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Effect Of Plyometric Training On Explosive Power Of Basketball Players

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Abstract:The study was designed to investigate the effect of Plyometric training on explosive power of Basketball players. For this purpose of the study (N=30) thirty male Basketball players were selected from mannar district their age group of 18 to 23 as subjects and divided into two groups of fifteen subjects each as experimental group and control group following random procedure. The experimental group underwent Plyometric training over a period of nine weeks where as control group did not participate in any of the training except their regular activities as per the curriculum. Explosive power was assessed before and after the experimental period for both the groups by using Sergeant jump. Independent 't' test was used to analyze the collected data. The results of this study showed that there was a significant improvement of explosive power on plyometric training group comparing than control group.

Keywords: Explosive power, Plyometric training and 't' test

INTRODUCTION:

Plyometric training improves strength, muscle power, coordination, and athletic performance. Numerous studies on plyometric training have demonstrated improvements in vertical jump height ranging from 4.7 to 15% that could be attributed to the enhanced coordination and muscle power after training. In contrast, a number of authors failed to report significant positive effects of plyometric on vertical jump height, and some even have reported negative effects(Viru 1995). However, the characteristics of a training program that achieves better gains are not clear the effects of plyometric training may differ depending on various subjects' characteristics, such as training level, gender, age, sport activity, or familiarity with plyometric training research studies that combine these variables in different ways sometimes lead to conflicting results. Other factors that seem to determine the effectiveness of plyometric training are program duration and training volume. Research studies have used numerous combination of duration, intensity, and volume characteristics therefore, the optimal combination of these factors for maximum achievement remains unclear. Research findings on the ideal box height to optimize plyometric training are also conflicting. Some authors suggest optimum the drop jump heights less than or more than 60 cm, because one may optimize maximal power output. Furthermore, inconclusive results also arise from studies that have used additional weight during plyometric exercises to maximize muscle power gains plyometric exercises also have been successful when combined with other types of training such as electro stimulation or aerobics. Despite the advantages of plyometric training, the principle issue of determining the optimal elements of a plyometrics program remains inconclusive.

METHODOLOGY

To achieve this purpose, thirty male Basketball players from mannar district level in Sri Lanka and were selected as subjects. Their age ranged between 18 to 23 years. They were divided into two equal group consisted of 15 subjects. Group I underwent plyometric training for three days per week for nine weeks and group II acted as control and did not participate in any special training apart from the regular activities. Explosive power is selected as criterion variable. These variables were assessed before and immediately after the training periods for the both the groups by administering sergeant jump. The collected data was statistically analyzed for significant difference, if any, by applying Independent 't' test. In all cases 0.05 levels was fixed.

TRAINING PROGRAM

Training program strats with 60% intensity and every two weeks once 5% intensity will be increased up to nine weeks. The following exercises are given
1.Side to side ankle hops 2.Standing Jump and reach 3.Spilit squat jump 4. Lateral Jump over Barrier 5. Tuck jump with knees up 6. Single leg bounding.

RESULTS

Table-I
PRE TEST SCORES ON EXPLOSIVE POWER OF PLYOMETRIC TRAINING AND CONTROL GROUPS

Variable	Experimental Group	Control Group	't'	p >value
Explosive Power	48.20	48.10	0.549	2.05
S.D	0.44	0.56		

In Significant table vaule 2.05 with df 28

From the table-I shows that experimental and control groups there is no significant difference. Obtained value is lesser than table value which is 2.05 with df 28 at level of significant 0.05.

Table-II
POST TEST SCORES ON EXPLOSIVE POWER OF PLYOMETRIC TRAINING AND CONTROL GROUPS

Variable	Experimental Group	Control Group	't'	p < value
Explosive Power	49.64	47.90	7.08*	2.05
S.D	0.60	0.73		

* Significant table vaule 2.05 with df 28

From the table-II shows that experimental and control groups there is significant difference. Obtained value is greater than table value which is 2.05 with df 28 at level of significant 0.05. Due to impact of plyometric training improves the explosive power.

FIGURE :1 BAR DIAGRAM SHOWING PRE TEST AND POST TEST SCORES ON EXPLOSIVE POWER CONTROL AND EXPERIMENTAL GROUPS

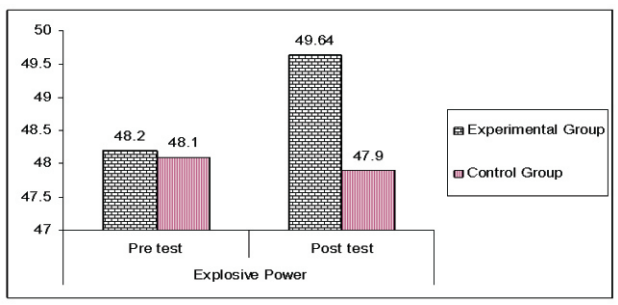

Figure –I showing means values of pre test and post test scores on explosive power. It clearly indicates after training program significantly improves explosive power on experimental groups.

DISCUSSION ON FINDINGS

Blakey, JB et.al.,(1987) established that plyometric training techniques were best for improving vertical jumping ability, positive energy production and elastic energy utilization. Plyometrics consists of the same muscle and connective tissues. Anderst, WJ (1994), Researchers have shown that plyometric training can contribute to the improvement in vertical jump performance, acceleration, leg strength, muscular power, increased joint awareness and overall proprioception .The results of the study indicate that the plyometric training group had significantly improved the explosive power as compared to control group. The dependent variables selected for this study was imported qualities for better performance in almost all sports and games. According to Brown, ME(1986) found that there was a significant improvement in speed explosive power and leg strength after plyometrics training. Luebbers, et.al, (2003) found that there was a significant improvement in vertical jumping ability due to plyometrics training. According to Brezzo and others (1988) plyometric training improved explosive power. Seenivasagam (1995) experimented and suggested that plyometric training improved leg strength and explosive power. Wagner and Kocak (1997), pointed out that significant improvement in anaerobic power, explosive power and speed was found due to plyometric training. Conroy (1992), examined and resulted that plyometric training improved speed, strength, power. Paul and Jeffrey (2003), plyometric training improved explosive power and anaerobic power.

CONCLUSIONS

It was concluded that significant improvement of explosive power plyometric training group.

It was concluded that better explosive power of plyometric training group comparing than the control group.

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