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Effect of weight training on playing ability of hockey players

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Abstract

The purpose of the study was to find out the effect of weight training on playing ability of Hockey players. To achieve this purpose of the study, twenty four (24) Inter-collegiate level Hockey players were selected as subjects by using random sampling technique from Birla Campus, HNBGU, Srinagar Garhwal, Uttarakhand. The selected subjects were aged between 18 to 27 years. They were divided into two equal groups of twelve each (6 male and 6 female), Group-I underwent weight training and Group-II acted as control that did not participate in any special training apart from their regular curricular activities. The subjects were tested on a criterion variable i.e. Playing ability performance prior to and immediately after the training period. Playing ability was determined by using Munjal's Hockey skill test having variables: shooting, rolling, push, shuttle rolling, hit, sprint, scoop, pass and flick. Analysis of Covariance was used to compare the Effect of weight training on playing ability of Hockey players of experimental and control group. Level of significance was fixed at 0.05 level. The result of the present study has revealed that there was no significant effect of 6 weeks weight training on playing ability among the experimental and the control group of hockey players of inter-collegiate level. The findings of the study may be attributed to the fact that the focus of training should not be restricted only on weight training, however, the skill component of training should also be a part of comprehensive training programme for the development of speed with ball and accuracy of the players with the current demand with the game. Consequently, it is considered to be important to include long-term training sessions to make more significant effect on the performance of the Hockey players.

Keywords: Strength training, hockey, playing ability

Introduction

The word 'training' has been a part of human language since ancient times. It denotes the process of preparation for some task. This process invariably extends to a number of days and even months and years. The term 'training' is widely used in sports. (Hardayal Singh, 1991)^[2]. Sports training is a process of sports perfection directed by scientific and pedagogic principles and aims at leading a sportsperson to high and top-level performance in a sport or an event by means of planned and systematic improvement of performance capacity and readiness of performance. (A.K. UPPAL, 2001)^[1].

Athletes vary in their talent to perform certain exercises. Talent is mostly genetic. Inherited strength, speed and endurance play an important role in reaching high level of performance and are called dominant motor or bio-motor abilities. Motor refers to movement, the prefix bio-illustrates the biological importance of these abilities. (Plowman. A. Sharon and Smith. L. Denise, 1997)^[3].

In this modern era, Hockey is constantly evolving as a big sport world-wide. This is well known to all, how scientific methods of training used by coaches and sports scientists regularly to enhance the sports performance of an athlete. As field hockey is playing in the synthetic turf from the last 6 decades, it consistently raised the standard of game by facilitating more interesting formats in it and many technical and tactical aspect of coaches has been changed by this evolution of new turf. If we talked about the modern concept of field hockey, this is now more demanding for players as well as coaches. "Total hockey" is the term used by coaches usually to build their team strength. The concept of total hockey means that every player must play each corner of the field according to the situation. Instead of, some years ago players were used to play in their separate and fixed positions, and we can say coaches suggested them to

play in a specific position. By these changes, there are numerous factors has been influenced to coaches to coach their players as challenges i.e. fitness level, playing ability etc. Gradually from past to present power is majorly dominating as pre-requisite in training. According to the new format of duration in field hockey, whole game is too intensive now, "total hockey" with higher intensity leads to more efforts. Some coaches say that, total hockey gave his player's a lot of freedom to play on the field without losing the game. Now a day most of the teams are willing to play in this way. Although in today's fast and intensive field hockey, it demands the high level of fitness. Today not only just one fitness component is essential for the game, but the overall all fitness is demand according to modern coaching concepts; like total hockey. Today the intensity of the game is not just required in any phase of time but from its beginning to the last second of the game. Dominantly strength is a requisition for the game, it needs to be maintained and survive in the prolonged game, where one need to do attack as well as defence simultaneously very quickly. The team must Building up the attack and defence with the same strength and power and there is a need of fine coordination in muscle contractions to do any skill under the match situation.

Methodology

The purpose of this study was to Compare the Effect of weight training on playing ability of Hockey players, to achieve the objective of the study, the subjects were selected from H.N.B.G.U. Srinagar Garhwal, who were the members of Intercollegiate hockey team in this session and earlier. Total 24 subjects (12 male and 12 female) were selected, aged between 18-27 years. The study was delimited to the male and female Intercollegiate hockey players of H.N.B.G.U. Srinagar Garhwal. Munjal's hockey skill test was used to measure the playing ability of hockey players. the Munjal's hockey skill test having the following test batteries.

