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Effect of Plyometric Exercises on Arm Strength and Leg Strength among Higher Secondary School Level Cricket Players

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Abstract

The purpose of the study was to find out the effect of plyometric exercises on selected arm strength and leg strength among higher secondary school level cricket players. The selected 30 subjects were divided in to two groups, namely experimental group and control group. Each group consists of 15 players and each the subjects were pre tested for their arm strength and leg strength. The data collected from the subject on selected variables was statistically analyzed by using 't' ratio, 0.05 level of confidence was fixed to test the level of significance. It was concluded that there was a significant improvement in Arm strength and leg strength among Higher Secondary School, cricket players due to plyometric exercises.

Keywords: Plyometric Exercises, Arm Strength, Leg Strength.

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Introduction

The game of cricket has a known history spanning from the 16th century to the present day, with international matches played since 1844, although the official history of International Test Cricket began in 1877. During this time, the game developed from its origins in England into a game which is now played professionally in most of the Commonwealth of Nations. No one knows when or where cricket began but there is a body of evidence, much of it circumstantial, that strongly suggests the game was devised during Saxon or Norman times by children living in the Weald, an area of dense woodlands and clearings in South East England that lies across Kent and Sussex. In medieval times, the Weald was populated by small farming and metal-working communities. It is generally believed that cricket survived as a children's game for many centuries before it was increasingly taken up by adults around the beginning of the 17th century. It is quite likely that cricket was devised by children and survived for many generations as essentially a children's game. Adult participation is unknown before the early 17th century. Possibly cricket was derived from bowls, assuming bowls is the older sport, by the intervention of a batsman trying to stop the ball from reaching its target by hitting it away. Playing on sheep-grazed land or in clearings, the original implements may have been a matted lump of

sheep's wool (or even a stone or a small lump of wood) as the ball; a stick or a crook or another farm tool as the bat and a stool or a tree stump or a gate (e.g., a wicket gate) as the wicket.

A number of words are thought to be possible sources for the term "cricket". In the earliest known reference to the sport in 1598 it is called cricket. The name may have been derived from the Middle Dutch *crick* meaning a stick or the Old English *cricc* or *cryce* meaning a crutch or staff. Another possible source is the Middle Dutch word *crickstoel*, meaning a long low stool used for kneeling in church and which resembled the long low wicket with two stumps used in early cricket. According to Heiner Gillmeister, a European language expert of Bonn University, "cricket" derives from the Middle Dutch *met de (krikket) sen* ("with the stick chase"), which also suggests a Dutch connection in the game's origin. It is more likely that the terminology of cricket was based on words in use in south east England at the time and, given trade connections with the County of Flanders, especially in the 15th century when it belonged to the Duchy of Burgundy, many Middle Dutch words found their way into southern English dialects. Kumar Shri Ranjitsinhji was an Indian who played for the English cricket team. The British brought cricket to India in the early 1700s, with the first cricket match played in 1721. In 1848, the Paris community in Bombay formed the Oriental Cricket Club, the first cricket club to be established by Indians. After slow beginnings, the Europeans eventually invited the Parsis to play a match in 1877. By 1912, the Parsis, Sikhs, Hindus, and Muslims of Bombay played a quadrangular

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tournament with the Europeans every year. In the early 1900s, some Indians went on to play for the English cricket team. Some of these, such as Ranjitsinhji and KS Duleepsinhji were greatly appreciated by the British and their names went on to be used for the Ranji Trophy and India recorded their first Test victory against England at Madras (now Chennai) in 1952. Later in the same year, they won their first test series, which was against Pakistan. They continued their improvement throughout the early 1950s with a series win against New Zealand in 1956. However, they did not win again in the remainder of the decade and lost badly to strong Australian and English sides. The next decade saw India's reputation develop as a team with a strong record at home. They won their first Test series against England at home in 1961–62, and also won a home series against New Zealand. They also managed to draw home series against Pakistan and Australia, and another series against England. In this same period, India also won its first series outside the subcontinent, against New Zealand in 1967–68.

Training is much like constructing a multistory building. One needs for the building such as aerobic, anaerobic running, comprehensive conditioning, flexibility, etc. several kinds of materials like training intensities and modalities should be utilized in an ongoing process to complete the goal of finished buildings or competitively fit athlete. Depending on the progress in the construction plan, the relative mix of all these materials will. As a training season develops, compressive conditioning work for strength of endurance will gradually form a transition into an emphasis on power with a substitution of intensity of volume in

determining the total load (De, 2004). The ability to rapidly apply force (reactive force) is the major goal of plyometric training. Plyometrics are used to apply an overload to the muscles with speed strength as goal. Plyometrics should not be considered an end in themselves, but part of an overall program stretching, running, strength training, nutrition, etc. After the athlete has began a proper strength and conditioning program, plyometrics are used to develop speed strength. (Chu.D, 1984).

Methodology

The purpose of the study was to find out the effect of plyometric exercises on selected arm strength and leg strength among higher secondary school level cricket players. The selected 30 subjects were divided in to two groups, namely experimental group and control group. Each group consists of 15 players and each the subjects were pre tested for their arm strength and leg strength. An intentional programme of plyometric exercises to the experimental group and the control group was not given any experimental treatment. After the experimental period of six weeks, post-tests scores were obtained from all the two groups. The difference between initial and final scores on plyometric exercises physical and physiological variables considered the effect of plyometric exercises on selected arm strength and leg strength among higher secondary school level cricket players. The data collected from the subject on selected variables was statistically analyzed by using 't' ratio, 0.05 level of confidence was fixed to test the level of significance.

