GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 11, Issue 06, June (2023)

THE EFFECT OF SKILLFUL EXERCISES AND TYPES OF RECOVERY ON LACTIC ACID CONCENTRATION AND ENDURANCE OF PERFORMANCE FOR YOUNG FUTSAL PLAYERS

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ABSTRACT

The trainers most provide the programs training with suitable recovery facilities to accelerate the replace of consumer energy; the problem of research represented by the careless of recovery from trainers and acute shortage of training means in the long-term recovery stage after the training units. The study aimed to prepare special exercises by using cooling recovery and traditional recovery for young futsal players. Investigate from the effect of special exercises by using cooling recovery and traditional recovery in performance endurance and the concentration of lactic acid for young futsal players. Knowing the deference between the effect of special exercises by using cooling recovery and traditional recovery facilities in the performance endurance and concentration of lactic acid. The researcher used the experimental method (two equal groups design). The community of research include (36) players from special futsal training center in AL KUT city, the sample of research consist of 12 players were selected randomly, and then the sample divided into two equal groups. The researchers used some tools; observation, experimentation and objective tests as a means of gathering data. After pre test the first experimental groups underwent to implement the special exercises with cooling recovery and the second group implemented same exercises with traditional facilities of recovery, for (8) weeks, three training sessions weekly. After a post tests were performed the data was processed by using the SPSS statistical bag. The researchers concluded that special exercises by using cooling recovery and traditional recovery have a positive effect in improving the performance endurance and concentration of lactic acid after the effort for young autsal players. The cooling recovery better than traditional recovery in improving the concentration of lactic acid after the effort. There is not significant deferent between the cooling recovery and traditional recovery in developing the performance endurance.

Keywords: skillful exercises, recovery by cooling, lactic acid, endurance of performance, futsal players.

2- RESEARCH METHODOLOGY AND FIELD PROCEDURES

2.1 Research grants:

The researcher used the experimental method to fit the nature of the research problem by applying the experimental equivalent groups design.

The research community was represented by the specialized school futsal players in Wasit Governorate, who numbered 36 players, and the researchers chose 14 players. Adjusting the variables that affect the accuracy of the research results, the researchers resorted to achieving homogeneity among the members of a sample.

Table (1) It shows the homogeneity of the sample members in the research variables

Total Variables	Meas. unit	First experimental		Second experimental		Calculated Levine Test Value	standard error	Statistical significance
		S-	A±	S-	A±			
Length	M	116.5	3.44	163	5.47	1.03	0.33	random
weight	Kgrm	63	1.26	62	1.41	0	1	random
the age	Year	17.5	0.54	17.16	0.40	4	0.07	random
training age	Month	2.5	0.54	2.16	0.40	4	0.07	random
Lactic acid before exercise	Mml	1.41	0.47	1.21	0.21	2.59	2.891.20	random
Lactic acid after the effort	Mml.	15.05	1.8/5	15.35	1.13	0.338	0.516	random
ball escort test	Second	1.28	0.25	1.46	0.29	0.45	0.514	random
Defensive moves test	Shot	42.5	8.38	48.16	2.48	6.01	0.34	random

Sample size = 12, level of significance = 0.05

In order to find parity between the control and experimental groups in the tribal tests, the researchers used the (t) test for independent samples, as shown in Table (2), which showed that there were no statistically significant differences between the members of the control and experimental groups, which indicates the parity of the two groups in those variables.

Table (2) shows the equivalence of the sample

Total Variables	Meas. unit	First experimental		Second experimental		Calculated Levine Test Value	standard error	Statistical significance
		S-	A±	S-	A±			
Length	M	116.5	3.44	163	5.47	1.32	0.21	random
weight	Kgrm	63	1.26	62	1.41	1.29	0.22	random
the age	Year	17.5	0.54	17.16	0.40	1.19	0.26	random
training age	Month	2.5	0.54	2.16	0.40	1.19	0.26	random
Lactic acid before exercise	Mml	1.41	0.47	1.21	0.21	0.895	0.12	random
Lactic acid after the effort	Mml.	15.05	1.8/5	15.35	1.13	0.338	0.516	random
ball escort test	Second	1.28	0.25	1.46	0.29	1.13	0.51	random
Defensive moves test	Shot	42.5	8.38	48.16	2.48	1.58	0.03	random

