



Predict the Level of Physical Performance in Terms of Some Functional Indicators for Basketball Players

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Abstract

The science of sports training is a science that has been interested in the field of physical education in addition to other sciences in terms of field applications, which seeks to improve the levels of sports in various skills and activities, as access to high levels of sports and win will not be an easy process because the level of sports in Most of the activities have reached high levels in terms of technology and tactics. Among these games are the basketball game, which has witnessed a remarkable development in most countries of the world. In recent years, there has been an increasing interest in researching and exploring new methods of training players. As well as relying on the scientific basis of the determinants of the selection process of players who have the preparations and capabilities to enable them to play the game of basketball and predict their levels in the future. The researchers used the descriptive method in the method of associative and predictive relationships to suit the nature of the problem on the players of the basketball club Solidarity for the season (2018) of the (15) players. After testing the research sample and emptying the data in tables, the statistical process was carried out to reach the results through which the most important conclusions were reached

- The explosive power of the arms has a direct effect on the functional variables because the presence of explosive power is the result and indicator of the presence of adaptation in the functional variables that helped the player to produce high explosive power.
- Transient velocity is important in the success of movements and skills to a large degree where the transition speed is also the product of adapting functional variables at performance

Keywords: *Prediction, Physical Performance, Functional Indicators and Basketball.*

Introduction

The science of sports training is a science that has been interested in the field of physical education in addition to other sciences in terms of field applications, which seeks to improve the levels of sports in various skills and activities, as access to high levels of sports and win will not be an easy process because the level of sports in most of the activities have reached high levels in terms of technology and tactics.

Among these games is the basketball game, which has witnessed a remarkable development in most countries of the world. In recent years, there has been an increasing interest in researching and exploring new methods of training players. As well as relying on the scientific basis of the determinants of the selection process of

players who have the preparations and capabilities to enable them to play the game of basketball and predict their levels in the future. Physical performance is one of the main requirements of the basketball game, and the process of integration and integration between them increases the performance of the team to reach the best results as well as plays an important role in the success of the collective play plans.

This study gains its importance by standing on the level of physical players, and the basketball players are affected by the level of some functional indicators due to the performance of physical effort and we can say that the study of the level of physical performance and knowledge of the impact on the functional indicators of the important

things that the trainer must know and then the possibility of Predict their level in terms of these functional indicators in order to facilitate it a lot of time and effort and help him to build a training program and identify errors that are likely to fall out and then processed. And to predict several a definition of which is "the process of conclusion by the researcher based on prior knowledge of a particular phenomenon and this conclusion is not true unless it can prove its validity experimentally"[1].

"The prediction is a logical thinking based on assumptions put by the coach as a result of experience and study and the prediction occurs as a result of accumulated experience of man when studying the phenomena and past and present and linked in a scientific way and predicts future development and study as a phenomenon".[2] A definition of Marwan Abdul Majid, where he says in "predicting that making assumptions about what will be the case in the future"[3].

Research Methodology

Table 1: Shows the total number of grades and percentages of selected physical abilities and according to expert opinions

S	Selected physical abilities	Total degree (100)	percentage
1	The explosive power of the arms	97	%97
2	The power of speed	19	%19
3	Transition speed	98	%98
4	Fitness	94	%94

In the table (1), the relative scientific significance of the physical abilities chosen by the researchers ranged from 94% to 98% except for the speed variable. "A certain percentage of less than or greater than 25% can be determined.

Second determining the functional indicators used in research:

In order to identify the most important physiological indicators related to the physical variables of basketball players. After conducting interviews with many specialists in sports medicine and sports training, a questionnaire was prepared for the purpose of determining the most important indicators. (15) experts and specialists in physical education on the identification of the most important functional indicators, by

Procedures of Field Research

The researchers used the descriptive method in the method of associative and predictive relationships to suit the nature of the problem on the players of the basketball club Solidarity for the season (2018) of the (15) players.

