

THE IMPACT OF PLYOMETRIC EXERCISES IN DEVELOPING THE EXPLOSIVE POWER OF LEG MUSCLES AND OPENED JUMPING ON VAULT TABLE

* Dr. Ferdous M.Ameen , ** Dr. Marseel Zaia Yalda , *** Dr. Sura Jamil Hanna

* Diyala University / Physical Education College

** Duhok University / Physical Education College

Abstract

The athletic training aim to improve the achievement level weather skilled or physically in games, sports and all other athletic activities. The physical characters acquired a great interest in designing the training course, that side by side the setting of the skill and tactical and the psychological sides considering them as the chief targets in the readiness and preparedness of preparation for sports. The requirement of the physical setting of gymnastics include development of its physical properties in order to integrated for a player or a student that lead to competition stage and these qualities include strength from such as explosive strength characteristic speed and loading which constitute a significant factors in the motor performance of the player games during the competition that require skilled performance characterized with force, such as jumping. The explosive power is one of following question: Do posses a suitable explosive force enables to perform jumping skill on the opened platform and whether the explosive force impacts on them? The study aimed to identify the effect of plyometric exercise in the development of the explosive power of the leg muscles and opened jumping on platform. Significant differences were found between the two measurements of pre and post tests for both experimental and control groups. No significant differences between the two post tests for the control and experimental groups. The second stages student of the Faculty of Physical Education / University of Diyala, of their number (20) student. For the period 17/02/2013 - 10/04/2013 in artistic gymnastics hall of the Faculty of Physical Education / University of Diyala.

KEYWORDS : POLYMATRICES . EXERCISES . JUMPING EXPLOSIVE .

1. INTRODUCTION

The goal of the athletic training is to raise the level of achievement weather physiologically or skillfully in games and in all the athletic activities. The physical characteristics gained a great interest in the designing of the training courses side by side to all other. Settings and preparations considering them as the main goals in the athletic setting, the requirements of the special setting for the gymnastics activities to develop the special physiological characters to be complete for the player during the competition stage, these characters include the strength, the explosive power, fastness and the bearing. For the female players caring with the developing the strength push to use the plyometric exercises in the field of the athletic training, these exercises participate greatly in developing the explosive power. [Bastosi Ahmed 1999] insisted on this idea and said. The plyometric exercises improve the movement power and the rubbericky power, this has a great effect on developing the explosive power. The exercises of plyometric helps greatly in developing the muscles and nervous systems to do the contradict exchanges by

increasing the power and fastness in different activities like, volleyball, basketball, handball and the runners of the short runs in addition to the jumping. All these activities in bad need to the explosive power from this point this thesis gave the developing of the explosive power a great and big importance specially for the legs of the players by the plyometric exercises to develop the working muscles in the opened jumping on the Vault Table.

The problem of the thesis answer clearly on the following questions. Do having the suitable explosive power make the female student able for achieving the opening jumping skill on the Vault Table? Do the explosive power has any affection on this?

While observing the level of female students of the second stage of gymnastic in the colleges of the physical education. The searchers noticed the weakness in the skill of opened jumping on Vault Table that leads to the decreasing in the level of the female student in gymnastic. This made the searchers to study this problem in the college of physical education in Diyala University by: -

- Designing plyometric exercises to develop the explosive power for the legs muscles and the skill of opened jumping on Vault Table.
- Discovering and finding the affection of these plyometric exercises in developing the explosive power for the legs muscles and the skill of opened jumping on Vault Table.
- There are statistical significant differences in the skill exam and the explosive power exam for the leg in the pre and post exam for the chose sample.
- There are statistical significant differences in the post exam for the two groups in the explosive power and the skill of opened jumping.

2. MATERIALS AND METHODS

The searchers used the experimental course because it is the most suitable for this research, and it is a method to control all the basic factors effect on the variations concerned with the experiment, that expect one factor, the searcher care too much to change it to limit and fix its affection on the other variations, because it is accurate in the results comparing with other results.

The goals and procedures which the searcher put and used will fix the nature of the sample of the research. The research include female student of the second stage from the physical education in Diyala University, they are (60) students. The sample of the research is of (29) female students, nine students were refused for reasons of failure and injured, so the sample become (20). These female students were chosen randomly and by lot and they were divided into two groups (10) for the criterion group and the other (10) for the experimental group.

Table (No 1) shows that the two samples were equal because the possibility of any mistake for all the characters of the two samples more than (0.05).

