# The Effect of Aerobic Endurance Exercises on Some Components of the Special Continuation

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**KEYWORDS**
Aerobic Endurance Exercises, Futsal Players, Physical Fitness

**ABSTRACT**
The importance of the research lies in preparing exercises to determine the extent of the effect of aerobic endurance exercises on the components of the special continuation In order to advance the player to perfection In terms of physical fitness. As for the problem of the research, through the researcher's practice of this game, he noticed a low level of special continuation among futsal players, in addition to the lack of interest. With aerobic endurance exercises, which are primarily a physiological characteristic, the thesis aimed to prepare aerobic endurance exercises in some components of the special continuation, as well as identifying the effect of aerobic endurance exercises on some components of the special continuation and skill among young futsal player.

## 1. Introduction

Sports training aims to Improve the various foundations and factors that have an effective role in developing the sporting level, and one of those foundations Is the training methods used, which are the basic foundation for improving the various physical, physiological and skill qualities of the players, and since each method or training method has its varying impact on the level of players' performance. In all physical, skill and functional aspects, therefore, the physiological effects of physical effort related to the type of training must be known. Table tennis is one of the basic matters for football players, as the process of improving the level of table tennis leads to the ability to use selected methods in training and work through them for a long p

When the coach develops a mechanism for the components of the training plan, he must take into account the components of the sports training load, including aerobic endurance, that is, the body's ability to consume the largest amount of oxygen during a specific unit of time and thus produce kinetic energy that enables the individual to continue physical performance for a long period while delaying the onset of Fatigue Aerobic endurance exercises are used in sports that aim to improve performance efficiency for a long period of time and fall under all activities that take 30 minutes or more to perform. Aerobic endurance exercises also improve the strength of muscles, ligaments, tendons and tissues, which reduces the possibility of injury. It is worth noting that developing aerobic endurance requires Longer period of anaerobic endurance

The game of futsal Is one of the developments in modern football, as it is a new style of play and is considered a basic foundation for the development of the game of football, in addition to having an element of excitement and suspense for the audience.

### Research problem

Through practicing this game, the researcher noticed a low level of private special continuation among futsal players and a lack of interest In functional and skill Indicators on the part of coaches, and thus a weak ability to keep up with modern methods, in addition to a lack of interest in aerobic endurance exercises, which is primarily a physiological characteristic. Therefore, the researcher decided to study This problem and developing appropriate scientific solutions to it2-

### Research objectives

Preparing aerobic endurance exercises in some components of special continuation for young futsal players.

Identifying the effect of aerobic endurance exercises on some components of table tennis among young futsal players.

dentifying the effect of aerobic endurance exercises on some components of table tennis among young futsal players for the control and experimental groups in the pre- and post-tests

**Research hypotheses**

There are statistically significant differences between the pre- and post-tests of the experimental and control groups in some components of table tennis among futsal and Al-Saleh players.

**Posttests Research areas**

Human field: Uruk Futsal Club youth players for the 2023-2024 season

Time frame: from (2/22/2024) until (7/10/2024)

Spatial field: Sumer Sports Forum

Research methodology and field procedures.

## 2. Methodology

The researcher used the experimental method with pre- and post-tests by designing two control groups"and experimental"

**The research community and its sample**

The researcher Identified his research population In an intentional manner, whichh was the players of the Uruk Futsal Club:

For the season (2023-2024), the number Is (18) players, (3) goalkeepers were excluded, and (3) goalkeepers were chosen.

(5)players were conducted by the researcher in the exploratory experiment, and (10) of them were chosen intentionally

To form the research sample, the sample constituted (55.5%) and they were divided into two equal groups.

Using the lottery method, each group Included (5) players, so the experimental design was as In

Table 1Shows the experimental design of the research sample

| Totals | Pretest | Processing | Posttest |
|---|---|---|---|
| Experimental group | components of the special continuation and functional and skill indicators | Aerobic endurance exercises | Components of the special continuation and functional and skill indicators |
| Control group | Components of the special continuation and functional and skill indicators | Trainer's approach | Components of the special continuation and functional and skill indicators |

**Homogeneity of the research**

In order to achieve homogeneity among the members of the research sample and to avoid the influence of factors that may affect the results of the experiment in terms of individual differences existing in the sample within the group, the researcher conducted the process of homogenization of the sample in some specifications that may have an impact on the experimental variable (height, mass, chronological age, Training age) and using the coefficient of variation law, as if the value of the coefficient of variation is less than (30%), this indicates the homogeneity of the sample members, and Table (2) shows this.

