Effect of Anaerobic Endurance Development on Some Physical and Physiological Variables And the Digital Level of the 3000 Meters Race

Field study on the national military team / Ben Aknoun / Algiers

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Summary:

Recently, athletics has witnessed a remarkably high development in breaking records to the point of human miracles. This is due to the clear scientific progress in various sports sciences such as training, biology, biomechanics, biochemistry and sports medicine. Training and improvement of performance methods. Lamp (1984) points out that the advancement of sports levels depends on several factors, including the upgrading of the functional level of the physical body of the sport. This is achieved through the development of methods and methods of training aimed at improving the results and achieving the highest levels of achievement, where training methods play an important role towards this goal. (Lamp, D.: 1984, P. 160-162) The researcher was selected on the subject of the research, where this competition is one of the most important running competitions that require great effort and continue to perform this effort, which emphasizes the importance of the element of speeding to the enemy of 3000 meters. The work of the aerobic and aerobic energy systems must be carried out in a practical attempt to identify some of the information and results based on scientific grounds in order to improve the digital level in this field. The aim of this research is to determine the effect of anaerobic endurance development on some physiological, physiological and numerical variables of the 3000 meter race.

Research hypotheses:

❖ There are statistically significant differences between the experimental and control groups in some physical, physiological and numerical variables for the 3000 meter race in favor of the experimental group.

Areas of research:

❖ Athletes national team of military athletics specialist 3000 meters and was the size of the sample (06).
❖ Center for the gathering and preparation of military sports teams Ben Aknoun. - From 10/03/2015 to 15/05/2015. The researcher used the experimental method in two groups, one experimental and one control.

Results:

❖ The control group achieved a slight progress in the level of aerobic and aerobic endurance due to the regularity of training and the result of the application of exercises for the development of general physical characteristics of the special, which led to improvement of physiological capabilities under consideration and the digital level of the competition 3000 meters.
❖ Anaerobic endurance development exercises have a positive effect on improving the physiological abilities of the players of 3000 meters.

key words:

Anaerobic endurance; physical variables; physiological variables; digital level; 3000m race.
1. Introduction and Problem of Research:

Recently, athletics have witnessed remarkable progress through world records, thanks to clear scientific advances in various sports sciences such as training, biology, biomechanics, biochemistry and sports medicine. Develop in training systems and improve performance methods.

*Lamb* (1984) points out that the advancement of sports levels depends on several factors, including the upgrading of the functional level of the body of the athlete, and this is through the development of methods and methods of training aimed at improving the results and reach the highest levels of achievement. (*Lamp, D., 1984, p. 160-162*)

*Mohamed Abdel Ghani Osman* (1990) points out that the process of general and long-term physical and functional preparation for long-distance athletes depends on their acquisition of a certain amount of aerobic and anaerobic energies at different rates. Anaerobic energy is also known to be built and developed at a good level of aerobic energy. (*Mohamed Abdel Ghani Othman, 1990, p. 299*)

*Abu El-Ola Abdel-Fattah and Ahmed Nasr El-Din* (1993) show that physiological variables give a general assessment of the efficiency of the respiratory system and the ability of muscles to function in the absence of oxygen. It also adds that speeding is required by both short and long distance runners; sometimes, long-distance racers need to increase their speed especially at the end of the race. (*Abul-Ela Abdel-Fattah, Ahmed Nasr El-Din Sayed, 1993, p. 95*)

*Abu al-'Ala 'Abd al-Fattah* (1985) points out that muscle work can continue in the case of insufficient oxygen, such as when relying on anaerobic energy to increase speed at the end of swimming. He also adds that mid- and long-distance running players can not achieve results at the international level if They did not have high anaerobic energy. (*Abu al-'Ala 'Abd al-Fattah, 1985, p. 51-56*)

*Bustoise Ahmed* (1999) explains that anaerobic endurance depends on the absence of phosphocrytin acid or anaerobic tolerance of glucose. (*Bastussi Ahmed, 1999, p. 189*)

*Abu al-'Ala 'Abd al-Fattah* (1997) considers that the development of anaerobic potential requires the implementation of large training volumes with the use of a higher intensity of the anaerobic threshold, ie, the intensity that increases the concentration of lactic acid in the blood from 3-4 mLM / L. (*Abu al-'Ala 'Abd al-Fatah, 1997, p. 169*)

