

IMPACT OF PLYOMETRIC TRAINING AND CIRCUIT TRAINING ON LEG POWER AMONG FOOTBALL PLAYERS

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Abstract:

The intention of the study was to find out the Impact of plyometric training and circuit training on leg power among football players. Thirty male football participants were randomly chosen as subjects and their age ranged from 20 to 25 years. The selected subjects were randomly allocated into three equal groups of ten subjects each, namely experimental group I was underwent circuit training, experimental group II underwent plyometric training was planned by the researcher and was controlled for a phase of 8 weeks 3 days in a week, a session each day, and group III control was not bared to any exact training. Leg power was selected as variable for this study. Analysis of covariance was used to analyses the data. Least Significant difference test was used as a post hoc test to establish which of the paired mean difference considerably. The effect of the study exposed that both plyometric training and circuit training created major enhancement on power as compared to control group.

KEY WORDS:

Plyometric Training, Circuit Training, Leg Power.

INTRODUCTION

The term "plyometrics" was coined by Fred Wilt after watching Soviet athletes prepare for their events in track and field. He felt this was a key to their success. It is a poor term to describe what happens, but it has since been accepted and is now well established. When Wilt learned of the work being done by Michael Yessis on Soviet (Russia) training methods, they quickly collaborated to help disseminate information on plyometrics.

Since its introduction in the early 1980s, two forms of plyometrics have evolved. In the original version of plyometrics created by Russian scientist Yuri Verkhoshansky, it was defined as the shock method. In this, the athlete would drop down from a height and experience a "shock" upon landing. This in turn would bring about a forced, involuntary eccentric which was then immediately switched to a concentric contraction as the athlete jumped upward. The landing and takeoff were executed in an extremely short period of time, in the range of 0.1- 0.2 seconds. The shock method is the most effective method used by athletes to improve their speed, quickness and power after development of a strong strength base.

Rather than using the term plyometrics to indicate exercises utilizing the shock method, it may be preferable to use the term explosive or true plyometrics which can be considered the same as the plyometrics originally created by Verkhoshansky. The shock method that he created was the result of studying the actions that occur in running and jumping. He found that the landings and takeoffs in these two skills involved high ground reaction forces that were executed in an extremely quick and explosive manner. For example, time of execution of the landing and takeoff in jumping was close to 0.20 seconds and in sprinting it was approximately 0.10 seconds.

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Since one of the main objectives of the Soviet research was to develop practical methods of training to improve athletic performance, Verkhoshansky tackled the task of how these forces in explosive execution could be duplicated in an exercise. By doing exercises such as the depth jump, that he created, the athlete would enhance his ability in the takeoff and his resultant performance in the running or jumping event. He experimented with many different exercises but the depth jump appeared to be the best for duplicating the forces in the landing and takeoff.

The second version of plyometrics, seen to a very great extent in the United States, relates to doing any and all forms of jumps regardless of execution time. Such jumps cannot be considered truly plyometric (as described by Verkhoshansky) since the intensity of execution is much lower and the time required for transitioning from the eccentric to the concentric contraction is much greater. The term plyometrics became very popular with the publication of many books on the subject matter. It now appears impossible to go back to its original meaning and method of execution.

As a result, it is important to distinguish which type of "plyometric" exercise is used in order to determine its effectiveness and potential to receive the stated benefits. Understand that even though the name plyometrics is given to all jumps, not all jumps are plyometric.

There are literally thousands of potential circuit training exercises that can be used to develop a suitable routine.

Additionally, many exercises require little or no expensive equipment. With nothing more than a mat and a set of dumbbells, there is scope to develop dozens of routines, even one that is sport-specific.

The circuit training exercises below are useful for designing a classic circuit training routine i.e. the one that develops short-term muscular endurance. This type of strength endurance is important in many prolonged sports with intermittent bouts of activity, such as soccer and field hockey. See these sample circuit training programs that can be used by athletes who play multi-sprint sports.

