DESIGNING AND MAKING DEVICE RUBBER ROPES TO DEVELOP THE SPECIAL STRENGTH FOR FENCING PLAYERS

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Abstract

The present study aims at designing and making a special training device for the muscular strength by the use of rubber ropes resistant called (rubber multi gym) based upon modern and studied scientific bases. It is an ideal device for the healthy body that depends upon the flexible pull\push exercises in different angles of the body to develop the strength of the active muscles. In addition to that, it builds muscles for both sexes for all sport games.

The two researchers choose the experimental method by the tight method (experimental + control) for the suitability and the nature of solving problem of the research. 16 female players of Fatat Baghdad Club for Fencing Epee Fatat Baghdad Club for Fencing Epee were chosen. Four players were eliminated for making the experiment for each player. They were subdivided randomly into two groups (experimental + control) as 6 players per each group. The control group was performing the usual physical and skill training in their curricula without using the experimental agent (rubber ropes). The experimental group, on the other hand performs the experimental variable (exercise by the use of rubber ropes on the multi gym device).

The training curricula was performed on 3-9-2014 and ended on 10-11-2014.

In the light of the results, the researchers come to the pre-test and posttest. It was concluded that the device made (multi gym rubber ropes) has proved its effectiveness as far as the development of the sample is concerned.

Keywords: device making, rubber ropes, special strength, fencing.

1. INTRODUCTION

Fencing is one of the sports that require special physical abilities and skills. The most important of these is the special strength represented in the (speed distinction strength, explosive strength, and endurance of performance strength). This special strength, which the fencer needs directly in most of his\her movement, specially the leg, shoulders and   trunk muscles [1] by the use of the defense and attack among the competitor. Therefore, we should care for the development of the muscular special strength through the preparation of exercises that are suitable with the achievement of the required (resistance) of the player.

Form this point; the two researchers went to all that new sport training science to develop the special strength through training that depends upon the muscular contraction that suits the elasticity of the muscle during motor performance by the use of the rubber ropes resistance. This is done by the design and making of a device that depends in its work on the flexible rubber resistance. The inputs of the components of the training endurance and the angles of the muscular work can be programmed in high technology in suitability of the required motor performance.

Hence, the importance of the study is to design and make a special training device for the muscular strength by the use of rubber ropes resistant called (rubber multi gym) based upon modern and studied scientific bases. It is an ideal device for the healthy body that depends upon the flexible pull\push exercises in different angles of the body to develop the motor strength of the active muscles. In addition to that, it builds muscles for both sexes for all sport games.

 The Researcher Procedures

The two researcher used the experimental methodology by the method of the tight (experimental + control) method for the suitability and the nature of solving problem of the study.

The Sample of Study:

For the sample to be accurate and correct, it should represent the original community accurately, as the "objectives that the researcher includes in his study and the methodology he used determine the nature of chosen"[2]. In addition to the availability main condition of

the sample, i.e. the possibility of generalizing the results of the original group from which it has been chosen.[3] choosing the sample of the study is an obligation in the scientific research which should represent the origin of society accurately and honestly. On the basis of the above 16 players of Fatat Baghdad Club for Fencing Epee were chosen. Four players were eliminated for making the experiment for each player. They were divided randomly into (experimental+ control) groups, 6 per each. The control group was performing the usual physical and skill training in their courses without using the experimental agent (rubber ropes). The experimental group, on the other hand performs the experimental variable (exercise by the use of rubber ropes on the multi gym device).

In order to arrive to the validity and accuracy of the results of the study, the two researchers made qualification among the community members according to the variables of (age - height - weight and training age) by the curve coefficient as illustrated in the table below (1).

Table (1) shows the homogeneity of the sample in the variables of (Age - height - weight and training age by curve confident

Variable	Measurement unit	Arthmitan means	Mean	Standard deviation	curve confident
Height	Cm	167.5	167	1.6	0.93
weight	Kg	63.6	1.4	1.4	0.85 -
Age	Year	23.3	0.95	0.95	0.94
training age	Year	3	3	1.8	0.66

The results showed that all the variables of the study lie within the achievement of the average scale. That indicates the good distribution of the sample and its homogeneity of the variables, because one of the features of the model curve to be restricted in the values (1+) (4)

After the distribution of the samples to two equal groups in number by the lot (odd and even numbers) and calculating the equality between two groups in the pretest by the t-value for the independent sample. It also shown in table (2)

Table (2) shows the statistical features between the experimental and control groups in the pretest for the purpose of equality

