A Study of Some Biochemical Variables and Functional Indicators and Their Relationship to the Achievement of 200m Young Runners

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Abstract-*Biomechanics is considered one of the sciences that have contributed to the scientific progress of the motor performance of man in general and sports in particular, and that the main content of this science in the field of physical education is the study of the causes of movement and knowledge of the relationship of scientific movement with all the physical, functional and psychological variables associated with movement in order to reach the most appropriate and better solution. Anthletex events are events that differ from each other in terms of characteristics and components, they include short, medium and long distance running activities in addition to jumping and throwing activities, and because the biomechanical variables and functional indicators are considered one of the important factors related to sports excellence because of their association with the skill aspects that require each Sports activity in general and the competition ran the 200m Bos FH question in particular, so it is recognized as one of the important pillars to guide studies and a major and influential role in the development of the event. Run 200 m, and the research aims to:*

1. *Determine some biochemical variants of young 200-meter runners.*
2. *Determining some job indicators for the 200 million youth contestants.*
3. *Finding a correlation relationship between some biochemical variables with the achievement of hostile runs of 200 meters for a youth.*
4. *Finding a correlation between some job indicators and achieving a hostile runner who ran 200 meters.*

A descriptive approach was used for young runners running 200 meters from (8) runners, (20) biochemical variables and (7) functional indicators. After the data has been processed, interpreted and discussed, the following conclusions are reached:

1. *There was a significant correlation between the variable number of steps and the four stages with the completion of the 200-meter race for young runners.*
2. *There was a significant correlation between the variable of step length and all four stages of achieving 200m running for young runners.*
3. *There was a significant correlation between the step frequency variable and all its four stages with the completion of the 200-meter race for the young runners.*
4. *The presence of a significant correlation between the time variable every 50m and all its four stages with achieving 200m running for young runners.*
5. *There is a significant correlation between the medium speed variable and its four stages, with the completion of the 200-meter race for the young runners.*
1. *6- Significant correlations were found between all functional indicators (pulse at rest, systolic blood pressure at rest, diastolic blood pressure at rest, anaerobic stride, Harvard stride, vertical dip (workout), and Parach energy index) with a score of 200 meters. It works for young runners.*

Keywords: Biomechanics, Motor Performance, Physical Education, Running, Correlations

The research recommendations are:

1. Conducting similar studies to identify correlations of other biochemical variables that were not addressed in the current study, with the achievement of 200 m run for young runners.
2. Conducting similar studies to identify correlations of other functional indicators that were not covered in the current study, with a 200 m run of young runners being achieved.
3. Conducting a similar study on sporting activities that have not been studied for both sexes and different types of short, medium and long distances.

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4. Adoption of the results reached by the trainers in developing a running achievement of 200 m for young runners.

Definition of the research

Introduction and Importance of Research

Biomcanak science is considered one of the science that contributed to the scientific progress of the motor performance of the human being in general and sport in particular, and that the main content of this high factor in the field of physical education is the study of the causes of the knowledge movement a scientific relationship with the movement of all the physical, functional and psychological variables associated with the movement in order to reach the most appropriate solutions the missing. Anthletex events are events that differ from each other in terms of characteristics and components. They include short, medium and long distance running activities in addition to jumping and throwing activities, in light of the scientific facts that we live and live. Others, it is necessary to catch up with the context of science and its discoveries and methods, as countries race every day to supply as much as you can discover scientific facts in each sector, including the sports sector, and the fact that biochemical variables and functional indicators are important factors related to sports excellence and are related to aspects The skills required by each irrigation activity in general and the competition ran 200 m in the research topic Boss FH in particular, so they are recognized as one of the important pillars to guide studies and the role of the main and influential in the development of the effectiveness of running 200 m where the effectiveness of o and events that are characterized by your strength and speed where it is distinguished Endurance in the effective technical stages of mechanics all play an important role in achieving high runners for this activity as the biochemical variables serve young runners in the 200-meter running race, as it helps the trainer learn skills and motor errors, diagnose them and compare them with their parts, weights and speed of implementation with what is required of them to reach a lack of favor Achievement of the event as well as the job indicators have a major specialization and an influential role in developing the performance of players. The importance of the research lies in the fact that the researcher determines the type of research attempt that some biochemical variables and functional indicators relate to in achieving young runners in the 200-meter race in an attempt to overcome some obstacles. When selecting contestants and training for this activity.

