

Effect of Plyometric Training with Yogic Practices on Selected Skills Performance Variables of Intercollegiate Female Hockey Players

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Abstract: Field hockey is tough and demanding sport requiring high levels of endurance, speed and strength. This game is played on gravel, natural grass, artificial turfs, with a small hard ball. For the present study, forty female intercollegiate hockey players were selected as subjects who were the participants of Bharathiar University inter-collegiate tournaments. They were divided into two equal groups. Each group consists of 20 subjects. Group - I was underwent to Plyometric with yogic practices training (PTYPG), Group – II acted as control group. They didn't undergo for any specific training programme. The age of subjects were ranged from 18-25 years. The selected variables for the present study: dribbling control, shooting accuracy and overall playing ability. The selected variables were assessed by using standardized test. The data was collected before and after twelve weeks of training. The collected data was analyzed by using t-test. The level of significance was fixed at 0.05. The findings of the present study have strongly indicates that Plyometric with yogic practices training have significant effect on selected skills performance variables when compared to control group.

Keywords: plyometric, yogic practice, hockey, dribbling, shooting and playing ability.

1. Introduction

Plyometric type exercises have been used successfully by many athletes as a method of training to enhance power. In order to realize the potential benefits of plyometrics training the stretch shortening cycle must be invoked. This requires careful attention to the technique used during the drill or exercise. Plyometric training, as a power training that involves powerful muscular contractions in response to a rapid stretching of the involved musculature. These powerful contractions are not a pure muscular event; they have an extremely high degree of central nervous system involvement. The fast twist or white fiber is responsible for explosive type of muscular contraction. (Chu, 1996) states plyometric has undergone a considerable metamorphosis over the past few years. New ideas and techniques will lead the reader into the second generation of Plyometric training. The unique requirements of field hockey including dribbling the ball, moving quickly in a semi-crouched posture and superimpose the work load demanded by the game requires heavy aerobic demands on players and requires them to expand energy at relatively high level (Boyle *et al.*, 1994). Skills play an increasingly vital role in the quest for victory of any game especially hockey. Players of the teams of National and International repute to perfect their skills and change them into a highly refined and sophisticated art. They constantly keep abreast of the developments in the field of hockey and work towards better performance. There are a number of skills involved in the game of hockey like dribbling, hitting, scooping, passing and tackling which play a vital role in the success of modern hockey. Skill sets have their own importance and applications to different situations. Good skill helps the sports person to make economical and optimum use of his physical abilities. The sports person learns the skill and gets a mastery over it under the

conditions specific to their sport (Ian Taylor and David Vear, 1988).

2. Methodology

For the purpose of the present study, forty female intercollegiate hockey players were forty female intercollegiate hockey players were selected as subjects who were the participants of Bharathiar University inter-collegiate tournaments. They were divided into two equal groups. Each group consists of 20 subjects. Group - I was underwent to Plyometric with yogic practices training (PTYPG), Group – II acted as control group. They didn't undergo for any specific training programme. The age of subjects were ranged from 18-25 years. The researcher had been selected the following variables for the present study: skill performance variables namely dribbling control, shooting accuracy and overall playing ability. The selected variables were assessed by using standardized test. The data was collected before and after twelve weeks of training. The collected data was analyzed by using depended t-test. The level of significance was fixed at 0.05.

2.1 Experimental Design

The randomized pre test-post test control group design was adopted in this study.

3. Training procedure

The progressive Plyometric training programme used in this study was based on the findings from previous investigations as well as observations from conditioning coaches and sports medicine professionals (Chu *et al.*, 2006; Hewett *et al.*, 1999; Myer *et al.*, 2005). Each training session ended with 15 minutes of warm-down activities, during the

warm - down the yogic practices of asanas like patchimottanasana, parivrtta trikonasana, dhanurasana, pada hastasana, pranayama, meditation, makarasana and savasana were inducted to have better relaxation of muscles and mind. These yogic practices entirely changed the mental attitude and self actualization that contribute to better development of physical fitness components like strength, power, speed, agility, anaerobic power and playing ability of the female hockey players. The duration of each exercises session was 90 minutes. Training programme consists weekly twice over a period of twelve weeks. Prior to the performance of the Plyometric exercises, subjects performed one or 2 sets of 6 to 10 repetitions on two or three preparatory exercises (e.g., push - up, body weight squat) which prepared them for the demands of more advanced training. The Plyometric training programme progressed from level one (week one and four; 1-2 sets of 10 repetitions) to level two (week five and eight; 1-2 sets of 8 repetitions) and finally level three (week nine and twelve; 1-2 sets of 6 repetitions). During the weeks of one and two; five and six; and nine and ten; subjects performed only 1 set of each exercise because the Plyometric training programme stressed proper technique performance. During the weeks of three and four; seven and eight; and eleven and twelve subjects performed 2 sets of each exercise. Subjects performed 7 Plyometric exercises during the weeks of one and four; 8 Plyometric exercises during the weeks of five and eight; and 9 Plyometric exercises during the weeks of nine and twelve. A light weight medicine ball (1-2 kg) was used for upper body medicine ball training.