The Tests

First, Identification of physical variables:

After conducting the survey of the content of many scientific references on the identification of physical abilities and for the purpose of determining the most important, a questionnaire was distributed to members of a group of specialized professors and experts to determine the importance of availability depending on the priority and needs of the players, "there are different priorities and priorities according to the requirements of each competition",[4]. This is done by setting the score for each physical capacity according to the questionnaire prepared for this purpose. After collecting and unloading the data, it was presented as in Table (2).

marking () in the square of the selected for each of the functional variable displayed from the runway (0-10), although the highest runway is (10) And the lowest is (1), and zero means In addition, the variables that obtained a relative importance of more than (53.33) % of the degree of importance were accepted. Variables were excluded.(The maximum capacity and the maximum oxygen consumption). The ratio was calculated on the basis of half the maximum grade obtained from the $10 \times \times (15) + \text{half-range}$ (5). The total is (80) (53.33%). [5]

Table 3: Shows the total grades by importance and percentages of functional variables

S	Variables	Degree achieved	Percentage of importance	Significance
1	heart pulse	140	93.33%	Acceptable
2	Systolic blood pressure	138	92%	Acceptable
3	Diastolic blood pressure	122	81.33%	Acceptable
4	Respiratory rate	118	78.66%	Acceptable
5	Red blood cells	27	18%	Unacceptable
6	Hemoglobin	24	16%	Unacceptable
7	Vital Capacity	36	24%	Unacceptable
8	VO2max	22	14%	Unacceptable

From table (3) we note that all the functional variables presented to the experts have obtained a relative importance of (53.33) which is the acceptable percentage of acceptance of the variable, so the variables that were all presented were chosen.

Identification of Selected Physical Fitness Tests

After determining the physical abilities selected were selected and the nomination of a representative of those aptitude tests, due to the large number of these candidate tests have been distributed form survey the opinions of a group of specialists and experts

professors numbered (20) experts to test what they see fit from their point of view basketball players through the signal mode (✓) at the most appropriate test of others, and each of these variables and add any test they see fit not mentioned in the form. After the data collection, unloading and analysis were presented as in Table (4).

Table 4: the number of total frequencies and percentages of the selected tests to measure the selected physical abilities according to the opinions of (20) specialist and expert

Selected physical abilities	Selected tests	Total number of duplicates (20)	percentage
The explosive power of the arms	From the sitting position on the chair, a medical ball (2 kg) was pushed forward by hands	16	80%
Transition speed	Run (30 m) from the high start	15	75%
Fitness	Jogging between (4) back and forth seats	14	70%

Identification of Functional Measurements Tests

Measurement of Heart Rate and Blood Pressure

The heart rate and blood pressure were measured by a pressure and pulse sensor(roogicplio 10 p) German-made this device installs on hand-hammering and gives pulse and pressure measurements so that measurement is done after the physical effort is completed as soon as possible. When measuring the blood pressure, the patient should be sitting [7].

Respiratory Rate Measurement

The respiration rate is calculated by calculating the number of times of inhalation and exhalation where the player sits on a chair and counting the times of exhalation and exhalation by external observation. Each exhalation is (1), calculated for ten seconds, then the result is multiplied by (6) Respiratory rate is measured before the effort.

Main Experience

The researchers conducted the main experiment in the closed gymnasium of Al-Tadamon Sports Club on 13/2/2018 on the members of the research sample and before the experiment were carried out the following:

- Subjects were asked to take a minimum of 7 hours of sleep before the examination.

- The condition of eating breakfast.
- All external and internal variables are controlled within the psychological laboratory (temperature9-14), noise control and lighting was appropriate.

Respiratory rate was calculated by observation, calculation of blood pressure and pulse rate by a device installed in the wrist and extraction of the levels of functional variables under study before the warm-up process, and then the treatment of the results statistically.

Results and Discussion

This field included presentation of the results of descriptive statistics between physical variables and functional variables after being processed statistically and in line with the objectives.