Research Problem

That each sporting activity has characteristics that differ according to the type of activity practiced and must be available to practicing individuals, especially activities that require explosive power, as well as the biochemical variables and functional indicators that characterize the 200-meter runner. Youth, and that the environment and its aspects affect the person in his various achievements, whether this change is in terms of physical, functional, muscular or behavioral, as we note that most training programs neglected the biomechanical and functional aspects that are closely related to the development of activity, so the researcher studied the biochemical aspects of effectiveness Running 200 meters for young people in terms of mechanical laws that vary from one activity to another and the effectiveness requirements. The engine, which is the burden of a physical runner, through running 200 m. These requirements increase the effects of the centrifugal force. The runner tries to reduce the impact of those forces through his movement inside a mechanic and changing the jogging movement as well as studying the functional indicators associated with runners. 200 m young man ran, so researcher T studied the current To try to know the most important functional variables and indicators that young athletes enjoy by running 200 meters, and trying to find out what kind of relationship they have to complete it. A runner who ran 200m young people in order to reach the final results serving the trained players and researchers in developing this event.

Research Aims

1. Determination of the Z. Some biochemical variants of 200m young runners.
2. Learn about some functional pain indicators for young 200m runners.
3. The existence of a relationship of grace with the correlation of some biochemical variables with the completion of hostility. 200 young men ran.
4. Finding a correlation between some job indicators and achieving 200m young man hostility.

Research areas

The human domain

Young runners running 200 m and participants in the sports season (2018-2019)

Time domain

From 4/5/2019 pm, until 6/15/2019 pm

Spatial scale

Arena and Field Playground, College of Physical Education and Sports Sciences / University of Baghdad.

Research methodology and field procedures

Research Methodology

The descriptive approach was used in the survey method for its relevance to the nature and objectives of this study.

The research sample

A sample of individuals was selected by research in a meaningful way, and the young players ran 200 meters with a total of 8 contestants of the work sample and participants in the sports season 2018-2019 9-8 in addition to (4) athletes and youth of an exploratory sample and outside the sample limits.

Methods of gathering information

The researcher Staan T used the following devices tools: Arab and foreign references, tests and standards, the International Information Network (Internet), to identify the most important ones to identify the biochemical variables, and a questionnaire to identify the most important indicators of pain. A functional questionnaire that records the individual for all the study variables and the results of the achievement. Run 200 meters, marks placed on the players' joints in front of the camera, a video camera of the type (National 3500) with a frequency of 25 images / sec, a type of VHS movie, a type of VCR (a type of national), a television set from Type (SHARP) computer type (Pentium 4), hard disks, CD type PRINCO, Soft wear computer program especially for analyzing sports movements, electrical connections, metric scale (1m) length, whistle, stopwatch, electronic number (3) Statistics Laws).

Defining the study variables

First / identify Albiukinmetekih variables

In order to identify the most important biochemical variables needed by the runner who ran 200 meters, the researcher T looked at his sources and expert opinion in the fields of biomcanac and athletics and settled on working on (2 0) variable A as follows:

First / number of steps

- The number of degrees for the first stage (50 meters first)
- The number of steps in the second stage (50 m)
- The number of degrees in the third stage (50 meters three)
- Number of degrees for the fourth stage (50 m IV)

Second / step length

- The length of the first stage of the stage (50 m first)
- The length of the second stage of the stage (50 meters)
- The length of the third stage stage (50 m3)
- The length of the fourth stage (50 m IV)

III / step frequency:

- First stage frequency (50 m first)
- Second stage step frequency (50m sec)
- The frequency of the third stage (50 m third)
- The fourth stage frequency step (50 m IV)

Fourth / once every 50 pm:

