The effect of speed bearing in a circular style with lactic energy and the achievement of a 100-meter youth

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Abstract

By paying attention to the physical and technical aspects of sports training, it is to delay the onset of fatigue and finish the race with maximum effort and achieve the best possible time. The (100) meter sprint competition is one of the athletics competitions, in which the physical ability to carry speed in a circular manner with Lactic potential plays a major role in achieving the achievement in this competition. Where it was found that there are many reasons for poor achievement, and the most important reasons are the lack of use of various training methods, which is one of the important means with scientific foundations to develop continuity of performance and increase the efficiency of the 100-meter runner. Youth, getting to know the speed-endurance exercises in the circular method with the lactic effort and the completion of the 100-meter youth run. Youth and by (14) runners under the age of 20 years, and speed-endurance exercises were applied in a circular style with a lactic effort on the experimental group for a period of eight weeks and by three training units per week. The Lactic potential had a positive effect on the achievement of the (100) meter sprint competition.

Keywords: speed bearing, ring method, lactic voltage, achievement 100 meter.

Introduction:

Reaching high sports levels requires hard effort from coaches, players and all workers within the framework of the processes of preparing players in its scientific concept in terms of a series of scientific, training and educational processes in what physical and kinetic qualities and abilities can live up to, so that
we may reach what God has given us of Latent energies in the level of these qualities and abilities based on what mankind has reached from modern science.

Among the fields that attracted these concepts is the field of sports, as it is inclusive and comprehensive of all physical activities, and the most important of these activities is athletics competitions because of the different and varied activities they contain in terms of performance requirements and specifics for each competition. Where the percentages of her contribution and participation in the performance, as well as the difference of these percentages for the same competition. Based on this, it is necessary to look at the training of the (100) meters competition in the light of the training of each of the physical abilities of the runners in their achievement in this competition, as ignoring and neglecting them will inevitably lead to the loss of the opportunity for improvement and development at that achievement.

Hence, it can be said that the scientific application of exercises bearing speed in a circular manner with a Lactic potential based on the components of the properly rated training load, which guarantees us an effective economy in the effort exerted during the training process, as well as the optimal and feasible exploitation of physical capabilities and Lactic potential to reach the best achievement.

Here lies the importance of this research that the exercises carry the speed in the circular manner with the Lactic potential and the achievement of running (100) meters under 20 years to reach the optimum achievement.

**Research problem**

Through the researcher's follow-up of the athletics championships organized by the Iraqi Central Federation, including the (100) meters competition for youth, the researcher noticed that the Iraqi figure is in a long stagnation, which has led to a widening of the difference between it and the world record, as the best Iraqi number for youth was recorded with a time of (10.60 seconds) This figure is far from the global figure of 10.01 s. We see that there is a big difference between them and there is a clear indication of a decline in the level of achievement in general, and this
requires investigation and search for the reasons for this decline in achievement. It was found that there are many reasons for the decline in achievement. And the most important of these reasons is the lack of most of the trainers’ adoption of modern scientific methods in training, such as the circular training method with the Lactic potential as evidence of the intensity of the exercise, the inter-rest and the rest between the groups. Iraqis.

**Research objectives**

1- Preparing speed endurance exercises in a circular manner with Lactic potential and completing a sprint of (100) youth

2- dentifying the effect of exercises to endurance speed in a circular manner with Lactic potential and the achievement of a (100) meter youth sprint

3- Knowing the difference in the effect of exercises to endurance speed by the circular method with the Lactic potential and the completion of a sprint (100) meters from the usual exercises.

**Force search**

- The rotational speed endurance exercises with the Lactic potential have a positive effect and the achievement of the (100) meter youth sprint.

- **Research Areas**

  - The human field: young players of the (100) meters competition aged (18-19) years in sports clubs in the province of Babil.


  - Spatial domain: Al-Mahaweel Sports Club Stadium / Babil Governorate

**Research methodology and field procedures:**

**Research Methodology:**

The researcher used the experimental research method by designing the equivalent groups.
Community and sample research:

The researcher identified the research community with the players of the Babylon Governorate youth clubs for the (100) meter sprint competition, and the number is (five clubs), who officially participated in the tournaments held by the Central Athletics Federation, which numbered (14 runners), and they were divided into two groups, the experimental group (n = 7) and the control group. A number (n = 7), and they were divided by the odd and even number method, according to the sequence of their achievements.