Sample size = 12, level of significance = 0.05

The researchers used the means and tools that ensured obtaining the required data, including:

Means of collecting information

- Arabic and foreign sources
- Internet

- Observation

Equipment and tools used in the research

- futsal court
- A rheostat for measuring weight and height
- hand balls
- stopwatch
- Medical injection
- Tube to save blood
- A cool box for transporting blood samples to the laboratory.
- Different blocks for measuring research variables
- Stethoscope

A device for measuring lactic acid in the blood (lactate pro 2)

- Pulse rate meter .

The two researchers conducted two exploratory experiments, each of which had a specific goal, where the first exploratory experiment was on four players from the research sample to learn how to use the method of cryotherapy by the players, and the assistant work team got to know the nature of the work and other difficulties that the researchers may encounter during the application of the method In the hospital, as well as identifying how to conduct functional tests and the validity of the devices used, in addition to knowing the work team, medical staff and assistants in completing their field duties represented in drawing blood samples before and after the effort and placing them in the numbered tubes according to the sequence of the players. The second reconnaissance experiment was aimed at the following:

1. How efficient is the testing auxiliary team
2. Determining the maximum time for each exercise used and codifying the training loads for the exercises.
3. Knowing the field difficulties that the researcher may face during the application of special exercises.
4. Knowing the recovery time and the return of the pulse after exercise to (120 n/min - 130 n/min).
5. Knowing the time required to apply the vocabulary of the prepared exercises.

The pre- tests were conducted on the research sample for two days, at 12 noon, capillary blood samples were taken from the index finger to extract the concentration of lactic acid in the blood at rest using a lactic acid meter. Then physical exertion, including a Lactic Endurance Test (Kungham and Falcons Walking Test) (2-229). This test includes running on a moving belt at maximum speed at an angle of inclination (9°) and at a speed of 8 mph (12.5 km/h) for 3 minutes. This test includes determining the concentration of lactic acid in the blood, and then taking capillary blood samples from the index finger 5 minutes after exertion. To extract the concentration of lactic acid in the blood, on Friday, performance endurance tests were conducted (see Appendix 1). Special exercises were prepared for each of the two research groups during the special preparation period, aiming to develop performance endurance based on the sources and references related to the science of training and the futsal game.

The researchers used high intensity interval training for its suitability to the specific training objectives. The exercises were applied to the research sample and the exercises continued (8 weeks) at a rate of 3 units per week (Sunday, Tuesday, Thursday) and the special exercises were implemented in the main section of the training units, and the volume of the special exercises implemented (1093.33) minutes and the intensity used is graded from 80% to 95% of the player's best achievement, rest between repetitions with a pulse of 120-130 ppm and rest between totals 100 ppm, incomplete positive rest, (see Appendix 2), after completing the For each daily training unit, the two groups move to the performance of the recovery program. The first experimental group is transferred to the cold water bath, where the players descend into the cold water basin with a degree of 12 to 15 , and the player submerges his entire body in water except for the head and continues lying down for (5) d. The researcher took safety considerations Recommended by the American Society of Sports Medicine by maintaining the cleanliness and sterilization of the basins, as well as following the temperature of the player inside the basin, where the temperature drop should not increase the player (0.15- 0.25) per minute (6-556). While the second experimental group applies the usual healing methods to be applied after each training unit, which is calming and relaxation exercises. The two researchers conducted the post tests starting under the same conditions as the tribal tests in terms of the time, place and test specifications. To treat the results of the tests statistically, the researchers used the SPSS statistical package.