- The time of the first stage (50 m first)
- The time of the second stage (50 meters)
- The time of the third stage (50 meters for the third)
- The fourth stage time (50 meters fourth)

V / Average Speed:

- Average speed of the first stage (50 m first)
- The average speed of the second stage (50 m s)
- The average speed of the third stage (50 m3)
- The average speed of the fourth stage (50 m IV)

II / GPS Functional Indicators:

A set of appropriate functional tests were selected for the study, which are characterized by ease of measurement in addition to their scientific weight, as they were applied to the Iraqi environment, namely:

1. Measuring the pulse at rest.
2. Systolic blood pressure measurement at rest.
3. Measurement of diastolic blood pressure at rest.
4. The anaerobic step test (lactic oxygen capacity) (1997: 221: 6)
5. Harvard Stepping Test (1997: 275)
6. Vertical jump (workpiece) test / for short anaerobic capacity (1998: 7: 122-129)
7. Barash Energy Index / a measure of functional efficiency of the heart and blood circulation (2011 4: 309-311).

Walt Swair Walt Alfdaoa Analysis by computer (PC:)

The researcher filmed the research sample by running a distance of 200 meters with ten SONY video cameras at an accelerated frequency (25 images / second). For each part, the camera is placed at each of the distance from these distances, and the camera t was placed from not passing until the fourth at a distance (24 m) pn the middle of the player's movement point and for each distance, while the fifth and sixth camera states indicate the column (26 m) To the fact that the player is moving in this distance to be part of it on a curved section not another in a straight line, which is a T camera from the seventh to the tenth, the GS Li is after (15 m) in the middle of each distance point. After the completion of the filming the special film field experience is transformed To measure the angles and speeds of the track drive, and thus it is possible to obtain accurate measurements, note that the conversion stage goes through the following stages: (The first steps j (VHS) have been converted to the hard disk as a file with a special program for converting (Ulead Video Studio 14). Then the movies stored on the hard disk were converted into a series of images (Fram es), then J converted the bound images into one group image by (Open File) for the purpose of marking the joints of the body and according to the marking points that were affixed to the joints of the players 'bodies during the show. Finally, the program (Timer Ver 1.3) was used, with which it is possible to extract the time required for any part of the performance by determining the beginning and end of the movement.

Completion (ran 200 m)

The T researcher of test to measure the completion ran 200 m for young athletes by measuring the time to cut the total distance for each runner.

Experience reconnaissance

Researcher T. An experimental experiment with the aim of extracting the scientific parameters of the selected functional tests by applying to (4) young athletes running 200 meters and from outside the limits of the sample on 6/4/2019 and through the tests that were conducted on the experts (content validation) was obtained, while The reliability coefficient of extraction is functional in all methods (test and retest), as the tests were usually applied four days after the result of the first exploratory experiment in the same sample on 10/4/2019 9 A.D. A simple Pearson correlation coefficient was used between the results of the first two tests And the second, as shown in Table (1), it is clear that all the functional tests e. A statistical fact that all the values from the level of significance (Sig) was Osgrmen (0.05), which is the value of the level of significance adopted in the statistical program (SPSS) (3: 2018: 214) demonstrating a high degree of stability. The objective tests profession, T. researcher, was hired, a degree, and two of the results of the functional tests. In the second measurement of the experiment, a simple correlation coefficient was used by Pearson between the scores of judgments for all values. Significance level (Sig) was smaller than approved level of (0.05) dollars, indicating that all tests are functional with a high goal as shown in Table (1) as well.

Table (1) the data are not statistical for stability and objective tests of the job

indication	Sig	Objectivity	indication	Sig	Persistence	Functional tests	No.
D.	0.00	0.96	D.	0.01	6 0.8	Pulse while at rest	1
D.	0.02	0.92	D.	0.00	4 0.8	Systolic blood pressure at	2

						rest	
D.	0.01	0.94	D.	0.00	3 0.8	Diastolic blood pressure at rest	3
D.	0.00	0.96	D.	0.02	1 0.8	Anaerobic step	4
D.	0.03	0.93	D.	0.00	7 0.8	Move to Harvard	5
D.	0.02	0.91	D.	0.00	0.91	Vertical (workpiece) jump	6
D.	0.00	0.91	D.	0.00	0.82	Barash Energy Indicator	7