Table (1)

It shows the measurements of the research sample for the purpose of homogeneity

<table>
<thead>
<tr>
<th></th>
<th>Measurements</th>
<th>measuring unit</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mediator</th>
<th>torsion coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age</td>
<td>Year</td>
<td>19.2</td>
<td>0.41</td>
<td>19</td>
<td>1.26</td>
</tr>
<tr>
<td>2.</td>
<td>training age</td>
<td>Year</td>
<td>6.23</td>
<td>3.17</td>
<td>6</td>
<td>0.21</td>
</tr>
<tr>
<td>3.</td>
<td>Mass</td>
<td>Kg</td>
<td>67.4</td>
<td>3.3</td>
<td>66</td>
<td>1.2</td>
</tr>
<tr>
<td>4.</td>
<td>Height</td>
<td>Meter</td>
<td>1.73</td>
<td>0.07</td>
<td>1.70</td>
<td>0.332</td>
</tr>
</tbody>
</table>

It is evident from Table (1) that the skewness coefficient for all values is less than ±2. This indicates that their distribution is normal, and this means that all members of the research sample are homogeneous.

Table (2)

It shows the arithmetic means, standard deviations, the calculated and tabulated T-values, and the level of significance between the tribal tests.
<table>
<thead>
<tr>
<th>Variables</th>
<th>The Group</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Value (T) Calculated</th>
<th>Sig level</th>
<th>Sig type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrying speed mt 80</td>
<td>Experimental</td>
<td>9.45</td>
<td>1.33</td>
<td>0.136</td>
<td>0.463</td>
<td>No Sig</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>9.88</td>
<td>1.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lactic acid measurement</td>
<td>Experimental</td>
<td>12.36</td>
<td>0.409</td>
<td>1.218</td>
<td>0.312</td>
<td>No Sig</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>12.66</td>
<td>0.341</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 meter sprint achievement</td>
<td>Experimental</td>
<td>11.79</td>
<td>1.73</td>
<td>0.272</td>
<td>0.867</td>
<td>No Sig</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>11.74</td>
<td>1.04</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Degree of freedom (n-2) = 6 and level of significance (0.05)

It is evident from Table (2) that all of the calculated (T) values between the experimental and control groups were not statistically significant when compared with the values of the (Sig) degree that was greater than (0.05), which indicates their equivalence in the tribal tests and that they are on the same starting line.

**The means, devices and tools used in the research:**
- Note. Personal interviews, tests and measurements
- Video camera at 180 y/s.
- Various measuring instruments (manual stopwatch type (smartime) number (10), tape measure, whistle number (2) nike type.
  - Korean HP laptop, hand-held electronic calculator (CASIO).
  - Enemy legal space (100) m.
- Plastic cones of different sizes, a number (24). Flags of (8) colors are white and red, one (1) firing pistol.

**Field research procedures:**

**Measurements of physical and physiological variables**
First: Run (80) m from the flying start (Peter Thompson: 2009: 96)
  • Purpose of the test: To measure the endurance of speed.
• Description of performance: The tester stands behind the first line (the sprint from the high start), and when he hears the start signal, he runs at full speed until he crosses the third line. The time is calculated for a distance of (80) m from the signal of the second line observer until the player reaches the third line.

• Tools and devices used in the measurement: a legal running range of (100) m - a stopwatch, a whistle, three parallel lines drawn on the ground. The distance between the first and second line is (10) m and the second and third line is (80) m.

• Recording: The recorder records the time taken by the tested runner in his form in seconds, to the nearest (0.01) of a second.

Second: a test of running 100 meters from sitting:

The purpose of the test: to measure achievement

Test tools: stopwatch.

Performance specifications: Each tester sits at the starting line, taking the starting position from sitting, and when the start signal is heard, he runs at the maximum speed to the end of the distance.

Recording: The time is recorded to the nearest 1/100th of a second.

Third: Measuring the concentration of lactic acid in the blood (Hazza Muhammad Hazaa: 556:1992)

The objective of the test: To know the level of lactic acid concentration in the blood after (5) minutes from the end of the effort.
Used equipments:

Two devices of the type (Lactate Pro LT - 1710) manufactured by the Japanese company (Arakray), two (2) needle drills, (2) check strips, (2) calibration strips, were used. Test strips, medical cotton, sterile materials, two small hand towels, registration form.

Description of performance: After the tested runner finishes performing a test running a distance of (100m), the level of lactic acid concentration in the blood is measured after exertion, i.e. five minutes after performing the test, and this period is considered appropriate to ensure the transfer of lactic acid from the muscles to the blood () The researcher followed the following steps to conduct the test:

1-Configure the device to work by:
A- Placing the check strip, then removing it.
B- Putting the calibration strip, then removing it.
C- Placing the test strip and installing it in the device.

2-Sterilization of the finger from which blood is drawn with sterile materials, preferably the index finger

3-Prick the fingertip with the needle drill supplied with the device.

