

## **Effect of Kettel Ball Exercises on Some Physical Variables and Performance Skill Level of the Shot Put Players**

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### **Introduction and research problem**

Studies and research in the field of sports have been interested in studying the impact of sports training and training programs on improving the level of achievement of all activities of each sport activity in general and athletics in particular.

Essam Abdel-Khalek (2003) states that muscle strength, flexibility and muscular endurance are the most important elements of fitness for wrestlers, which distinguish the wrestler from another and are crucial in the results of rounds. (7: 2)

He adds "Samir Abbas" (2000) to the need to pay attention to the different types of muscle strength so that the wrestler to perform lifting skills in a manner appropriate and high ability to help him overcome the resistance or the resistance of the opponent. (6:28)

Kettle Ball appeared in Russia in the early nineties and was used by Russian special forces for a long time until it

spread to the rest of the world in different forms according to the training objective for which it is used,

And Kettle Ball is a metal tool in the form of a ball pitcher large diameter at the base and gradually reduced to the handle, They are used in many physical and skill training. (41:19) (69:22)

Pavel Tsatsouline (2006) argues that Kettle ball is an all-in-one tool that develops static strength in different body and posture situations. (83:19)

The use of Kettel ball has many benefits, including the development of strength and endurance and agility and balance in the body and aerobic and anaerobic ability, and help reduce the chances of injury as a result of use in improving the tone of the muscle, and used to develop muscle balance and muscle strength of different muscle groups, and used to develop better physical fitness Regular forms of weight, righteous, dumbbells and belt. (21: 44-49) (47:18)

Kettel ball appears in different sizes from 1 to 46 kg, and there are many different

forms of the block but Kettel ball of them to be one part designed in the form of a pitcher in different weight categories and this form is more widespread, and the other form consists of Alcatel Kettel ball handle and the installation of cylinders Different weights (12:14)

Ahmed Saad Eddin Omar and Tarek Abdel Samad Younes (2004) assert that special physical abilities are an important basis that have a fundamental role in achieving the highest possible level of performance and sports achievement in accordance with the specialized sports activity associated with them, where each sport is characterized by a set of physical abilities distinguish it from Detection of these physical abilities in each of the various sports activities is considered one of the most important scientific duties and research problems facing specialists in the field of sports in general and training in particular because of the great importance in the development of sports training programs. (3: 153 -15 4)

The Shot Put Competition is one of the main field competitions that has been accompanied by a major

development in order to reach the best achievement and level possible. (43: 5)

Perhaps the follower of the results of the recent international and Olympic competitions in various competitions, especially in the throwing competitions find surprising progress, which raised the question of specialists and researchers in the sports field about the reasons

That led to this huge leap in the digital levels of the contestants pay shot, and in an attempt to answer this question was The most important and important reasons behind this progress were the adoption of the contents of training programs on the scientific method, which is concerned with sports training programs and methods and means used in each competition. (54: 6)

In spite of the tremendous development in the field of sports training in general and weight training in particular, some coaches do not pay special attention to this type of training during their training programs in order to overcome the shortcomings of the players and develop their physical and skills, through the researcher's experience in training

There are deficiencies in many players in the performance of throwing, and due to the importance of the skill of shot put as being one of the most important precedents in the field, and the reference of previous studies analyzing the final roles in the Republic tournaments to know the level of digital achievement of players shot put that concluded that There is a decrease in the level of digital achievement compared to African or international tournaments.

We have developed training through weightlifting using tools in the direction of muscular work in order to work to improve muscle strength and skill level in the same exercise and this is achieved by training using kettle ball and this is indicated by the study of both Nick Beltz, et al (2013) (18), David K. Spierer et all (2013) (12), Ronal (2013) (20). This prompted the researcher to conduct this study to identify the effect of Kettel exercises. On some physical variables and skill level performance of shot put players.

