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An analytical study of the curve (force - time) and the relationship of the level of completion of the effectiveness of the payment of the timid applicants

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Abstract
Introduction, which was that the effectiveness of pushing the weight is one of the difficult arena and field activities in terms of technical performance, which depends on many Kinetic variables that we must continuously research to diagnose and develop them through field training, and by using modern techniques to analyze mechanical variables, including the use of the force measurement platform device ((computer-linked foot scan) to extract kinetic variables (force-time) curve In order for the researcher, coach and player to discover aspects of weakness and strength, then improve These variables and achieve the best levels in performance and achievement. Hence, the problem of research appears in studying the results of the action and reaction of force in the integration of kinetic performance by obtaining the appropriate acceleration during performance and its relationship to the most important related Kinetic variables Achievement, and the researcher's hypothesis on the existence of a Statistically significant correlation between the kinetic variables and achievement in weight throwers The researcher claimed the existence of a statistically significant correlation between the kinetic variables and achievement of weight throwers. As for the research methodology, the researcher used the descriptive and analytical approach in the method of correlational relationships for the suitability and nature of the research problem. The sample was chosen in an intentional method consisting of 2 players for the effectiveness of throwing weight. In order to extract the studied variables by taking the best attempt for each player and the researcher used the statistical bag (spss) to extract the results. As for presenting the results, analyzing and discussing them, the significance of the differences was shown for the two indicators (strength and time after comparing the value of (R) calculated with the table.
Keywords*: (kinetic indicators, strength, time)*

Introduction
The sports field is one of the important areas in people's lives, so the continuous interest in the sports movement to achieve the highest levels of sports achievement, whether using theoretical and applied sports sciences or scientific means and modern techniques, and this trend towards sports excellence was not limited to developed countries only, but rather exceeded it. To other countries, as a result of the unremitting scientific efforts of scientists and technologists in all fields to address weaknesses, identify and invest facts (if internal or external influences) and use them to develop achievement, and to reach accurate measurements, devices that are characterized by a few errors were designed to obtain accurate results. The sports field is an effective contribution, especially in athletics, and the effectiveness of pushing weight in particular, as the current achievements have been distinguished by comparing them with previous achievements at high levels.

And I have dealt with a lot of studies and field and laboratory research most of the physical qualities of my players pay the weight of the applicants in Iraq, which directly affect the development of the physical side to improve the aspect of skill, but it did not address the study of the amount of force

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exerted by the motive of gravity during a certain period of time To identify the real values of the force exerted during the motor performance to reach the high achievement.

Therefore, studying the effectiveness of pushing the weight using biomechanics to achieve advanced results by studying the forces affecting it or using different methods, tools and technical devices enables the learners to identify precise mechanical details that give us indicators (weak technical performance of effectiveness) that were not previously known in this way, which arrived to her today.

The stage of preparedness and balling and Piste in pushing the weight in the preliminary stage, which should be in which to get a to put the right to prepare for the main phase to push the weight of Piste perform the correct format , and access to the payment and then do the main section in performance and is pushing the weight of far away as possible as it depends all A stage from the previous and subsequent stages leading to a high achievement by acquiring the appropriate kinetic energy and transferring it to the weight to achieve the achievement.

Hence the study and research of the characteristics of the (force-time) curve to identify (the maximum and least force recorded on the curve, the maximum and minimum time for this force, the average force, the area under the curve) for the final stage of the weight-push players that have a direct impact on the achievement of pushing the weight.

Therefore, the importance of the research is manifested in studying the relationship between the amount of force exerted to push the weight and the elements related to it (such as the speed in the arm and other joints) for the final stage to push the weight.

Research Methodology

***Research Methodology*:** The researcher used the descriptive and analytical approach in a manner appropriate to the relational relations and the nature of the research problem**.**

***Research sample*:** The sample consisted of Al- Jaish Club players, numbering two players, who were chosen by the intentional method.

***Research tools*:** video camera type Nikon Number (1). Legal weight number (4). Laptop type Del Number (1). Platform power measurement (foot scan Size 40 x 60 cm. Kinetic analysis of the program (Kenova) Tape measure a length of 2 0 meters.

- **Search Procedures**

Research variables:Identified the most important variables (Elkin Tekah) some d refer to scientific sources in Alp, as well as scientific sources in A B forces were chosen variables (force - time).

Field experience: to go run the researcher that field experience on 2/1/202 1 stadium Faculty of Physical Education and Sports Science / University of Baghdad , as it has been subjected to sample members of the search process of filming the technical performance of the effectiveness of throwing the weight one day .... I have given each Rami six attempts (by law International (in the case of their number (8) players or less (Qassem Hassan: 1991: 149) after placing the power platform (foot scan) connected to the computer in the area of the double anchor of the foot, i.e. the final throwing stage. The best attempt each shooter had was then selected for analysis. As for the analysis camera, it was placed on the side of the shooting range on the right, at a distance from the center of the throwing circle (5 m) and at a height of (1.5 m) from the center of the camera focus to the ground. Kenova) to measure the studied kinematic variables

***Statistical methods*:** After collecting the data, the researcher to analyze statistically the aid of the statistical system (spss)

Results

This section includes the presentation of the results reached by the researcher that, analyzing and discussing them through the kinetic analysis of the variables, as they have been converted into tables and graphic forms as they are illustrative tools for the research, and that analyzing the information means extracting quantitative and qualitative scientific evidence and indicators that prove the answer to questions and confirm the acceptance of its hypothesis or not. Acceptance of it (Hussain: 1987: 376) In order to know the results of the kinetic analysis in the effectiveness of throwing the special weight of the research sample, the results were organized and presented as follows:

1 - Presenting, analyzing and discussing the results of the (force-time) curve characteristics.

