



## Effect of Game-Specific Training With and Without Mental Imagery on Selected Physiological Variables among Hockey Players

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### Abstract

The purpose of the study was to find out the effect of game-specific training with and without mental imagery on selected physiological among hockey players. To achieve the purpose of the present study, forty five men Hockey players from Sholapur district, Maharashtra, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen each. Group I acted as Experimental Group I (Game-specific Training), Group II acted as Experimental Group II (Game-specific Training with Mental Imagery Training) Group III acted as Control Group. The duration of experimental period was 12 weeks. After the experimental treatment, all the forty five subjects were tested on their physiological variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using dependent 't' test and Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses. The game-specific training with mental imagery group had shown significant improvement in all the selected physiological variables than the game-specific training group and control group.

**Keywords:** Game-Specific Training, Mental Imagery, Hockey, Resting Pulse Rate, Vital Capacity.

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### Introduction

Many experts states that sports specific training must fulfill one or more of the following criteria ie, The exercise must duplicate the exact movement witnessed in a certain segment of the sports skill. The exact must involve the same type of muscular contraction as used in the skill execution. The special exercises must have the same range of motion as in the skill action. So perhaps the best sport specific exercises program, by definition, is playing own sport. The focus of training should be the quality of movement wanted. Sports specific training can help to improve strength, flexibility and stamina whereby the players can improve his performance in specific sports. For this specific training is in need to all about developing physical conditioning to improve performance and skills at a particular sport.

To date, numerous studies have examined the relationship between imagery and sport performance and have found that overall imagery has positive effects on many levels. Weinberg et al. (2003) point out that there have been many quantitative and qualitative studies that have shown that the systematic use of imagery (under certain conditions) was associated with enhanced

performance not only in motor performance and skill acquisition, but improvements were also found in confidence, concentration, and decreased anxiety. Richardson (1967) conducted the first major review of research on imagery use and its effect on motor performance, from which he made a number of conclusions. Among these conclusions was that most of the studies found mental practice to be associated with improved performance, and that there was evidence for a positive relationship with task experience (familiarity) and the efficacy of mental imagery.

### Methodology

The purpose of the study was to find out the effect of game-specific training with and without mental imagery on selected physiological among hockey players. To achieve the purpose of the present study, forty five men Hockey players from Sholapur district, Maharashtra, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen each. Group I acted as Experimental Group I (Game-specific Training), Group II acted as Experimental Group II (Game-specific Training with Mental Imagery Training) Group III acted as Control Group. The duration of experimental period was 12 weeks. After the experimental treatment, all the forty five subjects were tested on their physiological variables. This final test

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scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using dependent ‘t’ test and Analysis of Covariance (ANCOVA) to find out the significance

among the mean differences, whenever the ‘F’ ratio for adjusted test was found to be significant, Scheffé’s post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

**Results**

**Table I.** Computation of analysis of covariance of mean of game-specific training, game-specific training with mental imagery and control groups on resting pulse rate

	<b>GSTG</b>	<b>GSTMIG</b>	<b>CG</b>	<b>Source of Variance</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Means Squares</b>	<b>F-ratio</b>
<b>Pre-Test Means</b>	72.86	72.73	72.33	<b>BG</b>	2.31	2	1.15	1.34
				<b>WG</b>	36.00	42	0.85	
<b>Post-Test Means</b>	70.00	68.46	72.40	<b>BG</b>	117.91	2	58.95	46.42*
				<b>WG</b>	53.33	42	1.27	
<b>Adjusted Post-Test Means</b>	69.87	68.41	72.58	<b>BG</b>	128.49	2	64.24	63.87*
				<b>WG</b>	41.23	41	1.00	

An examination of table - I indicated that the pre test means of game-specific training, game-specific training with mental imagery and control groups were 72.86, 72.73 and 72.33 respectively. The obtained F-ratio for the pre-test was 1.34 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the game-specific training, game-specific training with mental imagery and control groups were 70.00, 68.46 and 72.40 respectively. The obtained F-ratio for the post-test was 46.42 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05

level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the game-specific training, game-specific training with mental imagery and control groups were 69.87, 68.41 and 72.58 respectively. The obtained F-ratio for the adjusted post-test means was 63.87 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on resting pulse rate. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffé’s post hoc test. The results were presented in Table-II.

