The effect of special exercises according to the capillary bifurcation in developing the special endurance and achievement capabilities of 800 meter runners

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Abstract
The diversity of exercises according to the components of the standardized training load and the differences in their effects It makes the runners need a physical preparation commensurate with their capabilities and abilities according to the competition and its requirements. So, there is a decline in terms of physical adaptations in the endurance abilities of the players of the 800-meter running competition for young people. So, the researcher decided to prepare appropriate training requirements for this type of competition. It requires advanced functional requirements, which gives physical preference to special endurance capabilities. They are among the most important elements that control placement in middle distance competitions in athletics by raising the level of adequacy of the heart, lungs and blood circulation. The capillary network enables the organization of the Blood flowed through it by itself. This allows the various body systems to maintain a constant blood flow despite a change in the body's blood pressure. This is achieved through the response of smooth muscles in the capillary wall, and the goal of the research is to prepare and identify special exercises according to the capillary branch of blood in developing the special endurance capabilities and achievement of 800-meter junior runners. The researcher used the experimental method by pre and post testing for the two experimental and control groups, and the research community was identified for the players of the 800-meter running competition in the specialized school for Giftedness in the Ministry of Youth and Sports for the training season 0 202, of which there are 14 players. And the control group, with (7) players for each group, special exercises were applied according to the capillary branch of blood on the experimental group for a period of eight weeks and by three training units per week. They used the SPSS statistical bag to process the data and obtain the results. According to the capillary bifurcation, a positive effect on the development of the special endurance and achievement capabilities of the junior 800-meter runners

Key Words: Special Exercises, Bifurcation Capillaries, Special Endurance Abilities, and Achievement of 800m Runs.
Introduction
The developments that have occurred in the field of sports training science are many and great at the theoretical and practical levels. A result of experiments and scientific and practical research continue to use training methods and methods that contribute to developing the level of players according to the theories and concepts of sports training and its practical applications that include the codified training program, the coach and the player. The activity of (800) meters is one of the athletics competitions in order to keep up with the tremendous progress in this competition by studying the capillary branching blood which has an effective role for the functional adaptations that occur to the muscular and circulatory system as a result of special endurance exercises that characterize this competition, especially the achievement of During the achieved numbers in this competition. The competition continues to break the numbers and achieve the highest levels of achievement. Hence the importance of the research to increase the blood capillary bifurcation within the working muscles and the participating members, and to increase the numbers and sizes of energy houses (mitochondria) within the muscles. Thus, causing physiological adaptations And physical activity to overcome, resist, or reduce the appearance of fatigue during and after performance.

Research Problem: Through the experience of the researcher and her presence in the field side, where she noticed a decline in terms of physical adaptations in the endurance capabilities of the 800-meter junior competition athletes. So, she decided to prepare appropriate training requirements for this type of competition that needs advanced functional requirements that give physical preference to special endurance capabilities. They are considered one of the most important elements that control placement in middle distance competitions in athletic. It is through raising the level of adequacy of the heart, lungs and blood circulation. The capillary network enables the regulation of blood flow through it by itself. This allows the various body systems to maintain a constant blood flow despite a change in the body's blood pressure. This is achieved through a smooth muscle response in the capillary wall.

Research Objectives: 1- Preparing special exercises according to the capillary bifurcation in developing the special endurance and achievement capabilities of 800-meter runners 2- Knowing the effect of preparing special exercises according to the capillary branch of blood in the
development of special endurance and achievement capabilities for 800-meter runners

**Research hypotheses:** Special exercises according to the capillary bifurcation have a positive effect on the development of the special endurance and achievement capabilities of 800-meter junior runners.


**Methodology**

*Research Methodology:* The researcher used the experimental method of pre and post testing of the experimental group and the control group, to suit the nature of the research.

*Research community and sample:* The research community was determined for the competition for the 800-meter jogging junior players in the Specialized School for Giftedness in the Ministry of Youth and Sports for the training season 2020 and the 14 players. As the research sample was selected using the comprehensive inventory method, the sample was divided into two groups, the experimental group and the control group, with (7) players for each group.