From statistical means

The data was processed statistically by ready-made program (IBM SPSS Statistics Vr 2 5) to extract the following:

(Arithmetic means, standard deviations, median, convolution factor, protrusion method, and Pearson's simple correlation coefficient)

Presentation, analysis and discussion of results

Show specifications of biochemical variants and accomplish 200m runs for young runners:

T will show the finder for averages, standard deviations and the median value in addition to the value of the convolution coefficient in a way that picks up all biochemical variables and the achievement ran 200 meters junior runner and as shown in Table (2), and it is noticed from the table that all values of the coefficients were less than (+1) Evidence of good sample distribution and homogeneity.

Table No. (2): The arithmetic means, standard deviations, and the coefficient of the skew value for all

Biochemical variants and achievement of the 200 m race

Coefficient of torsion	standard deviation	Mediator	Arithmetic mean	the exams	variable
0.844	0.706	3.825 2	23.891	m 50) Number of first stage steps (first	Number of steps
1.77	0.034	23.115	23.125	Number of second-stage (sec m50) steps	
1.844-	0.035	24.990	24.976	The number of steps in the third (m three 50) stage	
1.081-	0.071	25.960	25.936	The number of steps for the fourth (m fourth 50) stage	
1.339-	0.059	2.250	2.225	m 50) The length of the first stage step (first	Step length
0.639-	0.019	2.245	2.235	(sec m50) Second stage step length	
0.544	0.023	2.020	2.022	The length of the third stage (m3 50) step	
1.055-	0.029	1.960	1.957	(m fourth 50) Fourth stage step length	
0.128-	0.037	4.250	4.251	(m first 50) First stage step frequency	Step
0.045-	0.053	4.375	4.368	Second stage step (msec50) frequency	

1.060-	0.027	4.525	4.507	(m3 50) Third stage step frequency	frequency
1.273	0.035	4.315	4.328	Fourth stage step (fourth m50) frequency	
0.603	0.169	5.645	5.746	(m first 50) Time of the first stage	Time every 50 m
0.100-	0.021	5.560	5.561	(ms50) Second stage time	
0.407-	0.025	5.795	5.795	meters a 50) Time of the third stage (third	
0.954-	0.034	6.080	6.067	meters 50) Time of the fourth stage (fourth	
2.681-	0.233	8.650	8,570	Average speed of the first (first m50) stage	Speed rate
1.213-	0.213	9.000	8.936	Average speed of the second (sec m50) stage	
0.912	0.039	9.000	9.027	The average speed of the third (m3 50) stage	
0.691-	0.190	8.375	8.312	Average speed of fourth (fourth m50) stage	
0.404-	0.021	23.290	23.287	m 200 Completed ran	

Presentation and discussion to nurture the association between biochemical variables with the achievement of 200m runs for young runners:

The researcher T used the simple correlation coefficient of Pearson between the results of the biochemical variables with the achievement of a 200-meter junior runner. The results shown in Table (3) were reached, and there was a correlation found between all biochemical variables with completeness, so all values were (R) The calculations were respectively (0.824, 0.932, 0.791, 0.923, 0.804, 0.781, 0.696, 0.751, 0.816, 0.712, 0.739, 0.771, 0.822, 0.821, 0.741, 0.792, 0.750, 0.811, 0.755, 0.821) with a large level (SIG) Respectively (0.00 1, 0.00 0, 0.00 0, 0.00 2, 0.0 0 0, 0.000, 0.001, 0.002, 0.000, 0.003, 0.001), 0.006, 0.003, 0.001, 0.002, 0.001, 0.002, 0.003, 0.007, 0.001) It is below the Maat D level of (0.05)

