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Effect of Specific Training Package on Skill Related Physical Fitness of Kabaddi Players

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Abstract: ***The study was an attempt to ascertain the effect of a specific training package on skill related physical fitness of Kabaddi players. Sixty numbers of professional students acted as subjects being divided equally into Control and Experimental Groups. The Specific training package was given to experimental group for a period of six weeks. Among the six variables of the skill related physical fitness all the variables except reaction time variable showed significant differences at .05 level of confidence of experimental group. This was indication that short duration training package is not suitable for enhancing the reaction time.***

Keywords: Skill Related Physical Fitness, Kabaddi, Specific Training Package.

I. INTRODUCTION

Training is now universally recognized as a scientifically based and systematized programme which is fundamental to the pursuit of high level performance in sports. All sports have drawn the attention of maximum number of sports scientists and coaches to devise new training methods in order to achieve an optimum performance. As a training season develops, comprehensive conditioning work for strength and endurance will gradually from a transition in to an emphasis on power with a substitution of intensity for volume in determining the total training load. Training improves the performance. Selecting the appropriate training methods to incorporate in the training program is important for a number of reasons. First, a focused, structured, individualized training program can increase the breathing rate and the efficient use of oxygen. It can also help the body work at a higher level of exercise for a longer time because it helps to get rid of lactic acid. It also helps the body to convert more fat to energy (that is lipid metabolism). Third, it also leads to physical changes in the muscles, helping them to be more tolerant to the stresses caused by prolonged exertion, particularly by strengthening the connective tissues between muscle fibers so that they experience fewer micro traumas. Sports training aims at the improvement of performance. It is formulated in such a way that the sportsman is able to win or at least successfully participate in a competition.

The components of skill related physical fitness do enable one to move and perform more efficiently, whether it be in work related activities, daily movement function, or in sports performance. Skill related fitness is compatible with health related fitness. Many activities promote both types. Individuals who possess both will find participation in either type of activities more enjoyable and beneficial to their health and physical well being. The skill related variables are agility, balance, co-ordination, power, speed and the reaction time. Many of these variables work closely together and can be trained for by similar modes. However, specificity does exist, and such skills cannot be categorized in general. Combinations of these skills are abilities usually determine a skilled performance in a particular sport. *Skill related fitness is the ability to perform efficiently in sports, daily activities, and work-related activities*. Young (1995) in his study investigated the relationship between strength measures and sprinting performance, and to determine if these relationships varied for different phases of sprint training and found that strength qualities were related to sprinting performance and this relationship differed for starting and max speed sprinting. Barik and Banerjee (1990) investigated the effects of specific conditioning programme on selected performance variables among tribal students and found that speed, endurance, strength and agility were increased significantly after training. Insignificant changes in blood sugar level took place after training. Hemoglobin concentration, systolic and diastolic pressure decreased significantly after training. Brown (1986) conducted a study to determine the effects of a strength training programme on strength, body composition and self concept in young and matured women. The mature experimental (ME) and young experimental (YE) groups showed significant ($P < 0.05$) increase in strength as compared to the control group. The ME group gained strength at the same rate as the YE group. No changes in body composition were observed. The experimental groups showed significant ($P < 0.05$) improvements on the self concept scales compared to control group. These results support the inclusion of strength training in fitness programme for healthy mature women.

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II. METHODOLOGY

The purpose of the study was to know the effect of a selected training package on skill related physical fitness of college level kabaddi players. Total 60 (sixty) numbers of Boys were taken as subjects of the study. All the subjects were physical education professional students belonging to B.P.Ed. class within the age group of 19 to 25 years. They were assigned to two equal groups namely experimental and control groups numbering 30 in each group. Following dependant and independent variables were selected.