*Homogeneity and equivalence of the sample*

**Table (1) shows the homogeneity of the sample**

<table>
<thead>
<tr>
<th>T</th>
<th>Variables</th>
<th>Unit of measurement</th>
<th>Test value</th>
<th>Leven</th>
<th>The significance of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>The government's support</td>
<td>1,222</td>
<td>0,369</td>
<td>Insignificant</td>
</tr>
<tr>
<td>2</td>
<td>Training age</td>
<td>The government's support</td>
<td>0,614</td>
<td>0,682</td>
<td>Insignificant</td>
</tr>
<tr>
<td>3</td>
<td>Mass</td>
<td>government's support</td>
<td>0,145</td>
<td>0,961</td>
<td>Insignificant</td>
</tr>
<tr>
<td>4</td>
<td>Length</td>
<td>Cm</td>
<td>1,613</td>
<td>0,410</td>
<td>Insignificant</td>
</tr>
</tbody>
</table>

**Table (2): It shows the arithmetic mean, standard deviations, the calculated (t) value, and the significance of the differences in the examined tests between the experimental and control groups in the pretest**
<table>
<thead>
<tr>
<th>Speed tolerance</th>
<th>Q</th>
<th>P</th>
<th>Q</th>
<th>P</th>
<th>Indication of differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min/s</td>
<td>1.34</td>
<td>0.126</td>
<td>1.32</td>
<td>0.213</td>
<td>0.881</td>
</tr>
<tr>
<td>Power tolerance</td>
<td>Second</td>
<td>41</td>
<td>0.454</td>
<td>38</td>
<td>0.148</td>
</tr>
<tr>
<td>Achievement ran 800 meters</td>
<td>Minute</td>
<td>2.03</td>
<td>0.321</td>
<td>2.01</td>
<td>0.345</td>
</tr>
</tbody>
</table>

* Significant at the significance level (0.05) if the error level is less than (0.05).

**Means of collecting information**
1- Observation. 2- Tests and measurements 3- Form for recording and unloading test results.
2-5 Devices Tools used in research:
1- A device for measuring height and weight
2- Legal athletics track.
3- 50 signatures.
4- Electronic stopwatches (5).

**Identification and physical tests used:**

**First: The 600-meter test runs (Matthew, 2010)**
Test purpose: speed endurance test.
Tools used: track, stopwatches, assistants, registration form.
Performance specifications: The test begins when the names of the first runners are heard in the registration form. When a command is heard on the line, the testers stand behind the set starting line from the high start position. The test begins when the start signal is heard. The testers start at the maximum speed to cut the distance determined for the test. It is half a cycle (200 meters) with a complete rotation around the field in the least possible time, and after the laboratory reaches the finish line, the timer stops the clock.
Recording: The recorder records the time that the timer informs him from the moment the test starts until the finish line reaches the finish line, and records the time in minutes and seconds to the nearest fraction of a second.

**Second: the strength test (Mohamed, 1999)**
The target ran by jumping 200 meters from the stand.
Purpose of the test: To measure the strength tolerance.
Tools used: running track - manual stopwatch - firing pistol
Performance description: The laboratory stands behind the 200-meter line, i.e. the starting point of the 200-meter run, after which the launcher instructs (Take your place - attend) and then start and start jogging (jogging in the form of reciprocal stability) a distance of 200 meters to the finish line, so that the tester completes the test.

Register:
- The recorder records the elapsed time that the athlete took in his questionnaire, in seconds, to the nearest 0.01 second
Each athlete from the sample makes one attempt for this test.

Third: Accomplishing 800-meter run. (Scott, 2001)
The objective of the test: to complete the 800-meter competition
Tools used: athletics track, stopwatches that can measure more than one time during the test, assistants, registration form.
Performance specifications: The test was conducted according to the conditions and regulations of the International Association of Athletics Federation. All runners were tested together for the purpose of competition, and every runner in the designated running area, and after that the test began by giving the runners instructed to go behind the starting line to take the starting position from standing, and upon hearing start signal runners will run two laps on the track for the 800-meter distance.
Registration: The registrar records the completion time in the form prepared for this purpose in the minute and the second to the nearest fraction of a second.

Exploratory Experience: The researcher conducted the exploratory experiment on a sample of (5) players on Saturday 3/2/2019 at 4 pm on the playground of the specialized school for the Gifted of the Ministry of Youth and Sports. The exploratory experience of the researcher helped to identify: 1. the validity of the devices and tools used in the research. 2. The time taken to perform the tests. 3. Determining the difficulties that the researcher may encounter when conducting the main tests. 4. Familiarizing with special exercises according to the capillary bifurcation.