Results

Table I. Analysis of T-ratio for the Pre and Post-test for Control and Experimental Group on Arm strength

Variables	Group	Mean		SD		SD Error	df	't' ratio
		Pre	Post	Pre	Post			
Arm Strength	Control	6.8	6.73	2.04	1.94	0.24	14	0.26
	Experimental	6.73	7.80	2.57	2.36	0.20		5.17*

*Significance at .05 level of confidence

The Table I shows that the mean values of pre-test and post-test of control group on arm strength were 6.8 and 6.73 respectively. The obtained 't' ratio was 0.26 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental groups on arm strength were 6.73 and 7.80 respectively. The obtained 't' ratio was 5.17 since the

obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in arm strength. It may be concluded from the result of the study that experimental group improved in arm strength due to six weeks of plyometric exercises.

Figure 1. Cylinder Diagram Shows the Mean Values of Pre and Post Tests of Control and Experimental group on Arm Strength

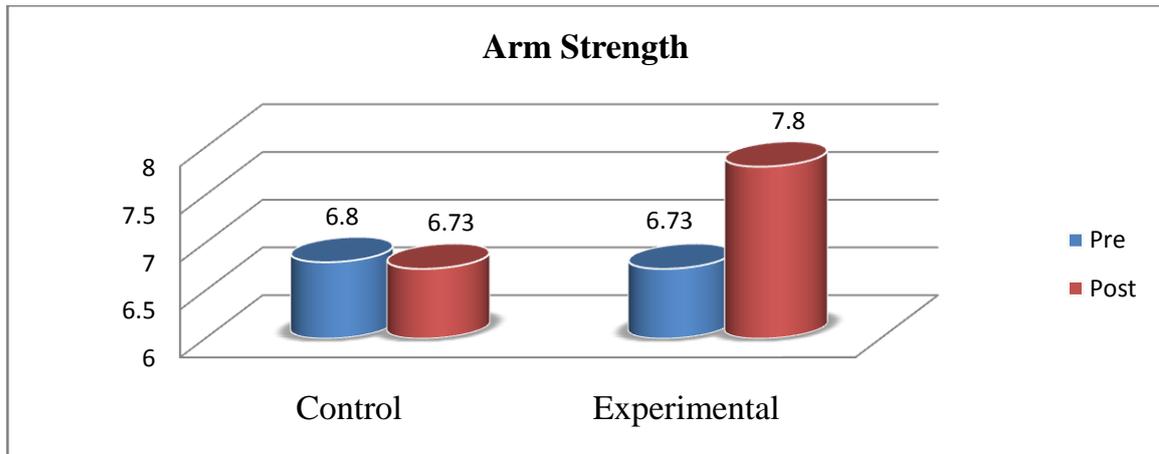


Table II. Analysis of T-ratio for the Pre and Post-test for Control and Experimental Group on Leg Strength

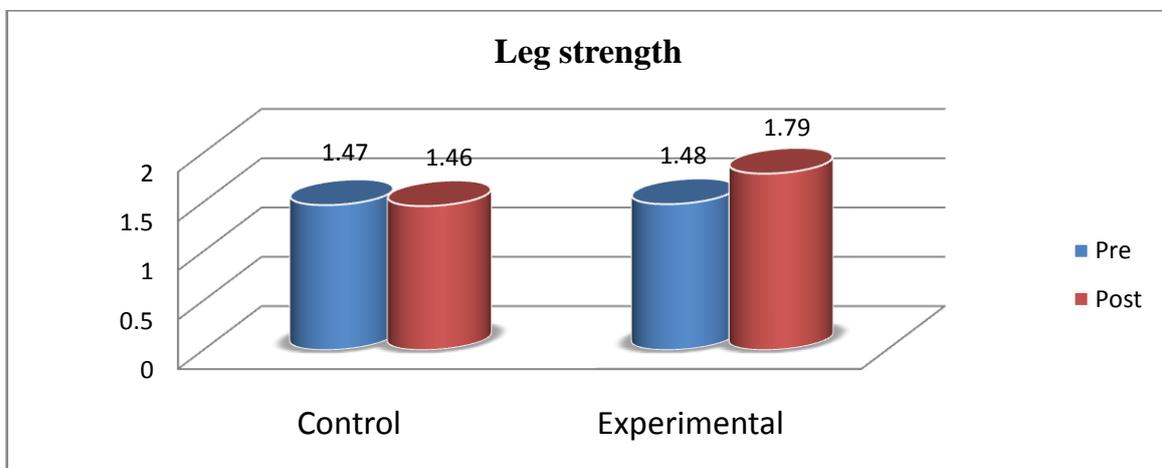
Variables	Group	Mean		SD		SD Error	df	't' ratio
		Pre	Post	Pre	Post			
Leg Strength	Control	1.47	1.46	0.33	0.24	0.04	14	0.08
	Experimental	1.48	1.79	0.32	0.45			0.06

*Significance at .05 level of confidence

The Table II shows that the mean values of pre-test and post-test of control group on leg strength were 1.47 and 1.46 respectively. The obtained 't' ratio was 0.08 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental groups in leg strength were 1.48 and 1.79 respectively. The obtained 't' ratio was 4.99 since the

obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in leg strength. It may be concluded from the result of the study that experimental group improved in leg strength due to six weeks of plyometric exercises.

Figure II. Cylinder Diagram Shows the Mean Values of Pre and Post Tests of Control and Experimental group on Leg Strength



Conclusion

It was concluded that there was a significant improvement in Arm strength and leg strength among Higher Secondary School, cricket players due to plyometric exercises.

Reference

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