IMPACT OF GENERAL AND SPECIFIC HANDBALL TRAINING IN SEQUENCE AND PARALLEL ON SKILL PERFORMANCE OF HANDBALL PLAYERS

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Abstract

The aim of this study was to analyze the impact of general and specific handball training in sequence and parallel on skill performance of handball players. To achieve the purpose of the study, 45 male inter-collegiate level handball players studying in and around Warangal District, Telangana, India were selected as subjects. The handball players who represented inter collegiate level competitions were only considered. Their age ranged from 18 years to 23 years. The selected subjects were randomly assigned into three equal groups of 15 subjects each. Group-I underwent General and Specific Handball Training in Sequence, Group-II underwent General and Specific Handball Training in parallel, group-III acted as control. By using standard testing procedure, the data on handball skill performance 'shooting Ability' was collected before as well as after training. Pre and post test random group design was adopted. The assessed data of the three group's through standardized tests was analyzed to discover the significant variation between two tests (pre & post) through paired 't' test. Additionally, magnitude (%) of changes was also calculated. To abolish the early mean disparity, the three group's data (pre&post) were calculated through ANCOVA statistics. When the 'F' (adjusted) score in ANCOVA was high, the post hoc (Scheffe's) test was followed. General and specific handball training in parallel (GSHTP) is better than general and specific handball training in sequence (GSHTS) in improving skill performance.

Keywords: *General and specific handball training, Skill performance and Handball players*

INTRODUCTION

Team handball is in fact a fast paced game that requires high-intensity movements to be repeated over time based upon the technical and tactical situations. Physical conditioning in team handball should then be characterized by acyclic activities and intermittent-like drills for maximizing specific improvements. A fit handball player is not the one who is able to run 1000 meters on the track faster than anybody else. A fit handball player is the one who able to play fast paced handball for the whole duration of the game. A fit handball player is capable of performing good tactical decisions at fast pace for the whole duration of the game. The above mentioned characteristics can only be improved by careful planning and periodisation of game-like drills in which decision-making is also a major component.

Handball is widely accepted as one of the most popular sports in the world, with a growing number of soccer enthusiasts and players world-wide. Handball is perhaps the

most demanding of all sports. In the modern game (at any level) specific training and conditioning is essential. Few sports are played on as large a playing field, lasting as long and without regular rest periods. Handball player posse's excellent endurance with VO_2max reported to range between 55 and 70 ml/kg/min in elite performers. The game is played at an average intensity close to the lactate threshold - approximately 80-90% of maximum heart rate.

To develop effective training programmes for handball players ranging from amateur to elite, team handball coaches, strength and conditioning coaches, athletic trainers, and sport physicians should be familiar with the physical characteristics, physiological attributes, throwing velocity and accuracy, and on-court performance of handball players. Coaches and trainers can effectively use the relevant information to develop more effective conditioning programmes for handball players. This information is also essential for coaches to help their players to develop a repertoire of defensive and offensive drills required for achievement in team handball.

Handball players are required to execute at their limits of physical capacities. In order to meet up the tactical demands of deals with their opponents' handball players must keep up a high state of attention. Hence, everyone involved in the modern handball game have to be familiar with the requirements various physical fitness and skills of the game. General and Specific Handball Training in Sequence and parallel protocols is the best ways to improve skill performance. Investigating the alteration in these parameters a result of General and Specific Handball Training in Sequence and parallel protocols is a valuable research intention.

Though many methods prevail to develop motor fitness and skill performance variables among handball players the role of General and Specific Handball Training in Sequence and parallel protocols is an undisputed one, lot of researches had been carried out on the effects of General and Specific Handball Training in Sequence and parallel protocols, but still the bone of contention is about the duration to get the maximum benefit. Experts differ in their views based on their studies, most of the experimental studies has been carried out in foreign countries using the sophisticated equipments and devices available there. Hardly few explorations have been made in India, the area of effective General and Specific Handball Training in Sequence and parallel protocols on skill performance variables. Hence, this study was planned.