4-After the blood comes out of the finger, a drop of blood is placed on the measuring tape attached to the device.

5-The device will show a (specific) sound, then the device will start counting down from (60 seconds) to (one second) to show the measurement result on the device screen in a unit of measurement that is (mmol/L).

Recording: The reading shown by the device after the measurement for each tested runner is recorded in the registration form.

Exploratory experience

The researcher conducted a reconnaissance experiment on Friday, 3/2/2018, on four 100-meter runners from the research community, to apply tests to them, and to train the assistant work team to implement tests that withstand speed, physiological variables, achievement, and apply the experimental program
• Determining the difficulties and obstacles that will appear during the implementation and conduct of the tests.
• Knowing the appropriate time to take the tests and how long this procedure takes.
• Getting to know the circular style exercises.
• The ability of the sample members to carry out the tests and their suitability for them.
• Identify the devices and tools necessary to carry out the experiment and tests.
• Determining the training intensity through tests to be implemented on the experimental groups

**Pre-test:**

The tribal tests were conducted at the Al Mahaweel Sports Club stadium over two days, from Thursday 8/2/2018 until Friday 9/2/2018.

**The main experience:**

• The researcher prepared special exercises according to the real time achieved in the tribal tests of the 100m race, and to determine the intensity with which the sample members cut the race distance.
• The exercises were given by three training units per week on days (Saturday, Monday and Wednesday).
• The experiment started on Saturday 10/2/2018 and ended on Tuesday 10/4/2018.
• The duration of the exercises was within the duration of the special preparations and part of the duration of the competitions and for 8 weeks, thus 24 training units were applied.
• The exercises were implemented in the special preparation stage

After determining the real time of the race through tribal tests, the training intensity of the special training distances was determined according to this and using the high-intensity interval training method in the circular style in the form of sets of...
repetitions and stations for the groups and according to what is calculated from real time during the travel of a distance.

**Post-test:**

The researcher conducted the post-tests at Al-Mahaweel Club Stadium on two days, on Friday 12/4/2018 until Saturday 13/4/2018 (after completing the proposed exercises and using the same steps and conditions under which the tests were conducted.

**The statistical methods used in the research:** - The researchers used the statistical bag (spss) in analyzing the research results, including:

- Mean .
- Standard deviation .
- Pearson correlation coefficient.
- T-test for cross-linked samples.
- T-test for independent samples.

**Presentation, analysis and discussion of results:**

**Presentation, analysis and discussion of the results of the variables of special endurance and achievement:**

Table (3)

The difference of the arithmetic means, the standard error, the calculated (t) value and the significance of the differences between the results of the pre and post tests in the physical variables and achievement (100 meters) under research for the two research groups
### Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Value (T) Calculated</th>
<th>Sig level</th>
<th>Sig type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endurance muscular performance 2000 meters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>9.43</td>
<td>9.27</td>
<td>10.62</td>
<td>0.000</td>
<td>Sig</td>
</tr>
<tr>
<td>Control</td>
<td>9.86</td>
<td>9.54</td>
<td>4.87</td>
<td>0.008</td>
<td>Sig</td>
</tr>
<tr>
<td>The level of oxygen pressure in the blood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>12.36</td>
<td>14.840</td>
<td>6.13</td>
<td>0.002</td>
<td>Sig</td>
</tr>
<tr>
<td>Control</td>
<td>12.66</td>
<td>13.420</td>
<td>1.66</td>
<td>0.006</td>
<td>Sig</td>
</tr>
<tr>
<td>Respiration rate after exertion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>11.78</td>
<td>11.51</td>
<td>5.53</td>
<td>0.004</td>
<td>Sig</td>
</tr>
<tr>
<td>Control</td>
<td>11.72</td>
<td>11.62</td>
<td>1.78</td>
<td>0.006</td>
<td>Sig</td>
</tr>
</tbody>
</table>

*Significant below the level of significance ≤ (0.05) and in front of the degree of freedom (7-1 = 6)*

**Table (4)**

The arithmetic mean difference, standard error, the calculated (t) value, and the significance of the differences between the results of the two tests and the dimensionality in the variables of physical abilities and achievement in question for the two research groups.
*Significant below the level of significance ≤ (0.05) and in front of the degree of freedom (7+7-2=12).

It is evident from Table (4) that the values of (T) are significant at the level of significance ≤ (0.05) for all tests in favor of the experimental group.