Discuss the results

The researcher's conclusion was that there was a correlation found between all biochemical variables with the achievement of a 200-meter run, a youth runner, as a logical consequence of what biochemical variables, the role and speed of completion of a 200-meter run, variable (number of steps). Stage, which means that the research sample has a good maximum speed that helps in the maximum performance, knowing that the variable of the number of steps determines the frequency and length of the steps and who has a major role in determining the rate of the speed of the runner, that the result reached by the researcher is consistent with what he indicated (Canola Vittoni 1995) "It can be a variable of the number of steps through which the variable of frequency and length of steps is calculated by knowing the distance covered and the travel time. These quantitative values that we obtain - help in controlling the determination of the type of exercises, and therefore the trainer has the ability to improve and raise the level of training (1995: 39:10) -44)As for the two variables (step length, step frequency), there were differences in stride length for runners and according to each stage. In the first stage, we notice that there are no differences in the length of the steps between runners because runners tend to maintain a certain percentage of the length and frequency of steps in a balanced manner, as this stage begins with stability and hostility needs a special one. Technical performance to overcome the inertia of the body and start moving fast as possible, while in the second stage we notice an increase in the length of the steps as a result of the development of force reactions that are exerted against the ground, while in the third stage

Table (3) Transactions links m variables Albiukinmetekih p a achievement ran 200 m

indication	Approved level d	Sig	Values R	m 200 ran achievement A Biochemical variants	No.
moral		0.001	0.824	m 50) Number of first stage steps (first	Number of steps
moral		0.000	0.832	Number of second-stage (sec m50) steps	
moral		0.000	0.791	The number of steps in the third (m three 50) stage	
moral		0.002	0.823	The number of steps for the fourth (m fourth 50) stage	
moral		0.000	0.804	The length of the first stage (m first 50) step	Step length
moral		0.000	0.781	Second stage step (sec m50) length	
moral		0.001	0.696	The length of the third stage (m3 50) step	
moral		0.002	0.751	m 50) Fourth stage step length (fourth	
moral		0.000	0.816	m 50) First stage step frequency (first	Step frequency
moral		0.003	0.712	Second stage step (msec50) frequency	
moral		0.001	0.739	Third stage step (m3 50) frequency	
moral		0.006	0.771	Fourth stage step (fourth m50) frequency	
moral	0.05	0.003	0.822	(m first 50) Time of the first stage	Time every 50 m
moral		0.001	0.821	(ms50) Second stage time	
moral		0.002	0.741	meters 50) Time of the third stage (a third	
moral		0.001	0.792	Time of the fourth (meters fourth 50) stage	
moral		0.002	0.750	Average speed of the first (first m50) stage	Speed rate
moral		0.003	0.811	Average speed of the second (sec m50) stage	
moral		0.007	0.755	The average speed of the third (m3 50) stage	
moral		0.001	0.821	Average speed of fourth (fourth m50) stage	

We note that the length of steps in one level to maintain the maximum speed gained, but in the final stage we note that the contestants tend to increase the pace of steps at the expense of their length, especially in the 200-meter race, which has a positive relationship with completing a 200-meter run, and the difference and development in the four stages in The step frequency has an important relationship to achieving 200 meters, as this variable is related to the rapid force that is short. The distance runner must be distinguished by that the result is consistent with what was indicated by (Muhammad Abd al-Rahim 1998) that the explosive force has a prominent role in achieving good results when practicing Sport, especially with regard to producing power at the right moment and at the right speed, as the concentration of strength with increasing its speed is one of the defining characteristics of good professional performance" (2011: 8: 44). ariable j (time every 50 meters, average speed is 50 meters), the researcher sees that the runner often in the first (50 meters) exerts high effort and force in response to the ground to gain the required acceleration and increase in speed through these meters, as this acceleration is a requirement Necessary for runners in order to obtain the highest average speed and maintain it later, and we note that the speed rates of the sprinters were increasing, which means that they have fast strength, which is one of the requirements to obtain the best achievement in running 200 meters.

Display job specification indicators

The researcher summoned T from the averages, standard deviations and the median value in addition to the value of the convolution coefficient in a way that cuts off all the functional indicators and their number shown in Table (4) and notes from the table that all values were the convolution coefficients smaller than (+1) and this is evidence of the good distribution and homogeneity of the sample.