3- PRESENTATION, ANALYSIS AND DISCUSSION OF THE RESULTS

Table (3) It shows the results of functional variables and performance tolerance in the tribal and remote measurements of the two research groups

Groups		Pre		Post		(T) value computed	standard error	Statistical significance
		S-	A±	S-	A±			
Lactic concentration before exercise	First experimental	1.41	**0.47**	**1.35**	0.19	**0.31**	**0.76**	random
	second experimental	1.21	**0.27**	**1.45**	0.32	**1.81**	**0.13**	random
Lactic concentration after exercise	First experimental	15.05	**1.85**	**9.46**	0.49	**5.36**	**0.006**	moral
	second experimental	15.30	**1.17**	**11.75**	0.71	**5.87**	**0.002**	moral
Lactic concentration after 5 minutes of exertion	First experimental	13.45	**0.68**	**8.56**	2.05	**4.62**	**0.006**	moral
	second experimental	13.83	**1.46**	**12.45**	0.81	**1.39**	**0.22**	random
ball escort test	First experimental	1.14	**0.07**	**1.05**	0.04	**3.36**	**0.006**	moral
	second experimental	1.27	0.25	1.06	0.05	1.82	0.12	random
	First experimental	40	**6.06**	**45.50**	6.97	**4.56**	0.02	moral
Lactic concentration before exercise	second experimental	43.4	**4.40**	46.50	3.93	**2.32**	0.6	random

It shows the results of functional variables and performance tolerance in the pre and remote measurements of the two research groups
Sample size = 6, significance level = 0.05

Table (4)It shows the results of the functional variables and performance tolerance in the dimensional measurement of the two research groups

Groups	Pre		Post		(T) value computed	standard error	Statistical significance
	S-	A±	S-	A±			
Lactic concentration before exercise	1.35	0.19	1.45	0.32	0.64	**0.53**	random
Lactic concentration after exercise	9.46	0.49	11.75	0.71	6.44	**0.00**	moral
Lactic concentration after 5 minutes of exertion	8.56	2.05	12.45	0.81	3.46	**0.006**	moral
ball escort test	1.05	0.04	1.06	0.05	0.43	0.67	random
Lactic concentration before exercise	45.50	6.97	46.50	3.93	0.30	0.76	random

Sample size = 12, level of significance = 0.05
The results of Table (3) show that there is no difference between the pre and post tests in the concentration of lactic acid at rest time. The concentration of lactic acid in the blood was within its normal rate during rest. Sugar into glucose without the presence of oxygen and this system works in high intensity activities and with a relatively long working period between (30 seconds -2 minutes), but in the case of rest, its ratio is fixed or low, estimated at (1-2) mmol / liter of blood. The rate of lactic acid production at rest is equal to the rate of its consumption, which makes its resting concentration in both muscles and blood almost stable where this concentration does not exceed 1.0 mmol/L increases or decreases slightly, and when The lactic acid at rest exceeds (2.0 mmol / liter), this indicates a satisfactory condition (4-15) As for the effort, we notice that there are significant differences for the pre and post test and in favor of the post test, as the increase in the accumulation of lactic acid in the blood after the effort due to individual performance The sample was tested for lactic endurance and at high intensity, and that working at high intensity is able to increase lactic acid in the blood due to the anaerobic glycolysis process that the body performs to restore (ATP) compound inside the muscle cell with insufficient oxygen to the working muscles, which leads to the inability of mitochondria On the introduction of the liberated hydrogen ion into the respiratory chain and thus the pyruvic acid unites with the hydrogen ion to form lactic acid. Most sources confirm that correct and organized