### **Research Goal**

The research aims to identify the impact of Kettel ball exercises on some physical variables and skill level performance of shot players

### **Research hypotheses**

1- There are statistically significant differences between

the averages of the pre- and post-measurements in the level of some physical variables among the shot players.

2- There are statistically significant differences between the averages of pre and post measurements in the digital level of shot players.

### **Some of the terms in the research:**

-Iron ball: kettle ball

It is an all-in-one tool, which works to develop the static force in the body and different positions, and can be codified training by applying the method of training period. (83:16)

### **Search procedures:**

#### **Research Methodology:**

The researcher used the experimental method with pre and post measurement for one experimental group to suit the nature of the study.

#### **Society and Research Sample:**

The researcher selected the research sample by deliberate method from the players shot put shot at the University of Tanta and the number (18) players, the best (10) players were selected as a basic sample in addition to (8) players to conduct a survey study of the research.

Search sample configuration: the research sepal of Description

**Table (1)**  
**Arithmetic mean, standard deviation, median and torsion coefficient of the sample population and research in the descriptive variables (age - height - weight) (muscle strength right and north - capacity - digital level) N = 18**

variables	Measuring unit	SMA	standard deviation	Median	torsion coefficient
Basic variables					
Age	Year month	18.32	0.20	18.30	0.38
Height	Cm	167.20	0.17	167.00	0.32
Weight	Kg	68.65	0.65	68.50	0.18
Physical variables					
Muscle strength right	Kg	36.52	0.69	36.50	0.98
Muscle strength left	Kg	35.62	0.21	35.50	0.28
Ability	M\Cm	7.44	0.18	7.40	0.21
Shooting distance	M\Cm	6.15	0.33	6.10	0.87

It is clear from Table (1) that the torsion coefficients give a direct indication of the absence of the society and the research sample from the disadvantages of non-moderate distributions, as the coefficient of torsion approaches and varies in all variables between ( $\pm 3$ ), which indicates the homogeneity of the community and the sample in the search variables in question.

#### **The research steps**

The researcher then took steps to reach the actual search procedures which are:

- Obtaining administrative approvals from the luminaries by applying the research to the players throwing Tanta University team.

#### **The data collection**

In determining data collection, the researcher relied on several sources:

- A questionnaire form for experts in the field of athletics to identify the muscles working in the shot put skill attached (2)
- Digital Shot Put Competition Level:**

The rules set by the International Amateur Athletics Law were applied to the Shot Put Competition and the researcher was satisfied with three attempts per contestant

Through the frame of reference and reference studies the researcher reached the most important measurements, tests and devices that achieve the

objectives of the research are as follows:

**Preparing the content of the proposed program:**

Since the content of the training program is the backbone to achieve the objectives of the research, the researcher has taken into account the scientific foundations and principles of sports training in the preparation of the content of the program agreed upon by the scientific references and reference studies, as well as identify the working muscles that enabled the researcher to put the content of training programs following the following steps:

**Defining period of training**

Through the theoretical readings of the researcher and access to many scientific references and previous studies, it was found that the proposed training programs that were tried before ranged between (6) to (12) weeks, and because the training system is (4: 3) times a week According to Ibrahim Salama (2000) (1), Abu El-Ela Abdel Fattah (2000) (2) that the duration of

(6) weeks is sufficient for the emergence of physical and physiological effects and the researcher believes that the duration of (6) weeks (4) training modules per week The number of training modules is (24) units.