Table (4) the arithmetic means, standard deviations and the value of the torsion coefficient for functional indicators

Coefficient of torsion	standard deviation	Mediator	Arithmetic mean	Functional tests	No.
0.386-	1.035	81,000	80,750	Pulse while at rest	1
1.323	0.755	122,000	122.500	Systolic blood pressure at rest	2
0.000	0.534	80,000	80,000	Diastolic blood pressure at rest	3
0.112	0.148	25.720	25.717	Anaerobic step	4
0.611	1.281	55.500	55.750	Move to Harvard	5
0.045	1.060	92.500	92.625	(workpiece) Vertical jump	6
0.611	1.281	165.500	165.750	Barash Energy Indicator	7

Presentation and discussion غذية to feed the correlation between functional indicators with the completion of the 200 m run for young runners: The researcher T used the simple correlation coefficient of Pearson between the results of the functional indicators with the completion of the 200-meter run of a youth runner. (Calculated respectively) 0.761, 0.800, 0.777, 0.756, 0.733, 0.801, and 0.757 (with significance level) Sig (respectively) 0.00 3, 0.00 3, 0.00 5, 0.0 30, 0.00 0, 0.00 3, 0.001) which are less about the approved level (0.05)

Table (5) correlation coefficients for functional indicators with achieving a 200-meter range

indication	Certified level	Sig	Values R	A achievement ran 200 m Pain functional indicators	T
moral		0.003	0.761	Pulse while at rest	1
moral		0.003	0.800	Systolic blood pressure at rest	2
moral		0.005	0.777	Diastolic blood pressure at rest	3
moral	0.05	0.030	0.756	Anaerobic step	4

moral		0.000	0.733	Move to Harvard	5
moral		0.003	0.801	(workpiece) Vertical jump	6
moral		0.001	0.757	Barash Energy Indicator	7

Discussing the results

The result that was reached with a significant correlation between all functional indicators with the achievement of the 200-meter race for young runners is a natural result that the functional variables have a close relationship to the completion of the 200-meter race, whether during training or during the race, so the researcher sees that the variable (pulse) At rest) the calculation of indicators by which to infer the intensity of physical exertion actually on the body, and physical exercise in general or in particular. It leads to a lower pulse rate at rest compared to pre-training, and this corresponds to what Allah (Abu Al-Ela Abdel Fattah and Muhammad Subhi) indicated (1997: 58: 1), “Pulse is among very important indicators for a coach and an athlete that can be easily measured in the field. An indication of the player's training state, effort exerted and his response to athletic activity to perform a physical load The researcher believes that a 200m race requires a runner to move and run quickly so the efficiency requirements depend on (anaerobic capacity) to produce the muscles needed for working energy from the allocation to oxygen within the body and the ATP stock In the muscles that the runner needs when running, the researcher's conclusion agrees with (Abu Al-Ela Ahmed Ibrahim Shaalan) (2: 1994: 282) asserted that the ability of muscles to produce anaerobic energy that the player uses to perform strong and fast movements required by the playing conditions. "The short anaerobic capacity and the functional efficiency of the heart and the circulatory system are indicators that clarify the relationship between the functions between training and the safety of their apparatus in order to know the ability, adaptation and safety of the runner during a short run. Distance runner. It is also consistent with what was said (Qasim Hassan) (1990: 5: 134)" Regularly engaging in sports training leads to positive functional changes in the respiratory system, and these changes bring additional flexibility in the rib cage muscles. Which increases the ability to expand and expand, which leads to an increase in the volume of inhaled air, and thus helps to increase the amount of oxygen in the process of gas exchange between the blood and the alveoli, and economically in breathing movements as a result of the increase in the vital capacity. The result also coincides with what was said by (Mwafak Majeed) (1999: 9:24), “Training works on conditioning the heart and blood circulation, and the player becomes able to increase the heart rate as his athletic level improves. The researcher also believes that blood pressure is an important indicator of the condition. The functionality of the league system to ensure the safety of the players, and this is consistent with what (Qasim Hassan) (1990: 109) indicated (that blood pressure reflects the state of the parts, "as confirmed by (Abu Alaa Abdel Fattah and Muhammad Sobhi (1997: 64: 1))". Blood pressure has several factors, the most important of which is the relationship between the heart’s pushing of blood. The blood in the arteries and the resistance that faces the flow of blood in these arteries. They are not normal, meaning that the blood pressure is high or low. ”The researcher also believes that blood pressure has a close relationship to the heart rate (Pulse), so that if the heart rate increases, the blood pressure rises, and this result is consistent with what Gerrard and Nicholas (1984: 11: 487) stated) “The heart rate increases and the strength of its contraction increases. Blood pressure, on the contrary, any decrease Heart rate will lower blood pressure. "