**Discussing results:**

Through the results that were reached in the tests of the experimental group that used speed endurance exercises in a circular manner with Lactic potential and achievement of 100 meters, we note that the speed endurance tests run 80 meters, which is from the distances that represent less than the racing distance. We note that the test has evolved as the values of the tests were Dimensionality is better than tribalism, which means that there are factors that led to this development. Among these factors is the subjection of the research sample to the programmed scientific sports training, which led to changes in the players’ physical abilities for the better, because the training causes changes, but with a certain percentage of improvement according to the quality and scientificty of the training, the more scientifically the training is, the better the rate of development.

The physical ability (to withstand speed) and this represents the decrease in the speed of the runners of the research sample at this distance and Table (4) shows us the amount of improvement that occurred for the members of the experimental group in the post test, which came through the increase in the training volume for this stage according to the increase in the time period allocated to it Where the endurance of speed was distinguished from the rest of the abilities that it obtained the highest percentage of contribution to the achievement in this competition and in view of that it had the longest training period within the main section of the training unit. The significant effect on reducing the speed drop in the experimental group, and from this that "there is a significant relationship between the increase in speed endurance and achievement in the (100) m sprint and the delay in the decrease in speed at the end of the race." (Mitreikin. V.G.1985:26)
Therefore, the researcher attributes this development to the effectiveness of the tactical exercise exercises that are used scientifically in terms of the intensity and volume of training and comfort according to the intensity that corresponds to the requirements of endurance of speed. Therefore, the researcher deduces the speed of the frequency and the length of the steps in the sufficient steps whose performance is of a high intensity sufficient to occur in response to the speed of the stimulus and to prepare for the atmosphere of the competition in the requirements of the 100-meter competition, which has a high concentration rate because of the intensity and tension required by the competition accompanied by relaxation and an integrated muscular and physical compatibility, as the loads Standardized training has a significant impact in achieving a good level, and this was confirmed by (Allawi and Abul-Ela) “The training load is the main means of bringing about the physiological effects of the body, which achieves an improvement in responses and then adapting the body’s organs and raising the level, so it is one of the most important factors for the success of the training program And then improving performance” (Muhammad Hassan Allawi:1984:22).

The results of the achievement of the 100-meter sprint also indicate the development in the results of the post-test, which is better than the tribal one. The researcher attributes this to the development of the physical ability to withstand speed, which from the point of view of the trainers is one of the most important physical abilities required to train the 100-meter sprint, as the improvement in the performance level of 100-meter runners is linked to these Ability, and this was confirmed by (Hart), quoting (Al-Mandlawi) "that the training of endurance of speed with Lactic potential is one of the most important basic elements required in training the 100-meter sprint." As this ability is gradually characterized by high intensity that leads to a severe lack of oxygen, which leads to the accumulation of lactic acid in the muscles, which leads to fatigue. Her exercises are similar to her performance, and this is what has been implemented from the exercises with the
Lactic potential and the rationing of training in the circular style and maintaining the quality of the intensity required in the exercise
(Qasim Al-Mandalawi (and others): 1999: 124)

Conclusions and recommendations:

Conclusions:
- Speed endurance exercises for the research sample members led to its development in the pre and post tests of the experimental group.
- The circular style exercises with lactic effort had a positive effect in the experimental group compared to the control group.
- There is a development in the performance of achieving a 100-meter sprint for the members of the research sample between the tribal and remote tests

Recommendations:
- It is preferable to adopt exercises in the codified circular method prepared by the researcher in training young runners to develop physical abilities in the 100-meter youth competition.
- The use of modern devices that measure physiological indicators in the field in the legalization of the training load, instead of the traditional methods and methods of training, as they give a real indication of the reflection of the training on the internal load.
- Attention to the development of physical abilities that have a direct impact on the development of achievement in athletics competitions for medium and long distances.
- Conducting similar studies on other age groups in athletics.

References:
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-Hazaa Muhammad Hazaa: Laboratory experiments in the functions of the organs of physical effort, King Saud University, Deanship of Library Affairs, 1992.

Mitreikin. V.G. : The bases for using different weight in the plyometric of sprinters , (soviet sports review, n1, p26-27, 1985)

- lauralee Sherwood;Human Physiology from cells to systems, 5th ed: (USA, International student edition, 2004).

Shows the training unit model used in the training program

week: first

Training unit: first  Intensity of training unit: 80%

day and date: Al Mahaweel Sports Club (Saturday 10/2/2018)

<table>
<thead>
<tr>
<th>speed tolerance</th>
<th>intensity</th>
<th>the exercises</th>
<th>repetitions</th>
<th>number of circles</th>
<th>Rest between circuits</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td></td>
<td>-From the start, flying, sprints 70m, then rests 20 seconds, then from the start, jumps, runs 80m, then rests 20 seconds, from the start, jumps, runs 120m</td>
<td>3</td>
<td>3</td>
<td>2Minute</td>
</tr>
</tbody>
</table>