

Studying the relationship between endurance and strength during the process of discovering and selecting gifted students in the sport of middle-distance running

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Abstract:

This study attempts to identify whether perseverance and strength are related during the discovery and selection of talented athletes in middle-distance running races. The study relies on the descriptive approach. Researchers chose a sample of 245 students that were chosen by a non-probable sampling method. As for the research tools, we used the Brikci test to measure endurance, the push-ups test to measure the strength of the upper extremities, and the Sargent test to measure the strength of the lower extremities. Detection and selection of athletically gifted students in middle-distance running.

Keywords: Selection discovering; endurance; strength.; sport talent; athletics

Introduction:

Discovering and selecting talents receive considerable attention in the sports field. This process is very critical, and it is considered among the first core processes of building a professional athlete. In this process, young athletes must pass a set of standardized tests to measure the level of their capabilities and characteristics. This is done in order to select the most gifted and talented athletes who have special abilities that distinguish them from their peers. The results of this process are used as a benchmark (baseline) to determine the future level of the athlete. The majority of experts in the sports field confirm that athletes' selection is based on many factors such as physical, functional, psychological, and mental specifications; as well as the athlete's skills. Abbas Lakhdar and others pointed out that for the success of the selection process, it is necessary to accurately identify the typical requirements and specifications that must be met in the athlete in order for him to be able to achieve a good level. (Abbas Lakhdar p. 241). Mahjoub Ghazal and Ben Si Kaddour cite that work must be done to help gifted students in sports choose competitions that are consistent with their abilities. This is in order to push them to achieve the highest level of sporting achievement. (Mahjoub Ghazal, Ben Si Kaddour, 2017, p. 117).

Sports development has become a matter of common concern for everyone inside the sports field and outside it. Because it is one of the most effective ways of educating and forming individuals physically, mentally, and psychologically. Discovering and selecting young talents, taking care of them, and following them up until they reach a high level. It is one of the main reasons for the advancement and development of the field of sports. Bin Si Kaddour Habib stated that talented individuals in any field of sports represent human wealth that must be discovered and given early attention and preserved. (Ben Si Kaddour, 2008, p. 29). Discovering and selecting talented students is no longer a matter of chance. In fact, the process is based on scientific foundations and rules. With these scientific foundations, scouts and supervisors can obtain accurate results and identify different talented students' abilities. Iman Almani stated that the discovery and selection process aims to select elements that have aptitudes, whether inherited or acquired. And refine them through successive stages, in order to build a champion with a high level in a specific activity. (Imane Almani, p. 27). The selection process is subject to a scientific basis to select the best among young people who have high potential and special capabilities to reach high levels. (Youcef Ben Chikh, 2012, p. 114).

1. Background of the study:

In the athletic sports field, in general, the selection process aims at discovering gifted young middle-distance runners. This is considered one of the most critical empirical processes based on selecting athletes who are above their peers in terms of abilities and preparedness. This allows them to reach a higher level in the future. This process identifies young talents and predicts who will excel at a high level. Selection is directed toward a group of distinguished individuals who are capable of achieving high levels in the middle-distance running sport. It is possible to predict and determine the level of success youngsters can achieve in a particular activity if there are certain qualities available in youngsters.

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(Bennour Mammam, 2014, p. 38). It was emphasized by Chakour El-Arbi and others that selection was not limited to the fitness of the youngster. It also extended to predict the possibility of the youngster acquiring future capabilities for that sport. (Chakour El-Arbi and others, 2019, p. 106). Abbas Lakhdar and others indicated that the selection process brings the best elements in terms of physical, psychological and physiological aspects, and that it also chooses the type of activity that suits the individual in order to satisfy his inclinations. (Abbas Lakhdar and others, 2019, p. 155). One of the requirements for the process of selection and discovering sport talents is the human resources and the competence of the individuals in charge of this process. Arousi Abdel-Majeed indicated that there must be a competent coach who has the ability to raise level of these young talents to reach highest levels. (Arousi Abdel-Majeed, 2021, p. 02).