Statistical Estimates of the Physical and Functional Variables of the Research Sample

They were presented in tabular format for easy analysis and discussion. And to complete the subsequent statistical analysis aimed at achieving the objectives of the research, where the statistical estimate of the results of the sample was presented in the variables investigated, as well as the matrix of interrelationships, where the relationship between the variables investigated was found between the physical variables, the functional indicators on the one hand And

the relationship between both physical variables and functional indicators. Thus, predictive equations were derived for the existence of (physical variables) in terms of functional indicators and finally finding the validity of the quantitative estimates of the

physical variables in terms of the index functional.

Statistical Estimates of the Physical and Functional Variables of the Research Sample

Table 6: Shows the statistical description of the results of the members of the research sample in the variables investigated

Variables	Research variables	Mean	STD.EV.
Physical abilities	The explosive power of the arms	5.06	0.57
	Transition speed	5.67	0.44
	Fitness	11.44	1.87
Functional variables	Pulse rate	87.85	11.2
	High blood pressure	13.17	1.12
	Low blood pressure	8.3	1.46
	Number of breathing times	14.9	2.69

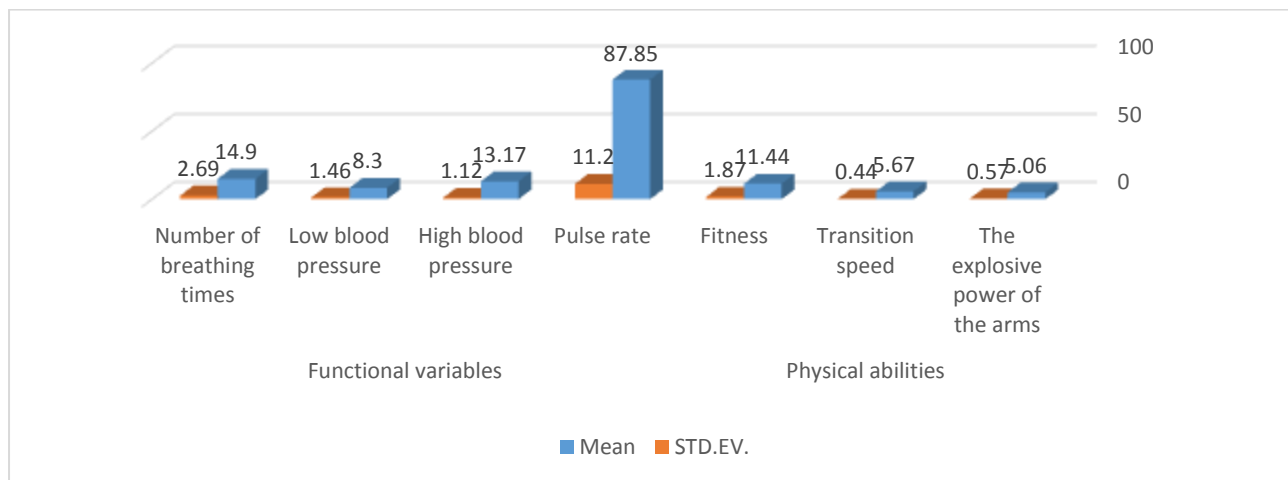


Figure 1: Show the results of the members of the research sample in the variables investigated

Correlation Matrix between Functional Variables and Physical Variables

After using the Pearson correlation coefficients between the investigated

variables, the matrix of interlink ages was obtained between the functional and physical variables as in Table (7).

Table 7: Shows the correlation matrix for the relationships between the variables examined (physical - functional)

Variables	The explosive power of the arms	Transition speed	Fitness	Pulse rate	High blood pressure	Low blood pressure	Number of breathing times
The explosive power of the arms	1	0.547	0.412	0.539	0.467	0.344	0.469
Transition speed		1	0.438	0.535	0.468	0.314	0.479
Fitness			1	0.658	0.304	0.283	0.440
Pulse rate				1	0.583	0.340	0.075
High blood pressure					1	0.433	0.439
Low blood pressure						1	0.170
Number of breathing times							1