1. Shoot
2. Rolling and dribble
3. Push
4. Shuttle
5. Hit
6. Sprint
7. Scoop
8. Pass
9. Flick.

For the training purpose the study was delimited to weight training of 6 weeks, for this the exercises were designed while keeping the various body parts in the mind which are essential for hockey players and the exercises were as following:- Bench press, Rowing, Pull ups, Wrist curl, Lateral pull down, Chest press, Leg press, Calf raise, Leg curl, Bent knee sit-up, Leg extension, Full squat. The training protocol used was four days a week for first 4 weeks, where 2 days were fixed for upper body exercises and 2 days for lower body. and 3 days a week for last 2 weeks, where whole body exercises were done each day. One training session a day of 1 hour was followed throughout the training. After every 2 week the repetitions were decreased, circuits were increased, speed of the movement increased in the 3rd and 4th week, where as in the last 2 week speed of movement was decreased, intensity was also increased gradually, the recovery between stations and between circuits were decreased in the 3rd and 4th week and was maintained in the last 2 weeks. Various descriptive and inferential statistics were applied. Under descriptive statistics mean, standard deviation, mean deviation and range were determined. In order to find out the significant effect of strength training on experimental and control group, ANCOVA was applied. The level of significance was set at 0.05 level.

Results

Table 1: Pre-Tests of Between-Subjects Effects Dependent Variable: Hockey playing ability

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
group * pre hockey playing ability	23.766	1	23.766	2.188	.155
Error	217.281	20	10.864		
Total	40337.500	24			

Table 2: Post Tests of Between-Subjects Effects Dependent Variable: Hockey playing ability

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1776.411 ^a	2	888.206	77.380	.000	.881
Intercept	5.467	1	5.467	.476	.498	.022
Post hockey playing ability	1764.370	1	1764.370	153.712	.000	.880
Group	2.264	1	2.264	.197	.661	.009
Error	241.047	21	11.478			
Total	40337.500	24				
Corrected Total	2017.458	23				

Table 3: Estimated Marginal Means

Group	Pre-test mean	Post-test mean	Adjusted Post-test mean
Experimental	39.7083	40.6667	40.266 ^a
Control	38.8750	39.2500	39.651 ^a

A one-way analysis of covariance (ANCOVA) was conducted. The independent variable, type of training, included two levels: Experimental and Control. The dependent variable was the hockey post playing ability and the covariate was the hockey playing ability before treatment.

A preliminary analysis evaluating the homogeneity-of-slopes assumption indicated that the relationship between the covariate and the dependent variable did not differ significantly as a function of the independent variable, $F(1, 20) = 2.188$, $p = .155$, partial effect size = .099. The ANCOVA was not significant, $F(1, 21) = .197$, $MSE = 11.478$, $p > .05$. The strength of relationship between the group factor and dependent variables was very weak, as assessed by a partial effect size, with the playing ability factor accounting for 0.9% of the variance of the dependent variable, holding constant the pre test of hockey playing ability.

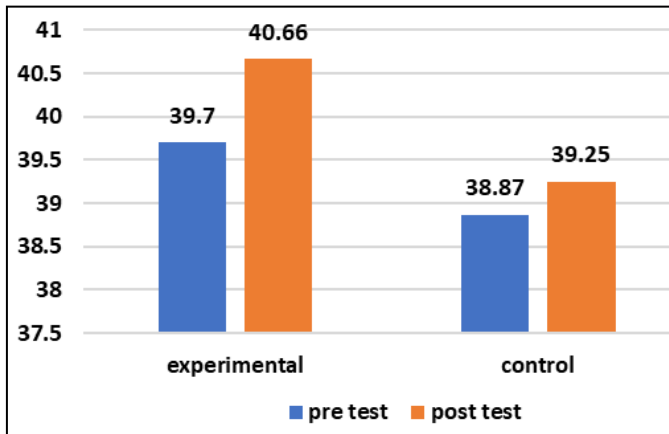


Fig 1: Mean difference of pre and post hockey playing ability

Discussion

The Findings of the study showed that there were insignificant differences on playing ability between Experimental and control group as in the Munjal's Hockey skill test, the most of the test batteries like Shoot, Push, Hit, Pass, Flick, are mainly related to the accuracy and strength is not the main dominating component whereas other test batteries like rolling and dribbling, shuttle, Sprint and scoop were more strength and speed dominating, and here the playing ability was measured on the comparative score of all the test batteries of Munjal's Hockey skill test, which shows no difference in playing ability of control and experimental group. The strength training only improves the strength but don't contribute in accuracy.

We need to made a comprehensive training protocol to develop the playing ability of Hockey players that should be comprise of skill training and other physical fitness component to see the significant difference among the control and experimental group.

The size of the sample and the level of the players can also be the reason of getting insignificant difference between them. As at the inter collegiate level the playing ability or the skill level of all the players are more or less at the equal level, if the same study would have been done at Senior national or International level players there might me significant difference between the control and experimental group.

Most of players of the control and the experimental groups were the part of the Physical Education department who were following there regular class schedule where they were involved in other physical activities which would have its effect in the result of the study.

Conclusion

There was no significant difference in playing ability between the experimental and the control group.on the basis of the finding of present study it is concluded that 6 weeks of weight training programme did not affect playing ability of hockey players, as strength is developed through weight training and strength is not the only component to contribute playing ability of hockry players because Hockey requires good aerobic fitness and endurance for sustained effort. Hockry is an extremely reactionay sport with split second decision making that comes at a ver high speed.

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