4. Results and Discussion

Table 1: Significance of mean gains /losses between pre and post test of PTYPG and CG on selected skill performance variables of intercollegiate female hockey players

Variables	Pre test Mean \pm SD	Post test Mean \pm SD	Mean Diff	SE	N	't'
Plyometric with yogic practices training Group (PTYPG)						
Dribbling Control,	13.37 ± 0.63	13.02 ± 0.85	0.35	0.09	20	3.73*
Shooting Accuracy	46.55 ± 1.19	49.55 ± 2.33	3.00	0.53	20	5.68*
Overall Playing Ability	2.60 ± 0.60	3.40 ± 0.68	0.80	0.14	20	5.81*
Control Group (CG)						
Dribbling Control,	13.36 ± 0.62	13.32 ± 0.64	0.03	0.02	20	1.89
Shooting Accuracy	46.85 ± 1.84	46.90 ± 2.10	0.05	0.27	20	0.19
Overall Playing Ability	2.60 ± 0.60	2.65 ± 0.59	0.05	0.05	20	1.00

* Significant at 0.05 level (2.09).

The above table shows that the obtained 't' ratio for experimental group (PTYPG) were 3.73 for dribbling control, 5.68 for shooting accuracy and 5.81 for overall playing ability. The obtained 't' ratio on the above said criterion variables were found to be statistically significant since they were higher than the required critical value of 2.09 at 0.05 level of significance for degrees of freedom 19.

The obtained 't' ratio for control group (CG) were 1.89 for dribbling control, 0.19 for shooting accuracy and 1.00 for overall playing ability. The obtained 't' ratio on the criterion variables were found to be statistically not significant since they failed to reach the required critical value of 2.09 at 0.05 level of significance for degrees of freedom 19.

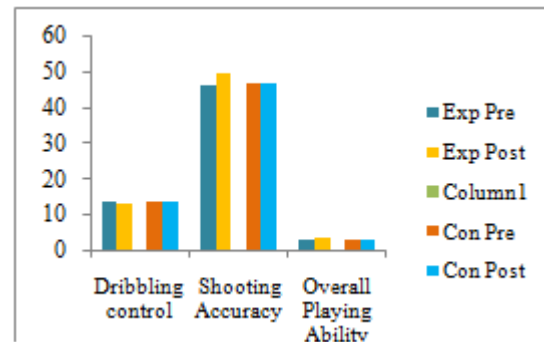


Figure 1: Bar diagram showing the mean values of pre-test and post-test of PTYPG and CG on selected skill performance variables

5. Discussion of Findings

After collection of data, appropriate statistical analysis has been done. The results, in general, support the theory that Plyometric training with yogic practices improve skill performance variables namely dribbling control, shooting accuracy and overall playing ability of inter collegiate female hockey players. We found that experimental group improved significantly which is finding between pre to post test. From the findings it was evident that the treatment given to experimental group found to enhance the hockey skills performance of in comparison to control group for pre to post (12 weeks) test because the tabulated value was found approximately more than required value to be significant. It was observed that the Plyometric training with yogic practices significantly improved in above said variables.

6. Conclusions

Based on the findings and within the limitation of the study it is noticed that practice of Plyometric training with yogic practices improve skill performance variables namely dribbling control, shooting accuracy and overall playing ability of inter collegiate female hockey players. It was seen that there is progressive improvement in the selected criterion variables of experimental groups of intercollegiate female hockey players after twelve weeks of training programme. There was no significant improvement found in above said variables of control groups, while comparing pre and post test mean score following conclusion were drawn. The rate of improvement in skill performance variables namely dribbling control, shooting accuracy and overall playing ability was higher for the experimental groups in comparison to control groups due to Plyometric training with yogic practices.

7. Future Scope

In completion of the present study, the investigator felt that the following aspects of the feature work can be carried out.

In the present study, the Plyometric Training with Yogic Practice may be combined with Resistance Training with Yogic Practice and speed training. In future the Resistance Training with Yogic Practice was combined with Plyometric Training with Yogic Practice. Similar study may be conducted for short duration to find out various skills and performance related fitness variables of hockey players. The study can be conducted on different types of hockey fields like synthetic turf and natural turf.

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