III. DEPENDANT VARIABLES

A. Skill Related Physical fitness Variables

1) *Agility: (SEMO Agility test): Purpose:* To measure agility level of the subjects during forward, sideward and backward maneuvering movements.
2) *Balance: Stork Test:* Stand on one leg with the free foot positioned just below the standing knee. Raise the heel of the standing foot and hold for as long as possible.
3) *Coordination: Block Transfer Test:* The Block Transfer is a manual dexterity test or coordination test of fine motor abilities. The participant begins by sitting at a table with the two boards in front of them. Timing begins when the participant starts to move the 40 blocks from the first board to the second board, which is linked to the first board and farther away. The blocks must be moved in a prescribed sequence as quickly as possible using the preferred hand. The participant should practice with five blocks prior to the trial. Scoring: the time (in seconds) to complete the task is recorded
4) *Power:* The Standing Broad Jump is a common and easy to administer test of explosive power.
5) *Purpose:* To measure the explosive power.
6) *Speed (50mts Dash): Purpose:* To measure speed.
7) *Reaction Time:* Subject should hold out the chosen hand and extend the thumb and index finger so they are 8cm apart. Accomplice hold a metric ruler with its end exactly even with the subject's extended thumb and index finger. The ruler should be vertical with lowest numbers near the subject's hand.. The ruler is dropped, and the subject grasps it between the thumb and index finger.. Record the number at the subject's fingertips, i.e. distance the ruler fell through the subject's fingers. Calculate the time it took for the subject to react and catch the falling ruler. The time (t) it took for the ruler to fall can be calculated from the distance it fell. Distance (d) fallen can be converted to time (t) passed with the following formula: d (in cm) = (1/2) (980 cm/sec2) t2, t2 = d/ (490 cm/sec2),t = √d/ (490 cm/sec2)[980 cm/sec2 are the acceleration of a falling mass on Earth. Since we know how fast an object falls, we can figure out how long it took to fall a measured distance.]
8) *Independent Variables:* The training stimuli i.e., Specific Training Package was considered here as the Independent variable.
9) *Construction of Specific Training Package:* A training package, includes conditioning exercises , physical activities , drills and tactical maneuvers which was designed systematically and scientifically . The package was a comprehensive and thorough one which was supposed to improve the physical fitness and playing ability of Kabaddi players.

Based on the literature available and the opinion of the experts the following training details were determined for the specific training package .

Periodisation	: Double periodisation
Duration of training period	: 6 weeks
Number of days per week	: 6 days
Number of sessions per day	: 2 sessions
Duration of session	: Morning – 120 minutes
	: Evening - 120 minutes

The data collected from both experimental and control groups on their pretests and posttests score were processed by using Analysis of Variance prescribed in Mixed Model Least-Squares and Maximum Likelihood Computer Program Pc-2 as programmed by Walter R. Harvey (1990). The tabulated scores were tested at .05 level of significance

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IV. RESULTS AND DISCUSSION

Table 1. Analysis of variance of skill related physical fitness variable Scores between the Groups.

Variables	Df	Sum of squares	Mean squares	'F' Ratio
Agility	3	75.091667	25.030556	22.421*
Balance	3	91.025000	30.341667	43.150*
Coordination	3	885.558333	295.186111	159.983*
Power	3	.181483	.060494	47.830*
Speed	3	12.555583	4.185194	22.229*
Reaction time	3	.612937	.204312	1.770

*Significant at .05 level of significance

The Table 1 indicated the differences existed between Experimental and Control Group on Skill Related Physical Fitness Variables. The tabulated result indicated a significant difference at .05 level of confidence on Agility, Balance, Coordination, Power and Speed variables. However, it was found that no significant difference existed on Reaction time between Experimental and Control Groups.

Table 2. Least squares mean and standard error of variables related to skill related physical fitness of Kabaddi players both in pretest and posttest of Experimental and Control Groups.

Group	Stage	Agility	Balance	Coordination	Power	Speed	Reaction time
	CD Value	0.541	0.430	0.695	0.018	0.222	0.174
Experimental	Pretest	13.67^{a}±0.19	3.37^{a}±0.15	31.2^{a}±0.25	1.21^{a}±0.01	7.97^{a}±0.08	1.46^{a}±0.06
	Posttest	11.8^{b}±0.19	5.37^{b}±0.15	24.87^{b}±0.25	1.31^{c}±0.01	7.21^{c}±0.08	1.38^{a}±0.06
Control	Pretest	13.77^{a}±0.19	3.37^{a}±0.15	31.37^{a}±0.25	1.22^{a}±0.01	7.93^{a}±0.08	1.54^{a}±0.06
	Posttest	13.33^{a}±0.19	3.33^{a}±0.15	30.80^{a}±0.25	1.25^{b}±0.01	7.44^{b}±0.08	1.42^{a}±0.06