Pre-exams: The researcher conducted the pre-tests on Monday 4/3/2019 on the playground of the Specialized School for the Gifted of the Ministry of Youth and Sports.

• The duration of the exercises set in weeks: (8) weeks.
• The total number of training units: (24) training units.
• Number of weekly training units: (3) units.
• Weekly training days: (Saturday - Monday - Wednesday).
• The training method used: high intensity interval training.

Dimensional exams: After completing the implementation of the special exercises within the specified period, then conducting the research tests on Tuesday 7/5/2019. The exams) on the playground of the specialized school for the Gifted of the Ministry of Youth and Sports

The statistical methods used in the research: The researcher used the statistical package (SPSS) to find the appropriate statistical treatments.

Results
3-1 Presenting, analyzing and discussing the results of the experimental and control groups regarding the studied variables.
3-1-1 Presentation and analysis of the results of the differences between the pre and posttests of the experimental group in the researched variables

Table (5): It shows the difference of the arithmetic mean, its standard deviation, the value (t) and the significance of the differences between the results of the pre and posttests of the experimental group in the variables under investigation

<table>
<thead>
<tr>
<th>Tests</th>
<th>Unit of measurement</th>
<th>Tribal testing</th>
<th>After testing</th>
<th>Value of T calculated</th>
<th>Error level</th>
<th>Indication of differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed tolerance</td>
<td>Minute/s</td>
<td>1.3 2</td>
<td>1.3 0</td>
<td>4.894</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Power tolerance</td>
<td>second</td>
<td>38 3</td>
<td>36 1</td>
<td>5.784</td>
<td>0.00</td>
<td>Significant</td>
</tr>
<tr>
<td>Achievement ran 800 meters</td>
<td>Min/second</td>
<td>2.0 1</td>
<td>1.5 9</td>
<td>3.986</td>
<td>0.00</td>
<td>Significant</td>
</tr>
</tbody>
</table>

* Significant at the significance level (0.05) if the error level is less than (0.05)

1-2 Presentation of the results of the differences between the pre and posttests of the control group in the researched variables and their analysis

Table (6)
It shows the difference of the arithmetic mean, its standard deviation, the value (t), and the significance of the differences between the
results of the pre and posttests of the control group in the variables under consideration.

<table>
<thead>
<tr>
<th>Tests</th>
<th>Unit of measurement</th>
<th>Tribal testing</th>
<th>After testing</th>
<th>Value T Calculated</th>
<th>Error level</th>
<th>Indication of differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Q</td>
<td>P</td>
<td>Q</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Speed tolerance</td>
<td>Minute/s</td>
<td>1.34</td>
<td>0.124</td>
<td>1.32</td>
<td>0.283</td>
<td>3.991</td>
</tr>
<tr>
<td>Power tolerance</td>
<td>second</td>
<td>41</td>
<td>0.326</td>
<td>39</td>
<td>0.345</td>
<td>2.653</td>
</tr>
<tr>
<td>800 m run completion</td>
<td>Minute/s</td>
<td>2.03</td>
<td>0.423</td>
<td>2.02</td>
<td>0.432</td>
<td>3.897</td>
</tr>
</tbody>
</table>

* Significant at the significance level (0.05) if the error level is less than (0.05).

3-1-3 Presenting the results of the differences between the two posttests of the experimental and control groups in the studied variables.

Table (7)

It shows the difference of the mean, the value of (t), the level of error and the significance of the differences between the results of the post-test of the experimental and control groups in the variables under investigation.

<table>
<thead>
<tr>
<th>Tests</th>
<th>Unit of measurement</th>
<th>Experimental Group</th>
<th>The command group</th>
<th>Value T Calculated</th>
<th>Error level</th>
<th>Indication of differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Q</td>
<td>P</td>
<td>Q</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Speed tolerance</td>
<td>Minute/s</td>
<td>1.29</td>
<td>0.983</td>
<td>1.31</td>
<td>0.289</td>
<td>9.226</td>
</tr>
<tr>
<td>Power tolerance</td>
<td>Again</td>
<td>35</td>
<td>0.992</td>
<td>37</td>
<td>0.438</td>
<td>8.989</td>
</tr>
<tr>
<td>Achievement ran 800 meters</td>
<td>Minute/s</td>
<td>1.57</td>
<td>0.876</td>
<td>2.01</td>
<td>0.345</td>
<td>7.765</td>
</tr>
</tbody>
</table>

* Significant at the significance level (0.05) if the error level is less than (0.05).