Tests of special strength		Arithmetic means	Standard deviation	t-value calculated	Error level	Significance
The front lean 10 sec/times	Experimental	11.3	1.36	0.93	0.37	Not significant
	Control	12	1.09			
Three hopscotches with on-guard position /meter	Experimental	3.1	0.08	1.29	0.22	Not significant
	Control	3.2	0.16			
Throwing medical balls weight 3 kg/meter	Experimental	2.25	0.18	0.15	0.88	Not significant
	Control	2.23	0.18			
Leap front from the on-guard for one time /m	Experimental	1.01	0.09	0.53	0.6	Not significant
	Control	0.98	0.11			
The performance of the arm stabbing only during 60 sec/ times	Experimental	57.3	2.16	0.86	0.4	Not significant
	Control	58.9	3.07			
Using dimples in on guard position during 60 sec/times	Experimental	36.16	1.13	0.29	0.77	Not significant
	Control	35.83	2.48			
* The significance at the level ≥ (0.05)						

Tests:

Test is regarded as one of the most important means used by the scientific researchers; because through the tests data are collected in which many problems which face the scientific progress are solved (1).

The following tests were conducted:

- Speed distinguishing strength for arms \ front lean during 10 sec/times (5).
- Speed distinguishing strength for legs \ three hopscotches with on-guard position /meter.
- The explosive strength of the arms / Leap front from the on-guard for one time 7 m.
- The explosive strength of the arms / Throwing medical balls weight 3 kg/meter
- The explosive strength of the legs / leaping forward in on-guard position for one time/ m
- The endurance strength of the armored arm/ the performance of the arm stabbing only during 60 sec/ times.
- The endurance strength of the armored leg/ Using dimples in on guard position during 60 sec/times.

Test Implementation method:

The pretests were conducted for the two groups after choosing of the samples and the tools used in dividing the sample into experimental and control groups purposely. After this, the experimental group began to be trained on the device made with rubber resistance exercises. The control group trained according to the methodology prepared for the resistance exercises, weights and bodyweight resistance, and then conducting the posttest. It is notable that the pretests were conducted on 2/9/2014, the posttest were conducted on 11/11/2014.

The Steps of Applying the Methodology:

The experimental group applied the special strength exercises on multi-gym made by the use of the rubber ropes in 30 minutes. The control group, also, performed their usual exercises in 30 min.

The exercises included the special strength by the use of the rubber on the multi gym made and the exercises of (explosive, speed distinction strength, explosive strength, and endurance of performance strength). It is notable that the method for the two groups is one except for the bodily part form the main section. The sample of the study was separated from the main part of the training unit, to be training in the rubber ropes for (30) minutes only, after the termination and return to the training units. The time for each training unit is (90 Min.), (20 min) warning (general and special), main section (65 min), divided into (30 min) skill performance (30 min) bodily preparation (5) planning and psychological preparation [5] and the concluding section.

The two researchers followed a training scientific approach by depending on the periodical training method) highly intense, low intense) by the use of the circular training method. Through the exercise of special training of the upper and lower limb and the trunk. The special exercises of resistance

which lead in terms of performance, as strength, speed and endurance. Also, the trend of the muscular work with the movements leading to skills."[9]

- The training course included a group of exercises for the arms, legs and the trunk through pulling and pushing of the rubber rope of three levels of resistance in tensions of (7 kg, 13 kg, and 44 kg) fixed on the manufactured device in all the aspects and the angles.
- The two researchers worked with the course of graduation according to the lengths of ropes from short to long and according to the graduation of the pillars and the angles of the made device in the account of the first horizantal column near the base (first, second, third and fourth) and the columns of the angles and the head of the device and the main columns) from the four angles. The right choice of the tension of angles used in the muscular work leads to better amount of produced muscular strength" [10]. According to the resistances (strength) of the rubber ropes in their three levels (soft, medium and strong) which coincides with the physical abilities of the players.
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The training course was carried out in 3-9-2014 and ended 10-11-2014.

2. RESULTS DISPLAY, ANALYSIS AND DISCUSSION:

Display, Analysis of the Results of the Pretest and Posttest for the Experimental and Control Groups:

Table (3) shows the statistical features for the experimental group between the Pretest and Posttest of in the tests of special body strength.

