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Effects Of Varied Modalities Of Sports Specific Training On Speed And Explosive Power Of Collegiate Male Handball Players

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Abstract:

Sixty collegiate male handball players were randomly assigned from karnataka state elite collegiate handball players represented in inter collegiate tournaments, the aged range from 18 – 24(± 6 month) years.

Background Previous research has shown that collegiate male players can increase their speed and explosive power as a result of regular participation in a progressive sports specific training program. However, the most effective exercise prescription regarding the number of repetitions remains questionable.

Objective To compare the effects of a sports specific training – I and Sports Specific training – II on the development of speed and explosive power in collegiate male handball players.

Intervention Sixty were divided in to three equal group. Experimental group I (n=20) under went sports specific training-I the players performed plyometric and heavy load resistance with skill practice (Experimental group II (n=20) under went sports specific training-II the players performed plyometric and moderate load resistance with skill practice and control group did not go any specific training. In 4 days session per week of sports specific training for 8 weeks, The control group did not practice any specific training. Sargent Vertical Jump test for measuring the explosive power and 50 meter dash for measuring the speed.

Results varied Sports specific training 50 meter dash test significantly increased speed in both training groups compared with that in the control subjects. Increases of 8.65 % and 6.80 %, respectively, for the plyometric and heavy load resistance with skill practice. polymeric and moderate load groups resistance with skill practice were observed. sargent vertical jump test significantly increased explosive power in both exercise groups compared with that in the control subjects, Increases of 14.99 % and 10.82 %, respectively, although gains resulting from high repetition–moderate load training (6.54 ± 0.43 repetitions) were significantly greater than those resulting from low repetition–heavy load training (6.71 ± .40 repetitions). On the speed exercise, only the plyometric and heavy load resistance with skill practice group made gains in 50 meter dash (8.65 %) and explosive power (14.99 %) that were significantly greater than gains in the control subjects.

Conclusion These findings support the concept that speed and explosive power can be improved during the varied modalities of sports specific training on collegiate male handball players.

KeyWords: *Sports specific training-I & II, speed, Explosive power*

Introduction

In previous years, sports specific training has proven to be a safe and effective method of conditioning for handball players, provided that appropriate exercise guidelines are followed. Although the capability of players to increase their speed and explosive power was questioned in the past, current findings suggest that handball players may benefit from regular participation in specific training activities. Reports indicate that sports specific training may improve motor performance skills, may reduce injuries in sports and recreational activities, and may favorably alter selected anatomic and psychosocial parameters. To evaluate the trainability of players, researchers have used different combinations of the acute program variables (ie, choice of exercise, order of exercise, resistance used, number of sets, and rest period between sets) to study the effects of sports specific training on men and women. In general, it appears that a variety of training protocols and modalities can be effective, although the amount of specific used seems to be one of the more important variables. The training resistance influences the number of repetitions that can be performed, which, in turn, provides the stimulus related to changes in speed and explosive power. More recent findings support the contention that the use of heavy load specific (eg, repetition maximum resistances and polymeric of six or less) would have the greatest effect on explosive power, whereas lighter resistances (eg, resistances and polymeric) would have the greatest effect on speed and explosive power.

Methodology

Sixty collegiate male handball players were randomly assigned from govt. Law college karnataka state elite handball players represented in inter collegiate tournaments, the aged range from 18 – 24(± 6 month) years. The subjects was volunteered to participate in this study. All subjects were healthy who had no previous resistance training experience. Both the groups were informed about the nature of this project and they collected completed history of the study. Experimental group I (n=20) under went sports specific training-I the players performed plyometric and heavy load resistance with skill practice (Experimental group II (n=20) under went sports specific training-II the players performed plyometric and moderate load resistance with skill practice and control group did not go any specific training. In four session per week of sports specific training for 8 weeks. The control group did not practice any specific training. Sargent Vertical Jump test for measuring the explosive power and 50 meter dash for measuring the speed.

Results

As we have seen from the table-1, there are statistically guiding difference at 0.05 level between pre measuring and post measuring for the first group used plyometric and heavy load resistance with skill practice and second group used plyometric and moderate load resistance with skill practice and control group in the speed ,explosive power variables for post measuring so the researcher sees that theses results come from the physical effort that were used in side the program of training in addition to the duration of the program which reached eight weeks to make changes in speed and explosive power. This results matches that developing the physical abilities lead to developing the skill performance.

Variables	**Mean**	**N**	**Std. Deviation**	**Mean Diff.**	**'t' ratio**
Speed Pre-test	7.1640	20	.4384	.62	6.511*
Speed Post –test	6.5425	20	.4330		
Explosive power Pre-test	34.3500	20	6.6671	5.15	22.15*
Explosive power Post-test	39.5000	20	6.2112		

**Significance at 0.05 levels (2.09)*

Table-1

Significance of mean gains / losses between pre and post test of sports specific training-I on speed and explosive power of male collegiate handball players

Table 1 shows the obtained 't' ratios for pre and post test mean difference in the selected variables of Speed (6.51), Explosive power (22.15). The obtained 't ratios when compared with the table value of 2.09 for the degrees of freedom (1, 19) it was found to be statistically showed significant at 0.05 level of confidence. It was observed that the mean gains and losses made from pre and post test were significantly showed improvement in speed (0.62 $p < 0.05$), explosive power (5.15 $p < 0.05$).