Table (2) .It shows the variables, the arithmetic mean, the standard deviation, and the coefficient of

variation for the individuals in the research sample

| Sequence | Variables | Unit of measurement | Arithmetic mean | Standard deviation | Coefficient of variation |
|---|---|---|---|---|---|
| 1 | Height | Cm | 176.5 | 3.74 | **%2.11** |
| 2 | Mass | Kg | 73.7 | 10.30 | **%13.97** |
| 3 | Chronological age | Month | 17.9 | 0.64 | **%3.57** |
| 4 | Training age | Month | 3.7 | 0.78 | **%21.08** |

**Equivalence of the research sampl**

The researcher also conducted parity between the control and experimental groups In the research variables (sample measurements, some components of the special table) through Table (3)

Table (3) It shows the equality of the research sample members for the control and experimental Groups

| **Variables** | **Control group** | | **Experimental group** | | **t Calculated** | **value sig** | **indication** |
|---|---|---|---|---|---|---|---|
| | M | S | M | S | | | |
| Height | 176.600 | 2.074 | 176.400 | 1.817 | 0.162 | 0.875 | **insignificant** |
| the age | 17.800 | 0.837 | 18.000 | 0.707 | 0.408 | 0.694 | **insignificant** |
| Bloc | 73.600 | 5.595 | 73.800 | 5.215 | 0.058 | 0.955 | **insignificant** |
| Training age | 3.800 | 0.837 | 3.600 | 0.548 | 0.447 | 0.667 | **insignificant** |
| Continuity of strength | 66.200 | 3.033 | 66.000 | 3.536 | 0.096 | 0.926 | **insignificant** |
| Continuity of speed | 35.318 | 0.603 | 35.512 | 0.632 | 0.497 | 0.633 | **insignificant** |
| Endurance performance | 35.540 | 0.456 | 35.920 | 0.746 | 0.971 | 0.360 | **insignificant** |
| Handling | 1.700 | 0.447 | 1.660 | 0.467 | 0.138 | 0.893 | **insignificant** |
| Dodge | 11.020 | 0.356 | 11.000 | 0.612 | 0.063 | 0.951 | **insignificant** |
| Scoring | 1.700 | 0.447 | 1.800 | 0.447 | 0.354 | 0.733 | **insignificant** |

Means, devices and tool

Means of collecting Information

the test

Note

The questionnaire

personal interview

Arab and foreign sources and references

International Information Network (Internet)

Devices: The researcher used the following devices:

Electronic stopwatch

A device for measuring weight

Canon camera (1)

One (1) DELL computer

Tools used in the research3-3-3

Legal indoor football field

Signs (24)

Legal futsal balls (10)

Tape to measure length

A tape to measure distance

**Field research procedures**

***Determine the research variables***

Determine the components of the special table

Some components of the special exercise were determined after reviewing the sources and consulting with the supervisor. These components were determined (speed exercise, power exercise, and performance endurance).

Identifying basic skills

The researcher, with the help of the supervisor and personal interviews, identified the most important basic skills, which are (handling - dribbling - scoring).

**Description of the tests used in the researc**

First: tests components of the special continuation

Force flexure t-١

Test name: Bend and extend the knees as much as possible until the effort is exhausted

The aim of the test: to measure the strength of the muscle groups working to bend and extend the knee

Capabilities and equipment: Helping a colleague in calculating the number

Performing the test: From a standing posItion – fully bend and extend the knees and count the number until the effort Is exhausted

Calendar: The number of times you bend and extend your knees until the effort exhausts your strength

Speed table -٢

Test Name: Shuttle Run Test 25m x 8 High Start

Test objective: Measure velocity amplitude.Meas

Testing tools: metric tape measure, electronic stopwatch, flat ground (25 m) long, timer.

