The effect of using the training mask in developing the lactate system for basketball players

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Abstract:

The study aimed to identify the effect of mask training in the development of the level of concentration of lactic acid in blood in basketball players. The study assumed that there are statistically significant differences between the results of tribal and remote tests and for the benefit of remote tests between the control and experimental groups.

The researcher used the experimental method of the two experimental and control groups. The sample included 20 players who were divided into two control and experimental groups. Each sample included 10 players.

After the treatment of the results statistically the most important conclusions were reached, including: There are statistically significant differences between the tribal and remote tests in the concentration of the level of lactic acid in the experimental group members as well as control group

Key wards : Training Mask ,Lactic system ,treadmill and basketball

-1**The introduction**:

The basketball game consider one of the most popular games over the world and play by different ages began from early age (five years) in the schools , youth centers and clubs , it consider as effective instrument for the physical education and sport culture even it become as a life style in some countries in the world. In addition to this information the basketball enter to the Olympic sport programs and schools and practice in most sport clubs

The practice of basketball want special requirement like body and physical specifications, which the players have it to reach to the high skills performance for the achievements

It is well known that athletic Lactic system performance has significantly improved over the last several years. In order to remain competitive, athletes and coaches are constantly looking for ways to enhance performance. Several training methods have been explored in order to find the best method to enhance athletic performance. Altitude training and respiratory muscle training (RMT) are two methods that have shown promise in increasing athletic performance.

The problem of research is weakness in the Lactic system performance of Iraqi players, this weakness in most of time as result the bad .One of the most reasons is the lack or less of use of modern training methods that help in the development of energy systems, including the Lactic system basketball game insults within this system

Therefore, the researcher wanted to study the problem through the knowledge of use Training Mask in developing The Lactic system for basketball players use of the mask is of great importance because it simulates the high altitude exercises that create the hypoxic state of the players that are working on the development of physiological adaptations, including the lactic system . The aim of study Of use The Training Mask in developing Lactic system for basketball players in some of physiological and physical variables. The hypotheses is :There are significant in some of Training Mask there is Lactic system .

-2Methodology

2 -1 Sample

The sample of research consisted of (20) players represented the team of al-hillah club wereranked based upon preliminary Lactic results and divided into two groups. The two groups were the mask group and a control group. The mask group wore the TM for all training sessions, while the control group did not wear the mask during training. Both groups completed identical training programs.

2-2 Measurement of the variable:

The researcher used some tests, which selected from the references, used bother researchers, and applied in the Iraqi environment

2-2-1 The physiological test: the researchers measure Wingate test and Lactic Pro 2 test .

2-2-2 The Training Mask 3.0 (TM) (Training Mask, phantom Athletic ,Salzburg,Austria) is a product on the market that claims to enhance athletic performance. The TM covers the nose and mouth and has different sized openings and flux valves (Figure 1) The openings and flux valves can be adjusted to increase the resistance of respiration, making it more difficult to breathe while wearing the mask. It is suggested that the device can increase endurance aswell as improve lung function. The multi-level resistance system purportedly allows the user to simulate altitudes there are three levels from Beginners , Advanced and Professional . However, in order to simulate altitude, the mask must have a mechanism to decrease partial pressure of oxygen, inducing

a hypoxic state during exercise. Therefore, the purpose of this study was twofold: determine the effects of development Lactic system .

Figure 1. Show the mask of training.

2-2-3 Wingate Test:

The Wingate test was undertaken on a Monark 894E cycle ergometer (Monark, Varberg, Sweden). The ergometer was calibrated prior to each test. Participants undertook a 5 min sub maximal warm-up at a self-selected intensity against zero resistance. The warm-up was followed by a 3 min recovery period during which participants were permitted to dismount the bike and stretch. During the first 5 sec of the test, participants cycled at 90 rpm against zero resistance. Following a 5 sec countdown a resistance equal to 7.5 of participant's body mass was applied after which they exercised maximally for 10 sec. Participants were instructed to remain seated throughout the testing procedure. A total of 6 Wingate tests were performed, and each test was separated by 50 sec of self-regulated active recovery .Verbal encouragement was given throughout each trial. Following completion of the test, participants continued cycling against zero resistance for 2-3 min to assist recovery.

Peak power, mean power and the power drop were measured. Peak power (PP) is the maximum power exerted during a 5 sec period and was calculated using the formula; PP (kgm. 5 sec-1) = rev (max) in 5 sec x D. rev-1 sec x F, where D is the distance travelled by the flywheel in 1 revolution (6 m), and F is the force setting in kg. Mean power (MP) is the average power exerted during the 30 sec work bout and is calculated using the formula; MP (kg 30 sec-1) = rev (total) in 30 sec x D. rev-1 sec x F, where D is the distance travelled by the flywheel in 1 revolution (6 m), and F is the force setting in kg. The fatigue index (FI) is the percentage of peak power drop off during the 30 sec test and is calculated using the formula; FI (%) = [1 - (lowest power kgm kg 5 sec-1 / lowest power kgm kg 5 sec-1)] x 100.