The results and shapes of the (power-time) curves showed that there is a difference in the values of these variables during the attempts carried out by the research sample members, which are supposed to be on a relative similarity in their values, given that the research sample members represent the highest numerical level in this activity in Iraq. They have a mechanism in motor performance due to the training age in which they practiced this activity and the level they reached at the country level. As shown in Table (1)

The table (1) shows the arithmetic means and standard deviations of the research variables for the sample members

T	variable	measuring	Arithmetic mean	standard deviation
a	Strength-Time Properties (Kinetic(			
1	less powerful	net	204.75	59.30
2	less powerful time	w	0.180	0.033
3	maximum force	net	1218.16	20.08
4	time max power	w	0.258	0.036
5	RMS	net	1242.84	25.33
6	Strength rate(AV)	net	525.81	63.87

Table (1) shows that the members of the research sample have achieved values for the arithmetic means in the kinetic variables under study that express the real physical level in which they were distinguished by the effectiveness of pushing the weight, as it is noted that the arithmetic mean of the least strength in the curve was (204.75) with a standard deviation of (59.30), as well as the arithmetic mean for a less powerful time in the curve was (0.180), with a standard deviation of (0.033).

The arithmetic mean of the maximum strength was (1218.16) with a standard deviation of (20.08), and the arithmetic mean of the maximum strength time was (0.258) with a standard deviation of (0.036),

As for (RMS) its arithmetic means appeared (1242.84) with a standard deviation of (25.33), while the power average appeared for it (525.81) with a standard deviation of (63.87).

The achievement also appeared with an arithmetic mean (15.64) and a standard deviation (0.28) which gives the possibility to study the correlations between the kinetic variables that they are characterized by.

2 - **Presenting the results of the correlation matrix of the kinetic variables with each other and the achievement, analyzing and discussing them.**

Table (2) shows the matrix of correlations for the kinetic variables with each other and achievement, as the results of the correlation relationships show the fact that these variables are related to some of them, and therefore we can judge whether there is a logical integration between the physical attributes related to the nature of the performance to be achieved for players pushing weight or No, in order to be able to judge the extent to which these variables are interconnected with each other on the one hand and with the achievement on the other hand among the research sample members or not.

Table (2) Matrix shows the results of the special links kinetic variables with each other and achievement in effective payment of gravity

Variables / achievement	less powerful	its time	maximum force	its time	Strength rate	RMS	achievement
less powerful	-	0. 427	- 0.393	0.088	- 0.292	0.56	0.366
less powerful time		-	- 0.56	- 0.374	-0.412	0.38	0.0145
maximum force			-	0. 6 27	0.747 *	0.67 *	0.656 *
time max power				-	- 0.94 *	0.46	0.754 *
Strength rate					-	0.740 *	0.897 *
RMS						-	0.661 *
achievement							-

* D at the level (0.05) and the degree of freedom (10)
- Tabular value (0.57)

We note that the values of the correlation coefficient between the least powerful variable were not significant with its time, as well as with the maximum strength, time and average force and RMS achievement, and this indicates that Variable for S force were not required level in the research sample

(applicants) as it is assumed that the relationship function with the results of the rest of the variables, especially with the time to link the force completed in time to achieve the force show the explosive and required even when using less power both when preparing for the performance of payment and Piste or when preparing to perform The final payment, the value of the correlation with time (0.06) appeared, which is much less than the tabular value of the correlation, which indicates the absence of a statistically significant relationship (significant). It is clear to the researchers from this that there is little emphasis on the correlation of explosive and rapid strength training for the two men when training players push the weight.

Also, the correlation relationship was not between the least force and each of the maximum force, its time and average force and RMS and achievement, as the calculated correlation values appeared, respectively (-0.393), (0.088), (-0.292), (0.56), and (0.366), and all of these values are less than the tabular value of (0.57), And saw Z researchers that with the strength in the muscles of the two men contribute to speed the transition and the required payment to the player to pay the weight , but he noted the weakness of the relationship between the kinetic indicators for the curve of force time and which reflects the change of power in the muscles of the man driving in every moment of Time, as it is assumed that the relationships are interconnected with each other in these indicators to ensure the integration of the technique and the achievement of high flow in the technical performance, which serves the interconnection of the performance stages of this activity and the achievement of good achievement and response, since these variables are related to the work of the muscles of the material of the legs, and you see that there must be A role for the muscles of the arms in achieving good results in these variables, as the role of the movements of the arms lies in the integration of harmonic movements during gliding and moving, as well as in the final push position. From this point of view, it is clear that there is a lack of integration in the physical characteristics that belong to the explosive and rapid force among the members of the research sample as a result of the absence of a correlation in the characteristics of the curve that expresses the amounts of these forces exerted upon performance, and that the integration of this physical aspect must be emphasized for them because it is one of the necessary and necessary aspects for the integration of the motor performance of heavy weight players, and perhaps this is one of the reasons that are looking for solutions to raise the level of performance and achievement for Iraqi heavyweight players, as the achievement in this activity suffers from a clear weakness at the Arab, Asian and international levels.