CD Value- Critical Difference Value

A. Different Superscripts Differ Significantly (p≤.05)

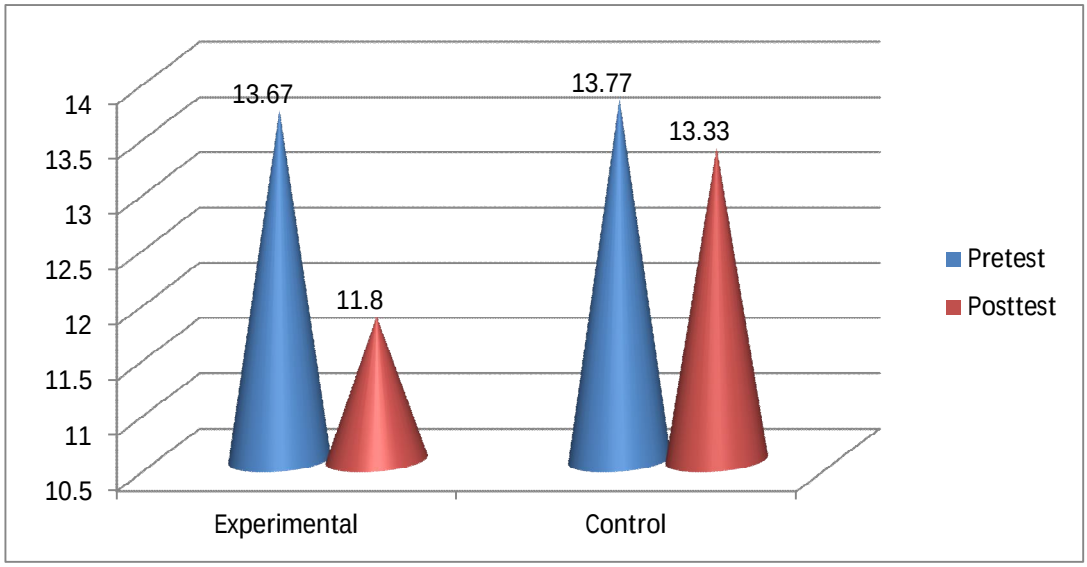
The Table 2 depicted the Least squares mean and standard error of the variables of skill related physical fitness of Kabaddi players both in pretests and posttests of Experimental and Control Groups. The tabulated mean of the pretest of both Experimental group and Control group were more or less same and did not differ significantly.

The graphical representation of Least Squares mean differences of the Pretest and Posttest of both the groups were also reflected in Figure 1 to Figure 6.

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In case of Agility, (Fig. 1) the experimental group means scores on pretest of was 13.67 and posttest was 11.8 and the C.D. value on agility scores was 0.541. The result as statistically calculated, exhibited a significant difference at .05 level of confidence between the means of pretest and posttest of the experimental group. The control group means score on pretest of Agility variable was 13.77 and posttest was 13.33. The difference of means of pretest and posttest of the control group was not statistically significant.

Figure-1 (Differences on Least Squares mean on Agility)



Another variable of Skill Related Physical Fitness is Balance (Fig. 2). The experimental group means score on pretest of Balance variable is 3.37 and posttest is 5.37 and the C.D. value on balance scores was 0.340. The result as statistically calculated, exhibited a significant difference at .05 level of confidence between the means of pretest and posttest of the experimental group. The control group means score on pretest of Balance variable is 3.37 and posttest is 3.33. The difference of means of pretest and posttest of the control group was not statistically significant.

Figure-2 (Differences on Least Squares mean on Balance)