In particular, middle-distance running 1500 m and 3000 meters saw remarkable development and achievements. The 1500 meters race reached a time of 3 minutes 26 seconds and 00 milliseconds, and the 3000 meters race reached a time of 7 minutes 20 seconds and 67 milliseconds. This requires great physical effort and recruiting the basic elements of fitness - endurance, strength and speed - to achieve excellence and high-level athletic achievement in this discipline. In middle-distance running races, it is the ability of the runner to make a coordinated physical effort and distribute it over the distance traveled, and this requires the vital organs to provide the energy necessary for the physical effort exerted in all stages of the race. Mohammed Zerf and Lakhdar Lakleib mentioned that endurance is one of the basic pillars of physical fitness and it requires a long-time physical preparation for sports events that. (Mohammed Zerf, Lakhdar Lakleib, 2019, p. 18). Abdul-Haq Bilal and Neghal Mohammed stressed that endurance has an important role in developing of other physical attributes, as well as in athletics activities, especially in the middle-distance running races. (Abdul-Haq Bilal, Neghal Mohammed, 2021, p. 70). It is well known that the quality of endurance is the most important in middle-distance running races. (Zainab, Saadoun, 2017, p. 91). And since the runners of middle-distance running races exert continuous physical effort for a period of time determined by the type of race, they also need the quality of strength because it is one of the basic components of physical fitness. And since the runners of middle-distance running races exert continuous physical effort for a period of time determined by the type of race. They also need the quality of strength because it is one of the basic components of physical fitness. And since the runners of the middle-distance running races exert continuous physical effort for a period of time determined by the type of race, they also need the quality of strength because it is one of the basic components of physical fitness. An athlete who has a high level of this characteristic can achieve excellent achievement. Rawab and Murad indicated that muscular strength contributes to the achievement of any type of physical effort in all sports, and the percentage of its contribution varies according to the type of performance (Rawab, Mourad, 2017, p. 149). Endurance is considered one of the basic pillars of sports performance and an element of physical fitness. The ability of the muscles involved in an activity to resist fatigue and exert force on external components during successive and repeated contractions. It was defined by Shaqur Al-Arabi, quoting Waeineck Jurgain, as it is the ability of the body to resist fatigue when performing a physical effort that is characterized by strength and for a

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long period of time. (Chakour El-Arbi and others, 2020, p. 20). For that, middle-distance runners need endurance while passing competitors on the track. Ben Hamiduch Faiza confirmed that muscle strength is one of the key components of the physical fitness of the runner, especially at the end of the race (Ben Hamiduch Faiza, Mazari Fateh, 2022, p. 440). This study attempts to study the relationship between endurance and strength in the selection process of middle-distance runners in middle schools.

Divide the text into sublevels as follows:

1.1 Statement of the problem:

This study attempts to study the relationship between endurance and strength in the selection process of middle-distance runners in middle schools.

1-Is there a statistical correlation between endurance and upper extremities strength in the selection process of athletic talent in the middle-distance running sport (1500 meters and 3000 meters) for middle school students?

2-Is there a statistical correlation between endurance and lower extremities strength in the selection process of athletic talent in the middle-distance running sport (1500 meters and 3000 meters) for middle school students?

3-Is the correlation between endurance and strength an indicator for predicting talented athletes in middle-distance running sports (1500 meters and 3000 meters) for middle school students?

1.2 Hypotheses:

1- There is a statistical correlation between endurance and upper extremities strength in the selection process of athletic talent in the middle-distance running sport (1500 meters and 3000 meters) for middle school students.

2- There is a statistical correlation between endurance and lower extremities strength in the selection process of athletic talent in the middle-distance running sport (1500 meters and 3000 meters) for middle school students.

3- The correlation between endurance and strength is an indicator for predicting talented athletes in middle-distance running sports (1500 meters and 3000 meters) for middle school students?

1.3 Objectives of the study

To contribute to the development of a theoretical framework for examining the correlation between perseverance and strength in the context of discovering middle-distance running (1500 meters and 3000 meters) athletic talents in middle schools. Identifying the correlation between endurance and strength as an indicator for discovering athletic talents in middle-distance running (1500 meters and 3000 meters) in middle schools.

