



Benha University
Physical Education For Men
Athletics Department

**The Interplay Relationship Between Weight Training
And Plyometric Training And Their Effects On Some
Physical Variables And Beginners Physiology In
Throwing The Javelin**

**Within The Requirements For Getting The Of In Physical
Education**

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Summary of research:

The problem and importance of research:

Mahmoud Abd El Daym and Medhat Saleh (1993) showed that throwing racing has depended mainly on two factors, the greatest strength and ability. Thus, weight training has become one of the essential and important matters that forms main part of training programs. Talha Hossam Al Deen and Others (1997) assured that weight training is the best way to rouse the level (standard) of muscle strength. There is a relationship between ability and strength. A person can't achieve high degree of ability without the factor of strength. This strength can't be renewed at fast rates if the main (origin) of the strength is weak. So it is advisable for the players to do intensive strength training before starting plyometric.

Zaky Darweesh and Aded Abd El Hafez (1994) mentioned that weight training increases the muscle strength and it's one of the most important ways (methods) that has a good effect on developing all the kinds (types) of muscle strength. This develops the balanced general growth of the body if it is used by most sports men as a base of physical preparation to different sports activities.

While Abd El Aziz Al Nemr and Nareman Al Khateeb (1996) showed that you should develop high degree of muscle strength to develop high degree of strength or speed or both of them. Weight training alone isn't enough to achieve the maximum strength of the muscle as it may not develop the ability of player to change from short contraction to long contraction with enough speed. However, it

is important to the essential building of the muscle which is important need before ability training.

This was assured by Talha Hossam Al Deen and Others in (1997) about Cou that plyometric training is the ring between muscle strength from one hand and the speed from the other hand and it is the main entrance to improve the level of performance through these two characteristics of muscle strength as a main characteristic. Plyometric training directs strength into suitable tracks to rouse the level of speed performance.

Mohammed Sobhy Hassnien (1990) agreed with Nagy Asaad (1991) that explosive ability training increases the motional performance in the kind of practiced activity and this results from the increase of the ability of muscle to contract at faster rate than following motions. This ability includes the strength mixed by speed which is important in jumbling, pushing, throwing and others.

Showing scientist's opinions about weight training and plyometric training clarifies the relationship between weight training and plyometric training as they depend on each other if the purpose is affecting the specific physical variables. So, the researcher tries to study the effect of this relation on some physical variables concerning beginners at throwing javelin and some physiological variables concerning them too.

3- The aims of research:

The research aims at:

- 1- Knowing the effect of both weight training and plyometric training on physical variables concerning the sample groups of research from throwing the javelin beginners.
- 2- The effect of both weight training and plyometric training on some physiological variables in the sample groups of research concerning throwing the javelin beginners.
- 3- Knowing the difference between the effect of both weight training, plyometric training and weight training and plyometric training on some physical, physiological in the sample groups of research concerning the beginners in throwing the javelin.
- 4- Knowing the interplaying relationship of the effect of weight training, plyometric training and plyometric and weight training in developing some physical and physiological variables in the groups of research sample of throwing the javelin beginners.

4- The hypotheses of the research:

- 1- There are significant differences between the after and before measurement in some physical variables in the three groups of research for the benefit of the after measurement.
- 2- There are significant differences between the post measurement and pre-measurement in some physiological variables in the three groups of research sample for the benefit of the post measurement.

- 3- There are differences between the impact of both weight training plyometric training and weight, plyometric training on some physical and physiological variables concerning throwing the javelin.
- 4- There are interplaying relation of the impact of both weight training and plyometric one, weight and plyometric training in developing some physical and physiological variables in throwing the javelin beginners.

5- The methodology of the research:

The research followed the experimental method as it was suitable for the normal study, the aims and the hypotheses.

6- The sample of the research:

The sample of the research is selected from the 2nd year students of the faculty of physical education. Benha University for their study of throwing the javelin skill. First term the sample consisted of 30 students from the research community. They were divided into 3 experimental groups:

- 10 student of weight.
- 10 student of plyometric.
- 10 student of mixed weight and plyometric.

Moreover 12 students for explorative studies.

7- The explorative experiments:

1- First explorative experiment.

It was applied on sample from the original community of research samples. There are 12 students, 4 students for each method of the three suggested programs of training.

This study was done form 10/2/2009 to 16/2/2009.

2- The second explorative experiment:

It was done on the same sample of students of the first explorative study in the period from 17/2/2009 to 25/2/2009 physical tests were measured in the period of 17/2/2009 to 19/2/2009 then the tests were repeated in the period from 23/2/2009 to 25/2/2009.

3- The third explorative experiment:

It was carried out from 28/2/2009 to 3/3/2009

The main experiment:

The researcher applied the program of his training research on the individuals of research sample from 4/3/2009 to 3/5/2009 for nice weeks, 3 training units weekly, every unit lasted 90 minutes.

The important findings:

- There are significant differences between pre-measurements and post-measurements in the physical variables except the ability of the muscle (B), pushing medical ball. There are weak differences for the benefit of post-measurement of the first group (mixed).
- There are significant differences between the after and before measurements in the physical variables in the research except the muscle ability (B) (long jump from keeping still) and the muscle ability B (pushing medical ball) for the benefit of the after measurement of the 2nd group.
- There are significant differences between the after and before measurements in the physical variables in the research except

the muscle ability (B) (pushing medical ball) there are insignificant differences for the after measurements of the plyometric group (the third).

- There are significant differences between the average of the marks of post-measurement of the first experimental mixed group and the average of marks of the post-measurement of the second group in the agility variables muscle ability (P), and muscle ability (B) for the benefit of the mixed group, dynamic strength (A, B) for weight group. There are insignificant differences in the flexibility variable for the benefit of the mixed group.
- There are significant differences between the average of marks of the after-measurement of the 2nd experimental group (weight) and the average of the after measurement marks of the 3rd group (plyometric) in agility variable, ability of muscle (A) and dynamic strength (A) for weight group, whereas there are insignificant between the average of the 2nd and 3rd group in the variable of speed, flexibility and muscle ability B and dynamic strength (B).
- There are significant difference between the after and before measurement of the first group in the rest pulse, systolic and diastolic blood pressure for the benefit of the after measurement. There are insignificant differences between physical efficiency and Vo2 max.
- There are significant difference between the average of the after and before measurement in the systolic and diastolic blood pressure, general physical efficiency and the Vo2 max of the 2nd

group (weight). There are also insignificant differences in the rest pulse variable.

- There are significant differences between the average of the after and before measurement in the variable of systolic and diastolic blood pressure, physical efficiency and Vo2 max of the 3rd group (plyometric).
- There are also insignificant differences between the average of the after and before measurement in the variable of rest pulse and systolic blood pressure.

Recommendations:

- 1- Using weight training to form suitable level of strength before plyometric training.
- 2- The mixed training (weight and plyometric) is suitable for the different throwing races and so are the sports activities with similar physical variables.
- 3- It's essential to integrate between the training of weight and plyometric and putting the programs of training especially for throwing the javelin competitor and throwing competitors in general.
- 4- Using the three programs in different sports activities according to the purpose of using any of these programs.