

## THE EFFECT OF USING RUBBER ROPES TO IMPROVE SPEED-STRENGTH FOR UPPER LIMBS AND THE ACHIEVEMENT OF JAVELIN THROW

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### Abstract

The study aimed to identify the effect of using rubber ropes to improve speed-strength for upper limbs and the achievement of javelin throw. The period of experiment last (8) weeks, three times per week. The sample consisted of (50) males, which divided into two groups control group (25) and experimental group (25). Paired t-test was used to find the different between pre and post tests for each group. Independent t-test was used to find out the different between control and experimental groups. The results showed that, using rubber ropes had a significant influence on improving speed-strength and achievement in post tests between both experimental and control groups.

**Keywords:** Effect of rubber ropes, speed-strength performance, achievement, throw

### 1. INTRODUCTION

As a result of scientific and technical development, the competition became so hard among athletes. This is shown clearly by improving the level of performance and break records, and both by its effectiveness, which led to the best achievements of the investigation based on the involvement of all the human sciences and technology in the sports movement service. Through the link of training science by other sciences the records become closer to the imagination, through the stunning developments in improving fitness and performance level elements. In addition, track and field gets a large part of this development and effectiveness, including the javelin throw, which is one of the most enjoyable events for the player and the fans.

Not only, the future development of sport training becomes linked to the rise of training extents, but also standing by choosing the most effective methods in the training and concentrate on rationing the doses of training, which achieve the best results, which means improving the quality of training not just depending on the improving the sizes of training (Mohamad, 2, 2000).

The physical and skillful abilities are the most important factors for preparing students or players and rise up the physical and skillful level by continuing the process of training, whether training through the various exercises single and complex on the one hand and drawing on some assistant tools which prepared for this purpose on the other hand, the use of an assist in the development work of the muscle group or muscle groups in the human body is just a catalyst in the development of these groups to accomplish the largest and strength as well as in the economic performance of movements and skills in specific game (Diya'a , 78, 2011).

The Importance of research is reflected to show some training by using rubber ropes as a way to develop the achievement in javelin throw, where using the rubber ropes make the performance easier and simple, and enables the student to identify the correct path for the motor performance as well as gets experience of success repeatedly by performing and practicing the skill alone without the help from a teacher (Tariq, 2, 2013)

#### **The problem of research:**

the javelin throw depend in its performance and achievement on the technical aspects and in an integrated physically and motor ability and physical characteristics in addition to the mechanical aspects, and every sport events have a particular privacy, for example in track and field the skillful performance the main factor that focuses on it the achievement, as the choosing of the best ways and methods of training which rise up the level of skillful performance and has an important role in it, it should not be forgotten the role of developing the physical elements to improve the level of skillful performance, through following up the both researchers, it has been noticed that most of coaches are depending on weighting training for developing the strengths and achievement and avoid using the modern methods, for instance medical balls and rubber ropes, which used in muscular contractions similar to the movement and thus be effective factor to develop the particular muscular groups for that events in addition to developing skillful performance and achievement, from here the problem of research lies to stand by the effect of such these exercises for developing the speed-strength and the achievement for this event

#### **Object of research:**

The aim of research is identifying the effect of training by using rubber ropes on speed-strength for upper limb and the achievement of javelin throw.

#### **Hypothesis of research:**

There is a significant difference in speed strength and the achievement of javelin between the both groups experimental and control group in post test.

**2. RESEARCH METHODOLOGY AND PROCEDURES:**

**Research Methodology:**

The experimental method was used, so as to suits with the nature of the research problem.

**The research community and sample:**

The community of research consisted of fourth year students in school of Physical Education University of Duhok (2012-2013), they were 62 students divided to three groups A, B and C. group A was excluded because that group was for female and the research is exclusive for male. Group C was chosen as an experimental group 25 students and group B as a control group 25 students by toss, which represent 86.64% of the research community.

**The homogeneity of research's sample:**

Content sources were used to identify the fitness elements affecting the achievement of the effectiveness of the javelin, as follows:

1. The explosive strength of the upper limbs.
2. The speed-strength of the upper limbs.
3. Kinetic speed for upper limbs .(Mohamad, 508, 1990)

For the purpose of measuring these elements, the following tests were conducted:

- Throw the Medical ball (3 kg).
- Flex and extend arms in (10 seconds) (Qais and Bastawisi, 345 1984)
- Kinetic speed for arm (Muhammad, 1984.366)

Then, it has been conducted a tests required for these elements, as well as performed some physical measurements such as height, weight and age, after obtaining the data the it has been conducted the necessary statistical analysis (sprains and splaying) in order to ensure the homogeneity of the two groups each separately, as it shown in the table (1) and (2):