METHODOLOGY

Selection of Subjects

To achieve the purpose of the study, 45 male inter-collegiate level handball players studying in and around Warangal District, Telangana, India were selected as subjects. The handball players who represented inter collegiate level competitions were only considered. Their age, height and weight ranged from 18 years to 23 years, 168 cm to 174 cm, 58 kg to 76 kg respectively. The selected subjects were randomly assigned into three equal groups of 15 subjects each. Group-I underwent General and Specific Handball Training in Sequence, Group-II underwent General and Specific Handball Training in parallel, group-III acted as control. The shooting skill performance was chosen as dependent variable and was assessed by conducting Zinn (1981) Team Handball Skills Battery test.

Training Programme

The experimental groups trained at the same time of day, three days a week, throughout the study. During the training, all subjects were under direct supervision and were instructed on how to perform each exercise. The experimental group-I performed General and Specific Handball Training in Sequence, group-II performed General and Specific Handball Training in parallel, and group-III was the control group they did not involved in any specific training. The General and Specific Handball Training in Sequence and parallel protocol groups participated in a 12-week training program performing a variety of exercises designed. The program was broken down into 4 four-week periods. Every fourth week, the overall volume of the workout was taken down to allow the players to deload and recover in order to prepare for the next four-week cycle. The subjects of the two experimental groups performed the specific training package alternatively three days in a week for 12 weeks.

Collection of Data

The initial testing took place before the beginning of the training period while the final testing was performed after 12 weeks of intervention with the general and specific handball training groups and control group on strength endurance.

Statistical Techniques

The assessed data of the three group's through standardized tests was analyzed to discover the significant variation between two tests (pre & post) through paired 't' test. Additionally, magnitude (%) of changes was also calculated. In order to nullify the initial mean differences the data collected from the three groups prior to and post

experimentation on selected dependent variables were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). The pre test means of the selected dependent variables was used as a covariate. Since three groups were involved, whenever the obtained 'F' ratio value was found to be significant for adjusted post test means, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases the level of confidence was fixed at 0.05 level for significance.

RESULT

The handball player's shooting Ability was analyzed statistically and presented in table- 1-3.

Table – 1: Paird't' Test Results and % of Changes on Shooting Ability of Chosen Three Group's

Group	Test	N	Mean	SD	DM	't' - ratio	%
GSHTS	Pre	15	28.60	1.12	3.20	8.10	15.55
	Post	15	32.80	1.14			
GSHTP	Pre	15	27.00	1.46	1.40	11.54	33.33
	Post	15	34.40	1.18			
Control (CG)	Pre	15	29.46	1.40	0.13	0.31	1.40
	Post	15	29.33	1.34			

*Table value for df 14 is 2.15(*significant)*

The pre and post values of both training groups differ considerably since the 't' values of general and specific handball training in sequence (8.10) as well as general and specific handball training in parallel (11.54) groups were greater than the table value (df14=2.15). After 12 weeks of treatment, general and specific handball training in sequence (15.55) as well as general and specific handball training in parallel (33.33%), group's shooting Ability enhanced considerably.

By using ANCOVA statistics, the shooting Ability of all 3 groups were analyzed and exhibited intable–2.:

Table – 2: ANCOVA Statistics Output on Shooting Ability of Chosen Three Group's

	GSHTS	GSHTP	Control (CG)	SoV	SS	df	MS	'F' ratio
Adjusted Mean	31.65	34.60	29.26	B	87.10	2	43.55	46.68*
				W	38.25	41	0.93	

*(Table value for df 2 & 41 is 3.23)*Significant (.05 level)*

The ANCOVA result proved that the adjusted final means (GSHTS =31.65, GSHTP =34.60 & CG=29.26) on shooting Ability of all 3 chosen groups significantly

differs, as the derived 'F' value (46.68) is better than the required value (*df 2 & 41* =3.23).

As the adjusted final means is significant, the follow up test was applied as put on view in table-3.