2.2.4 Training :

Subjects then completed a 6-week high-intensity on Treadmill interval training program Figure (2). Training sessions were held twice a week and each session was 30 minutes in length. Training was performed on the Treadmill. For each workout, subjects completed a 5-minute warm-up, 20 minutes of high-intensity intervals, and a 5-minute cool-down. The 20-minute interval segment of the workload included 10 repetitions of 30 seconds.

The mask group wore the ETM during all training sessions. During week 1, 2 the masks were set to simulate an altitude of level beginners . During week 3, 4 the masks were set to simulate of level Advanced . During weeks 5 and 6, the masks were set to simulate of Professional.

After completion of the training program, subjects in both the control and mask groups completed the identical test battery as the pretesting.

Figure 2. Show the Training

2-3 exploratory experiments:

2-3-1 The first exploratory experiment for the physiological variable:

The researcher did exploratory experiment in 12/11/2017 used (10) players to make sure from the devises if work well or not .

2-4 physiological test execution:

The researcher executed the physiological test in 3/12/2017 ..

2-5 statistical means:

Data of study was analyzed through a program SPSS and using mean, stander-deviation, independent- samples t test.

3- Presentation and discussion of results:

Table (1). Shows the mean and standard deviations of the tests under study for experimental group.

Tests	Mean	N	Std. Deviation	Std. Error Mean
MLSS.Pre	8.22	10	1.98	0.63
MLSS.Post	5.49	10	0.931	0.29
Time.Pre	13.05	10	2.69	0.85
Time. Post	14.8	10	2.92	0.923

Table (1) shows that the arithmetic mean value in the pre-test for the variable concentration of lactic acid has reached (8.22) and standard deviation (1.98) standard and a line (0.63), while the concentration of lactic acid rate in posttest reached (5.49) and standard deviation (0.931) (0.29) and standard error (0.85). Also, the time difference of the lactic acid assembly in the post-test was 14.8 and with standard deviation (2.92) and error Standard (0.923).

From the table (1) shows that there are differences in the results of the mean and standard deviations of the experimental group between the pre and posttests.

Table .(2) Shows the value of (t) calculated and the significance level of the tests under study for the experimental group.

Tests	Mean	Std. Deviation	Std. Error Mean	t	df	Sig.
MLSS.Pre - MLSS.Post	2.73	1.36	0.431	6.33	9	0.000
Time.Pre - Time. Post	1.75	3.74	1.18	1.48	9	0.173

The value of the mean between the pre- and post-test of the lactic acid concentration was (2.73) and the standard deviation was 1.36 while the standard error was (0.431). The calculated value (t) was 6.33 below the level of (0.05) (0.000). This indicates that there are significant differences in favor of post tests, as well as the value of the arithmetic mean between the pre and posttests of the variable lactic acid concentration time (1.75) and standard deviation (3.74) while the standard error (1.18), And the value of (t) calculated (1.48) below the level of significance (0.05), which is smaller than the value of significance (0. 173) This indicates that there are no differences between tribal and post tests.

From table (2), there is a significant difference between the pre and posttest in the Lactic acid concentration variable, while there is no difference between the pre and posttests time.

Table (3). Shows the computational and standard deviations of the tests under study for control group.

Tests	Mean	N	Std. Deviation	Std. Error Mean
MLSS.Pre	8.49	10	1.81	0.573
MLSS.Post	12.65	10	2.36	0.742
Time.Pre	5.98	10	1.29	0.41
Time. Post	14.9	10	2.07	0.65

Table (3) shows that the arithmetic mean value in the pre-test for the variable concentration of lactic acid has reached (8.49) and standard deviation (1.81) standard and a line (0.573), while the concentration of lactic acid rate in posttest reached (12.65) and standard deviation (2.36) and standard error (0.742). Also, the time difference of the lactic acid assembly in the post-test was (14.9) and with standard deviation (2.07) and error Standard (0.65).

Table .(4) Shows the value of (t) calculated and the significance level of the tests under study for the control group.

Tests	Mean	Std. Deviation	Std. Error Mean	t	df	Sig.
MLSS.Pre - MLSS.Post	4.16	3.86	1.22	3.41	9	0.008
Time.Pre - Time.Post	8.92	2.43	0.77	11.58	9	0.000

The value of the mean between the pre- and post-test of the lactic acid concentration was (4.16) and the standard deviation was (3.86) while the standard error was (1.22). The calculated value (t) was (3.41) below the level of (0.05) (0.008). This indicates that there are significant differences in favor of posttests, as well as the value of the mean between the pre and posttests of the variable lactic acid concentration time (8.92) and standard deviation (2.43) while the standard error (0.77), and the value of (t) calculated (11.58) below the level of significance (0.05), which is smaller than the value of significance (0.000) This indicates that there are significant differences in favor of posttests.

