International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 7.328
Peer Reviewed Bi-Monthly
Vol.10 No.1 Sept – Oct 2022

Effect of Six Weeks Plyometric Training Program on Arm Strength among Baseball and Volleyball Players

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DOI- 10.5281/zenodo.7298917

Abstract:

The objective of this study was to examin.e the effect of six weeks plyometric training program and ability to improve the arms strength in baseball and volleyball players. A total no. of baseball 20 players, volleyball 20 players and control group 20 players selected by simple random sampling method from which participated in intercollegiate level served as subjects of Ahmednagar district. Study was restricted to six weeks plyometric exercise training program. The experimental group implement program to the players by the concerned proper instructions also pre & post test data collected. Statically analyzed by using analysis of variance (ANOVA) and group means were compared. The study concludes better improvement in arm strength of male baseball players compared than volleyball male players.

Keywords: *Plyometric Training, Baseball, Volleyball Male Players, Arm Strength.*

Introduction:

Plyometric refers to exercise that enable a muscle to reach maximal strength in as short a time as possible. Such exercise usually involved some form of jumping, but other modes of exercise exist. Plyometric exercise utilizes the force of gravity to store energy in the muscles (potential energy). This energy is utilized immediately in an opposite reaction, so the natural elastic properties of the muscle will produce kinetic energy. Elastic strength is the ability of muscles and connective tissues to rapidly exert a force in order to produce maximal power with linear, vertical, or combination movements (Baechle, 1994).

Baseball is a bat and ball sports played between two teams of nine players each, taking turns batting and fielding. In the baseball game must require the physical strength and fitness upper or lower body forms but in this research we focused the arms strength those vital in batters that time he bats used upper body arms strength to perform and pitchers to pitch ball to right direction similarly in that used arms strength. Volleyball players require well-developed muscular strength, power and endurance, speed, agility, and flexibility, and have a high level of jumping ability, fast reaction time and swift movements (She, 1999).

Material and Method:

The prime objective of this study was to find out "effect of six weeks plyometric training program on arm strength among baseball and volleyball players". In this research work used experimental method those implemented pre-test and post-test non equivalent group design was applied to testing the hypothesis. In this study Baseball 20 players, Volleyball 20 players and Control group 20 players aged 18-22 years selected by simple random sampling method from which participated in intercollegiate level served as subjects of Ahmednagar district. The study was selected the variables of arms strength. The selected subjects were conducted the pre and post test by data was measured by dynamometer hand strength test and used equipment stopwatch for measured variables. Six weeks plyometric training program which was given five days in a week was

implemented on male and baseball & volleyball players. After plyometric training program was conducted post test and obtained data collected. After collected data were statistically analyzed by using analysis of variance (ANOVA) and calculated means values were compared to examin.e the significant difference among baseball & volleyball players.

Plyometric Training Program

Exercise	Sets	Reps	Rest
Weeks 1 & 3			
General warm-up (8-12 minutes)			
Arm Plyometric:			
Chest Pass	2	8-10	1 min..
Vertical Toss	2	8-10	1 min.
Shoulder Plyometric:			
Dumbbell Overhead Press	2	8-10	1 min.
Shoulder Muscle Exercise	2	8-10	1 min.
Wrist Plyometric:			
Wrist Muscle Exercise	2	8-10	1 min.
Dumbbell Inversions	2	8-10	1 min.
Cooling-Down (5-10 minutes)			
Weeks 4 & 6			
General warm-up (8-12 minutes)			
Arm Plyometric:	2	8-10	1 min.
Vertical Toss	2	8-10	1 min.
Incline Push up depth jump	2	8-10	1 min.
Shoulder Plyometric:	2	8-10	1 min.
Dumbbell Overhead Press	2	8-10	1 min.
Standing Barbell Shoulder Press	2	8-10	1 min.
Wrist Plyometric:	2	8-10	1 min.
Dumbbell Inversions	2	8-10	1 min.
Cooling-Down (5-10 minutes)			

Before start training period, experimental group was given instruction about the plyometric exercises program, included demonstration and supervised practice.

Results of the study:

The obtained result was presented in the table no. 1 which used analysis of variance to compare the pre & post test mean difference among baseball and volleyball players.

Table no. 1, Statistical Analysis

Group	Baseball Players			Volleyball Players		
	Arm	Shoulder	Wrist	Arm	Shoulder	Wrist
Control	20.56±0.06	81.75±1.5	4.65±0.01	24.48±0.5	80.77±1.5	4.5±0.02
Exp Players	27.23±0.08	82.46±2.2	5.2±0.02	26.5±0.3	83.5±2.5	4.7±0.05
Exp Pre-test	29.50±0.1	86.96±5.20	5.8±0.03	28.8±0.45	87.5±2.4	5.3±0.06
Exp Mid-test	31.30±0.05	89.96±5.6	6.2±0.06	30.8±0.3	88.8±2.8	5.8±0.02
Exp Post-test	34.6±0.1	93.2±6.2	6.9±0.07	32.5±0.2	89.3±3.2	6.0±0.01

Values are given as mean ±SD for 20 players in each group. Values are statistically significant at 0.05 level of confidence. Pretest and mid test groups are compared with Post test groups. Post test shows that the values are significant at $p \leq 0.05$ levels.

Table no. 1 showed the effect of plyometric training program and improve strength in arms, shoulder and wrist in baseball and volleyball players in samples of

the Ahmednagar district there was significant change in performance on arm, shoulder and wrist strength of players. But better strength improve was found in post test of baseball players than volleyball players.

Discussion of findings:

In research work, implemented plyometric program and result shown improvement in arm strength of groups of players. The baseball players had better improvement after completion of the post test training. Hence in our study showed that baseball players show far better improvement in arm strength due to the effective planning and training programmes will help in designing a safe, effective and productive programme to help optimize performance.

Conclusion:

The researcher concludes that benefits of plyometric training on improved arm strength in baseball and volleyball players. Players use plyometric training to break the monotony of training but they can also improve their strength and explosive power to best performance while working to become more effective. In addition, our results support that improvement in arm strength can occur as such in a short duration of six weeks of plyometric training program efficient during the last preparatory phase before in-season competition for Players.

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