*Adel Abdul-Basir* (1999) states that there are two types of infant training: low-intensity infant training, which aims to develop general endurance and endurance, as well as the development of the work of the circulatory and respiratory systems, and improvement of anaerobic capacity. The high intensity training is aimed at developing speed, Strength, speed-specific power and improved anaerobic capacity as a result of work in the absence of oxygen and high load intensity (*Adel Abdul Basir, 1999, p. 121-199*)

The problem of research is limited to the physical and functional requirements of the athletics competitions, especially the 3000 meters race. Athletics is a sport of digital achievement, which is often an accurate indicator of the individual's ability to achieve the race distance in the shortest possible time, Acquire the high physiological changes resulting from the adjustment process for different training doses.

The researcher noted that the weakness of the programs that neglected the development of anaerobic endurance and its money has an effective effect in raising the functional efficiency of the biological devices. This is evident from the local levels recorded when compared to the continental and global levels, so the researcher chose to address this issue at 3000 meters This competition is considered one of the most important running contests, which requires great effort and continue to
perform this effort, which emphasizes the importance of the element of speed control in the enemy of 3000 meters Gri, which is necessarily using the work of air and antenna systems in a practical attempt to identify some information and results based on scientific foundations for the possibility of upgrading the digital level in the competition under consideration.

2. Research Objective:

To study the effect of anaerobic endurance development on some physiological, physiological, and numerical variables of the 3000 meter race

3. Research Hypotheses:

❖ There are statistically significant differences between the tribal and remote measurements of the control group in some physiological and physiological variables and the digital level of the 3000 meters race for the benefit of telemetry;
❖ There are statistically significant differences between the tribal and remote measurements of the experimental group in some physical and physiological variables and the digital level of the 3000 meters race for the benefit of telemetry;
❖ There are statistically significant differences between the experimental and control groups in some physiological, physiological, and numerical variables for the 3000 meter race in favor of the experimental group.

4. Similar or related studies:

4.1. Arabic Studies:

Hamdi Mohammed Ali (2004) conducted a study entitled "Effect of anaerobic endurance development on some physical physiological and numerical variables for 1500m competitors".

❖ The study aimed to identify the effect of the development of anaerobic endurance on some physical, physiological, and numerical variables in the 1500 m.
❖ The sample was selected from middle distance players at the club of Port Fouad and Rabat. The sample size was 16 players divided into two equal groups, one experimental and the other an officer.
❖ The results showed that after the statistical treatments, the extent of the progress in measuring the physical and physiological variables, which was reflected in the digital level, was attributed to the effectiveness of the training program, which was agreed with many scientific studies.

4.2. Foreign Studies:

Lambert et al. (1998) conducted a study entitled "Heart rate during exercise and competition for long-distance running".

The study aims to identify the follow-up of the heart rate by monitors, by scientists and participants during physical activity sports. (200 stroke / s) for the same race than in non-competition, the heart rate can be used to improve performance in the field of long distances.

5. Methodology used:

The researcher used the experimental method in two groups, one experimental and the other an officer.

6. Research fields:

First: The Human Field:

The sample was chosen in a deliberate manner. The researcher selected the national team of athletics for 3000 meters. The size of the sample was (60) runners, divided into two equal groups, one experimental and the other an officer of (03) runners.
Second: Sphere:

The researcher conducted the study at the Center for the gathering and preparation of military sports teams Ben Aknoun Aljaraar capital.

Third: Time domain:

In the period from 10/03/2015 to 15/05/2015.

Research Method:

The researcher identified the most important physical tests to measure the physical elements reached through the comprehensive survey of scientific references and related studies.

❖ Test 30 enemies.
❖ Test 100 m enemy.
❖ Test 400 enemy.
❖ Test 600 enemy.
❖ Test 1200 enemy.
❖ Long jump test of stability.
❖ vertical jump test.

Identification of the most important physiological tests:

❖ Test the measurement of the concentration of lactic acid in the blood in rest and after effort. (Hamdi Mohammed Ali Mahmoud, 2004, 182)
❖ Pulse measurement test in comfort and after effort.

Tools:

❖ Metric bar for measuring length.
❖ Electronic balance for weight measurement.
❖ Test strips (Lactate Test Strips) to determine the proportion of lactic acid in the blood.
❖ A number of soft clix bags are used for tingling, medical cotton and disinfectants.