From table (4), there is a significant difference between the pre and posttest in the Lactic acid concentration variable, while there is no difference between the pre and posttests time.

From table (4), there were significant differences between the tribal and posttests in the Lactic acid concentration variable, while there was also a difference between pre and posttests time.

Table (5). Shows the computational and standard deviations of the tests under study for experimental and control group in the posttests.

Tests	Groups	N	Mean	Std. Deviation	Std. Error Mean
MLSS	Experimental	10	5.49	0.93	0.29
	Control	10	5.98	1.29	0.41
Time	Experimental	10	14.8	2.92	0.92
	Control	10	14.9	2.07	0.65

Table (5). Shows that there are differences in the results of the mean and standard deviations of the control group between the pre and posttests.

Table .(6) Shows the value of (t) calculated and the significance level of the tests under study for experimental and control groups in the posttests.

Tests		t-test for Equality of Means				
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
MLSS	Equal variances assumed	0.98	18	0.338	0.496	0.50
	Equal variances not assumed		16.35	0.339		
Time	Equal variances assumed	0.09	18	0.93	0.1	1.13039
	Equal variances not assumed		16.21	0.931		

From table (6) and the private value of (t) calculated between the two tests for the two experimental and control groups, as it turns out that the value of (t) of (0.98) in the concentration of acid variable lactic Noting that the moral level of the value of (0.05) smaller than the moral value of the amount of (0.338) Therefore, there are no significant differences between the two post-tests, as is the case with the variable time of the lactic acid concentration, where the value of (t) is calculated (0.09) and the value of the moral (0.93) is greater than the value of the significance level of 0,0.05. Therefore, there are no differences between the two tests.

Through what has been presented in table (6) shows there are no differences between the two tests and meta-meta-acid concentration in variable lactic lion and a variable time between the control and experimental groups.

The purpose of this study was to determine the impact of training while wearing the ETM on Lactic . After 6 weeks of a high-intensity Treadmill training program, it was found that both the control group and the mask group significantly improved System Lactic in Pre and Post . However, By analyzing, the table (5,6) we can note the significant differences betweenThe mask group over come Control group in Lactic system.

The mask group had significant improvements in System Lactic from pre to post-testing. The trend for improvement in System Lactic , the exercise workloads for the mask group were significantly greater than the control group. It is unlikely that a difference in workload during the Training program of the study could account for the substantial increase in performance System Lactic seen with the mask group use Training Mask increase breathing stamina by making lungs stronger and body to become more efficient at using oxygen and we all know that oxygen is extremely important in both aerobic and anaerobic activities.

The results of the measurement of the concentration of lactic acid in the blood for all members of the research sample were within the normal rate during rest in both the tribal and remote tests, indicating that the members of the research sample did not make any effort before the tests and these percentages are consistent with most of the sources indicated and studies confirm That there is a percentage of lactic acid present in the blood at rest and vary from one person to another, "as

pointed out (Fox - 1984) that this ratio ranges from (5 - 15) mg / ml of blood", and agreed with this study study (Sheikli - 2001), which showed that there is a rate of (16) milligrams / 100 milliliters of blood Of the lactic acid is present in the blood during rest. "Al-Shuwaili (1997) quoted Haitham Al-Rawi as saying that the concentration of lactic acid in the blood at resting time is about 1 mol / kg / l in blood, Is due to low metabolic rate during rest, which is caused by slow blood flow at rest, or is likely to occur due to low metabolic processes in red blood cells that continue to bleed during rest.

When comparing the results of the measurement of the concentration of lactic acid in the blood in the tribal and remote test, the results showed a significant difference between the two tests as a result of the impact of the training program and its role in improving the ability of the circulatory and respiratory devices in the speed of the process of disposal of acid.

The level of concentration of lactic acid in the blood for post-test was higher than in the tribal test, and this indicates that the intensity exerted by the sample in the post-test was very high, which led to an increase in the accumulation of acid in the blood, Lactate with high intensity and a period of no more than (1-2) minutes increased the ability to tolerate lactic accumulation in the muscles, which made them able to finish the race faster, while maintaining the rate of speed as long as possible, and this indicates that the ability to bear the accumulation Lactic acid is particularly important in T. And the runner in running medium distances, especially in the half or fourth quarter of them, adapting the player to bear the increase of lactic in this type of training make the ability to perform during the competition to continue high intensity, despite the increase in the accumulation of lactic acid in the muscles, we see that the high proportion of lactic acid In the blood in the post-test result from the high intensity used by the sample.

4- The conclusion and recommendation:

According to the results of the study and discussion, the researchers reach to conclusion that the Mask Training group overcome on Control group System Lactic .

The researchers recommend the following; .we should use Mask Training To identify its effect on other variables Physical and physiological for Basketball players .

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