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A comparative study of effect of plyometric training and weight training on the skills of hockey players

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Abstract
Aim. To find out the comparative effect of plyometric training and weight training on the skills of Hockey players, twenty (N=20) men subjects were selected from R.P. Physical Teachers Training College, Bhinder, Udaipur. They were equally divided randomly into two groups. Group A underwent weight training programme, while Group B underwent plyometric training programme for 3 alternate days per week for a total period of six weeks. The data collected on the shooting and throw-in skills from the subjects before and after the training as pretest and post test scores were statistically treated by applying dependent't' test. The results revealed that both the training methods were effective in improving the performance in the selected skills of Hockey players.

Keywords: plyometric, Hockey, players, plyometric

1. Introduction

Training is a programme of exercise designed to improve the skills and to increase the energy capacities of an athlete for a particular event. In physical education field, various types of training methods are given to develop the motor abilities. Types of training are plyometric training, interval training, weight training, pressure training and Fartlek training. The use of various training methods to improve muscular function is widespread in society. Previous research had demonstrated that heavy weight training increases the ability to produce maximal force. Alternatively, plyometric, in the form of dynamic depth jumps, where an individual steps of a box 20 to 80 cm in height and performs an explosive vertical jump has been reported to enhance an individual's ability to rapidly develop force.

Plyometrics was first known as "jump training". Fredwit, an American track and field coach first coined the term plyometrics. Weight training is concerned with improving the condition of the body in terms of strength, power and endurance through the repetitive movements against a resisting load of some kind.

The game of Hockey requires lot of strength and skill. It is both an art and science. It involves techniques of running, passing, tackling, kicking, blocking, heading, jogging and dribbling. All these activities have to be performed at great speed. For the purpose of the study the skills of shooting and throw-in were analyzed. The relative dependence of these skills on strength was the reason why this study was taken up.

Plyometric Training

Plyometrics is a form of intense training that involves the use of a stretch and contraction sequence of muscle fibers to generate great strength at a high speed. With this type of training session, you will improve your overall power and explosiveness.

Plyometrics Definition

A type of exercise training that uses speed and force of different movements is called "Plyometrics". Plyometric exercises are performed in order to build muscle power. Plyometrics training can improve your physical performance and ability to do different activities. Different types of exercises for example, running, jumping, throwing, push-ups, kicking etc., can included in the Plyometrics exercises. Professional athletes usually use plyometrics as a part of their routine training but plyometric exercises can be performed by anyone. People who are in physical rehab after an accident or injury use plyometrics to get back into good shape and physical function.

Weight Training

Weight training is a type of strength training that uses weights for resistance. By creating a stress to the muscles performed with free weights (e.g., barbells and dumbbells) or by using weight machines, these exercises will enable muscles to be activated and get stronger. Effective weight training depends on proper technique. You might learn weight training techniques by watching friends or others in the gym — but sometimes what you see may not be safe or truly effective. Incorrect weight training technique can lead to sprains, strains, fractures or other painful injuries that hamper your weight training efforts. For safety reasons, it is advisable for new members to schedule sessions with a personal trainer before embarking on your weight training program. By learning proper techniques and the variety of training equipment, you can decide the exercises you enjoy most and suited to your fitness needs. Your trainer will assist you in creating the most effective and well-balanced training program for yourself.

Methodology

Twenty (20) men students (N = 20) of R.P. Physical Teachers Training College, Bhinder, Udaipur were selected

At random from a group of students who were not undergoing any special training other that the regular college physical activity. The subjects were aged between 22 and 25 years. They were equally divided into two groups (n = 10). Group A was given the plyometric training and Group B weight training. The training was given 3 days a week for six weeks. Each section lasted for 45 minutes from 6 to 6.45 am. Shooting ability was assessed by using General Hockey Ability Test and long throw-insimilar to the actual throw-in situation was chosen as the test for throw-in ability. The subjects were tested one day prior to and after the training programme to get the pre and post test scores.

Analysis of Data and Results of the Study

In order to find out the significant difference between the pretest and post test data of the experimental groups, dependent't' test was applied. The details of the statistical analysis is given in Table – 1

Table 1: Mean Comparison of Shooting Ability and Throw in Ability of Weight Training and Plyometric Training Group

Group Pre-test	Sum of Post-test Scores	Sum of Test Scores	Post Scores	D2 Value	Obtained 't' Value	Tabulated 't' Value
WTG Shoting Ability	170	390	220	5736	697*	
PTG Shooting Ability	64	184	120	1672	7.47*	
WTG Throwin Ability	182.88	209.41	26.53	90.23	5.64*	
PTG Throwin Ability	172.09	198.85	26.75	97.28	5.01*	

Table 1 shows that the plyometric training and weight training programme had a significant effect in improving the performance in the shooting and throw-in ability skills in soccer. The 't' value for the plyometric training group and weight training group as far as shooting performance was concerned, was 7.47 and 6.97 and in the shooting performance the 't' value was 5.01 and 5.64, respectively which was more than the tabulated value of 2.26.

The above findings are substantiated by the findings of Diallo, E. Dore and Lehnhard Robert, A. However, when the percentage of effect was calculated plyometric training proved better to that of weight training in developing the shooting ability and vice-versa for developing the throw-in ability. A probable reason could be that the nature of plyometric drills are such that they involve more of the larger muscles of the lower body which in turn could have caused the relatively better performance in the shooting ability than in the throwin ability.

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