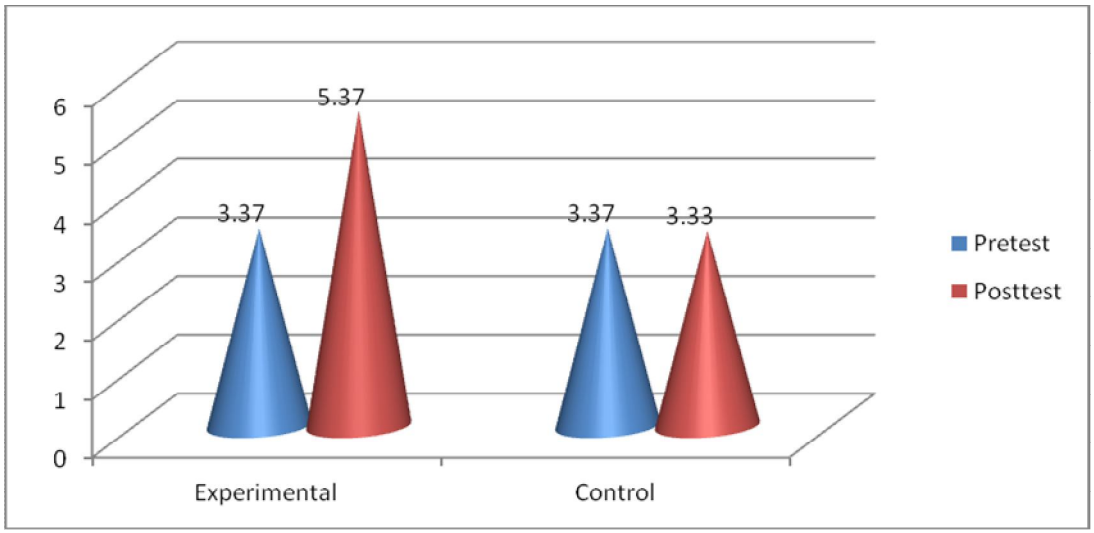
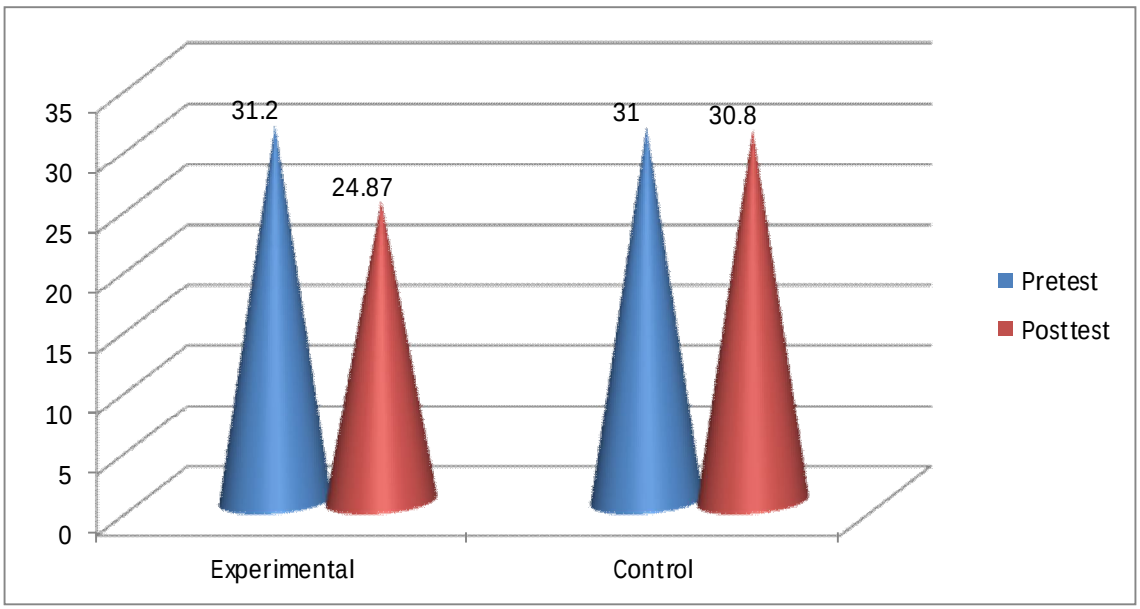
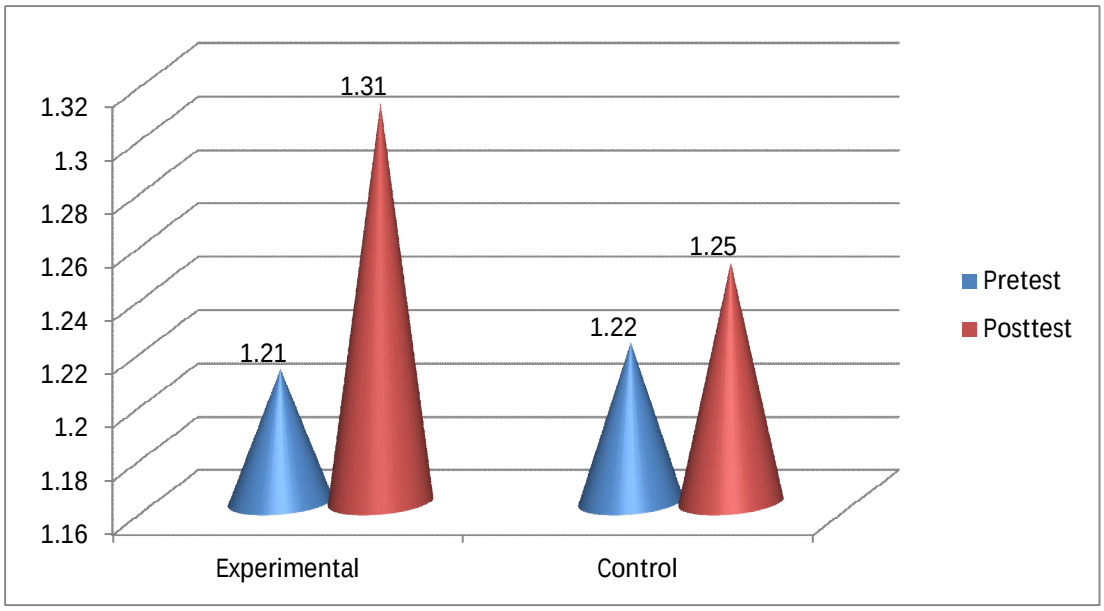