training leads to physiological improvements appropriate to effectiveness. Changes in the organs of the human body Well-trained individuals can adapt to the functional changes that occur in the organs of the body as a result of muscular effort and continue with this effort (1-146). Those working in the field of sports training agree that the physical and physiological adaptations that are achieved are the result of the individual athlete being subjected to regular and codified training curricula (9-48). As the researcher used the scientific method according to the physiological foundations, which led to harmony between the external load and the internal load, as the work of periodic training with intensity (80-95%) had a positive effect in developing the player's capabilities as the exercises led to the player reaching a good level through measurements Tribal and dimensional, it depended on the harmony of the player and the players in terms of moving from defense to attack and vice versa. Likewise, anaerobic exercises included exercises along the field characterized by quick and long maneuvers and shooting in addition to the plumb and change in positions and diversification between defense and attack and all these skills are in the interest of the team to win with the match. In addition, the training came with the healing methods used by the researcher and the trainer, as the effectiveness of the method of cold recovery and its potential in the recovery processes and the balance of vital energy and the rebuilding of energy sources in a shorter period of time, which is characterized by the rebalancing of building processes when metabolism, "as its intensity increases in The recovery period, as the energy sources that were consumed at work are rebuilt, as well as the building of body proteins increases (11-65), as well as calming and relaxation exercises, which had a positive role in the recovery processes and getting rid of fatigue. To advance the level, when codifying the ratios of the training load, as there is a special relationship between each component of the training load and rest, meaning that the recovery period is a period no less important than the training period, but this period includes the periods between training doses and between short and medium weekly cycles of pregnancy And the long one in the different training seasons (2-52).

It is evident from Table (4) that there are significant differences in the dimensional measurement in the concentration of lactic acid after the effort and for the benefit of the first experimental group. The hand inside the cold basins, except for the head, stimulates relaxation points on the body to get rid of waste, including lactic acid, as the hospital method works to stimulate blood circulation and accelerate blood pumping from the muscles into the bloodstream with the waste and metabolic waste it carries, which led to improving the ability of the sample members to discharging lactic acid and reusing it in the preparation of energy in addition to accelerating its storage and providing an alkaline environment that regulates the pH and raises the alkalinity of the body and works on its balance as the increase in the accumulation of lactic acid means an increase in acidity as a result of the accumulation of hydrogen ions and then leads to a decrease (PH), which represents the degree of Acidic, and the more hydrogen ions increase, the (PH) value decreases and tends to become acidic.

Through what was presented in Table (3), it is clear that there are significant differences between the results of performance endurance tests in the tribal and remote measurements of the two research groups. Where the exercises were applied within scientific foundations in terms of legalizing the intensity of the exercises as well as rest periods between repetitions and

totals, which enables the player to perform other repetitions with almost the same efficiency and speed.

The results in Table (4) showed that there were no significant differences in the dimensional measurement of the two research groups, and that the priority of the first experimental group appeared, but those differences were not statistically significant. The healing method used after the training unit, where the use of the method of cold recovery had the effect on the development of endurance performance for handball players, as its effectiveness and position in the recovery processes and the balance of vital energy appeared by maintaining alkalinity and rebuilding energy sources in a shorter period of time, but performance bearing a compound ability that contributes There are many variables in its outputs, including physical, technical and psychological. Accordingly, the researchers believe that the percentage of the contribution of deep hospitalization to the outputs of endurance performance did not appear in a high degree compared to other variables within the limits of the current study. As for the control group, the method of hospitalization using calming and relaxation exercises was used as a healing method in the development of endurance performance for football players Hand and using calming and relaxation exercises that lead to the disposal of fatigue b and the speed of compensation for energy sources (7-24), but the individual possesses many physical attributes that greatly affect his efficiency, if they are polished with good training and good recovery methods by specifying training and rest methods in proportion to his good abilities (6-120).

4- CONCLUSIONS:

The researchers concluded that the skillful exercises using the cooling recovery and traditional recovery have a positive effect on the development of performance endurance and the concentration of lactic acid after effort among young futsal players, and the cooling recovery has a better effect than the traditional recovery of hospitalization in reducing the concentration of lactic acid after effort, and there are no significant differences between Use of cooling recovery and traditional recovery method in the development of performance endurance.

