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## Effect of cricket specific fitness training program on physical variables among college level men cricket players of Jammu and Kashmir State

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### Abstract

Cricket is played around the world, though it is more popular in certain countries. There are across 2.5 billion fans of cricket in the world, Countries like England, India, Pakistan, Srilanka, Bangladesh, Australia, New Zealand, Carribeans, South Africa are mainly cricket playing nation and have their national team. The purpose of the present study was to determine the effect of cricket specific fitness training on agility and strength endurance among college level men cricket players. Forty male students (n = 40) were randomly selected from kulgam college of J&K state as subjects and the age was ranged between 19 and 23 years. The selected subjects were randomly assigned into two equal groups namely control group (CG) and the experimental group (EG) with equal strengths of twenty (n= 20) each. Experimental training group underwent cricket specific fitness training programme for twelve weeks for five days per week and two sessions on each day. The control group did not involve in any special training apart from their regular activities. The agility and strength endurance were taken as a criterion variable for the present study and they were measured by shuttle run and sit ups respectively. Analysis of covariance (ANCOVA) was used to analyse the collected data. The results revealed that that the cricket specific fitness training was made significant improvement ( $p \leq 0.05$ ) in agility and strength endurance of the selected subjects. The level of confidence was fixed at 0.05 in all cases.

**Keywords:** Fitness training, agility, strength endurance, cricket

### Introduction

Cricket is the most popular game and the richest game in the history of all ball games. In cricket, offensive (batting) principles include scoring runs, avoiding getting out or defending the wicket (staying in), and hitting into space to achieve these offensive goals. Defensive (bowling and fielding) principles include restricting runs scored, getting batters out, and preventing hitting into space to achieve these defensive goals. The simple offensive goals in cricket are to hit the ball into the field so that it eludes the fielders and to not get out. The defense attempts to restrict run scoring and to get batters out (Stephen *et al.*, 2013). Agility is the ability of a person to change positions in space or to change direction quickly and effectively. The ability to perform a series of explosive power movements in rapid succession in opposing direction (e.g. zig-zag running or cutting movements). Agility is the ability to change the direction of the body in an efficient and effective manner (Prentice, 1994) [4]. Agility is the main component of physical fitness. Agility is the ability of a man to coordinate his movements and synchronize them according to the requirement of changing condition in fast start and quick change in direction are fundamental to good performance practically in all team game such as basketball, volleyball, tennis, badminton, soccer and cricket etc. Strength endurance is the ability of a muscle or muscle group to perform repeated contraction against a resistance to sustain contraction for an extended period of time with less discomfort and more rapid recovery. Strength endurance is defined as the capacity of the whole organism to withstand fatigue under the long lasting exhausting of strength. Consequently it is characterized by a relatively high ability to express strength together with a faculty of preserve (Safnit, 1988) [5]. Sports specific training is basically fitness and performance training designed specifically for sports performance enhancement and which include areas such as strength, speed, power, endurance, flexibility, mobility, agility, mental preparedness (including

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goal setting), sleep, recovery/regeneration techniques and strategies, nutrition, rehabilitation, rehabilitation and injury risk reduction. Even though cricket is the most popular game in India, very few scientific research were done on sports training on performance related variables, so thus study was taken to determine the effect of cricket specific fitness training program on agility and strength endurance among college level men cricketers of J&K state.

### Materials and Methods

The present study was to determine the effect of cricket specific fitness training on selected agility and strength endurance among college level men cricket players. Forty cricket players (N = 40) were randomly selected as subjects from Government Degree College Kulgam, of Jammu and Kashmir, state. The age was ranged between 19 and 23 years. The selected subjects were randomly assigned into two equal groups namely experimental group (EXP) and the control group (CON) for the strengths of twenty (N=20) each. Experimental training group underwent cricket specific fitness training programme for twelve weeks for five days per week and two sessions on each day. The control group did not involve in any special training apart from their regular activities. The agility and strength endurance were taken as a criterion variable for the present study and they were measured by shuttle run and bent knee sit ups respectively. Experimental training group underwent cricket specific training programme for twelve weeks for five days per week and two sessions on each day. The duration of study was restricted to 180 hours (2 hours in the morning session and 1