Tests of special body strength		Arithmetic means	Standard deviation	Mean difference	t-value calculated	Standard deviation	Error level	Significance
The front lean 10 sec/times	Pretest	11.3	1.36	9.16	1.83	12.23*	0.000	significant
	Posttest	20.5	20.5					
Three hopscotches with on-guard position /meter	Pretest	3.1	0.089	0.9	0.16	13.17*	0.000	significant
	Posttest	4	0.12					
	Pretest	2.25	0.18	0.17	1.13	15.8*	0.002	significant

Tests of special strength		Arithmetic means	Standard deviation	Mean difference	Standard deviation	t-value calculated	Error level	Significance
Throwing medical balls weight 3 kg/meter	Posttest	3.38	0.07					
Leap front from the on-guard for one time /m	Pretest	1.01	0.09	0.28	0.11	5.9*	0.003	significant
	Posttest	1.01	0.08					
The performance of the arm stabbing only during 60 sec/ times	Pretest	57.3	2.16	0.28	3.18	5.25*	0.000	significant
	Posttest	64.16	1.16					
Using dimples in on guard position during 60 sec/times	Pretest	36.16	1.13	22.5	2.94	18.68*	0.000	significant
	Posttest	58.66	2.73					
* significance at the level < (0.05)								

Table (4) shows the statistical features for the control group between the Pretest and Posttest in the tests of special body strength:

Tests of special strength		Arithmetic means	Standard deviation	Mean difference	t-value calculated	Standard deviation	Error level	Significance
The front lean 10 sec/times	Pretest	12	1.09	4.83	1.16	10.12	0.000	significant
	Posttest	16.83	1.47					
Three hopscotches with on-guard position /meter	Pretest	3.2	0.16	0.31	0.17	4.5	0.006	significant
	Posttest	3.2	0.14					
Throwing medical balls weight 3 kg/meter	Pretest	2.23	0.18	0.75	0.10	17.5	0.000	significant
	Posttest	2.98	0.13					
Leap front from the on-guard for one time /m	Pretest	0.98	0.11	0.14	0.06	5.31	0.003	significant
	Posttest	1.12	0.09					
The performance of the arm stabbing only during 60 sec/ times	Pretest	58.66	3.07	2.5	2.94	2.01	0.43	significant
	Posttest	61.16	1.16					
Using dimples in on guard position during 60 sec/times	Pretest	35.83	2.48	16.66	3.44	11.85	0.000	significant
	Posttest	52.5	1.87					
* significant at the level < (0.05)								

Display, Analysis of the Results of the special strength between the experimental and control groups in the posttest tests:

Table (5) shows the statistical features between the experimental and control groups in the posttests of special body strength:

Tests of special body strength		Arithmetic means	Standard deviation	t-value calculated	Error level	Significance
The front lean 10 sec/times	Experimental	20.5	1.04	4.69*	0.001	significant
	Control	16.83	1.47			
Three hopscotches with on-guard position /meter	Experimental	3.51	0.14	1.29*	0.22	Not significant
	Control	3.38	0.16			
Throwing medical balls weight 3 kg/meter	Experimental	2.98	0.07	6.4	0.000	significant
	Control	1.3	0.13			
Leap front from the on-guard for one time /m	Experimental	1.3	0.08	3.17	0.010	significant
	Control	1.12	0.09			
The performance of the arm stabbing only during 60 sec/ times	Experimental	64.16	1.16	4.44	0.001	significant
	Control	61.16	1.16			
Using dimples in on guard position during 60 sec/times	Experimental	58.66	1.13	0.29	0.77	significant
	Control	52.5	2.48			
* Significant at the level < (0.05)						

The tables (4-5) show the development of the control and experimental groups in the special strength for the posttest. It is found when comparing the experimental with the control group in the post-test that the experimental excelled over the control group in the special strength test. The two researchers attribute this development to the training on the device by the use of rubber ropes that helped to apply the training course which the experimental group has used, namely, the exercise of various tensions according to the duty and the required objective, gradual in speed. These exercises had an effect in developing the stimulation of the white muscular fibers which have the ability to cause contractions for short period. These exercises had a positive effect in developing the ability of the arms and the legs through working on the tension and stretch of the muscle in a fast manner and short time. This led to the development of the speed of muscle reaction giving it flexibility as a result of the reciprocal work between the central and the non-central contraction fastly "The more the muscle ability of stretching increases, the more is the chance of the chance for strong and rapid contractions,"[11] because exercises by the use of the rubber ropes improves the stretching of the muscle and the shortability of the muscle due to the use of these exercises. (These exercises function as boosters of the muscle endurance of the increase stretching. This endurance develop muscle efficiency in the contraction circle. The fast increase in the length of muscle before contraction results in fast and strong muscular contraction). [12]

3. CONCLUSION:

In the light of the results of the study, the researcher arrives at the conclusion that the (rubber multi gym) proves effective in developing the special strength for the sample of the experimental group.

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