**Table II.** The scheffe’s test for the differences between the adjusted post test paired means on resting pulse rate

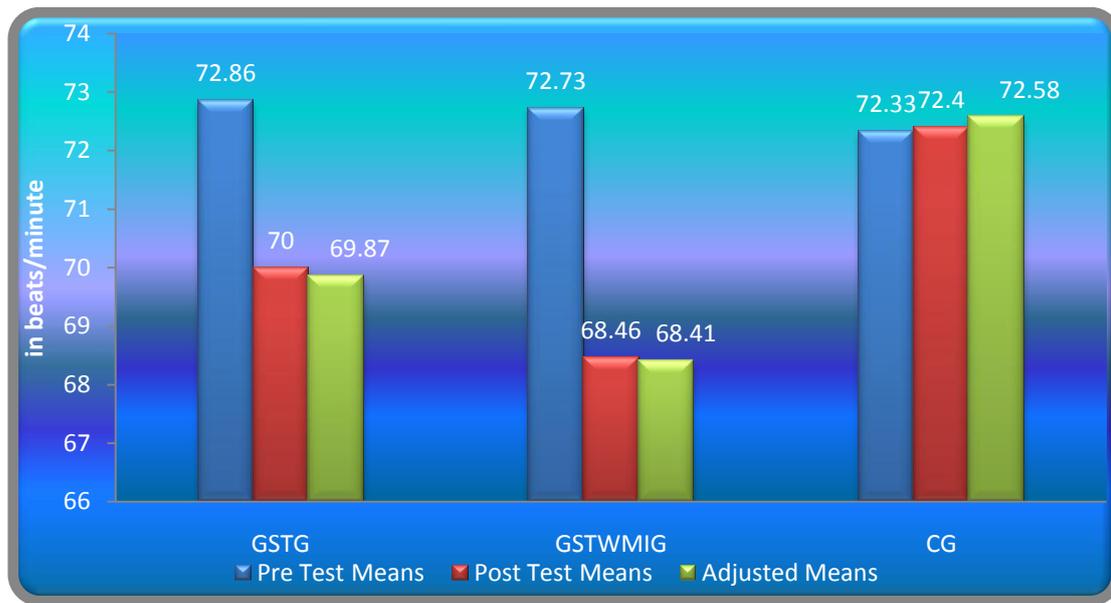
Adjusted Post-test means			Mean Difference	Required CI
<b>GSTG</b>	<b>GSTMIG</b>	<b>CG</b>		
<b>69.87</b>	<b>68.41</b>	---	1.46*	<b>0.92</b>
<b>69.87</b>	---	<b>72.58</b>	2.71*	
---	<b>68.41</b>	<b>72.58</b>	4.17*	

\* Significant at 0.05 level of confidence

The multiple comparisons showed in Table II proved that there existed significant differences between the adjusted means of game-specific training and game-specific training with mental imagery group (1.46), game-specific training and control group (2.71), game-specific training with mental imagery and control group

(4.17) at 0.05 level of confidence with the confidence interval value of 0.92. The pre, post and adjusted means on resting pulse rate were presented through bar diagram for better understanding of the results of this study in Figure-1.

**Figure I.** Pre post and adjusted post test differences of the, game-specific training, game-specific training with mental imagery and control groups on resting pulse rate



**Table III.** Computation of analysis of covariance of mean of game-specific training, game-specific training with mental imagery and control groups on vital capacity

	GSTG	GSTWMIG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	2.83	2.77	2.89	BG	0.11	2	0.05	1.52
				WG	1.58	42	0.03	
Post-Test Means	3.18	3.45	2.91	BG	2.20	2	1.10	40.88*
				WG	1.13	42	0.02	
Adjusted Post-Test Means	3.18	3.48	2.88	BG	2.56	2	1.28	72.18*
				WG	0.72	41	0.01	

An examination of table - III indicated that the pre test means of game-specific training, game-specific training with mental imagery and control groups were 3.69, 3.66 and 3.72 respectively. The obtained F-ratio for the pre-test was 0.15 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the game-specific training, game-specific training with mental imagery and control groups were 4.35, 4.34 and 3.74 respectively. The obtained F-ratio for the post-test was 32.55 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05

level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant. The adjusted post-test means of the game-specific training, game-specific training with mental imagery and control groups were 4.35, 4.36 and 3.73 respectively. The obtained F-ratio for the adjusted post-test means was 49.39 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on vital capacity. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe’s post hoc test. The results were presented in Table IV.