Hardware:

❖ Measure of the proportion of lactic acid in the blood (lactate plus).

Statistical procedure:

Statistical analyzes of the data were performed using mean and standard deviation, the Lexson test.

Table (1): The arithmetic average, the standard deviation, the mean and the torsion coefficient for each of the variables (age, height, weight, and training age) of the research sample.

<table>
<thead>
<tr>
<th>Torsion coefficient</th>
<th>Mediator</th>
<th>Standard deviation</th>
<th>SMA</th>
<th>measuring unit</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.314</td>
<td>18</td>
<td>0.398 ±</td>
<td>20</td>
<td>Year</td>
<td>Age</td>
</tr>
<tr>
<td>0.344</td>
<td>174.5</td>
<td>5.266 ±</td>
<td>177</td>
<td>cm</td>
<td>Length</td>
</tr>
<tr>
<td>1.488</td>
<td>72.5</td>
<td>6.121 ±</td>
<td>67</td>
<td>Kg</td>
<td>the weight</td>
</tr>
<tr>
<td>0.753</td>
<td>2.4</td>
<td>0.681 ±</td>
<td>10</td>
<td>Year</td>
<td>Training age</td>
</tr>
</tbody>
</table>

Table (1) shows that the number of members of the study sample (06) of the average age (20 ± 0.398) and the mean length (177 ± 5.266), average weights (67 ± 6.121) and the average training age (10 ± 0.681)
In addition, the torsion coefficient of the research sample in each of the variables was limited between the torsion coefficient (± 3), indicating the moderation of the frequency curve and the homogeneity of the members of the research sample.

**Equal Sample Search:**

Parity between the experimental and control groups was carried out in the variables of age, height, weight and age of training under study, as shown in Table (2)

Table (2): equivalence between the research sample in the variables of age, height, weight and age of training under study.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (j) calculated from the Whitney Mann test</th>
<th>Average grade</th>
<th>Total grade</th>
<th>Measuring unit</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1 = N2 = 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a function</td>
<td>27.00</td>
<td>20.50</td>
<td>20</td>
<td>61.50</td>
<td>60</td>
</tr>
<tr>
<td>Not a function</td>
<td>20.00</td>
<td>180</td>
<td>177</td>
<td>540</td>
<td>531</td>
</tr>
<tr>
<td>Not a function</td>
<td>16.5</td>
<td>66</td>
<td>67</td>
<td>198</td>
<td>201</td>
</tr>
<tr>
<td>Not a function</td>
<td>18.5</td>
<td>09</td>
<td>10</td>
<td>27</td>
<td>30</td>
</tr>
</tbody>
</table>

Table (j) value at a significant level (0.05)

Table (3) shows that there is no statistically significant difference between the experimental group and the control group in the physical variables. The calculated j value is greater than (j), indicating the equivalence of the two groups in the physical variables in question.

Table (4): Significance of statistical differences between the tribal measurements of the experimental and control groups in the physiological variables under study.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (j) calculated from the Whitney Mann test</th>
<th>The experimental group N = 03</th>
<th>Control group N = 03</th>
<th>Measuring unit</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average grade</td>
<td>Total grade</td>
<td>Average grade</td>
<td>Total grade</td>
</tr>
<tr>
<td>Non-D</td>
<td>17.50</td>
<td>9.19</td>
<td>27.57</td>
<td>5.81</td>
<td>17.43</td>
</tr>
<tr>
<td>Non-D</td>
<td>15.50</td>
<td>9.44</td>
<td>28.32</td>
<td>5.56</td>
<td>16.68</td>
</tr>
<tr>
<td>Non-D</td>
<td>27.50</td>
<td>7.06</td>
<td>21.18</td>
<td>7.94</td>
<td>23.82</td>
</tr>
<tr>
<td>Non-D</td>
<td>30.00</td>
<td>7.38</td>
<td>22.14</td>
<td>7.62</td>
<td>22.86</td>
</tr>
</tbody>
</table>

Table (j) value at a significant level (0.05)

Table (4): shows no statistically significant differences between the control group and the experimental group in the physiological variables, where the value of (c) of favoritism was greater than the j value of the table, indicating the equality of the two groups in the physiological variables under consideration.