Figure-3 (Differences on Least Squares mean on Coordination)



The Fig. 3 depicted the mean differences between pretest and posttest of both experimental and control groups on Coordination variable of Skill Related Physical Fitness after a six week specific training package. The experimental group means score on pretest of Coordination variable is 31.2 and posttest is 24.87 and the C.D. value on balance scores was 0.695. The result as statistically calculated, exhibited a significant difference at .05 level of confidence between the means of pretest and posttest of the experimental group. The control group means score on pretest of Coordination variable is 31 and posttest is 30.8. The difference of means of pretest and posttest of the control group was not statistically significant.

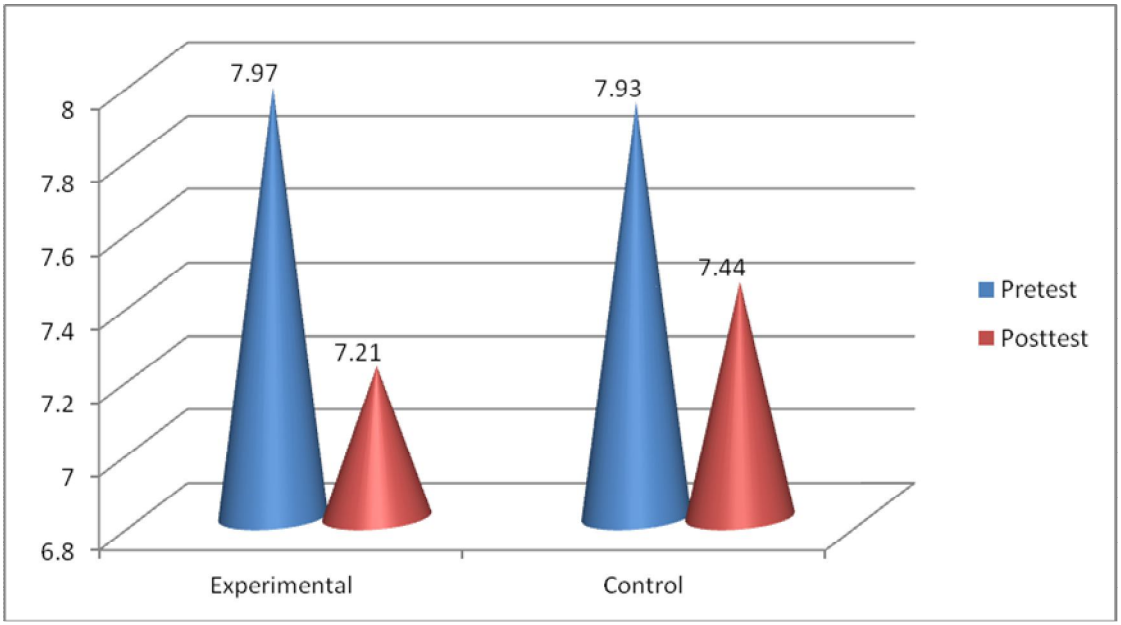
Figure-4 (Differences on Least Squares mean on Power)