hour in the evening session) for the 12 weeks duration. The training programme consisted of two training duration - 4 weeks of early pre-season followed by 8 weeks of late pre-season. In the early preseason 60% of 60 hours (36 hours) of training duration was dedicated to fitness development (explosive strength-13 hours, cardio respiratory endurance-7 hours, strength endurance-7 hours, agility-5 hours and speed-4 hours) and 40% of 60 hours (24hours) of training duration for basic skills(12 hours), basic drills(6 hours) and net practice(6 hours). In the late preseason 40% of 120 hours (48 hours) of training duration was dedicated to fitness development (explosive strength-16 hours, cardio respiratory endurance-10 hours, strength endurance-10 hours, agility-7 hours and speed-5 hours) and 60% of 120 hours (72 hours) of training duration for advance skills (21 hours), basic drills (7 hours), advance drills (14 hours) and net practice (30 hours). The collected data were statistically examined by analysis of covariance (ANCOVA). The confidence level was fixed at 0.05 levels, which is appropriate to the present study.

**Table 1:** Baseline characteristics of the Subjects

	Experimental Group		Control Group		Total	
	Mean	SD	Mean	SD	Mean	SD
Age	21.65	1.18	21.10	1.17	21.38	1.18
Height	1.69	0.04	1.68	0.06	1.69	0.05
Weight	67.60	4.27	67.05	4.76	67.33	4.52
BMI	23.54	0.86	23.45	1.60	23.50	1.23

### Results and Discussion

**Table 2:** Analysis of covariance for agility and strength endurance among experimental & control groups.

		Experimental group	Control group	F-ratio
		Agility	Pre-Test	16.44± 0.54
	Post-Test	15.13± 0.56	16.23± 0.59	36.37*
	Ad Po-Test	15.07	16.29	154.60*
Strength Endurance	Pre-Test	22.80 ± 2.02	23.05 ± 1.85	0.17
	Post-Test	26.95 ± 2.26	23.40 ± 1.82	29.98*
	Ad Po-Test	27.06	23.29	106.61*

\*Significant at.05 level of confidence.

(The Table value required for significance at.05 of confidence with degrees of freedom 1&38 and 1 &37 are 4.10 and 4.11 respectively)

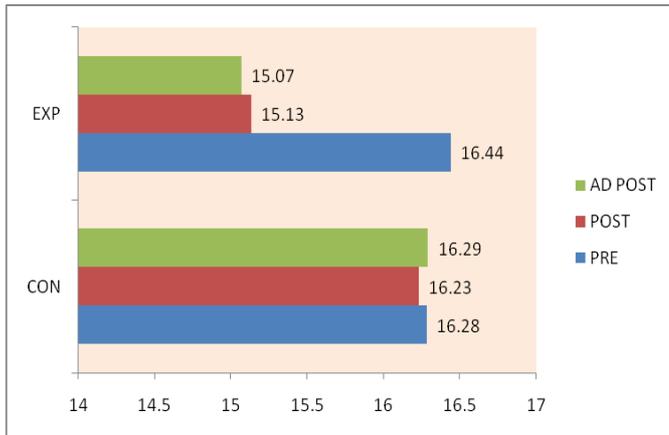
Table II shows that on the variable agility, the pre-test mean and SD values of control group are 16.28 ± 0.70 respectively and the pre-test mean and SD values of experimental group are 16.44 ± 0.54 respectively. The obtained 'F' ratio of 0.61 for pre-test scores is lesser than the table value of 4.10 for df 1 and 38 required for significance at.05 level of confidence. On the variable agility, the post-test mean and SD values of control group are 16.23 ± 0.59 respectively and the post-test mean and SD values of experimental group are 15.13 ± 0.56 respectively. The obtained 'F' ratio of 36.37 for post-test scores is greater than the table value of 4.10 for df 1 and 38 required for significance at.05 level of confidence. On the variable agility, the adjusted post-test mean value of control group is 16.29 and the adjusted post-test mean value of experimental group is 15.07. The obtained 'F' ratio of 154.60 for adjusted post-test scores is greater than the table value of 4.11 for df 1 and 37 required for significance at.05 level of confidence. The results of the study indicates that there is a significant change in agility of the experimental group when compared with the control group. After going through the results, it was concluded that the specific training program has

resulted in a significant change in agility of the experimental group when compared with the control group.