1.4 The significance of the study:

This study represents a simple addition to studies that compare discovery, selection, and sports improvement as inputs and outputs.

1.5 Key terms:

Talent selection: an in-depth look at the level of competence of the youngsters according to the physical, skill, tactical, and psychological traits in order to select the best-talented youngsters according to scientific bases to prepare them in a healthy way to reach the high levels. (Imane Almani, 2021, p. 15)

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Talent selection in sports field: It was defined by Harwach to Lamine and others as Mohammed Lotfi Taha said that it is the process of selecting the most suitable elements from among the athletes who have special preparations and capabilities that are consistent with the requirements of the type of sports activity (Lakhdar Abbas and others, 2019, p. 243)

-Scouting: It is to identify the abilities and capabilities hidden in young athletes. It is carried out by enumeration and continuous evaluation of the best athletes, based on pre-studied special criteria.

-Talent: Moubarak Mohammed defined it as complex traits that qualify the individual for high achievement in some skills and jobs (Moubarak Mohammed, p. 424, 2020)

Gifted in sports: They are those whose level of performance is higher than that of ordinary individuals in a specific sporting activity. (Gendouz El-Ghoul Khalifa, 2014, p. 292)

-Endurance: is the ability to make continuous and prolonged contractions using a number of muscle groups with strength and for a sufficient period to put fatigue and burden on the functions of the circulatory and respiratory system. (Mohammed Zerf, Lakhdar Lakleib, 2019, p. 18)

-Muscle strength: It is the ability of a muscle to stimulate the largest possible number of muscle fibers (Malek Reda, 2022, p. 139). Mohammed Darwich defined strength, quoting Moufti Ibrahim, as the ability or tension that a muscle or muscle group can produce against resistance in its maximum voluntary contraction. It has (Mohammed Darwich, 2014, p. 139).

-Strength: El-Amin Arousi defined it as the ability of the muscular and nervous system to overcome a certain resistance for the longest possible period of time in the face of fatigue. (Al-Amin Arousi, 2018, p. 52)

Athletics: It is a set of exercises aimed at the development of physical and physical capabilities and includes multiple branches. (Bou-Ali Souhair, 2020, p. 63).

-Middle-distance running: They are 800 meter, 1500 meter, 3000 meter, and 5000 meter races. (Alawi Munir, 2016, p. 12)

Until the end of the division

1.6 Literature review:

The subject of discovering and selecting young talents had a decent prior researches in the sports field.

-Benour's study in 2014: Aimed to identify the relationship of physical tests with the measurements of distance running athletes (beginners, youngsters, cubs as a case study) the state of Chlef developed a set of anthropometric measurements and physical tests conducted on a sample of 45 athletes (beginners, youngsters, cubs). The study sample is characterized by morphological characteristics as well as physical abilities that are commensurate with middle-distance running.

-Chakour El-Arbi's study in 2020: An analysis of the process of selecting middle-distance runners in the age group (15-16) years (a field study in western Algeria). It relied on an intentional sample that included (169) runners from (07) states in western Algeria. One of the most significant results of the research is that there are differences in the level of endurance between long-distance runners. There are significant performance

requirements in the area of specialization in the Algerian West. Comparing the validity of the study sample runners practicing this specialty with the standard levels for this category. The study Zemouli Hassan and Mokran Ismail 2020: this study aimed to suggest standard levels for some physical characteristics based on a stamina test to select talents in athletics. A survey was done on 64 young athletes in some clubs in the state of Batna. It was concluded that the standard levels of some physical characteristics based on the proposed stamina test contribute positively to the selection of talents in athletics.