Questionnaire of the opinion of the experts of the proposed training program and the number of experts (7) seven experts

Used articles and apparatus

Apparatus Used

**The instrument character unit of measurement**

Dynamometer muscle strength kg

Device flexibility sitting length flexibility cm

Medical balls 4 kg orce speed cm

Track 30 meters flying speed seconds

1.0x4.0meters agility seconds

Restameter Length cm

Medical balance weight kg

**Presentation and discussion of the results**

**Showing results**

**Table (2)**  
**The significance of the differences between pre and post measurement of physical tests Players of put shot N = 10**

Variables	Measure unit	Pre measure		Post measure		T value	Significance level
		M	±E	M	±E		
The muscle strength is right	Kg	36.52	0.69	41.25	0.25	4.85	Indicated
The muscle strength is left	Kg	35.62	0.21	40.25	0.85	4.62	Indicated
Ability	M	7.44	0.18	11.52	0.32	4.28	Indicated

•Tabular value (T) at the significance level (0.05) = 1.250

It is clear from Table (2) and post-measurement of the that there are statistically sample of the research in favor significant differences on the of post-measurement in the level of significance 0.05 physical variables of player's between the pre-measurement shot put.

**Table (3)**  
**The percentage of improvement between pre and post measurement of physical tests Players of put shot N = 10**

Variables	Measure unit	Pre measure		Post measure		Difference in averages	Rate of improvement
		M	±E	M	±E		
The muscle strength is right	Kg	36.52	0.69	41.25	0.25	4.73	11.46%
The muscle strength is left	Kg	35.62	0.21	40.25	0.85	4.63	11.50%
Ability	M	7.44	0.18	11.52	0.32	4.08	35.41%

It is clear from Table (3) in the level of some physical that there are differences in the variables and the value of level of improvement between improvement was limited from the pre and post measurement (11.46% to 39.76%)

**Table (4)**  
**Significance of differences between pre-measurement and post-measurement of digital level tests Players of put shot N = 10**

Variables	Measure unit	Pre measure		Post measure		T value	Significance level
Shooting distance	M	6.15	0.33	10.21	0.28	4.65	Indicated

•Tabular value (T) at the significance level (0.05) = 1.250

It is clear from Table (4) that there are statistically significant differences on the level of significance 0.05 between the pre-measurement

and post-measurement of the research sample in favor of telemetry in the digital level of shot put players.

**Table (5)**

**Significance of differences between pre-measurement and post-measurement of digital level tests Players of put shot N = 10**

Variables	Measure unit	Pre measure		Post measure		Difference in averages	Rate of improvement
		M	±E	M	±E		
Shooting distance	M	6.15	0.33	10.21	0.28	4.06	39.76%

it is clear from table (5) that there are differences in the level of improvement ratio between the pre and post measurement in the digital level and the value of improvement was limited (39.76%)

**discuss the results**

it is clear from table (2) that there are statistically significant differences on the level of significance 0.05 between the pre-measurement and post-measurement of the sample of the research in favor of post-measurement in the physical variables of player's shot put.

it is clear from table (3) that there are differences in the level of improvement between the pre and post measurement in the level of some physical

variables and the value of improvement was limited from (11.46% to 39.76%)

the researcher attributed these changes to the good planning of a training program using the kettle ball tool and rationing of training loads in a scientific manner appropriate for the dental and training phase of the research sample and to the use of kettle ball exercises as a major part in the proposed exercises with the aim of developing muscle strength.

the program by training different muscle groups, especially the muscles of the arms and legs and the focus of the researcher on the muscle groups working during the skill of throwing, which led to the

improvement of physical variables.

laila farhat (2001) and david (2003) emphasize that muscle strength is one of the most important physical elements that players need because all movements depend on how they move their body. this movement through contractions and diastole from one position to another, and the stronger the muscles, the more effective these contractions and helped in the completion of the skill. (14: 8) (13: 351-360)

in this regard, michael (2004) asserts that the kettle ball training system is one of the most important objectives of the development of fitness elements, including muscle strength, muscle capacity, agility and flexibility, because it contains the scepter exercises as a major part of the training system, which relies on the three charts of the movement to contain weightings circular arms (74:14)

this is what was agreed by ahmed sharawi (2017), that training for the performance exercises corresponding to the movements of skill using the muscles working in the required performance has an

effective effect in improving and developing special physical characteristics and thus the effectiveness of motor performance.

