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"EFFECTS OF LADDER TRAINING ON SELECTED MOTOR FITNESS VARIABLES AMONG HOCKEY PLAYERS"

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Abstract

The purpose of the study was to find out the effects of ladder training on selected motor fitness variables among twenty men hockey players from Bangalore city university were selected randomly as subjects. The age of the students ranged from 18 to 25 years. The selected subjects were divided into two groups. Group A underwent ladder training, Group B acted as control group. The experimental group was subjected to the training for three days in a week for the period of 8 weeks. The motor fitness variables namely speed and agility were measured by 50 yards dash and shuttle run. The Data were collected from each subject before and after the training period and statistically analyzed by using dependent't' test and analysis of covariance (ANCOVA). It was found that there was a significant improvement in ladder training group on motor fitness variables namely speed and agility among women handball players.
Key Words: Agility ladder training, Speed, Agility, 50 yards dash and Shuttle run.

Introduction

The ladder is a time-tested and proven effective tool for improving our foot work. The training effect is similar to jump rope, but with several advantages. First, agility ladder training is a multi-directional**.** In sports, we are not staying in one spot. We are moving forward, sideward and sometimes backwards. Second, our feet are also allowed to move independently in more complex patterns than a jump rope allows. And third, the cycle time can be increased greatly, because we are not limited by the speed of the rope turn. The end result is that we can train our feet to move quickly through complex footwork patterns. The benefits to any ground-based sport are huge. Training on a ladder is simple. We run through the ladder in a specified pattern as fast as possible. If we step on a rung or fall out of the pattern, we have to start over. It sounds easy but it's not! The simplest pattern is one foot in each rung. More complex patterns involved moving our feet inside and outside of the rungs. Our feet will move faster than a chef's knife chopping carrots. And don't worry, the included training guide will teach us all the patterns we need to know.

Ladder training will improve our speed, coordination, timing and balance and also it will set our calves on fire. We are not a muscle isolationist, but it is seriously effective calf training because this engages the fast twitch muscles. Olympic lifts, sprinting and other power training will help our move large distances quickly and that is a very important component of sports movement. Agility ladder training will add precision to those last few steps that get our body into perfect position. The importance of quick adjustment steps cannot be understated. They are like putting in golf. Adding it to our workout program is simple. We can throw it in as a warm-up. It elevates our heart rate and awakens our CNS. We can add it into any workout where we might

normally put jump roping. Or we can place the ladder training at the end for a nice finisher. We only need 3-5 minutes a couple times a week to improve. After only a few weeks of training, we will notice significant improvements in our movement quality**.**

Fitness is an essential component in the concept of wellness which might be defined as persistent endeavour to achieve highest probability for total well-being. The basic concern is human movement, primarily in the sense of larger movements rather than the more minutes or finer movements of body. More specifically, physical education is concerned with the relation between human movement and other areas of education that is, with the relationship of the body's physical development to the mind and soul as they are being developed. This concern for the effect of physical development and other areas contributes to the uniqueness broad scope of physical development for the broadest possible view of that field.

A well-balanced athlete has good coordination and control when performing sports actions. When a player absorbs a hit in football or hockey, it is clear that maintaining balance is difficult. Air resistance, friction, and gravity also affect how well an athlete can maintain balance. The way in which an athlete resists and handles these outside forces is called stability. The better and more sports persons, specifically athletes train their bodies, the more balance and stable they will be during sports performance. And in the recent years the term that is very much related to balance is proprioception.

The term components of physical fitness refers to the several key components required to facilitate quality overall fitness. In most traditional circles, there are considered to be five general components of fitness: cardio respiratory Agility, coordination, flexibility, and body composition, although healthy body composition is most often a by-product of the other components, and is therefore not recognized in some circles as an actual "component" of fitness. Following the five general components of fitness are the components of "motor" fitness, which most affect athletic performance. These include muscular power, speed, balance, coordination, accuracy, and agility. Reaction time is also considered by some to be a component of motor fitness; however, some also contend that it is a type of speed, i.e. "reaction speed". Improvements in endurance, stamina, strength, and flexibility come about through conditioning/training. Training refers to activity that improves performance through a measurable organic change in the body. Concurrently, improvements in coordination, agility, balance, and accuracy are developed through practice. Practice refers to activity that improves performance through changes in the nervous system. Power and speed are adaptations of both training and practice.

Motor learning and motor performance are inextricably linked to sensation. As a motor task is practiced, the individual learns to anticipate and correct or modify movements based on sensory input organized and integrated by the central nervous system (CNS). The CNS uses this information to influence movement by both feedback and feed forward control. Feed back control uses sensory information received during the movement to monitor and adjust output. Feed forward control is a proactive strategy that uses sensory information obtained from experience. Signals area sent in advance of movement allowing for anticipatory adjustments in postural control or movement. The primary role of sensation in movement is to guide selection of motor responses for effective interaction with the environment and adapt movements and shape motor Programs through feedback for corrective action. (Susin B.O Sullivan2007)

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Success in field hockey is often associated with speed, but balance and quick feet, or agility, are the most important physical attributes to possess. Little can do to improve your innate sprint speed, but balance and foot agility can be improved significantly through practice. Proper body balance is controlled by the head, feet, and hands with the stick. When these extremities are in balance your body is ready to move quickly and skilfully. It is essential to have control of the body, feet, and stick before attempting to perform skills rapidly. Rushing your execution of hockey techniques will only promote mistakes, which reflect a lack of emotional balance as well as a lack of balance. Quickness is specific to the hockey skill being performed. The successful hockey player must seed a point of balance in her relationship to the ball with every offensive and defensive technique.