How to perform the test: Two parallel poInts are drawn with a distance of (25) m between them. The player stands on one of the two points from the high start. Upon hearing the start signal, he runs at full speed, heading to the second point to touch it with his foot, then turns around to return at the same speed to the first point again. This is repeated. Perform (8) eight times, so the distance traveled becomes (25 m x 8) times = (200) metres.

Conditions: The time recorded from the moment of the start until the player touches the starting point again at the end of the eighth stage. The specified point must be touched with the foot every time the player reaches It.

Recording: The player records the time he recorded in covering the distance (25 m x 8).

Performance endurance test-٣

Test Name – Bearing Performance

Purpose of the test – to measure performance endurance

Necessary tools

8 futsal balls, a whistle, a stopwatch, a marker, and a small goal (yard and field goal). Description of the performance - The player stands at the starting line and when the whistle is heard,

he goes to the center line to handle the ball (1) towards the small goal located in the second half of the field, then he completes the movement to take the ball (2), rolls and shoots towards the goal, then goes around the sign located on Penalty point to return to the ball (3) and the player repeats this performance with all eight balls.

## 3. Results and discussion

Test conditions: The test is conducted in the presence of the goalkeeper

**Register**

The time is calculated from the moment the player starts from the starting point until the last ball he shoots at the goal.

**One second is deducted for every goal the player scores**

Second: Skill tests

Scoring test-١

Test name – scoring test on the target divided into degrees from a distance of (10) m.

Objective of the test: to measure scoring accuracy.

Tools used – a (3) futsal ball, a goal divided by ropes Into (5) sections, a whistle, a marker, and a registration form.

Performance method – The tester stands 10 meters away from the target and when the signal is given, he scores.

Registration – Three attempts are given to the laboratory, as grades are calculated according to

Location

Handlingtest-٢

Manipulating towards a small target from a distance of (10 m).

Test name: Manipulating towards a small target from a distance of (10 m).

The purpose of the test - to measure handling accuracy.

Tools used – a futsal ball (3), a measuring tape, and a small goal whose dimensions are as follows: width (1.20 cm) and length (68 cm).

Performance method – The tester stands with the ball at a distance of (10 m) from the target, and upon hearing the signal, the tester handles the ball towards the target.

Scoring – Each tester is given (3) attempts. Two marks are given for the successful attempt, one score for the attempt that touches the crossbar and goalposts, and zero for the failed attempt.

**Evasion test**

Test name: Passing between signs (evading) test for a distance of 15 metres

Purpose of the test: to measure the speed of performing the dribbling skill

Tools used: measuring tape, footballs, stopwatch, signs (6)

Procedures: (6) signs are placed so that each sign is (1 m) away from the other, the first sign is (5 m) away from the start line, and the last sign is (5 m) away from the finish line.

Performance: The player stands at the beginning of the distance with the ball, at a distance of (5 m) from the first marker. When the start signal is given, the player rolls the ball and then passes it between the markers. When he reaches the last marker, he starts with the ball to the end of the distance.

Scoring: The player is given two attempts and the best attempt is counted

**Reconnaissance**

***The first exploratory experiment***

The researcher conducted a reconnaissance experiment on Sunday, February 25, 2024, on a sample of those who did not participate In the main experiment, In an Intentional manner, represented by five players representing the players of the Uruk Sports Club. The researcher conducted the reconnaissance experiment as (practical training for the researcher to Identify the negatives that he encounters during the test In order to avoid them. The exploratory experiment aimed to do the following

Know the time taken to take the test

- Ensure the validity of the tools and devIces used
- Identify the extent of the sample's response to perfo7rming tests
- Access to knowledge of the necessary alternatives before implementing the experiment
- Knowing the adequacy of the auxiliary work team (detecting the difficulties and problems that the researcher may face and correcting them during the main research experiencee)
- Calculating scientific coefficients for the tests used

**The main**

***Pretests***

Trial tests and measurements were conducted at the Sumer Sports Forum / Dhi Qar, and the tests were divided into three days:

On Tuesday, 3/5/2024 AD, the variables of weight, height, and age were measured.