this can be explained by the fact that the reason for the improvement is that the sample of the research subject to training for a period of six weeks and four training modules per week led to the arrival of the sample to the stage of adaptation to the high loads represented in the circular force training,

and that the effectiveness of the circular strength training is the maximum specialization in the strength, quantity, and timing of muscle strength, ie the development of muscle strength in accordance with the intraday uses of the muscles within the skill performance is a decisive factor in the success of the recruitment of neuromuscular work for this performance.

this is consistent with the study of ahmed sharawi (2017) (4), mohammed zakaria (2018) (9) and hani jaafar (2017) (10) that the training program using kettle ball exercises has a positive impact on the level of improvement of



physical abilities own and digital achievement level.

thus, the first hypothesis of the research has been achieved, which states that there are statistically significant differences between the averages of the pre- and post-measurements in the level of some physical variables among the shot players.

it is clear from table (4) that there are statistically significant differences on the level of significance 0.05 between the pre-measurement and post-measurement of the research sample in favor of telemetry in the digital level of shot put players.

it is clear from table (5) that there are differences in the level of improvement ratio between the pre and post measurement in the digital level and the value of improvement was limited (39.76%)

the researcher attributed this result to the use of the proposed training program for exercises kettle ball, which affected the level of physical variables and thus led to an improvement in the digital level of players throwing shot.

this is pointed out by ahmed saad, tarek abdel samad (2004) that there is a near agreement among many experts opinions that each motor skill in sports requires the performance of certain types of physical abilities and therefore qualitative exercises in order to raise the level of performance, and he prefers to develop capacity physical performance of sports through the use of motor performance of exercises similar to the nature of the motor performance of those basic movements. (7: 3)

in this regard, christine (2000) 11 and larry (2011) 15 agree that many sports researchers and specialists agree that there is a strong correlation between physical abilities and skill performance. the basic skills of the type of sports activity in which he specializes if he lacks the physical abilities of this type of activity.

according to samir abbas (2000), research has shown in recent times that focusing on the development of muscle strength as one of the physical elements is a major in advancing the digital level of shot put racers,

and on the importance of the superpower component and its relation to the speed element "explosive ability" to improve the level of propulsion.

for high levels achieved in the field of throwing there is a significant correlation between the level of throwing and the level of speed of 30 meters, either from flying start or low start, as the speed has a positive impact on the possibility of acquiring the tool "starting speed", which is the most important element affecting the distance of thrust. (416: 6-417)

the researcher explains this result that the training group using kettle ball exercises excelled in all variables, in addition to the improvement of the digital level, which was used by the researcher to indicate the level of performance as a numerical result increases the usefulness of the training method kettle ball exercises.

this can be explained by the fact that the reason for the improvement is that the members of the research sample undergo training for six weeks and four training modules per week led to the arrival of the sample to the stage of adaptation to high loads represented in kettle ball exercises and that their effectiveness leads to the response of muscle spindles in

the muscle through which the elastic strength of the muscle can be determined depending on the efficiency of the reflected response to the sensory receptors of the extensor muscles of the joints. this occurs during prolonged contraction in jumping or jumping, as well as because the program has been adjusted and changed according to the plan, which means the effect is sustained with tb. the conduct of the training process in accordance with the principles and rules of the science of sports training, which ultimately aims to improve the training process.

thus, the second hypothesis of the research, which states that - there are statistically significant differences between the averages of the pre- and post-measurements in the digital level of shot players has been achieved.

### **conclusions**

- the use of exercises kettle ball leads to improve the level of muscle strength in the players shot put.
- the use of kettle ball drills will improve the performance of the digital level of the javelin throwers.

### **recommendations:**

- relying on the training system o kettle ball with the

same intensity, repetitions and inter-comfort to the players.

- conducting similar studies at different dental stages.
- conducting such study in other games and comparing them to field and track competitions.
- the need to put the field coaches in their training parts of the training system training kettle ball.

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