**Table (1) shows the means, standard deviation, torsion and kurtosis for control group:**

Statistical analysis measurements	Units Of Measure	Means	Stander Deviation	Skewness	Kurtosis
Age	Months	294.48	19.99	0.535-	- 0.007
Height	centimeters	175.04	5.94	- 0.015	0.667
Weight	kilograms	69.28	7.23	0.607	0.406
Explosive strength for upper limbs	Meters	7.27	1.00	0.362	- 0.210
Speed-strength for upper limbs	Numbers In 10 seconds	10.60	1.32	0.939	0.742
Kinetic speed for arm	Numbers of Rounds in 20 seconds	63.60	6.60	- 0.380	- 0.639

As it appears from table (1) that the value of the torsion coefficient and kurtosis of the control group is between (+3 and - 3) which shows the homogeneity of the group

**Table (2) shows the means, standard deviation, torsion and kurtosis for experimental group:**

Statistical analysis measurements	Units Of measure	Means	Stander Deviation	Skewness	Kurtosis
Age	months	298.32	14.44	0.651	- 0.486
Height	centimeters	175.36	6.03	- 1.003	1.714
Weight	kilograms	68.20	7.32	1.143	2.180
Explosive strength for upper limbs	meters	<b>7.33</b>	<b>1.06</b>	<b>0.239</b>	<b>- 0.621</b>
Speed-strength for upper limbs	Numbers In 10 seconds	<b>10.84</b>	<b>1.51</b>	<b>0.681</b>	<b>- 0.305</b>
Kinetic speed for arm	Numbers of Rounds in 20 seconds	65.36	5.09	- 0.119	0.090

As it appears from table (1) that the value of the torsion coefficient and kurtosis of the control group is between (+3 and - 3) which shows the homogeneity of the group.

**Equalization of samples of Search:**

For the purpose of Equalization for samples, the t-test was applied for the following variables age, height, weight and the fitness elements those affecting on the javelin throw and pre-tests of samples in achievement of the javelin, as it shows in the table (3)

**Table (3) means and standard deviations for the variables age, height, weight, fitness elements affecting those affecting on the javelin throw, and pre-tests of samples in achievement of the javelin.**

Statistic analysis Measurements	Control group		Experimental group		T. value
	means	St.d±	means	St.d±	
Age / months	294.48	19.99	298.32	14.44	0.31
Height / centimeters	175.04	5.94	175.36	6.03	0.18
Weight / kilograms	69.28	7.23	68.20	7.32	0.58
Explosive strength / meters	<b>7.27</b>	<b>1.00</b>	<b>7.33</b>	<b>1.06</b>	<b>0.22</b>
Speed-strength / In 10 seconds	<b>10.60</b>	<b>1.32</b>	<b>10.48</b>	<b>1.51</b>	<b>0.59</b>
Kinetic speed for arm / Rounds in 20 seconds	<b>63.60</b>	<b>6.60</b>	<b>63.36</b>	<b>5.09</b>	<b>1.05</b>
Throw javelin / meters	26.78	5.01	26.22	4.10	0.43

**t- Value significance at level (0.05) with the degree of freedom (48) is (1.68).**

It can be seen from the table (3) the equalization of both research groups, there was no significant differences between both groups, where the t calculated value was less than the tabular value, which was (1.68) with significance level (0.05) and the degree of freedom (48).

#### **Research Procedures:**

##### **Experimental design:**

The experimental design was used which calls (Designing the Equivalent Groups for Pre and Post-Tests) (Raja, 207, 2004).

##### **Research Variables:**

The study includes the following variables:

1. The independent variable: The exercises of rubber ropes.
2. The dependent variable: speed-strengths and achievement of the javelin.

Thus, it should identify the variables and be controlled through controlling the internal variables, which are conditions of the experiment, measuring tools, test differences and Leavers of experience) and external variables which is the vacancy of errors for experience.

##### **Pre-Tests:**

The pre-test was conducted for research samples on Monday 30<sup>th</sup> of March 2013 at Stadium of School of Physical Education, University of Duhok.

After the warming up for 30 minutes, the test of javelin as instructed by the international law of the Games track and field amateur test (Sareeh, 2011), but give each student only three attempts

##### **Rubber Ropes Exercises:**

Experimental approach included a set of (4) exercises, which is associated with using rubber ropes which reflects the intensity of these exercises, control and increase the intensity of the exercises is by progressively increasing the number of ropes while performing the exercises for improving the speed-strength of upper and lower limbs, where the experimental approach consisted of (8) weeks (3) times in a week for, so the numbers of training units became (24) units.