On Wednesday, 3/6/2024, tests were carried out on the special table components.

On Thursday, 3/7/2024 AD, skills tests were carried out.

The researcher took Into account the circumstances related to the tests in terms of time, place, tools used, method of Implementation, and the supporting work team In order to work to provide them in the post-tests•.

***Aerobic endurance exercises***

The researcher prepared a training curriculum, as shown in Appendix No. (), whose goal is to improve aerobic endurance exercises for young futsal players. The training curriculum included the following:

Implementing the curriculum took (12) weeks, at a rate of (3) training units per week, with Saturdays, Mondays, and Wednesdays being training days. Thus, the total number of training units reached (36) training units, with a time limit of (30-40) minutes per training unit. This agrees with everyone's opinion

Klinzing, and Sharky that the number of units per week was between (2 - 3) units, and the number of weeks was not less than (6) weeks so that development could appear. Of the directives and amendments, which the researcher took into consideration after they discussed some of the differences, and thus the researcher arrived at preparing the proposed curriculum, and the curriculum was applied from the period 3/9/2024 until 6/9/2024, and the design of the training curriculum was based on scientific foundations. from where:

Adapting the content of the proposed training curriculum to the level and capabilities of the research sample members.

Taking into account the objective of preparing the proposed training curriculum.

The approach takes into account the individual differences of the individuals in the research sample. Taking into account the appropriate composition of the training load in terms of intensity, volume, and comfort.

Continuous training and low-intensity interval training methods were used to develop aerobic endurance.

**Post-tests**

Posttests were conducted on the research sample from 6/10/2024 until 6/12/2024. At the Sumer Sports Forum / Dhi Qar, after completing the period of applying the training curriculum, which took (12) weeks, the researcher was keen to provide the conditions and procedures for the post-testspreviously followed in the pre-tests.

**Statistical Methods**

The researcher used the statistical program (SPSS) to extract the research results.

This chapter deals with the presentation, analysis, and discussion of the research results, after the researcher completed collecting the data resulting from the tests used, which were placed in tables, because they represent ease in extracting scientific evidence. Because it is an appropriate explanatory tool for research, it enables the research hypotheses and objectives to be achieved in light of the field procedures carried out by the researcher.
Presenting, analyzing and discussing the results of some components of the special table: Presenting, analyzing and discussing the results of some components of the special table for the control .

Table (4) The sig value ≥ is below the 0.05 sIgnificance level

| Sequence | Variable | measruing unit | Pre-test | | Posttest | | t Calculated | value sig | indication |
|---|---|---|---|---|---|---|---|---|---|
| | | | M | S | M | S | | | |
| 1 | Continuity of strength | The number | 66.200 | 3.033 | 72.000 | 2.345 | 9.947 | 0.001 | **moral** |
| 2 | Continuity of speed | time | 35.318 | 0.603 | 34.142 | 0.372 | 3.958 | 0.017 | **moral** |
| 3 | Endurance performance | Time | 35.540 | 0.456 | 34.260 | 0.888 | 5.297 | 0.006 | **moral** |

In light of the data extracted for the members of the research sample, Table (7) shows the differences in the values of some special endurance components (power endurance, speed endurance, and performance endurance) In the pre- and post-tests. As shown in the table above, the nature of the sample members for the control group showed differences between the two pre-tests. And the distance.

In the force extension variable, using the t-test for correlated samples to extract differences, its calculated values reached (9.947) at a significance level (0.001) and degree of freedom (4), between the pre- and post-tests for the control group and in favor of the post-test.
As for the speed extension variable, using a t-test for correlated samples to extract differences, its calculated values reached (3.958) at a significance level of (0.017) and a degree of freedom (4), between the pre- and post-tests for the control group and in favor of the post-test.
In the performance endurance variable, using a t-test for correlated samples to extract differences, its calculated values reached (5.297) at a significance level (0.006) and degree of freedom (4), between the pre- and post-tests for the control group and in favor of the post-test.