Like the golfer who attempts to prefer her body posture before swinging the club, the field hockey player must also prepare the body for performing skills, unlike the golfer who has plenty of time to position her feet, head and hands before striking the ball, a hockey player usually moving or running when performing a skill, whether you are passing, receiving, dribbling or tackling. The body must be momentarily in control before any skill can be performed successfully. Balance is closely related to footwork, which is basic to all fundamental hockey skills. Effective footwork allows starting, stopping and changing direction with quickness and balance. The footwork also prepares the body to perform skills. Good footwork is important to all the attack roles and defence roles in Hockey.

Purpose of the Study

The purpose of the study was to find out the "Effects of Ladder Training on Selected Motor Fitness Variables among university men Hockey Players**."**

Hypothesis

1. There would be a significant improvement on speed and agility due to ladder training programme among university men Hockey Players.
2. There would be a significance difference between ladder training group and control group on speed and agility among university men Hockey Players.

Methodology

The purpose of the study was to find out the effects of ladder training on selected motor fitness variables among university men Hockey Players from Bangalore city University. Were selected randomly as subjects. The age of the students ranged from 18 to 23 years. The selected subjects were divided into two groups. Group A underwent ladder training, Group B acted as control group. The experimental group was subjected to the training for three days in a week for a period of 8 weeks. The motor fitness variables namely speed and agility were measured by 50 yards dash and shuttle run. The data were collected from each subject before and after the training period and statistically analyzed by dependent't' test which is used to find out the significant improvement on selected criterion variables and Analysis of Covariance (ANCOVA) was used to find out the significant difference between the experimental and control groups on each variables separately. All the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Analysis of the Data

The effects of independent variables on selected speed and agility were determined through the collected data by using appropriate statistical techniques and the results are presented below. The analysis of dependent't' test on the data obtained for speed and agility of the pre-test and

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post-test means of Experimental group and control groups have been analyzed and presented in table I.

Table –I
The Summary of Mean And Dependent'T' Test For The Pre And Post Tests On Speed And Agility Of Experimental group And Control Groups

Variables	Name of the test	Experimental group	Control group
Speed	Pre test mean	8.54	8.52
	Post test mean	7.60	8.51
	't'test	**7.12***	0.62
Agility	Pre test mean	12.42	12.47
	Post test mean	11.53	12.44
	't'test	**9.24***	0.22

* Significant at 0.05 level

The Table **I** show that the pre-test mean value of motor fitness variables namely speed and agility in Experimental group and control group are 8.54 & 8.52 and 12.42 & 12.47 respectively and the post test means are 7.60 & 8.51 and 11.53 & 12.44 respectively. The obtained dependent t-ratio values between the pre and post test means of speed and agility in Experimental group are 7.12 and 9.24. The obtained dependent t-ratio values between the pre and post test means of speed and agility in control group are 0.62 and 0.22 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.15. Since, the obtained't' ratio value of experimental group is greater than the table value, it is understood that Experimental group had significantly improved the speed and agility. However, the control group has not improved significantly because the obtained't' value is less than the table value, as they were not subjected to any specific training.

The analysis of covariance on speed and agility of Experimental group and control groups have been analysed and presented in Table II

Table – II
Analysis Of Covariance On Speed And Agility Of Experimental group And Control Groups

Variables	Adjusted post test means		Source of variance	Sum of squares	DF	Mean squares	Obtained 'F'Ratio
	Experimental group	Control group					
Speed	7.62	8.53	Between	9.015	1	9.015	**15.28***
			Within	0.035	17	0.59	
Agility	11.56	12.46	Between	16.20	1	16.20	**25.08***
			Within	0.038	17	0.646	

*Significant at .05 level

The table II shows that the adjusted post test means of speed and agility of Experimental group and control groups are 7.62 & 8.53 and 11.56 & 12.46 respectively. The obtained 'F' ratio value of speed and agility are 15.28 and 25.08 which are higher than the table value of 4.21 with df 1 and 17 required for significance at 0.05 level. Since the value of F- ratio is higher than the table value, it indicates that there is significant difference among the adjusted post test means of Experimental group and control groups on selected variables namely speed and agility.

The results of the study showed that there was a significance difference between the adjusted post test mean of agility ladder training group and control group on speed and agility among men hockey players.

Conclusion

1. There was a significant improvement on speed and agility due to the effects of the ladder training among college men hockey players.
2. There was a significance difference between ladder training group and control group on speed and agility among college men hockey player.
3. Finally it was concluded that ladder training group is better than control group. Hence I recommended that physical education experts and coaches should give due to the importance of ladder training which helps the athlete to do better performance in sports events.

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