-Berkouk Abdelkader's study: the study aimed to identify and show the importance of sports selection for the teams that represent the state of Ouargla in the competitions organized by the state school sports association. This study was concerned with determining the importance of this process in achieving positive results for the state through its adoption of the descriptive approach and the questionnaire as a means of collecting information. On the other hand, it showed the failure of the elite selection process in the school milieu, whether in the intermediate or secondary grades. Finally, they concluded the extreme importance of elite selection in achieving positive results for team sports in the school championship. Variation in efficiency and control in the selection process according to scientific foundations between teachers of the secondary stage and teachers of the intermediate stage.

-The study of Abdul-Haq Bilal and Neghal Mohammed 2021: The study aimed to find out the effect of positive and negative rest on vo2max using high-intensity interval training and an experimental approach was used. The research included 80 athletes of the Batna State Athletics Clubs under 17 years old, and a sample was randomly selected. 14 athletes from the OCAT Club Batna were included in the sample, and the sample was divided into two categories. The training program was applied, where a control sample used negative retrieval, and an experimental sample used positive retrieval. After analyzing and discussing the results using the statistical package program, the researcher concluded that using positive rest as a means of retrieval is better than using negative rest to develop maximum oxygen consumption.

2. Methods and approaches

2.1 Approach

This study follows the descriptive approach because the study applies the quantitative research

2.2 Population and sample

The study applied non-probability sampling and the process was as follow. This study picked a sample of 25 student from 10 middle schools and the population is 245.

2.3 Variables of the study

2.3.1Independent variables: It was measured using 5-minutes Brikci test.

2.3.2Dependent variables: It is divided into upper and lower extremities strength.

2.4Data gathering techniques: Based on scientific criteria, data gathering tools were used for measuring the physical strength of the upper extremities by the push-up and the strength of the lower extremities by the Sargent test. And for endurance, the researchers used the 5-minute Brixie running test.

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2.5 Statistical tools: Arithmetic average, Standard deviation, Pearson correlation coefficient, Simple Regression.

3. Analysis and discussion:

3.1 Result analysis

Table1: regression coefficients of endurance and upper extremities strength for middle-distance running students.

Model	Unstandardized coefficient		Standardized coefficient	t	R	R ²	R ² adjusted	Sig
	B	Ecart standard	Beta					
(Constant)	1,39	0,36		3,84				
upper extremities strength	0,88	0,03	0,88	29,63	0,88	0,78	0,78	0,00

Source: prepared by researchers with SPSS program, 2020.

theoretical conditions:

Agreement of the value and signals of the regression coefficients:

It is noted here that the variables of the phenomenon under study fall within the framework of selection and detection of talented in sports in the sports field. Referring to the simple linear regression model obtained in the study, which shows the significant relationship between the research variables (the independent variable the endurance and the dependent variable the characteristic of upper extremities strength).

From this model we conclude the following:

The B_0 variable has positive value and does not equal 0 (1.39)

The B_1 variable has positive value equal (0.88)

Interpretation of the model:

The explanatory power of the two regression coefficients is judged through the modified coefficient of determination, which is found in Table 1. This shows the significant relationship between the independent variable, endurance quality, and the dependent variable the upper extremities strength of the study sample. Whereas, the value of the estimated modified determination coefficient is (0.78). This means that the variables of the study chosen for the model explained what was worth (78%) of the effect of the independent variable, the quality of persistence of the study sample, on the dependent variable, the quality of upper extremities strength. Meaning that (78%) of the changes that occur in the dependent variable, the upper extremities strength characteristic, are attributed to the independent variable, the perseverance characteristic of the study sample. And (22%) are due to other factors. These results reflect the validity of the variables chosen for the study and their ability to explain the results of the regression model. As for the statistical significance of this model, it was justified by the level of significance estimated at the probability value (0.00), which is statistically significant and in line with the hypotheses of the study.

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Table2: regression coefficients of endurance and lower extremities strength for middle-distance running students.