These circuit training exercises can also be used by non-athletes to develop general fitness. In this respect, circuit training is very time efficient helping to develop strength and stamina in a single session. See these sample circuit training workouts for program ideas. Athletes can make use of these general workouts too in the off season for example.

Pure endurance athletes still require excellent strength endurance but the nature of their events requires a slightly different approach. See these sample circuit training routines for endurance athletes for more details.

Exercise selection is governed by the principle of specificity. The circuit training exercises selected must train movements that the athlete will perform during competition. A general circuit class you might expect to see in a gym will develop muscular endurance but it won't be specific to any particular sport.

The Wall Squat is a very simple but effective exercise to test the strength of the leg muscles, namely those of the quadriceps (upper thigh).

Prior to performing the wall squat leg strength test exercise, it's worth doing a few minutes of warm up exercises and stretches. As an example a man who is 43 years old, stayed in the squat position for 29 seconds. According to the chart, this would rate his leg strength as average.

Always remember to record your results so that you can monitor your progression. The lower body workout will help you develop lower body strength, which will greatly improve your leg strength the next time you take the test. It's good to perform this test with a partner who can assist with both timing and encouragement. At the same time your partner can make sure that your keeping good technique with your legs maintaining a 90 degree bend and your back fully against the wall. On completion of this exercise, you may find it difficult to stand, so either get your partner to help, or have a chair or suitable object to help you upright.

Spend a few minutes simply walking around so that you can get the blood flowing smoothly back through your legs before finishing with some simple Quadriceps Stretches.

MATERIALS AND METHODS

The intention of this study was to establish the impact of plyometric training and circuit training on leg strength among football players. Thirty male football participants studying different department of Maharshi Dayanand University, Rohtak were randomly chosen as subjects and their age ranged from 20 to 25 years. The selected subjects were randomly allocated into three equal groups of ten subjects each. The groups were circuit training group, plyometric training group and control group. During the training period, the experimental groups underwent their relevant training programme. Control group was not exposed any exact training separately from their standard curriculum. Moderate intensity (60-70%) of resistance was used in this experimentation. Leg power was selected as reliant inconsistent for this study. It was

deliberated by using leg lift with dynamometer. These are the exercise used as conflict push ups, half squat, push press, heel raises, power clean, leg curl, medicine ball push, sit ups, arm curl, squat jump. These plyometric training are used to execute this study for powering the lower body as drop jump, tuck jump, split jump, bounding, single leg hop, hurdling, medicine ball exercises, stepping and box jump.

DATAANALYSIS

Mean and standard deviation were considered for leg Power for each training group. And the data were examined by using analysis of covariance. If the ‘F’ value was originated to be important for adjusted post-test mean, Least Significant difference test was applied as post hoc test to resolve the important difference between the paired mean. Statistical implication was set to priority at 0.05 levels.

Table - 1
Analysis of Covariance on Leg Strength of Experimental Groups and Control Group

Test	CTG	PTG	CG	DF	‘F’ Ratio
Pre Test Means	76.89	76.37	75.13	29	1.12
Post Test Means	86.34	84.18	77.58	29	18.352
Adjusted Post Test Means	89.67	85.47	76.43	29	20.587

Significance at 0.05 level of confidence

Table – 1 show that the pre test mean of circuit training group, plyometric training group and control group are 76.89, 76.37 and 75.13 respectively. The F-Ratio is 1.12 for the pre test means and df 29 is required for significance at 0.05 level of confidence. The post test mean of circuit training group, plyometric training group and control group are 86.34, 84.18 and 77.58 respectively. The F-Ratio is 18.352 for the post test means and df 29 is required for significance at 0.05 level of confidence. The adjusted post test mean of circuit training group, plyometric training group and control group are 89.67, 85.47 and 76.43 respectively. The F-Ratio is 20.587 for the adjusted post test means and df 29 is required for significance at 0.05 level of confidence. The outcome of the study proved that there was a significant difference between the adjusted post tests mean of circuit training group, plyometric training group and control group on leg power at 0.05 levels. Since, three groups were evaluated, whenever they obtained ‘F’ ratio for adjusted post test was establish to be significant, the LSD test was used to initiate out the paired mean difference and it was presented in table II.

