waiting in training and continuity and thus occurred this development of the requirements of the variables under research, and thus attribute the researcher to continue exercises for the capabilities of endurance anaerobic ability, which included the requirements under research. Where the development

occurred through communication in the exercises for a period of (8) weeks and by two units per week, which contributed significantly to the development of the training process and the physiological adaptation of the speed of the motor response, which improves the player's physical and functional ability and thus the player's ability to perform the skill of accuracy of correction in various technical aspects of the activity of the members of the specialized sample. (9: 28)

Presentation, analysis and discussion of the results of the pre- and post-tests of the experimental group

Table 3: Shows the arithmetic means, standard deviation, value of (T) and percentage of error in the pre- and post-test of the research variables of the experimental group

Variables	Measurement unit	Pre-test		Post-test		Tabular (t) value	Error ratio	Significant
		M.	St. d	M.	St. d			
Motor response speed	Sec.	11.12	0.206	10.99	0.134	2.23	0,021	Sig.
Heart rate	Bpm.	170	0.160	165	0.213	5.22	0,012	Sig.
Blood oxygen ratio	mm Hg	95	0.44	98	0.53	3.15	0,023	Sig.
scoring accuracy from movement	Rep.	5	0.131	8	0.180	2.26	0.38	Sig.

Through Table No. (3) and in the test of motor response speed and physiological variables and accuracy of movement was the test values have a major role in knowing the differences in the pre- and post-test, which are all confirmed moral values and moral that the significant differences for the pre- and post-tests, and this indicates that the anaerobic ability exercises for the sample members developed in favor of the tests for the experimental group and this indicates the approach prepared by the researcher. Which attributes the researcher that the significance of the differences to the clarity of the vocabulary of the training program and the development of the level of the experimental group. For example, the development in the physical level of response speed and physiological variables played a positive role for the differences in the tests of the experimental group and in favor of the post-test. This

indicates the development in the units of the training program through the development of skill performance and the integration of exercises reflected on the development of physiological indicators, speed of motor response and accuracy of correction from the kit, which led to raising the efficiency of physical performance in general. This includes that training programs are measured by their success to raise the level of progress achieved by the individual athlete is the type of activity practiced through the level of skill, physical and functional, which occurs adaptation in what the individual achieves in the curriculum that applies. (10: 62)

Presentation, analysis and discussion of post-tests of research variables for the control and experimental groups

Table 4: Shows the comparison between the post-tests of the research variables for the control and experimental groups for variables for the experimental group

Variables	Experimental group		Control group		Tabular (t) value	Error ratio	Significant
	M.	St.d	M.	St.d			
Motor response speed	12.180	0.306	10.99	0.134	2.23	0,043	Insig.
Heart rate	69	0.120	165	0.213	3.24	0.11	Insig.

Blood oxygen ratio	92	0.51	98	0.53	3.14	0,03	Insig.
scoring accuracy from movement	4.5	0.375	8	0.180	3.23	0,037	Insig.

Through table No. (4) and after reviewing the results, the researcher attributes to the results of morality and in favor of the experimental group clearly, as a result of the use of regular training for exercises according to anaerobic ability in methods for high-intensity interval training and the repetitive method of effective exercises according to effective rest periods as a result of the use of anaerobic work and improving the player's ability to speed the motor response to balanced motor performance and effective skill and maintain the speed of effort. (11:79) This includes relying on scientific foundations for programs in terms of intensity, comfort and repetition with comfort that is separated by one performance and another and the difficulty of performance is usually above average or high. (12: 86)

From that, we note the amount of the median ratio, which was greater among the sample members of the experimental group due to the training units and the application of the training program prepared by the researcher. This led to the development of their physical and physiological level effectively and effectively according to the performance of the response speeds affecting the accuracy of shooting from the movement of the sample members.

Discussion

Through the findings of the researcher and as a result of the use of special exercises for the anaerobic ability used in the training process based on scientific foundations in terms of intensity, rest and repetition, which is in line with the dominant nature Type of activity or type of effectiveness The handball game is one of the quick events that need special speed according to an effective motor response, so the exercises showed results in the post-tests clearly and significantly, as the exercises showed the nature of performance in general and specialized skills in particular to acquire Physical and physiological variables, which contributed accurately to the correction effectively and significantly as a result of the correct programs for training work, which leads to the principle of gradation of pregnancy has a positive role on the trainees. Mohamed Ali pointed out that "training programs measure their success on the progress achieved by the individual athlete in the type of sports activity and practitioner through the level of skill, physical and career. This depends on the adaptation that the individual achieves with the training curriculum that he applies (13: 62) Mufti Ibrahim Hammad also mentioned (That endurance of anaerobic ability is the ability to repeat skills for a limited period of time, which works to develop the physical level and skill) (14: 243), as well as the researcher found that the development of physiological variables and performance of players worked to develop the accuracy of correction of movement is the step to build scientific foundations necessary to address the problem in the training process, and from that the researcher created the effective and influential role of exercises according to the anaerobic ability of the variables under study.

Conclusions and recommendations

Conclusions

1. The superiority of the experimental group over the control group in the speed of motor response of the sample members.

2. Physiological variables experienced an evolution in (heart rate, blood oxygen saturation) of the experimental group.
3. Anaerobic ability exercises showed an improvement in the accuracy of aiming from the movement of the sample members.

Recommendations

1. The necessity of conducting similar studies for other samples.
2. Giving guidance to trainers on the need to adopt effective training curricula for the physical and physiological requirements of the sample members.
3. Adopting training programs that affect the development of special abilities, whether in the development of physical or physiological abilities in handball.

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Appendices

A model of a training session of anaerobic capacity

Exercise	Rep.	Rest between rep.	Rest between groups
10 m Jumping run	3-5	2-3	5-7
Throwing balls at goal squares	3-5	2-3	
10 m Motor speeds back and forth	3-5	2-3	
Alternately bench Jumping height 50 cm	6-8	2-3	

The program included two sessions per week (Monday and Wednesday) for the vocabulary of the training program for special exercises for the sample members, where it ensures intensity, rest and repetition between repetitions and between groups.