SOURCES AND REFERENCES

1. Abu El-Ala Ahmed Abdel-Fattah: Biology of Sports. Cairo. Arab Thought House. 1982 .
2. Abu Al-Ala' Ahmed and Muhammad Sobhi: Physiology and Morphology of Sports and Measurement Methods, Dar Al-Fikr Al-Arabi, 1997.
3. Ahmed Youssef Miteb: The effect of a training curriculum using a proposed field in developing the endurance of youth in handball, PhD thesis, College of Physical Education, University of Baghdad, 2003.
4. Bahaa Muhammad Taqi: The effect of anaerobic exercises and nutritional supplements on the concentration of lactic acid in the blood and the offensive aspects of young handball players, published research, Wasit University, College of Physical Education, 2014.
5. Diaa Al-Khayat and Nofal Muhammad Al-Hayali: Handball. Mosul University: Dar al-Kutub, 2001.
6. Muhammad Ibrahim Shehata; Guide to Modern Gymnastics, (Dar Al Maaref, Alexandria.1992.
7. Muhammad Hassan Allawi: The Science of Sports Training. I 11, Dar Al Maaref, Cairo, 1992.

8. Muhammad Hassan Allawi and Abul-Ela Ahmed Abdel-Fattah; Physiology of Sports Training, Cairo, Arab Thought House, 1984.
9. Muhammad Ali Al-Qat: Functions of Sports Training Members, Cairo, Dar Al-Fikr Al-Arabi, 1999
10. Armstrong, L.E., D.J. Casa, M. Millard-Stafford, D.S. Moran, S.W. Pyne and W.O. Roberts, American college of sports medicine position stand: Exertional heat illness during training and competition. Med Sci Sports Exerc, 39(3) 2007.
11. urayama. "Supersymmetry Breaking Made Easy, Viabl andGeneric".Proceedings of the XLIInd Rencontres de Moriond on Electroweak Interactions and Unified Theories.—lists a 9% mass difference for an electron that is the size of the, H.(March 10–17, 2006 Planck distance.

Annexes (1)

Shows performance endurance tests

Ball throwing test. (5-538)

The purpose of the test: To measure the endurance performance with the ball.

Tools: (legal handballs, stopwatch)

The Method of performance: The player stands at the center line, where the balls are located on the center line (8 balls). And prevent it from entering the goal for all players.

The Registration method:

The time is calculated from the moment the ball is caught until the end of the shot for the last ball and back to the starting line

Various defensive moves for 45 seconds. (3-48)

The purpose of the test: To measure the endurance of the performance of various defensive moves (front _ back slant - side)

The Tools:

(A playing field on which there are four signs connected by lines drawn with tape, tape measure, stopwatch, tape, whistle)

Performance specifications: The tester stops at (A) and when giving the start signal, he moves forward towards mark (B), then moves backward with a slope towards mark (C) then moves to the side towards mark (A) moves forward towards mark (B) and then moves back with a slope towards mark (A) and then moves to the side towards mark (A), thus he has completed one cycle, so that the laboratory continues for 45 seconds

Moves:

1- From (A) to (B) 2- From (B) to (C 3- From (C) to (A) 4- From (A) to (B) 5- From (B) to (E) 6 From (a) to (a).

Registration:

For each performance cycle, (6) points are counted, and the performance cycle includes the following moves: -

A to B, B to C, C to A, A to B, B to C, A to A.

In the event that the time specified for the test has expired and the laboratory has not completed the performance cycle, i.e. it has reached one of the marks other than the final mark, it is a

mark (A). The marks are collected and added to the marks of the full courses at the rate of one mark for each correct move.

Annex (1)

Special exercises used

Exercise (1):

It has been 9 balls distributed in 3 groups on the center line and three players, two of them at the goal line and the third at the opposite goal line, with a signal, each of them starts running from the middle line to pick up a ball from the three in front of him and quickly pats and shoots at the opposite goal and then touches the nearest goal post and runs to The fixed set of balls to pick up one and the pat to shoot at the other goal, then touch the nearest post and pick up the last ball for him in the third set, where the training ends with shooting at the goal and touching the post.

EXERCISE (2)

An even group, each of which consists of two players with a ball, one of them at the goal line and the second in front of the 9m line with a reel. Players after the end of the performance from outside the field and not in the way of the performance of their teammates.