The pre-exams for the sample of the research were done on Tuesday 19/2/2013 in the Gymnastic hall of the physical education college in Diyala University. The searcher fixed the special circumstances for making the exams and the used procedures in addition of selecting the assistant working team to achieve the needed circumstances as much as possible. The searchers followed the followings steps:

- The searcher explained the exams in details to the members of the sample.
- All the exams were applied by the searchers, that to enable the members of the sample to do them perfectly.
- Giving enough chance for warming up for be ready for the exams.
- The results were registered according the conditions and specifications of each exam.

To achieve the goals of the thesis, the searchers put a training program include the plyometric exercises aim to develop the explosive power for the leg, that depending on the plyometric exercises which are suitable for the female sample of students and to apply this program on the experimented group that supervised by the lectures of the subject, while the criterion group applied the program of the college through the public sector for the ministry of Higher Education and Scientific Research for the college of physical education by the supervision of the lecturers of the subject:

The application for the program lasted for (4) weeks from Wednesday (20/2) up to (2013) by two training units weekly and for (60) minutes.

The two others (Abo AL-Ula Ahmed 1993) and (Yasser Daboor 1997) declare that doing the plyometric exercises at the end of the training units for the high tension that bring up the highest power from the female students.

The post exam for the sample done on (21/3/2013 Thursday), the searchers followed the same conditions of the pre exam in place, time and the used instruments. The searchers depend on the statistical package (spss).

3. RESULTS

This chapter included showing the results pre and post the exam for the two groups (the criterion and experimental groups). The results were put in tables, at the same time comparing the differentiations between them to reach the final results, then to discuss these results to reach the achievement of the goals of research and to reach the law the percentage (TT) to know the development for the two groups.

Table (1) the table shows the variations and the deviation (T) and the value of (T) accounted for the two pre and post exams for the criterion group

Result	Significance level	Calculated T	Post		pre		Statistical Features The variations
			Standard deviation	Mean	Standard deviation	Mean	
significant	0.02	4.33	14.92	150	14.76	147.90	Explosive power For legs
significant	0.037	2.44	0.78	4.50	0.78	430	Skill

The value of (T) under degree of (9)

This result prove the correctness of the hypothesis which refer the differentiation between the two exams pre and post for the criterion group

Table (2) this shows the average of differentiation and the value of (T) accounted for the two exams pre and post for the experimental group

Result	Significance level	Calculated T	Post		pre		Statistical Features The variations
			Stander division	Mean	Standard division	Mean	
Significant	0.02	5065	14.75	156.50	14.65	148.30	Explosive power For legs
Significant	0.04	11.50	1.30	6.45	0.85	4.15	Skill

Table (2) shows that these results prove the correctness of the first hypothesis, which refer to the variations of statistical indication pre and post the exams for the experimented group. The searcher mention that using the plyometric exercises for developing the explosive power for the legs in the accurate way affected greatly in developing the explosive power for the muscles of the legs, which reflected positively on the skill of opened jumping on the Vault Table.

Table (3) this shows the averages and the standard deviation and the value of (T) for the groups of research in the post exam.

Result	Significance level	(T) value	Experimental		control		Unit of measurement	Statistical Treatment group
			SD	A	SD	A		
significant	0.02	4.33	14.92	150	14.76	147.90	CM	Explosive power For legs
significant	0.037	2.44	0.78	4.50	0.78	430	Degree	Skill

From table (3) shows the development for the two post exams between the two groups. This prove the hypothesis, the searchers said that this development is the result of the accurate plyometric exercises which lead to the development of the explosive power for the two legs that develop greatly the skill of the opened jumping on the Vault Table.

The plyometric exercises works affectively to develop the explosive power and these exercises are considered one of the most effective and [AL-Raidi - 2004 (232-233)].

4. CONCLUSIONS

- 1- The good organizing for the used plyometric exercises in the research and to give step by step in the difficulty in doing the items of the course by the female students.
- 2- The development of the explosive power for the legs muscle affected positively on the opened jumping on the (Vault Table).

5. RECOMMENDATIONS

Depending greatly on the plyometric exercises in the training courses for the female students that insure the explosive power.

- 1- Caring with the development of power because it is an important sort of muscle power and it has direct affection on some basic skills.
- 2- Furnishing the needed equipment for making the plyometric exercises and using them in a scientific way.
- 3- Encouraging the trainers for caring with the plyometric exercises to develop the movement skills.
- 4- The training by using the plyometric method is an addle way for all the games which need the muscle power (explosive power). Here the users must care with the basic advice of training.

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Address for correspondence:

Author: Dr. Ferdous M.Ameen. Diyala University / Physical Education College

E-mail: dr.ferdousameen@yahoo.com