The relations of the results of the correlation between less power time and other variables may not function relationships all appeared statistically as in the variable that preceded it, as was the correlation between this variable and the variables of maximum force, and its time, and the rate of registered force values to him , (RMS), And achievement respectively (- 0.56), (- 0.374), (-0.412), (0:38), (0.0145), the correlation values are not statistically significant because it is less than the tabular value (0.57) under the degree of freedom (10) and the level of significance (0.05), and this is logical because the time of less force is related to the value of this accomplished force that was discussed previously, which was not at the level of ambition that qualifies the weight players to achieve integration in this push, and the higher and smoother the force push was, the kinematic and kinetic appearance Well, as (Muhammad Yusuf Al-Sheikh : 1996: p. 78) points out that “the more the path of the forces is streamlined, the movement is also fluid, and this is called dynamic formation, meaning the path of the force in relation to time for this movement.”

And the correlation function appeared (moral) between the variable results of maximum force and all of its time rate take a step and the values of (RMS) And childbearing Bl, bugs yum of correlation (0.747), (0.67), (0.656) , (0.627) respectively, and the irrigation researchers that the movements of the two men harmonic during a performance and a clear role in the integration of achieving maximum force required to give the high power rates during the performance, as well as with the sum of squares of the values of strength recorded on the curve (RMS) , Affecting a whole to give the body movement and speed required to give the tool the momentum linear required to achieve a better horizontal distance, and as a result appeared relationship function with achievement also, Wei attributed its researchers cause it to the piste movement and the final payment is one of the basic movements exercised by the player of gravity During the different training stages, and that the training that the research personnel are exposed to as they represent elite players , has led to the development of these movements as a result of repetition of training on them, which gave integration in the application of the required force within the performance time and this affected the characteristics of the value of the maximum force recorded on the curve and its time, which made the flow The movement of the sample members positively affects the flow of (force - time), as it is mentioned (Wajeeh Mahjoub: 1987: p. 178) that “the flow means integration in motor performance and the highest level reached by the athlete.” As a result, the relationship between the maximum recorded strength and achievement was statistically significant. .

As for the other relationships, they appeared between maximum strength and average strength Av, with a correlation value (-0.94) and with the achievement with a correlation value (0.754), which are statistically significant values, as well as the relationship between the strength rate and the value of (RMS(with a correlation value of (0.740), and with the achievement with a correlation value of (0.897), these two values are statistically significant, and this indicates that the higher the value of (RMS The value of the recorded force increased and accordingly the level of force payment to the player when performing in the payment stage, which in turn affects the achievement achieved, and this is a clear indication of the importance of the force exerted during the push in integrating the flow of performance and achieving the speed required to launch the weight and gain the required momentum to achieve the highest possible achievement .

The relationship appeared between (RMS) and the achievement with a correlation value of (0.661), and this value is statistically significant after comparing it with the tabularity, as the average force exerted during the push expresses the ability produced by the muscles of the two legs during performance, which is accompanied by a change in the transitional velocity of the body, which gives the possibility to push the weight at the speed required to achieve the required achievement, If the performance is carried out according to the appropriate mechanical technical conditions. Thus, researchers have achieved a hypothesis of his research of the first.

Conclusion

Through the results of the research, the researchers reached the following conclusions:

It appeared that the characteristics that most affect the achievement are the maximum recorded strength, the maximum strength time, and the average strength as well.RMS) with the value of a direct moral correlation, and also appeared a non-significant correlation between the achievement, the lowest recorded strength and the least powerful time among the members of the research sample , as for the contribution ratio between the achievement and the characteristics of the curve (force-time) for players pushing the weight if they are as follows:

There is a contribution ratio between (average force, time of maximum force, maximum recorded force, RMS) and achievement among the members of the research sample, and that the lowest percentage of contribution recorded between (the lowest recorded strength and achievement) by the kinetic variables among the members of the research sample.

Through these conclusions, the researchers recommend:

Periodic use of kinetic analysis to follow the evolution of kinetic variables and kinetic both to work on strengthening the correct ones, and correct the imbalance winning some of them through the development of alternative ways responsible for it or lead to the development of mechanical variables and integration of the research sample and attention to individual factors (Quintk and Kinmatik) through the development of information on these factors , the coaches, players and admitted courses in this regard and the training of players in practice it as well as the use of teaching methods and film analysis of dynamic private players pay weight To introduce the importance of mechanical aspects and the need to use training methods for developing the rapid strength of the legs and arms during training to develop the mentioned kinetic variables and the need to benefit from the results of this research in the training of weightlifting players for different groups.

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