EXERCISE (3)

Two groups of players on both sides of the field and the goalkeeper with several balls in succession passes the ball to the player of the group standing to his left to dribble around the obstacles (legs or medicine balls) at the same time the player of the other group runs to stand around the obstacles and intersect with him and when they enter into two opposite places when The obstacle The first player passes the ball to the second who intersected with him to repeat the performance of the first player with the ball and then the intersection takes place and so on from the end of the obstacles, one of them shoots from the 9m line and returns to the trot to the beginning.

EXERCISE (4)

Training along the field The number 1 of the group begins by passing the ball to the fixed player on the right and receiving it from the pass to the fixed player in the middle of the field and receiving it from him to pass it for the third time to the fixed player near the side line who receives it from him and shoots it at the 9m line at the goalkeeper and returns again to the row. Immediately after him, number 2 will perform the same, but from the left, and this performance will continue for a minute and a half

EXERCISE (5)

Four groups of players distributed in the corners of the field and a goalkeeper at each goal. The goalkeeper passes the ball to the first player who runs from group number one, receives it and passes it across the field to the player who ran from group number 4 and the ball is exchanged between them to pass in the end to the opposite goalkeeper to do the same performance in the two groups (3, 2).

EXERCISE (6)

A quick rebounding attack from the goalkeeper to the distributor to the forearm at the center line approximately to the wing player running to the side line of the field and then to the wing player running from the other side to shoot, then exchange positions and work on shooting at the other goal and the exercise ends with the shooting of the last player in the group.

EXERCISE (7)

The various defensive moves of handball players (forward and backward diagonally, repeating this according to the defensive positions, then starting and receiving a long pass from the colleague and moving towards the goal with a plumb, then shooting from jumping high 3 times according to the centers of the back line and then returning to the defense and repeating the same the performance.

EXERCISE (8)

The players in group (A) make a parallel dash to the goal for the purpose of shooting and at the same time the players in group (B) make a parallel dash towards the opposite goal for the purpose of shooting and return to rush to the other goal. Each group (C, D) performs the same performance as the players in the two groups (A) ,B)

EXERCISE(9)

Three players fixed with balls at the goal circle, so that each of them passes to a player in front of him when he runs from the center line forward, where he receives the ball near the opposite goal circle and quickly rolls with the ball dribbling near the opposite goal circle and rolls quickly with the ball dribbling once and then passing it along the field to return it to the fixed player in Back and running to touch the center line and then resume running again forward to receive the ball

Work lasts 4 cycles (one repetition is considered)

EXERCISE (10)

Two groups, one of them at the center line with balls, and the other consisting of three players distributed over the playing centers. The player attacking the defender No. (1) who performs a counter operation. Then the attacker goes to the defender No. (2) to do the same performance, while the defender No. (1) of the center moves to the opposite center and so on for For the rest of the defenders then correction.

EXERCISE (11)

A group of players at the goal line and a coach at a distance of 20 m. The player passes to the coach and runs to receive the ball, then the tap and shoot, then he takes the ball from the balls on the side of the field and the tap and shoots at the second goalkeeper in the other goal.

EXERCISE(12)

The training consists of three sets - two on the wings and the third in the middle and each player has a ball - the midfielder passes the ball to the goalkeeper and at the same moment the

player rushes towards the middle of the field the goalkeeper passes the ball quickly to one of the players in the middle of the field - the latter returns the ball back A

The first and second week

training unit	the exercise	the intensity	the size	One repetition time	Rest between		Total time of training	Notes
					Rep.	groups		
first	exercise 1	80	3*4	25sec.	One minute	3-4m.	25	
	exercise 4		3*3	1.30	One minute	3-4m.	26.7	
the second	exercise 6	85	3*3	1minute	One minute	3-4m.	24	
	exercise 9		3*4	30second	One minute	3-4m.	26	
the third	exercise 11	90	3*4	20 second	One minute	3-4m.	24	
	exercise 10		3*3	25 second	One minute	3-4m.	18.45	

The objective of the units: to develop performance endurance
Training days: (Sunday - Tuesday - Thursday) Training method: Interval with high intensity
Date: (3-14/4/2022).