مجلة جامعة ذي قار لعلوم التربية البدنية

المجلد (2) العدد (1) 2024

The effect of aerobic endurance exercises on some functional indicators For futsal players

Sadiq Youssef Muhammad **Muhammad Salem Abdel Khader**

Dr.sadeq70@utq.edu.iq

mohammed.salim@utq.edu.iq

College of Physical Education and Sport Science,

University of Thi-Qar, Thi-Qar

Abstract

Each training style or method has a different impact on the level of players' performance in all aspects, including functional ones. Therefore, the physiological effects of physical effort related to the type of training, the method used, and the level of training doses must be known. The changes it may cause to the body's systems, and the importance of research lies in preparing exercises to determine the extent of the effect of aerobic endurance exercises on the functional indicators of football players in order to advance the player to completeness in terms of physical fitness As for the problem of the research, through practicing this game, the researcher noticed a decrease in the level of physical fitness as a result of the lack of attention to functional indicators on the part of the trainers, and thus the weakness of the ability to keep up with modern methods, in addition to the lack of interest in aerobic endurance exercises, which are primarily a physiological characteristic. The thesis aimed to prepare exercises Aerobic endurance on some functional indicators, and identifying the effect of aerobic endurance exercises on some functional indicators for young futsal players for the control and experimental groups in the pre- and post-tests, identifying the effect of aerobic endurance exercises on some functional indicators for young futsal

players for the two control groups. In the experimental and post-tests, the researcher assumed the presence of statistically significant differences between the pre- and post-tests of the experimental and control groups in some functional indicators for young futsal players, In favor of the post-tests, and the presence of statistically significant differences between the post-tests of the experimental and control groups in some functional indicators. For young futsal players and for the benefit of the experimental group, the researcher used the experimental method to suit the nature of the problem. The research community was represented by the players of the Uruk Futsal Club for the season (2023-2024), who numbered (18) players, and (10) of them were chosen intentionally to form a sample. Research, and thus the sample constitutes (55.5%)They were divided into two equal groups and randomly, with each group including (5) players, thus establishing the experimental design. The researcher then processed the extracted values statistically using the SPSS statistical package. The fourth chapter included the presentation, analysis and discussion of the results, which were presented, analyzed and discussed based on scientific sources.

1.Introducing the research

1.1 Introduction to the research and its importance

Sports training aims to improve the various foundations and factors that have an effective role in developing the sports 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. The components of the sports training load mean all the characteristics of the load placed on the athlete, so Any physical exercise performed by an athlete leads to the creation of anatomical, physiological, chemical, and psychological changes within his body.

The effectiveness of such physical activity It is a result of the length of an action, its duration, its distance, the number of repetitions (its size), its quality, the speed of its performance (intensity), and the sequence of its performance (its intensity). 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 the element of excitement and suspense for the audience. The futsal player needs very high physical requirements that will benefit him and help him implement the basic skills because of the high speed of performance within this game within a small space, in addition to the small number of players who It makes the match always moving and free from stopping because one of the duties of each player is to attack and defend at the same time in order to reach the highest levels in this game and achieve the best achievements. The importance of research lies in preparing exercises to determine the extent of the effect of aerobic endurance exercises on the functional indicators of the futsal player in order to Promoting the player to completeness in terms of physical fitness.

While the researcher was playing this game, he noticed a low level of physical fitness among futsal players as a result of the lack of attention to functional indicators on the part of the coaches, and thus the weak ability to keep up with modern methods, in addition to the lack of Interest in aerobic endurance exercises, which Is primarily a physiological characteristic. Therefore, the researcher decided to study this game. The problem and developing appropriate scientific solutions to It.

1.3 Research objectives- :

1 -Preparing aerobic endurance exercises in some functional indicators for young futsal players

2 -Identify the effect of aerobic endurance exercises on some functional indicators for young futsal players for the control and experimental groups in the pre- and post-tests.

3 -Identify the effect of aerobic endurance exercises on the functional indicators of young futsal players for the control and experimental groups in the post-tests.