**Survey study**

The researcher conducted a survey to reach the optimal method of work during the basic study, from 01/01/2015 to 01/03/2015.

**Purpose of the study:**

- The members of the sample understand the measurements required of them and the role of each of them during work.
- Study the method of work during the basic study (program).
- Applying parts of the training program to assess the validity and objectives of the study.
Pregnancy characteristics of the training program:
The training program was carried out for a period of (12) weeks by (4) four weekly training units and the training units included training of the enemy and running.
The levels of pregnancy intensity were determined by heart rate per minute based on the training pyramid for developing energy fitness as follows:
❖ Aerobic basis up to 70% of maximum heart rate.
❖ Anaerobic threshold up to 85% of maximum heart rate.
❖ Anaerobic training up to 95% of the maximum rate of heart beat.
❖ Speed up to 100% of maximum heart rate. (Mr. Mohamed Hassan Bassiouni, 2002, 11).

The maximum heart rate is calculated from the following equation:
❖ Maximum heart rate = 220 - the age of the player.

For enemy training and running on Sunday, Monday, Wednesday and Thursday, training was conducted moderately to the limits of capacity with gradual pregnancy through:
❖ Increasing the number of repetitions (unit distance) gradually.
❖ Gradual increase in enemy speed or distance.
❖ Gradual change in intervals (active) to return to 130-140 b / s.

View the results of the first hypothesis:
Table (5): Significance of statistical differences between the tribal and remote measurements of the control group in the special physical variables in question.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (y) calculated from the Luxen</th>
<th>Average grade</th>
<th>Total grade</th>
<th>the number</th>
<th>Measuring unit</th>
<th>Statistical data Physical variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>34</td>
<td>1</td>
<td>1 7</td>
</tr>
<tr>
<td>Function</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>34</td>
<td>1</td>
<td>1 7</td>
</tr>
<tr>
<td>Function</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>8 0</td>
</tr>
<tr>
<td>Function</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>8 0</td>
</tr>
<tr>
<td>Function</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>8 0</td>
</tr>
<tr>
<td>Function</td>
<td>2.5</td>
<td>2.5</td>
<td>4.77</td>
<td>2.5</td>
<td>32.5</td>
<td>1 7</td>
</tr>
<tr>
<td>Function</td>
<td>0</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0 7</td>
</tr>
</tbody>
</table>

Table (5) shows statistically significant differences between the tribal and remote measurements of the control group in the physical variables in favor of telemetry at the level of significance (0.05).

Table (6): Significance of statistical differences between the tribal and remote measurements of the control group in the physiological variables under study.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (y) calculated from the Luxen</th>
<th>Average grade</th>
<th>Total grade</th>
<th>The number</th>
<th>Measuring unit</th>
<th>Statistical data Physical variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Function</td>
<td>1.5</td>
<td>1.5</td>
<td>5.5</td>
<td>32</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Table (6) shows statistically significant differences between the tribal and remote measurements of the control group in the physiological variables under study. (0.05)
Table (6): shows statistically significant differences between the tribal and remote measurements of the control group in the physiological variables in favor of telemetry at the level of significance (0.05).

**View the results of the second hypothesis:**

Table (7): Significance of statistical differences between the tribal and remote measurements of the experimental group in the special physical variables under study.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (y) calculated from the Luxen</th>
<th>Average grade</th>
<th>Total grade</th>
<th>the number</th>
<th>Measuring unit</th>
<th>Statistical data Physical variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td></td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>30 meters enemy</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>a second</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>100 meters away</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>Accurate</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>600 meters away</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>Accurate</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>1200 meters away</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>cm</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>0</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>cm</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>0</td>
<td>0</td>
<td>4.5</td>
<td>0</td>
<td>cm</td>
</tr>
</tbody>
</table>

Table (7): shows that there are statistically significant differences between the tribal and remote measurements of the experimental group in the physical variables for the benefit of telemetry at the level of significance (0.05).

Table (8): Significance of statistical differences between the dimension measurements of the experimental group in the physiological variables under study.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (y) calculated from the Luxen</th>
<th>Average grade</th>
<th>Total grade</th>
<th>the number</th>
<th>Measuring unit</th>
<th>Statistical data Physical variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td></td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>Milli Mall / 1</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>Lactic acid after exertion</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>1</td>
<td>34</td>
<td>1</td>
<td>Pulse / min</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>Pulse in comfort</td>
</tr>
<tr>
<td>Function</td>
<td></td>
<td>4.5</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>Pulse after effort</td>
</tr>
</tbody>
</table>

Table (8): shows statistically significant differences between the tribal and post-experimental measurements of the experimental group in physiological variables in favor of telemetry at the level of significance (0.05).