**Table IV.** The scheffe’s test for the differences between the adjusted post test paired means on slow vital capacity

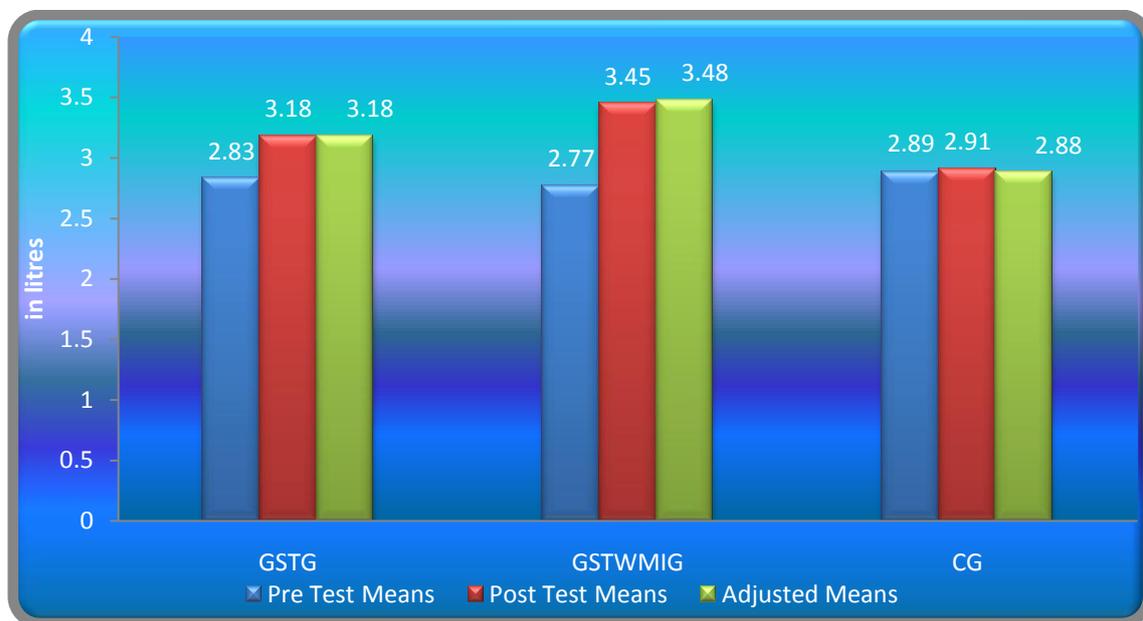
Adjusted Post-test means			Mean Difference	Required CI
GSTG	GSTWMIG	CG		
3.18	3.48	---	0.30*	0.09
3.18	---	2.88	0.30*	
---	3.48	2.88	0.60*	

\* Significant at 0.05 level of confidence

The multiple comparisons showed in Table IV proved that there existed significant differences between the adjusted means of game-specific training and game-specific training with mental imagery group (0.30), game-specific training and control group (0.30), game-specific training with mental imagery and control group

(0.60) at 0.05 level of confidence with the confidence interval value of 0.09. The pre, post and adjusted means on vital capacity were presented through bar diagram for better understanding of the results of this study in Figure-II.

**Figure II.** Pre post and adjusted post test differences of the, game-specific training, game-specific training with mental imagery and control groups on vital capacity



**Conclusion**

The game-specific training with mental imagery group had shown significant improvement in all the selected physiological variables than the game-specific training group and control group.

**References**

- Anders, Elizabeth and Myers, Sue. (2008). *Field Hockey: Steps to Success*, (2nd ed). Champaign IL: Human Kinetics.
- Anne, L. Rothstein. (1985). *Research Design and Statistics for Physical Education* (Englewood Cliffs, N.J: Prentice Hall, Inc.).
- Author’s Guide. (2013). *Rules of Hockey*. Switzerland: The International Hockey Federation.
- Barry, L. J. & Jack, K. N. (1971). *Practical Measurement for evaluation in Physical Education*. Burgess Publishing Company, Minneapolis.
- Clarke, H. H & David, H. C. (1986). *Application of Measurement to Physical Education*. (6<sup>th</sup> ed) Englewood Cliffs, New Jersey: Prentice Hall:P.52-103.
- Connolly, Helen & Egan, Tracie. (2005). *Field Hockey: Rules, Tips, Strategy and Safety* (1st ed). New York, NY: The Rosen Publishing Group, Inc.
- Cox, R. H. (1990). *Sport Psychology: Concepts and Applications*, (2nd ed). USA: Wm C, Brown Publishers. Sandhu, Gurbakhsh S. (2002). *Psychology in Sports: A Contemporary Approach*. New Delhi: Friends Publications.
- Ananda Kumar. D. (2006). Effect of specific drills on selected skill related fitness variables and skill performance among hockey players. Unpublished Masters Thesis, Bharathiar University.
- Ashwin, A. L. & Vallimurugan, V. (2014). Effect of Fartlek Training on Vital Capacity among Hockey Players. *International Journal of Recent Research and Applied Studies*, 1 (10), 37 - 39.