Model	Unstandardized coefficient		Standardized coefficient	t	Sig.	R	R2	R2 adjusted
	B	Ecart standard	Beta					
(Constant)	1,15	0,33		3,52	0,00	0,90	0,82	0,82
lower extremities strength	0,89	0,03	0,91	33,69				

Source: prepared by researchers with SPSS program, 2020.

theoretical conditions:

Agreement of the value and signals of the regression coefficients:

From this model we conclude the following:

The B_0 variable has positive value and does not equal 0 (1.15)

The B_1 variable has positive value equal (0.89)

Interpretation of the model:

The explanatory power of the two regression coefficients is judged through the modified coefficient of determination, which is found in Table1. This shows the significant relationship between the independent variable, endurance quality, and the dependent variable the lower extremities strength of the study sample. Whereas, the value of the estimated modified determination coefficient is (0.82). This means that the variables of the study chosen for the model explained what was worth (82%) of the effect of the independent variable, the quality of persistence of the study sample, on the dependent variable, the quality of lower extremities strength. Meaning that (82%) of the changes that occur in the dependent variable, the lower extremities strength characteristic, are attributed to the independent variable, the perseverance characteristic of the study sample. And (18%) are due to other factors. These results reflect the validity of the variables chosen for the study and their ability to explain the results of the regression model. As for the statistical significance of this model, it was justified by the level of significance estimated at the probability value (0.00), which is statistically significant and in line with the hypotheses of the study.

3.2 Result discussion:

Discovering and selecting sports talent holds an important place in the process of creating sports champions because it is the first place where sport gifted children are subjected to selection. A set of tests are applied to detect the level of capabilities and characteristics they possess and to select them. The outputs of this process are considered as an indicator for predicting the athletic future of the sport gifted student. In addition, the selection process has scientific rules and applied methodologies provided by specialists in this field. Zerari Hamzah indicated that tests and standards are the objective and honest means to achieve good selection. (Zerari Hamza, 2021, p. 05). Zemouli Hassan, and Mokran Ismail also confirmed that reaching youngsters to a high level is only achieved if the process of selection and guidance is done in a proper manner (Zemouli Hassan, Mokran Ismail, 2020, p. 72). Issam Laiadi indicated that interest in developing sports performance and achieving

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higher levels begins with discovering talents and sports materials and exploiting them. (Issam Laiadi, 2019, p. 386).

Moreover, Moufida Ben Hafidh indicated that guiding the young person to the type of activity that is commensurate with his preparations and capabilities increases his access to high sports levels (Mufida bin Hafeez, 2015, p. 160). It is recommended by Zemouli and Mokrani that those responsible for training athletes set accurate standard levels based on the requirements of the specialization and the nature and specialization of their societies in order that athletes progress to the next level. (Zemouli and Mokrani, 2020, p. 76). Hamzawi and others confirmed, quoting Al-Bastawi Ahmed, that time and distance play as significant measures and an indicator of the progress of the level that all practitioners of champions seek to break, whether on the personal level or on the local, international, or Olympic level. (Hamzawi, 2021, p. 382).

The obtained results justify the hypotheses of the study and confirm the existence of a statistically significant correlation between the characteristic of perseverance and the characteristic of speed in the light of the process of selecting sport gifted students in middle-distance running activity, which requires great physical effort and special physical capabilities that must be detected at an early age, such as perseverance, which must be available at the level required for a gifted child sport, and it provides the energy needed to exert a physical effort of a high level throughout the race period, for perseverance or endurance, has an important role in the activities of middle-distance running, and it is the basis for preparing the runner physically, as it increases the capabilities of the respiratory organs, increases the size of the heart, and regulates the blood circulatory system It increases the maximum oxygen consumption.

Saraia sees 3000 meter races that require great effort and continuity in performing this effort. This confirms the importance of the element of speed and endurance for 3000 meter runners. (Saraia, 2018, p. 166). Zineb and Saadoun recommend that middle-distance runners should be trained to take care of their special and aerobic lengths as they are critical for achieving a high level of success (Zainab and Saadoun, 2017, p. 110). Ammari Souhila and others indicated that the aerobic system (maintenance) must be developed so that the runner can maintain a high pace throughout the race distance (Ammari Souhila and others, 2020, p. 97).