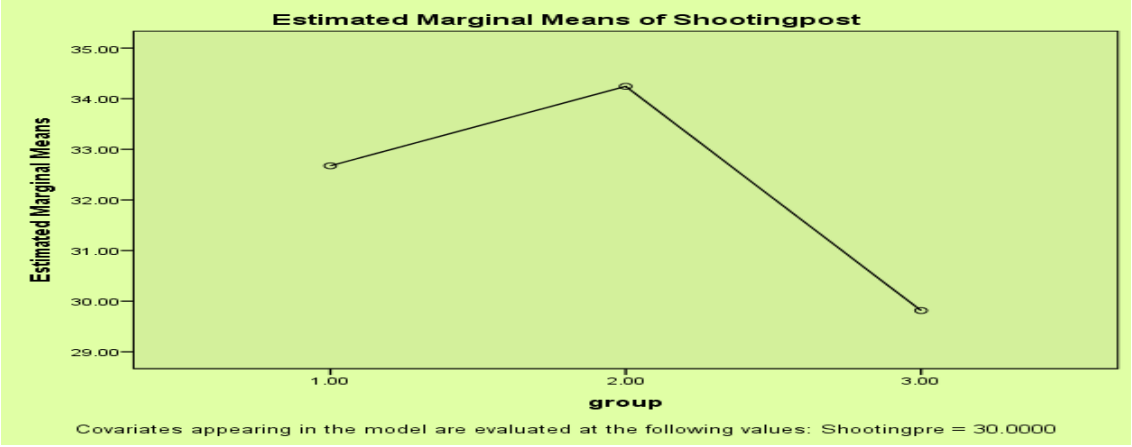
Table – 3: Scheffe's Test Outcome on Shooting Ability of Three Groups

Variable	GSHTS	GSHTP	Control (CG)	MD	CI
Shooting Ability	31.65	34.60		3.05*	0.89
	31.65		29.26	2.39*	0.89
		34.60	29.26	3.34*	0.89

**Significant (.05)*

It proved that due to GSHTS (2.39) and GSHTP (3.34) the shooting Ability was greatly enhanced. Though, general and specific handball training in parallel (GSHTP) is better than general and specific handball training in sequence (GSHTS) since the mean differences (3.05) is higher than CI value (0.89). Chosen three group's skill performance scores are illustrated in diagram-1.

Figure – 1: Chart Showing Skill performance of Chosen Groups



Discussion

Very few studies have evaluated the skill benefits of game-based training (Berry et al., 2008; Chatzopoulos et al., 2006). Of the studies that have been performed, the majority have compared technical skills training with game-based training (Berry et al., 2008; Turner & Martinek, 1999; Chatzopoulos et al., 2006). Turner and Martinek (1999) compared the effectiveness of 15 sessions of technical instruction training and game-based training on measures of declarative and procedural knowledge, skill (passing execution, accuracy and decision-making) and game performance in field-hockey players. Game-based training resulted in greater improvements in decision-making, execution, and declarative and procedural knowledge than technical instruction training.

Similar findings have been reported by Chatzopoulos et al., (2006) who found greater improvements in tactical behaviours in female soccer players participating in game-based training than with those undergoing technical instruction. Importantly, technical instruction offered no added benefit in skill execution that was not afforded to players through game-based training. While the studies of Turner and Martinek (1999) and Chatzopoulos et al., 2006 have provided important insight into the value of game-based training, a major limitation of these studies is that none adequately assessed the degree of learning beyond the initial acquisition phase.

To address the extent to which skills were retained following training, Berry and Abernethy (2003) had junior (Under-11 & Under-12) Australian football players undertake 10 weeks of game-based training and technique-based coaching followed by a 3-week retention period. The authors found non-significant improvements in decision-making ability and skill execution following the training interventions, which were maintained following the 3-week retention period. Game-based training elicited comparable improvements in decision-making ability and skill execution.

Although specific training has been shown to provide a specific training stimulus that generally replicates the overall demands of team-sport competition, recent evidence suggests that it may not always meet the high-intensity, repeated-sprint demands of competition (Gabbett & Mulvey, 2008; Gabbett, (2009). Collectively, the available evidence to date suggests that game-based training offers a specific method of conditioning the overall demands of team-sport competition.

Conclusion

After 12 weeks of treatment, general and specific handball training in sequence (GSHTS) (15.55%)and general and specific handball training in parallel (GSHTP) (33.33%) , group's shooting Ability enhanced considerably. Though, general and specific handball training in parallel (GSHTP) is better than general and specific handball training in sequence (GSHTS) in improving skill performance. Coaches can modify the content and nature of general and specific handball training to increase the physical and skill demands of the training stimulus.

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