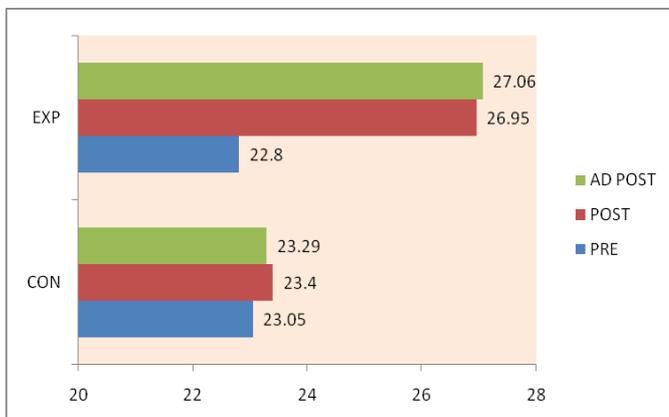
Table II shows that on the variable strength endurance, the pre-test mean and SD values of control group are 23.05 ± 1.85 respectively and the pre-test mean and SD values of experimental group are 22.80 ± 2.02 respectively. The obtained 'F' ratio of 0.17 for pre-test scores is lesser than the table value of 4.10 for df 1 and 38 required for significance at.05 level of confidence. On the variable strength endurance, the post-test mean and SD values of control group are 23.40 ± 1.82 respectively and the post-test mean and SD values of experimental group are 26.95 ± 2.26 respectively. The obtained 'F' ratio of 29.98 for post-test scores is greater than the table value of 4.10 for df 1 and 38 required for significance at.05 level of confidence. On the variable strength endurance, the adjusted post-test mean value of control group is 23.29 and the adjusted post-test mean value of experimental group is 27.06. The obtained 'F' ratio of 106.61 for adjusted post-test scores is greater than the table value of 4.11 for df 1 and 37 required for significance at.05 level of confidence. The results of the study indicates that there is a significant change in strength endurance of the experimental group when compared with the control group. After going through the results, it was concluded that the specific training program has resulted in a significant change in strength endurance of the experimental group when compared with the control group.

**Table 3:** The pre and post-test means of specific training (exp) and control (con) groups with percentage of gain

Agility	Experimental	16.44± 0.54	15.13± 0.56	1.31↓	7.97% ↓
	Control	16.28± 0.70	16.23±0.59	0.05↓	0.31% ↓
Strength Endurance	Experimental	22.80 ± 2.02	26.95 ± 2.26	4.15 ↑	18.20% ↑
	Control	23.05 ± 1.85	23.40 ± 1.82	0.35 ↑	1.52% ↑



**Fig 1:** Bar Diagram showing the Pre, Post and Adjusted Post-test means of Experimental and Control groups on Agility



**Fig 2:** Bar Diagram showing the Pre, Post and Adjusted Post-test means of Experimental and Control groups on Strength Endurance

this cricket specific fitness training is one of the best training methods for increasing the agility, strength endurance and as well as the physical fitness of cricket players.

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**Discussion**

The result of the present study pointed out that there were a significant difference in agility and strength endurance due to twelve weeks of cricket specific training. The current study also utilized twelve weeks programme duration with ten sessions per week and found that agility and strength endurance increases due to cricket specific training. The findings are also in agreement with the findings of Bhat, *et al.* (2017) [1], that plyometric training increases agility among college level men cricket players. The result also shows that resistance training among inter collegiate cricket players positively influences the physical fitness variables namely leg explosive strength, agility and speed, Kumar (2015) [3], Shrivastava (2015) [6] also findings that there was a significant improvement on agility of male cricketers due to efficacy of specific physical fitness program. From the results of the present study and literature, it is concluded that dependent variables namely agility and strength endurance were significantly increased due to cricket specific training.

**Conclusion**

The result of the study revealed that the training group has significant improvement in agility and strength endurance among college level men cricket players after the cricket specific fitness training protocol. It was also concluded that