The 1500 and 3000 meter middle-distance runners also need muscle strength because it contributes to motor achievement and is an essential component of muscular fitness. Salih Mohsen Al-Karmadi, quoting Mukhtar Salem, indicates that muscle strength is the main reason for the production of all physical movements. (Saleh Mohsen Al-Karmadi, 2016, p. 181). Masaliti Lakhdar stated that the performance of most sports activities depends on the quality of strength and their availability is a necessity for the individual to reach the highest ranks of the championship. (Masaliti Lakhdar, 2014, p. 63). Ahmed Al-Amin indicated that muscular strength constitutes the pillar upon which movement depends and its availability ensures the achievement of effectiveness in sports performance (Ahmed Al-Amin, 2016, p. 12).

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One of the most important compounds of muscular strength is endurance, and it is an important compound physical characteristic in middle-distance running activity, as Harbi Salim and Qadrawi Ibrahim indicated that carrying strength is one of the most important characteristics on which training is based for the activities of middle-distance running and maintaining the rate of speed with high intensity and efficiency throughout the race and resistance to fatigue (Harbi Salim Qadrawi Ibrahim, 2017, p. 55). Gary Murad believes, quoting Ibrahim Salem Al-Sakkar, that endurance of strength is the preservation of strength for the longest possible period, and its role in sports activities that require high resistance for a long time, and this is seen in long distances and marathons (Jary Murad, 2018, p. 94).

According to the results, the correlation between perseverance and strength is an indicator of athletic ability in the half-long run of 1500 meters and 3000 meters for middle school students. Because the process of selection and talent detection contributes to predicting the future of young people, and in this context. Zemouli indicated that the process of a good selection of young people at the beginning of their careers with good and proper planning of the training curricula leads to bringing young people to high sports levels (Zemouli, 2020, p. 43). Moufida Bin Hafeez discussed the selection process that contributes to determining the sport future of youngsters, and prediction is one of the most important duties of selection (Mufida Bin Hafeez, 2015, p. 161).

Dahmani Nawal and others, quoting Muhammad Sabri, indicated that the selection and development of athletes' talents is one of the most important factors that lead to the preparation of the individual athlete who is capable of achieving athletic achievement within the limits of universality (Dahmani Nawal and others, 2020, p. 237). Chachou Sadaoui and others mentioned that it is possible to predict on the basis of the player's functional abilities and capabilities, such as the efficiency of the circulatory and respiratory systems, of the retrieving capacities when the test is performed at the high level (Chachou Sadaoui, 2018, p. 84). Belbali and Bin Dahman, quoting Essam Abdel-Khaleq, confirmed that there is a close correlation between the results of physiological measurements and the prediction of athletic excellence in various sports activities (Belbali and Bin Dahman, 2018, p. 272). Zerari Hamzah mentioned that selection determinants provide an opportunity for the coach to predict for him to achieve high athletic levels in the future (Zerari, 2021, p. 18).

4. Conclusion

- To conclude, this study attempts to study the relationship between endurance and strength in the selection process of middle-distance runners in middle schools. Discovering and selecting sports talent is important in the process of creating sports champions because it is the first place where mathematically gifted children are subjected to selection. A set of tests are applied to detect the level of capabilities and characteristics they possess and to select them. The outputs of this process are considered as an indicator for predicting the athletic future of the sports gifted student. In addition, the selection process has scientific rules and applied methodologies

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provided by specialists in this field, especially middle-distance runners. Thus, work must be done to help gifted students in sports choose competitions that are consistent with their abilities. This is in order to push them to achieve the highest level of sporting achievement. List of sources and references approved in the study

From the study we conclude the following:

- There is a statistical correlation between endurance and upper extremities strength in the selection process of athletic talent in the middle-distance running sport (1500 meters and 3000 meters) for middle school students.
- There is a statistical correlation between endurance and lower extremities strength in the selection process of athletic talent in the middle-distance running sport (1500 meters and 3000 meters) for middle school students.
- The correlation between endurance and strength is an indicator for predicting talented athletes in middle-distance running sports (1500 meters and 3000 meters) for middle school students.

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