4-1-2 Presenting, analyzing and discussing the results of some components of the special table for the experimental group:

Table (5)

| Sequence | Variable | measruing unit | Pre-test | | Posttest | | t Calculated | value sig | indication |
|---|---|---|---|---|---|---|---|---|---|
| | | | M | S | M | S | | | |
| 1 | Continuity of strength | The number | 66.000 | 3.536 | 74.400 | 0.894 | 5.853 | 0.004 | **moral** |
| 2 | Continuity of speed | Time | 35.512 | 0.632 | 33.192 | 0.722 | 5.047 | 0.007 | **moral** |
| 3 | Endurance performance | Time | 35.920 | 0.746 | 33.040 | 0.055 | 8.668 | 0.001 | **moral** |

It shows the differences between the pre- and post-tests in some components of the experimental group's special table tennis

The sig value ≥ Is below the 0.05 significance lIn light of the data extracted for the members of the research sample, Table (8) shows the differences in the values of some special endurance components (power endurance, speed endurance, and performance endurance) in the pre- and post-tests. As shown In the table above, the nature of the sample members for the experimental group showed differences between the two pre-tests. And the distance.

In the force extension variable, using a t-test for correlated samples to extract differences, Its calculated values reached (5.853) at a sIgnificance level of (0.004) and a degree of freedom (4), between the pre- and post-tests of the experimental group and in favor of the post-test.

As for the speed extension variable, using a t-test for correlated samples to extract dIfferences, its calculated values reached (5.047) at a significance level of (0.007) and a degree of freedom (4), between the pre- and post-tests for the experimental group and in favor of the post-test.

In the performance endurance variable, using a t-test for correlated samples to extract differences, its calculated values reached (8.668) at a significance level (0.001) and degree of freedom (4), between the pre- and post-tests of the experimental group and in favor of the post-test.

Presenting, analyzing and discussing the results of some components of the special table for the control and experimental groups: - Table (6)

It shows the differences between the control and experimental groups in the post-test in some components of special stretching

| Sequence | Variable | measruing unit | Control group | | Experimental group | | t Calculated | value sig | indication |
|---|---|---|---|---|---|---|---|---|---|
| | | | M | S | M | S | | | |
| 1 | Continuity of strength | The number | 72.000 | 2.345 | 74.400 | 0.894 | 2.138 | 0.045 | **moral** |
| 2 | Continuity of speed | time | 34.142 | 0.372 | 33.192 | 0.722 | 2.616 | 0.031 | **moral** |
| 3 | Endurance performance | Time | 34.260 | 0.888 | 33.040 | 0.055 | 3.067 | 0.015 | **moral** |

The sig value ≥ Is below the 0.05 significance level

In light of the data extracted for the members of the research sample, Table (9) shows the differences in the values of some special endurance components (power endurance, speed endurance, and performance endurance) in the post-test. As shown In the table above, the nature of the sample members, the control and experimental groups, showed differences In the post-test. .

In the variable rate of force extension, using the T-test for independent samples to extract differences, its calculated values reached (2.138) at a significance level of (0.045) and a degree of freedom (8), In the post-test for the control and experimental groups and In favor of the experimental group.

As for the speed extension variable, using the T-test for independent samples to extract differences, its calculated values reached (2.616) at a significance level of (0.031) and a degree of freedom (8), In the post-test for the control and experimental groups and In favor of the experimental group.

In the performance endurance variable, using the T-test for independent samples to extract differences, its calculated values reached (3.067) at a significance level of (0.015) and a degree of freedom (8), In the post-test for the control and experimental groups and In favor of the experimental group.

## 4. Conclusion and future scope

Through the results obtained, the researcher reached the following conclusions:

1- The effect of aerobic endurance exercises is more effective when they interact with the components of special endurance and skills, and this was shown by the results of the experimental group.

2- The control group that did not use aerobIc endurance exercises did not have a significant improvement at the statistical level in all variables under study

## Recommendations

In light of the conclusions reached by the researcher, the researcher recommends the following:

1-Work on conducting similar studies to develop aerobic endurance in other samples and in other sports games and events

2- Work to use all physiological measurements, Including periodic tests for players, to determine the true responses and direct (temporary) and Indirect effects of exercises.

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