1.4 Research hypotheses:

1. There are statistically significant differences between the pre- and post-tests of the experimental and control groups in some functional indicators for young futsal players, in favor of the post-tests.
2. There are statistically significant differences between the post-tests of the experimental and control groups in some functional indicators for young futsal players, in favor of the experimental group

1.5 Research areas:

1.5.1 Human Field: Uruk Futsal Club's young players for the 2023-2024 season

1.5.2 Time frame: for the period from (2/22/2024) to (7/10/2024)

1.5.3 Spatial field: Sumer Sports Forum.

2.Research methodology and field procedures

2.1 Research methodology

The researcher used the experimental method with pre- and post-tests by designing the control and experimental groups. "It is a deliberate and controlled change in the specific conditions of an incident and observing the resulting

changes in the incident itself [3] because It is the most appropriate method that the researcher can achieve to achieve the research hypotheses.

2.2 The research community and its sample

The researcher Identified his research population in a deliberate manner, represented by the Uruk Futsal Club players for the season (2023-2024), who numbered (18) players. (3) goalkeepers were excluded and (5) players were selected. The researcher conducted the exploratory experiment on them, and (10) were selected from them. In an Intentional way to form the research sample, thus 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 (1).

Table (1)

Shows the experimental design of the research sample

Totals	Pretest	Processing	Posttest
Experimental group	Functional indicators	Aerobic endurance tests	Functional indicators
Control group	Functional indicators	Trainer's approach	Functional indicators

2.2.1 Homogeneity of the research sample. The researcher conducted a homogenization process for the sample in some specifications that may have an impact on the experimental variable (height, mass, chronological age, training age) and used the law of the coefficient of variation, since the value of the

[3] 1) Dhafer Hashim Al-Kazemi: Practical applications for writing educational and psychological dissertations and dissertations, 1st edition, Beirut, Dar Al-Kutub Al-Ilmiyyah, 2013, p. 121.

coefficient of variation If it 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	measuring unit	Arithmetic mean	standard deviation	Coefficient of variation
1	height	Sm	**176.5**	**3.74**	**%2.11**
2	Bloc	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**

2.2.2 Equivalence of the research sample

The researcher also conducted parity between the control and experimental groups in the research variables (sample measurements, some components of special table tennis, functional and skill indicators) 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			
Pulse	74.020	0.976	73.920	0.712	0.185	0.858	insignificant

before effort							
Pulse after exertion	163.600	2.074	163.000	2.000	0.466	0.654	insignificant
O2 ratio before stress	99.440	0.114	99.520	0.084	1.265	0.242	insignificant
O2 ratio after exertion	100.480	0.084	100.500	0.071	0.408	0.694	insignificant
High pressure after exertion	117.740	1.187	117.980	0.807	0.374	0.718	insignificant
High pressure before voltage	141.800	1.304	141.600	1.342	0.239	0.817	insignificant

2.3 Means, devices and tools.

2.3.1 Means of collecting Information

- the test
- Note
- The questionnaire
- personal interview
- Arab and foreign sources and references

- International Information Network (Internet)

2.3.2 Devices: The researcher used the following devices:

-Electronic stopwatch

-A device for measuring weight

-Canon camera (1)

-One (1) DELL computer

-A device to measure blood pressure

- A device to measure heart rate

2.3.3 Tools used in the research

-Legal indoor football field

-Signs (24)

-Legal futsal balls (10)

-A chair to measure the number of breathing times and pulse

-Tape to measure length

- A tape to measure distance

-Measurement tape

2.4 Field research procedure

2.4.1 Determine the research variables

2.4.1.1 Determine functional Indicators

For the purpose of Identifying functional indicators for the Individuals in the research sample, the researcher sought to survey scientific sources and references and consult with the supervisor. The following functional indicators were identified:

1- Pulse before effort

2- Pulse after exertion

3- O2 level in the blood before exertion

4- O2 level in the blood after exertion

5- High pressure before voltage

6- High pressure after exertion

7- 2-4-2Description of the tests used in the research

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

9- Test objective: Measure functional indicators.

10- 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

Figure 1 shows device

Figure 2 shows device

2.5 The main experience

2.5.1 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, as well as a test for functional indicators.

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

2.5.2 Aerobic endurance exercises:

The researcher prepared a training curriculum, as shown in Appendix No. (8), whose goal was 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 Is consistent with the opinion of both Klinzing [4]and Sharky [5]that the number of units per week was between 2-3 units:.