**Presentation of the results of the third hypothesis:**

Table (9): Significance of statistical differences between the remote measurements of the control group and the experimental in the special physical variables in question.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (j) calculated from the Whitney Mann test</th>
<th>The experimental group N = 03</th>
<th>Control group N = 03</th>
<th>Measuring unit</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>7.00</td>
<td>7.00</td>
<td>21.00</td>
<td>5.40</td>
<td>16.20</td>
</tr>
<tr>
<td>Function</td>
<td>10.50</td>
<td>10.50</td>
<td>31.50</td>
<td>5.90</td>
<td>18.70</td>
</tr>
<tr>
<td>Function</td>
<td>9.50</td>
<td>9.50</td>
<td>28.50</td>
<td>5.82</td>
<td>17.46</td>
</tr>
<tr>
<td>Function</td>
<td>1.50</td>
<td>15.31</td>
<td>45.93</td>
<td>4.68</td>
<td>14.40</td>
</tr>
<tr>
<td>Function</td>
<td>4.00</td>
<td>10.88</td>
<td>32.64</td>
<td>5.11</td>
<td>15.33</td>
</tr>
</tbody>
</table>
Table (9): shows that there are significant statistical differences between the control and experimental groups in the physical variables in favor of the experimental group. The calculated value (j) is less than the tabular value (j), indicating that there are significant differences at the level (0.05) indicating the superiority of the experimental group on the control group in the physical variables and the digital level in question, due to the impact of the proposed training program.

Table (10): Significance of statistical differences between dimensional measurements of the control and experimental groups in the physiological variables under study.

<table>
<thead>
<tr>
<th>Level of significance</th>
<th>The value (j) calculated from the Whitney Mann test</th>
<th>The experimental group N = 03</th>
<th>Control group N = 03</th>
<th>Measuring unit</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>0.50</td>
<td>12.34</td>
<td>37.02</td>
<td>Milli Mall / l</td>
<td>Lactic acid after exertion</td>
</tr>
<tr>
<td>Function</td>
<td>8.00</td>
<td>11.28</td>
<td>33.84</td>
<td>Pulse / min</td>
<td>Pulse in comfort</td>
</tr>
<tr>
<td>Function</td>
<td>8.00</td>
<td>11.28</td>
<td>33.84</td>
<td>Pulse / min</td>
<td>Pulse after effort</td>
</tr>
</tbody>
</table>

Table (10): shows that there are significant statistical differences between the control and experimental groups in the physiological variables in favor of the experimental group. The calculated value (j) was less than the tabular value (j), indicating significant differences at the level (0.05).

Validation of the first hypothesis:

Table (5): shows statistically significant differences at (0.05) level in all physical levels between the tribal and remote measurements of the control group and for the benefit of telemetry. Table (6) also shows statistically significant differences at (0.05) All the physiological variables between the tribal and remote measurement of the control group for the benefit of telemetry, and this shows the extent of progress in measurement, as the researcher attributed the progress to the effectiveness of training programs that have improved the physiological and physical variables, which were reflected in turn at the digital level.

This is consistent with the study of Aweys al-Jabali (1985), which indicates that the increase in pulse rate during the period of hospitalization is associated with an increase in the intensity of the physical pregnancy used. The previous study shows that it agrees with the findings of the researcher that validates the first hypothesis.

Validation of the second hypothesis:

Table (7): shows that there are statistically significant differences at (0.05) in all physical variables between the pre and post test of the experimental group in (velocity - bearing speed - power characteristic of speed - bearing force - periodic respiratory endurance). Differences and progress in the experimental group to improve the physical condition of the players, which in turn reflected the registration of better numbers in the physical elements, in addition to follow the scientific method in building the training program.

This is in line with the study of Hamdi Mohammed Ali (2004) that the improvement in the digital level is due to the improvement of physical abilities and physiological abilities and the application of exercises for the result of anaerobic endurance, as well as the study of Aweys al-Jabali (1985) linked pulse during the period of recovery by increasing the intensity of physical pregnancy used.