From the previous table we notice the emergence of (45) correlation coefficients. The highest coefficient of correlation (0.547) between the explosive power and the transitional speed. It should be noted that any of these simple relations, which we mean

the relationship of physical variables and functional indicators of moral statistical function. We can find them simple equations. That is, to predict the value of physical variables by knowing the degree or measure of any of these variables. This gives us the

opportunity to know the complex predictive equations. This is a cross-section may not serve us at work, the researchers will resort to the use of the method of preference for simple relationships. And the vehicle in which the variable can be predicted. In order to know the amount of confidence in the calculated correlation coefficients mentioned, or the predictability of a variable with other variables, the researchers used the alienation factor, a sign of significance (5.47%) for the relation between explosive power and functional indicators of pulse rate, and (4.13%) for explosive power relation on the one hand and functional indicators of high blood pressure on the other hand and percentage (4.24%) of the power relationship (4.14%) for the explosive power relationship on the one hand and the number of breathing times on the other hand, and (3.99%) for the explosive power relationship on the one hand and the pulse on the other hand.

Presenting, Analyzing and Discussing the Results of Explosive Power of the Arms and Indicating the Percentage of Contribution to the Level of Functional Variables

The researchers point out that the explosive power of the arms has a direct effect on the functional variables because the presence of explosive power is the result and indicator of the existence of adaptation in the functional variables that helped the player to produce a high explosive power. High physical capacity commensurate with the nature of its activity).

From the previous presentation, the equation of the regression line between the pulses, which obtained the highest correlation with the physical variables are as follows:

$$\text{Pulse} = 5.904 + (1.848 \times \text{explosive power})$$

Presentation, Analysis and Discussion of the Results of the Transition Speed and Indicate the Percentage of Contribution to the Level of Functional Variables

Mohammed Abdullah Ahmed et al. Notes that "transitional velocity is important in the success of movements and skills to a large degree where the transition speed is also the product of adapting functional variables in performance. From the previous presentation, the equation of the regression line between the pulses, this obtained the

highest correlation with the physical variables as follows:

$$\text{Pulse} = 16.243 + (-0.153 \times \text{Transition Speed})$$

Presenting, Analyzing and Discussing the Results of Fitness and Showing the Percentage of Contribution to the Level of Functional Variables

The researchers attribute that the importance of fitness for basketball players is evidenced by the performance of consistency and compatibility and speed and use of muscle groups repeatedly and many times during the performance of the movement and given the daily exercises more than the player fitness. Suleiman Hassan and Awadat Mohamed Labib also noted that (agility gives us a property of kinetic ability as it is the maintenance of long-term muscular tension at a constant neutral level without falling work efficiency) [8].

As Qasim Hassan (emphasizes that the fact that does not forget that the basketball player who has good fitness is in a situation in which he can carry out the duty required permanently and the performance of tricks and deception with high skill). From this previous view, the regression line equation is as follows:

$$\text{Pulse} = 6.451 + (0.205 \times \text{agility})$$

View, Analyze and Discuss the Results of the Variables (Explosive Power of the Arms and the Speed of Transition) and Indicate the Proportion of their Contribution to the Level of Functional Variables

It is noted that the contribution rate for each of the two variables (explosive power of the arms, speed of motor response) reached 78%, and the coefficient of calculated difference was 131.032, which is greater than its tertiary value of (3.158, 0.05). We note that the percentage of public contribution has increased after a variable participation.

Speed of transition with variable (the explosive power of the arms), which in turn is evidence of the variable effect (the speed of transition) in the proportion of public contribution to the physical characteristics of basketball players and the relationship here positive (positive impact) on the level of physical performance. From the previous view, the regression line equation is as follows:

Functional variables = $10.214 + (0.995 \times \text{explosive arm power}) + (-0.054 \times \text{transition speed})$

Conclusions

- The explosive power of the arms has a direct effect on the functional variables because the presence of explosive power is the result and indicator of the presence of adaptation in the functional variables that helped the player to produce high explosive power.
- Transient velocity is important in the success of movements and skills to a large degree where the transition speed is also the product of adapting functional variables at performance

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