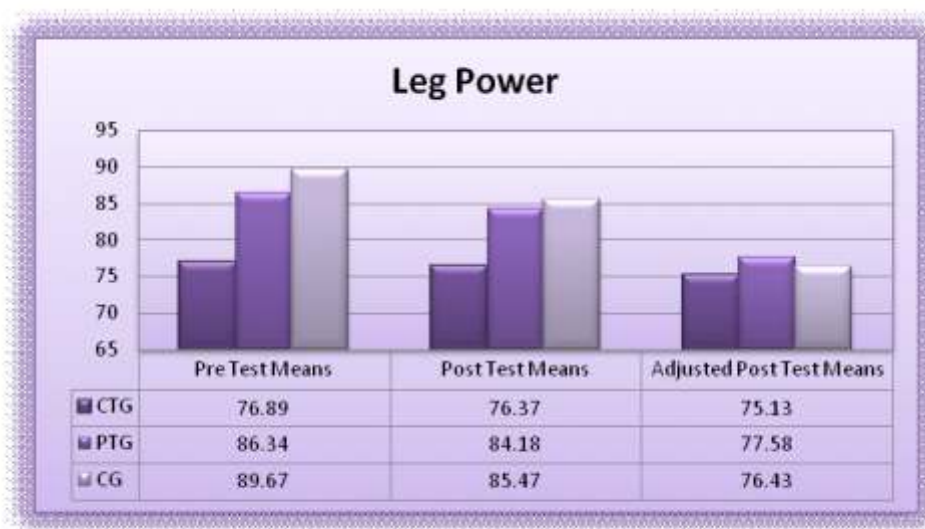
Table – 2
LSD Post Hoc Test for the Difference between Paired Means on Leg Strength

CTG	PTG	CG	Mean Difference
89.67		76.43	13.24
	85.47	76.43	9.04
89.67	85.47		4.20

Significance at 0.05 level of confidence

Table – 2 indicates that the adjusted post test means difference on leg power between circuit training group and control group, plyometric training group and control group are 13.24, and 9.04 respectively. These standards are higher which indicates significant difference at 0.05 level of confidence. The results of the study proved that there was a significant difference between circuit training group and control group and plyometric training group and control group.

Figure – 1
Analysis of Covariance on Leg Strength of Experimental Groups and Control Group



DISCUSSION

The circuit training group verified huge boost in leg power evaluate with the control group. Plyometric training is also assist to develop leg power at significant level. Many research studies publicized that the use of different training loads extract dissimilar training variation and further it specify that it also comprised the volume specific variation in leg power variable. Many research studies advise that circuit training may be precious for formative the physical variables such as leg power piercing out that circuit training three times per week is an effective as five times per week. The enlargement of leg power as a result is supported by the findings of George & Thomas (2011). The different training components (E.g. sets, repetitions, rest, intervals) could be controlled the training loads used from the most important issue that resolve the training incentive and the consequential training adjustment. From the results of the present study and literature, it is completed that the reliant variables such as leg power was significantly enhanced due to the modest intensity circuit training plyometric training.

CONCLUSION

The result of this study advised that circuit training and plyometric training modalities intention the leg strength. Any practical submission requires vigilant execution and personal conducting tests. In summary, the leg power can be enhanced during the age between 20 and 25 years of male students and the direction of reasonable concentration circuit training and plyometric training during the initial revision period. There was no significant difference between circuit training group and plyometric training group. From this study we can completed that circuit training is the top to get better leg power followed by plyometric training. Finally, the studies accessible in this review display that there was a significant development on leg power due to reasonable concentration circuit training and plyometric training as evaluate to control group.

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