It is clear from Table (8): that there are statistically significant differences at (0.05) in all physiological variables between the tribal and remote measurements of the experimental group for the benefit of telemetry in all physiological variables (Lactic-pulse before and after exertion) (1984) suggests that the concentration of lactic acid in the blood of runners and walking athletes increases according to speed. High-level players can maintain the speed of performance while not increasing
the accumulation of lactic acid in the blood, as well as Lambert et al. (1998) In that high heart rate.

From the above, the researcher believes that the training program applied to the experimental group, which includes exercises for the development of general and private physical characteristics and exercises to improve and develop the analysis of antenna and antenna had a positive impact on the improvement of some physiological variables and the digital level of the members of the experimental group, so the second hypothesis has been achieved.

**Validation of the third hypothesis:**

Table (9): shows that there are statistically significant differences at (0.05) in all physical variables between the experimental group and the remote control in favor of the experimental group. The researcher attributed these differences to the effect of the proposed program for the development of anaerobic endurance on the development of the anaerobic physical properties with their phosphate as well as through sizes, intensity, rest periods, and improved all physical qualities.

Abul-Ela 'Abd El-Fattah (1997) confirms that the use of multi-effect training doses at the beginning of the training season because it works on the development of different physical attributes in parallel, neutralizing the effect between periods of fatigue and rest. This in turn promotes the development of functional qualities. The use of standardized effect training doses at the beginning of the training season, preferably relying on multiple-dose doses, and pointed out that the use of single-direction doses improves results, improves physical characteristics and functional potential of body organs. It has been a sport of acute fatigue (stress) during the training program. (Abu al-'Ala 'Abd al-Fattah, 1997, 279).

The researcher concluded that the period of hospitalization is affected by individual differences. Although the conditions of athletes are similar in terms of their functional, physical, athletic and training capabilities, their operations may differ in light of individual differences. Fatigue, while if this period lasts for some others may have a negative impact on the level that can be achieved by the athlete in the tournament or competition.

Table (10): shows statistically significant differences in post-measurement between experimental and control groups in favor of the experimental group in the physiological variables in question. The researcher attributed this difference to the training level of the sample members which was relatively high and the period of application of the research was sufficient to cause a change in the average Heartbeat.

Abul-Ela 'Abd El-Fattah (1997) explains that the continuation of training increases with anaerobic anaerobic action and decreases the concentration of lactic acid in the blood when performing a physical load as a result of the economy in the effort and increasing the efficiency of the elimination of lactic acid. (Abu al-'Ala 'Abd al-Fattah, 1997, 34, 35).

These results were consistent with the findings of Yusuf Dahab (1984), Aweys al-Jabali (1985), Pilate (1996) and Hamdi Mohammed Ali (2004). Is essential in the ability of players to do more and improve the transport and delivery of oxygen to the working muscles and delay the emergence of fatigue.

**Conclusions:**

❖ The control group achieved a slight progress in aerobic and aerobic endurance due to regular training and as a result of the application of general physical fitness training exercises, which improved the physiological abilities under consideration and the digital level of the 3,000 meter race;

❖ The experimental group has achieved remarkable progress in the level of aerobic and aerobic endurance due to the application of exercises for the development of general and special physical characteristics in addition to the application of exercises for the development of anaerobic endurance more than aerobic endurance, which led to a significant improvement in the physiological capabilities in question and the digital level of the competition 3000 meters Gri;

❖ Anaerobic endurance development exercises have a positive effect on improving the physiological abilities of the 3000 meters athletes;
The digital level of the players has improved 3000 meters as a result of improving the physical abilities and physiological abilities to apply the exercises of development of anaerobic endurance and anaerobic capacities, which serve the contestants at the beginning of the race from the first 50-75m and also in the final stage of the race from 200-300 m.

**Recommendations:**
- Pay attention to the development of anaerobic endurance within the training modules more than the development of aerobic endurance because it has a positive impact on improving the physiological abilities and digital level of the players of 3000 meters;
- Emphasis on the use of measurement of the proportion of lactic acid in the blood when the standard training loads;
- Taking into account the results of this study when planning training programs for long distance competitors;
- Conducting such a study on other competitions in athletics such as 5000 meters contraceptives, 10000 meters Gri, different stages of Sunni.

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