##### **Post-Tests:**

The post-tests were conducted on Monday 27<sup>th</sup> of May 2013 at the Stadium of School of Physical Education, University of Duhok, under the same conditions of pre-tests.

##### **Statistical Analysis:**

- Means
- Standard deviation
- Skewness
- Kurtosis
- Independent t-test
- Dependent t-test
- Spss

(Shafiq, 111 161 181, 186, 421, 2006).

### **3. RESULTS AND DISCUSSION:**

#### **Results:**

The results of speed-strength and javelin achievement between pre and post tests for the control and experimental groups:

**Table (4) shows the mean, standard deviations and (t) value for speed-strength and achievement of javelin between pre-post tests for control and experimental groups**

Statistic analysis Measurements	units	Pre test		post test		T. value
		means	St.d±	means	St.d±	
speed-strength control group	meters	10.60	1.32	11.00	1.35	*4.00
speed-strength experimental group	meters	10.84	1.51	11.80	1.41	*6.08
Achievements Javelin control group	meters	26.78	5.01	27.36	4.78	*6.30
Achievements Javelin experimental group	meters	26.22	4.10	29.93	3.21	*13.98

(t) Scale value significance level (0.05) and the degree of freedom (24) = (1.71)

Table (4) shows:

- There is significant differences between the pre-post tests for speed-strength between both groups for post tests, where the (t) calculated value was (4.00, 6.08 ) respectively which is greater than the (t) scale value, which is (1.71) at the significance level (0.05) with the degree of freedom (24)
- There is significant differences between the pre-post tests for achievement of Javelin between both groups for post tests, where the (t) calculated value was (6.30, 13.98 ) respectively which is greater than the (t) scale value, which is (1.71) at the significance level (0.05) with the degree of freedom (24)

**The results of speed-strength and javelin achievement in post tests for the control and experimental groups:**

**Table (5) shows the mean, standard deviations and (t) value for speed-strength and achievement of javelin post tests between control and experimental groups**

Statistic analysis Measurements	units	Control group		Experimental Group		T. value
		means	St.d±	means	St.d±	
speed-strength for post tests	meters	11.00	1.35	11.80	1.41	*2.04
javelin achievement post tests	meters	27.36	4.78	29.93	3.21	*2.23

(t) Scale value significance level (0.05) and the degree of freedom (48) = (1.68)

- There is significant differences for speed-strength in post tests between both groups for experimental group where the (t) calculated value was ( 2.04 ) which is greater than the (t) scale value, which is (1.68) at the significance level (0.05) with the degree of freedom (48).
- There is significant differences for javelin achievement in post tests between both groups for experimental group where the (t) calculated value was ( 2.23 ) which is greater than the (t) scale value, which is (1.68) at the significance level (0.05) with the degree of freedom (48).

#### 4. DISCUSSION:

### **Discussing the results of speed - strength tests and javelin achievement between pre - post tests for control and experimental groups:**

There is significant improvement in speed - strength to achievement of Javelin throw between pre and post tests for the control group, where it has been attributed that this development is the result of performing a special exercises effectively for javelin, those used by teacher during the period of the lesson.

There is a significant improvement in speed - strength and achievement of Javelin throw between pre and post tests for the experimental group, where it has been attributed that using the rubber ropes lead to increase the flexibility of the joints, as well as the develop muscle strength and thus lead to an improvement in the time of speed performance (Sawsan, 2005, 5).

### **Discussing the results of speed - strength tests and javelin achievement for post tests between control and experimental groups:**

There was a significant improvement in speed - strength and achievement of Javelin throw between for post tests between control and experimental groups but it was greater in experimental group, which has been attributed that using the rubber ropes in training program has an effective role to develop the muscles those work during the performance, where the exercises were performing similar to the technique of Javelin throw, as( Abo Al- Alah and Nasr aldeen ,1992) stated that using exercises similar to the general performance of skills lead to better results.

As the exercises used in the program lead to highlight the resistance on the working muscles during the training which led undoubtedly to increase the ability of working muscle fiber during the performance and produce speed-strength during the special performance, and this result of the development of this type of strength that required to be improve and develop of the study. As (Sareeh ,175, 2003) Indicated that the muscle fibers have the ability to produce a large amounts of strength during changing the resistances type compared to the steady resistance which depends on the non-changing in it, thus the number of working motor units will grow and grow according to their ability to produce kinetic energy. This is what has already been achieved in the present study.

## 5. CONCLUSION:

The results showed that, there is a significant different in speed-strength and achievement in pre and post tests for both control and experimental groups. Additionally, using rubber ropes had a significant influence on improving speed-strength and achievement in post tests between both experimental and control groups.

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