Another variable of Skill Related Physical Fitness is power. The Fig. 4 had represented the mean scores of both Experimental Group and Control Group on their pretest and posttest on power. The experimental group means score on pretest of Coordination variable is 1.21 and posttest is 1.31 and the C.D. value on Power scores was 0.018. The result as statistically calculated, exhibited a significant difference at .05 level of confidence between the means of pretest and posttest of the experimental groups in power variable. The control group means score on pretest of Coordination variable is 1.22 and posttest is 1.25. The difference of means of pretest and posttest of the control group was also stastically significant.

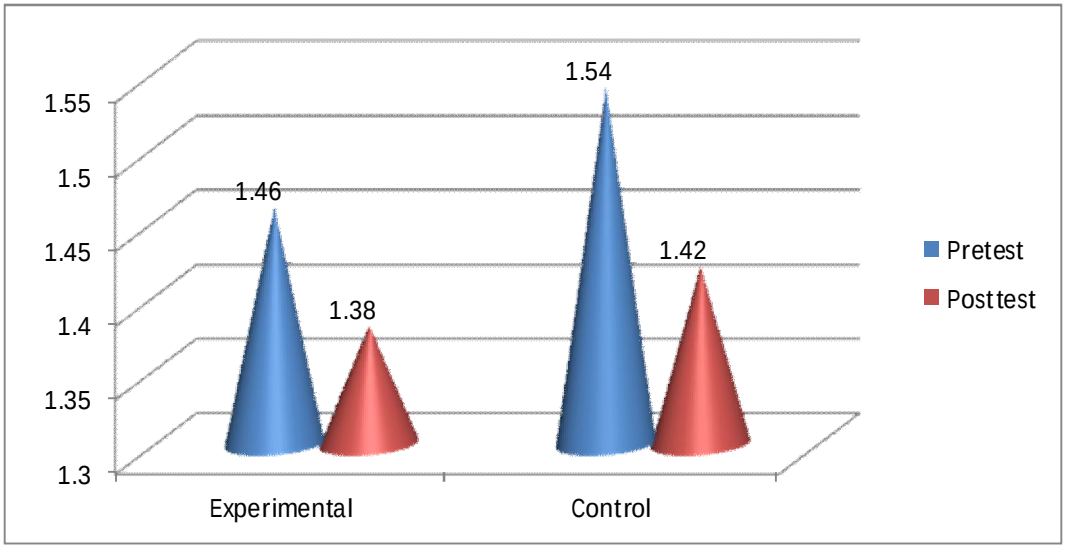
It was thus, analyzed that that a six week duration Specific Training Package improves the Power component of Skill Related Physical Fitness. The difference exited between the pretest and posttest of the control group was significant due to participation of the subjects in regular physical conditioning and physical activity classes as per timetable of the professional physical education courses in which they are prosecuting their studies.

Figure-5 (Differences on Least Squares mean on Speed)



Speed is a component of Skill Related Physical Fitness. The Fig. 4 had represented the mean scores of both Experimental Group and Control Group on their pretest and posttest on Speed. The experimental group means score on pretest of Speed variable is 7.97 and posttest is 7.21 and the C.D. value on balance scores was 0.222. The result as statistically calculated, exhibited a significant difference at .05 level of confidence between the means of pretest and posttest of the experimental group. The control group means score on pretest of Coordination variable is 7.93 and posttest is 7.44. The difference of means of pretest and posttest of the control group was also statistically significant. It was thus, analyzed that that a six week duration Specific Training Package develops the speed component of Skill Related Physical Fitness. The difference exited between the pretest and posttest of the control group was significant due to participation of the subjects in regular physical conditioning and physical activity classes as per timetable of the professional physical education courses in which they are prosecuting their studies.

Figure-6 (Differences on Least Squares mean on Reaction time)



In Reaction time variable the experimental group means score on pretest was 1.46 and posttest is 1.38 and the C.D. value on balance Reaction time variable was 0.174. The result as statistically calculated, exhibited a no significant difference between the means of pretest and posttest of the experimental group. The control group means score on pretest of Coordination variable was 1.54 and posttest was 1.42. The difference of means of pretest and posttest of the control group was also not statistically significant.