Discussion

It appears from the results of Table (5. 6. 7) that there are significant differences in the physical research variables (special endurance capabilities and the completion time of 800 meters) between the pre and posttests of the two research groups and in favor of the post-test, and the researcher attributes. The exercises that were adopted to determine their intensity on the target time to develop the endurance of speed. Critical velocity and general endurance have caused an adaptation to the heart rate during the effort. It indicates the improvement of the efficiency of the
circulatory system. This was reflected positively on the adequacy of muscle contraction and its continuation of work according to the time of the competition. It indicates the regularity of speed during the competition distance. These results indicate that the followed exercises have affected the adaptation of the increased volume of blood circulation. A result of adaptation to the special speed endurance exercises according to the target time. It indicates an increase in the blood loaded with oxygen to the working muscles. It is considered a natural response to the exercises practiced by the members of the experimental group and that the 800 contestants Meters, the first 400 meters are often faster than the rest of the competition, in which their speed is lower (Fitzgerald., 1991). The speed leads to the retention of speed for a longer period despite the formation of lactic acid while the bearing leads the strength to continue exerting strength despite the formation of lactic acid (Ather, 1990). The exercises used on the experimental group were a direct cause of the general endurance of 15 minutes running, which is one of the basic physical abilities of the motor performance of middle-distance running (please about strength and speed). That is why, when training on endurance, you must focus on performing exercises that suit specialization and physical load (Sulaiman, 2000) These exercises were related to the form and specifications of endurance training according to the specificity of the practice sport. The development of this ability also helped improve the functional ability of the internal organs through Increase in the size of the heart and the consequences of this increase in terms of increasing the volume of the heart attack and increasing the volume of blood paid, as well as increasing the air capacity of the lungs and the resulting gas exchange in the various body tissues. This increase affected the increase in the proportion of inhaled oxygen. As well as increasing the number of capillaries and their expansion. It results in the ease and speed of transporting food in different tissues, as well as improving metabolic processes (building and demolition) and releasing energy (Moravece Tal: 1997). Thus, the number of operating kinetic units will increase and their ability to produce kinetic energy will increase accordingly (Sareeh, 2003) Special endurance works to achieve a new digital achievement and maintain the level in races with repeated movements (Saleh, 2011). Therefore, training to endure special (less and more than the race distance) constantly will inevitably increase the rate of
speed throughout the race distance and that the development of the speed endurance ability of the members of the experimental group had the cut-off limit in determining the completion time between the two groups as a result of the correlation of the completion time in the 800-meter running activity and the variables related to this activity with the development of the special speed endurance ability (Atheer, 1983). As the greater the efficiency of the exertion-based muscles, this is done in the shortest possible time. This means an increase in the capacity of these muscles (and as indicated by the results of the time of cutting the two test distances for special velocity, speed endurance, strength endurance and rhythmic endurance) (Sareeh, 2001)

**Conclusions**

1- The results showed an evolution between the pre and post measurement of special exercises according to the capillary branch of blood in developing the special endurance capabilities of the players of the experimental group and in favor of the post measurement.
2- The results showed an evolution between pre and post measurement at the time of completion. 800 meters junior players ran for the experimental group and for the post measurement.
3- The evolution of the experimental group over the control group in the post-measurement of the studied variables in favor of the experimental group.

**Recommendations**

1- Applying special exercises according to the capillary branch of blood in developing the physical capabilities of 800-meter players in daily training and competitions.
2- Conducting similar studies on other groups for both sexes.

**References**

1. Atheer Sabri: The Impact of Developing Strength Tilt on Achievement of Middle Distance Running, Master Thesis, University of Baghdad, College of Physical Education, 193.


Annex (1)
Exercises used in the research
First week:

<table>
<thead>
<tr>
<th>Training unit</th>
<th>Exercise vocabulary</th>
<th>% Intensity</th>
<th>Iteration</th>
<th>Totals</th>
<th>Comfort between</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Duplicate</td>
</tr>
<tr>
<td>1</td>
<td>200 meters run from the bird</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>My husband jumped on - 10 barriers at a height of 90 cm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>600 meters ran from parking position</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Side jumped on the terrace</td>
<td>1010 m jump ing swayed by 30 cm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1000 meters ran from parking position</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 meters he ran by jumping.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>