Conclusions and recommendations

Conclusions

1. There were no significant ties to the relationship between a variable number of steps up all the stages of his four ran the completion of 200 m for young runners.
2. There was a significant correlation relationship between the variable of step length and all four stages of the completion of 200 m runs for young runners.
3. There was a significant correlation between the step frequency variable and all its four stages with the completion of a200 m run for young runners.
4. The presence of a significant correlation relationship between the time variable every50 m and all its four stages with the achievement of200 m runs for young runners.
5. There was a significant correlation between the average speed variable and in all its four stages, with the completion of a -200 meter run for young runners.
6. Significant correlations were found between all functional indicators(pulse at rest, systolic blood pressure at rest, diastolic blood pressure at rest, anaerobic stride, Harvard step, vertical dip) work , (and Parach's energy index) with the achievement of 200 m runs For young runners.

Recommendations

1. Conducting similar studies to identify the correlations of other biochemical variables that were not covered in the current study, with the achievement of 200 m runs for young runners.

2. Conducting similar studies to identify the correlations of other functional indicators that were not covered in the current study ,with the achievement of 200 m runs for young runners.
3. Conducting a similar study on athletics activities that have not been studied for both genders and on various types of short, medium and long distances.
4. Adoption of the results reached by coaches in developing the achievement of -200 meter runs for young runners.

References

1. Abu Al-Ela Ahmad Abdel Fattah and Muhammad Subhi Hassanein. Physiology and Mathematical Formation, Methods of Measurement and Evaluation: (Arab Thought House, Cairo, 1997).
2. Abu Al-Ela Ahmad and Ibrahim Shaalan. The Physiology of Training in Football: (Cairo, Dar Al Fikr Al Arabi, 1994).
3. Thaer Dawood Salman Al-Qaisi. Statistical methods for calculating the validity and reliability of tests and measurements using IBM SPSS Statistics Edition 24, (Dar Al-Dhiaa for Printing and Design, Iraq, Najaf, 2018).
4. Abdul Rahman Abdul Hamid Zahir. Encyclopedia of Sport Physiology, First Edition: (Book Center for Publishing, Cairo, 2011).
5. Hasan Hussein's name. Physiology, its origins and applications in the mathematical field i 1: (Mosul, Dar Al-Hikma Printing and Publishing, 1990).
6. Muhammad Subhi Hassanein and Abu Al-Ela Abdel Fattah. Physiology and Mathematical Formation, Methods of Measurement and Evaluation, First Edition: (Cairo, Arab Thought House, 1997).
7. Muhammad Nasreddin Radwan. Methods of measuring physical exertion in sport, first edition (The Book Center for Publishing in Cairo 1998).
8. Muhammad Abd Al-Rahim Ismail. The effect of using a heavy jacket during defensive training on improving the speed of defensive foot movements in basketball: The Scientific Journal of Physical Education and Sports, College of Physical Education for Girls, Alexandria University, Issue 15, 1998.
9. Muwaffaq Majeed Al-Mawla, Career Preparation for Football (Physiology - Training - Curricula - Plans) First Edition: (Amman, Dar Al-Fikr for Printing, Publishing and Distribution, 1999).
10. Canola Vetoni; Coaching coaching for the runner; NSA, by IAAF, Vol: (10), No: 3, 1995.
11. Gerrard, GT, Nicholas, Pennsylvania: Principles of Anatomy and Physiology, Rowe Publisher, New York. 1984.