Variables	Mean	N	Std. Deviation	Mean Diff.	't' ratio
Speed Pre-test	7.2020	20	.3272	.49	5.07*
Speed Post –test	6.7135	20	.4018		
Explosive power Pre-test	34.6500	20	5.5277	3.75	11.595*
Explosive power Post-test	38.4000	20	4.9354		

**Significance at 0.05 levels (2.09)*

Table-2

Significance of mean gains / losses between pre and post test of sports specific training-II on speed and explosive power of male collegiate handball players

Table 2 shows the obtained 't' ratios for pre and post test mean difference in the selected variables of Speed (5.07), Explosive power (11.59). The obtained 't ratios when compared with the table value of 2.09 for the degrees of freedom (1, 19) it was found to be statistically showed significant at 0.05 level of confidence. It was observed that the mean gains and losses made from pre and post test were significantly showed improvement in speed (0.49 $p < 0.05$), explosive power (3.75 $p < 0.05$).

Variables	Mean	N	Std. Deviation	Mean Diff.	T
Speed Pre-test	7.1840	20	.3827	.005	.29
Speed post –test	7.1790	20	.4092		
Explosive power pre-test	34.8000	20	4.2748	.250	1.42
Explosive power Post-test	35.0500	20	3.8454		

**Significance at 0.05 levels (2.09)*

Table-3

Significance of mean gains / losses between pre and post test of control group on speed and explosive power of male collegiate handball players

Table 3 shows the obtained 't' ratios for pre and post test mean difference in the selected variables of Speed (0.29), Explosive power (1.42). The obtained 't ratios when compared with the table value of 2.09 for the degrees of freedom (1, 19) it was found to be statistically showed insignificant at 0.05 level of confidence. It was observed that the mean gains and losses made from pre and post test were statistically showed insignificant in speed (0.005 p< 0.05), explosive power (0.25 p< 0.05).

Variables	**Source of variance**	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Speed Pre-test	Between Groups	0.014	2	0.007	.049	.953
	Within Groups	8.468	57	.149		
Speed post -test	Between Groups	4.340	2	2.170	12.607*	.000
	Within Groups	9.812	57	.172		
Explosive power pre-test	Between Groups	2.100	2	1.050	.034	.967
	Within Groups	1772.300	57	31.093		
Explosive power post-test	Between Groups	214.900	2	107.450	4.147*	.021
	Within Groups	1476.750	57	25.908		

**Significance at 0.05 levels (3.16)*

Table-4

Analysis of variance on pre-post test means among the SPT-I,SPT-II and CG on Speed and explosive power

Table -4 reveals that the obtained pre test 'F' ratio speed (0.049) was lesser than the table 'F' ratio 3.16. Hence the pre test means were found to be insignificant at 0.05 level of confidence for the degree of freedom 3 and 57. The obtained post - test 'F' ratio of explosive power (12.61) was higher than the table 3.16. Hence the post – test means were found to be significant at 0.05 level of confidence for degree of freedom 2 and 57. It was concluded that there was a significant mean difference among the sports specific training group I & II in developing the speed and explosive power of collegiate male handball players.

Variables	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Speed post-test	Between Groups	4.251	2	2.125	19.45*	.021
	Within Groups	6.119	56	0.109		
Explosive power post-test	Between Groups	250.223	2	125.11	132.22*	0.000
	Within Groups	52.989	56	.946		

**Significance at 0.05 levels (3.16)*

Table-5

Analysis of Co-variance on pre-post test means among the SPT-I,SPT-II and CG on Speed and explosive power

Table-5 shows the obtained 'F' ratio of speed(19.45), explosive power (132.22) was higher than the table 'F' ratio 3.16. Hence the adjusted post test means were found to be significant at 0.05 level of confidence for the degrees of freedom 2 and 56. It was concluded that there was a significant mean difference between the SST-I, SST-II developing the speed and explosive power of collegiate male handball players.

Results And Discussion

Speed

The Sports specific training group-I, Sports specific training group-II significantly improved the speed from pre test to post test. The speed increased in the Sports specific training group-I, from pre test (7.20 $\pm$ 0.33) to post test (6.71 $\pm$ 0.40); Sports specific training group-II, from pre test (7.16 $\pm$ 0.43) to post test (6.54 $\pm$0.43), the speed significantly improved pre test to post test in all two experimental groups with no changes in control group.The present study demonstrated that an increase in speed of 8.65 % and 6.80 % estimated with sargent vertical jump for Sports specific training group-I, Sports specific training group-II respectively. The Sports specific training group-I improved the speed by (8.65 %) better than the Sports specific training group-II (6.80 %) and control group (0.69 %).

Explosive power

The Sports specific training group-I, Sports specific training group-II significantly improved the speed from pre test to post test. The speed increased in the Sports specific training group-

I, from pre test (34.35 ± 6.66) to post test (39.50 ± 6.21); Sports specific training group-II, from pre test (34.65 ± 5.52) to post test (38.40 ±4.93), the speed significantly improved pre test to post test in all two experimental groups with no changes in control group.The present study demonstrated that an increase in speed of 14.99 % and 10.82 % estimated with sargent vertical jump for Sports specific training group-I, Sports specific training group-II respectively. The Sports specific training group-I improved the speed by (14.99 %) better than the Sports specific training group-I (10.82 %) and control group (0.71) %.

Conclusion

The sports specific training influenced the adopted responses to improve in speed and explosive power of collegiate male handball players.

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