The number of weeks Is not less than (6) weeks until development can appear. Of the directives and amendments, which the researcher took into consideration

[4] **Klinzing , Basketball For Strength And Stars , Champion Ship Books, U.S.A, 1996, P78**

[5] **Sharky, Fitness and Health, Human KinetIcs, U.S.A.1997, P115**

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

2.5.3 Post-tests

Post-tests 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-tests previously followed in the pre-tests.

3.1 Presenting and discussing the results

3.1.1 Presenting, analyzing and discussing the results of some functional indicators for the control and experimental groups- :

Table (4)

It shows the differences between the control and experimental groups In the post-test in some functional indicators

Sequence	Variable	Pre-test		Posttest		t Calculated	value sig	indication
		M	S	M	S			

1	**Pulse before effort**	71.600	0.894	65.000	0.707	12.944	0.000	moral
2	**Pulse after exertion**	161.200	1.095	156.000	0.707	8.918	0.000	moral
3	**O2 ratio before stress**	99.180	0.084	99.014	0.005	4.427	0.002	moral
4	**O2 ratio after exertion**	100.140	0.055	100.014	0.005	5.118	0.001	moral
5	**High pressure after exertion**	116.400	0.548	115.000	0.707	3.500	0.008	moral
6	**High pressure before voltage**	140.000	0.707	137.200	0.837	5.715	0.000	moral

The sig value $\geq$ Is below the 0.05 significance level

In light of the data extracted for Individuals in the research sample, Table (12) shows the differences In the values of some functional indicators (pulse before effort, pulse after effort, O2 percentage before effort, O2 percentage after effort, high pressure after effort, high pressure before effort) in the test Post-test: As shown in the table above, the nature of the sample members, the control and experimental groups, showed differences in the post-tin the pulse variable before

effort, using the t-test for independent samples to extract differences, Its calculated values reached (12.944) at a significance level of (0.000) 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 pulse variable after exertion, using the Independent samples t-test to extract differences, its calculated values reached (8.918) at a significance level of (0.000) and a degree of freedom (8), in the post-test for the control and experimental groups and in favor of the experimental group. And in the O2 ratio variable before Effort and using the independent samples t-test to extract differences, as its calculated values reached (4.427) at a significance level (0.002) and degree of freedom (8), In the post-test for the control and experimental groups and in favor of the experimental group As for the O2 ratio variable after exertion, using the Independent samples t-test to extract differences, its calculated values reached (5.118) at a significance level of (0.001) and a degree of freedom (8), in the post-test for the control and experimental groups and in favor of the experimental group. And in the high pressure variable After effort and using a t-test for independent samples to extract differences, the calculated values reached (3.500) at a significance level of (0.008) 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 low pressure variable before the effort and using the (t) test for Independent samples to extract differences, as its calculated values reached (7.071) at a significance level (0.000) and degree of freedom (8), In the post-test for the control and experimental groups and for the benefit of the experimental group. And in the high stress variable before the effort and using the (t) test. For independent

samples to extract differences, its calculated values reached (5.715) at a significance level (0.000) and degree of freedom (8), In the post-test for the control and experimental groups and in favor of the experimental group.

4. Conclusions and recommendations

4.1 Conclusions

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

1. Aerobic endurance exercises have a positive effect on some components of special table tennis and functional and skill indicators for young futsal players.
2. 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.
3. The control group that did not use aerobic endurance exercises had no significant improvement at the statistical level in all variables under study

4.2 Recommendations

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

1. Using aerobic endurance exercises to develop some special components and functional and skill Indicators

2.Work to conduct similar studies to develop aerobic endurance in other samples and in other sports games and events

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

References

Dhafer Hashim Al-Kazemi: Practical applications for writing educational and psychological dissertations and dissertations, 1st edition, Beirut, Dar Al-Kutub Al-Ilmiyyah, 2013, p. 121 .

(Klinzing, Basketball For Strength And Stars, Champion Ship Books, U.S.A., 1996, P78

(Sharky, Fitness And Health, Human Kinetics, U.S.A. 1997, P115.