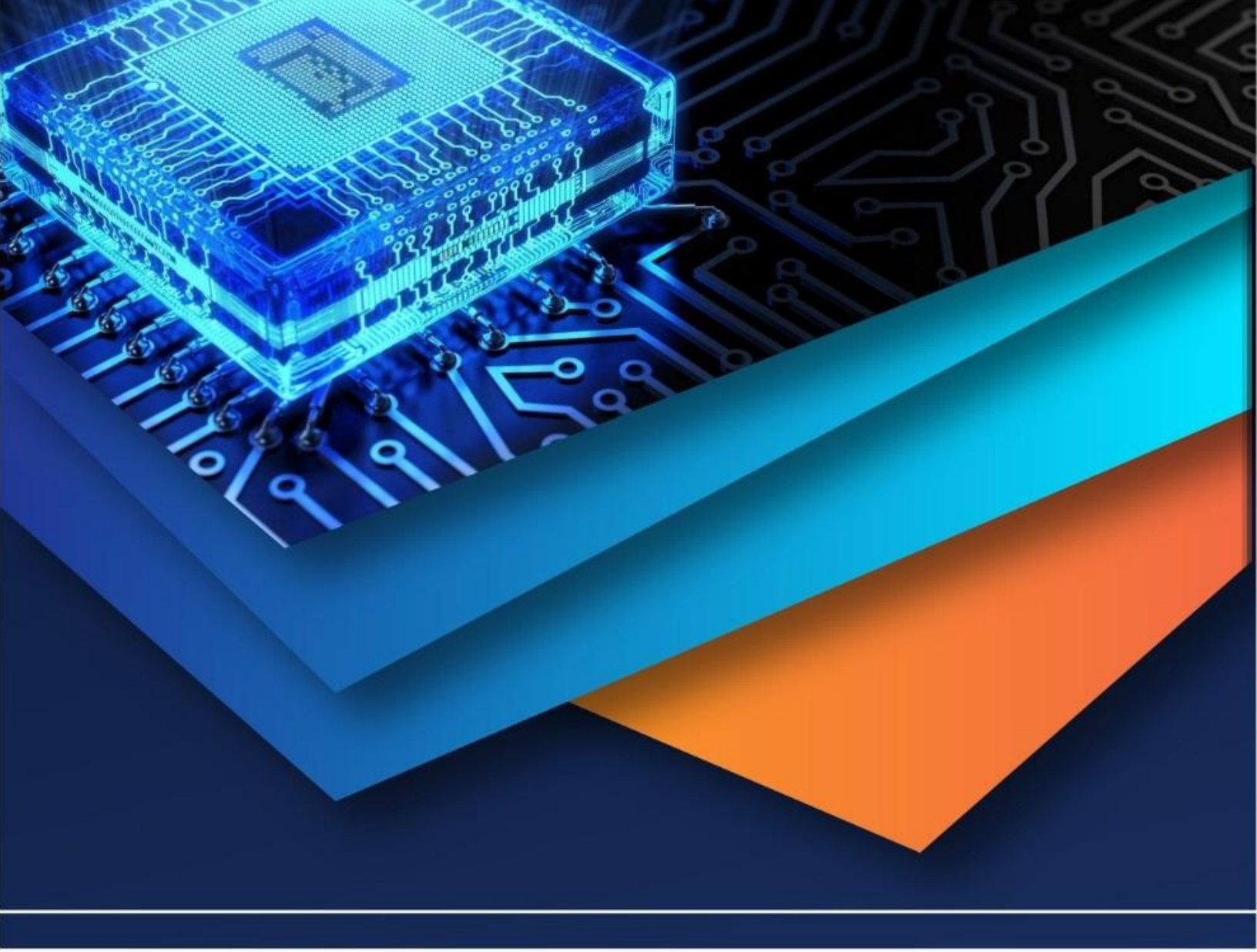
V. CONCLUSION

The present study was an attempt to find out the effect of a specific training package of 6 weeks duration on the variables of skill related physical fitness of college level kabaddi players. Among the six variables of the skill related physical fitness all the variables except reaction time variable showed significant differences at .05 level of confidence of experimental group. The reaction time variable was non-significant when the pretest and posttest scores were statistically interpreted. This was indication that short duration training package is not suitable for enhancing the reaction time.

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