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## Effects of psychomotor drills on depth perception eye hand co-ordination and skill performance among hockey players

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### Abstract

The purpose of the present study was to determine the effects of psychomotor drills on depth perception eye hand co-ordination and skill performance among male hockey players. To achieve the purpose of the present study, thirty male hockey players were selected from the Bharathidasan University and Anna University BIT campus, Tiruchirappalli, Tamil Nadu, India. The subjects were randomly selected and their age ranged from 18-25 years. The selected groups were divided into two groups, experimental and control group. The experimental group consisted of fifteen Hockey players and they underwent the psychomotor drills with pranayama practices. Fifteen hockey players acted as the control group. The duration of the training period was restricted to six weeks and the session for six days in a week. Psychomotor drill is considered as the independent variables. The depth perception eye hand co-ordination and skill performance were known as dependent variables. The statistical technique Analysis of 't' test was used to analyze the pre-test and post-test data of experimental group and control group. The results showed that the psychomotor drills Program group had significant improvement the selected criterion variables such as depth perception eye hand co-ordination and skill performance compared to the control group.

**Keywords:** Psychomotor drill, depth perception, eye hand co-ordination, hitting and scooping

### Introduction

Psychomotor fitness plays an important role in everyday life activities of human begin. It depends on mental processes as well as on peripheral elements of the movement system. Psychomotor fitness plays a significant role in hockey since during the game great changes in workload as well as frequent changes in game situations occur. In this form of fitness it is necessary to evaluate particular game situations thought fast, precise and valid cognition, reaction and anticipation of player's own activities with those of his partners and opponents. Psychomotor fitness is also necessary for information processing that enters the Central Nervous System and provides efficient decision making ability especially under conditions of increasing fatigue. The application for all these psychomotor abilities during a competitive game situation is related to optimal steering and regulation of motor activities of players. The term "Psychomotor" is concerned with voluntary human movement, which is observable. Psychomotor variables are the variables bearing direct association with muscular skill, some manipulation of materials and objects and some act requiring neuromuscular coordination.

### Statement of the problem

The purpose of the study was to find out the effects of psychomotor drills on depth perception, eye hand co-ordination and skill performance among male hockey players.

### Hypothesis

It was hypothesized that the psychomotor drills with depth perception, eye hand co-ordination and skill performance would improve the selected criterion variables among male hockey players.

### Methodology

The purpose of the present study was to find out the effects of psychomotor drills depth perception,

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eye hand co-ordination and skill performance among male hockey players. To achieve the purpose of this study, thirty male hockey players were selected from the Bharathidasan University and Anna University BIT campus, Tiruchirappalli, Tamil Nadu, India. The subjects were randomly selected and their age ranged from 18-25 years. The selected subject was divided into two equal groups of fifteen each. Group I (PMDG) was considered as an experimental group who underwent for six weeks psychomotor drills on depth perception, eye hand co-ordination and skill performance for six days in week and group II (CG) as a control group without any specific training. On depth perception, eye hand co-ordination and skill performance were selected as variable for the study. The Data was collected from the selected criterion variables before and after a training programme as pre and

post test respectively. The Analysis of ‘t’ test was used to find out the significant difference between the groups of selected criterion variable separately.

**Analysis of the data**

The analysis of using ‘t’ ratio on depth perception, eye hand co-ordination of psychomotor drills group and control group have been analyzed and presented below. The data collected on Psychomotor Drill, Depth Perception, Eye Hand Co-ordination, Hitting, Scooping was variables due to effect of Psychomotor Drill were statistically processed and discussed in this chapter 30 intercollegiate level hockey players were divided into two equal groups such as experimental group [N=15] and control group [N=15]. The data were statistically analysed for significant different if any by using ‘t’ ratio.

**Table 1:** Computation Of ‘T’-Ratio Between Pre And Post Test Means Of Experimental Group On Psychomotor Drills, Depth Perception, Eye Hand Co-Ordination And Skill Performance Variables

Variables	Pre Test Mean ± SD	Post Test Mean ± SD	M.D	SEM	‘t’- ratio
Psychomotor Variables					
Depth Perception (In Centimeters)	23.31± 9.05	23.71 ± 8.94	.398	0.062	6.52*
Eye Hand Coordination (Numbers in Error)	82.28 ± 24.36	79.93 ± 24.15	2.34	0.287	8.12*
Skill Performance Variables					
Hitting	7.07 ± 1.58	8.07 ± .89	1.0	.258	3.87*
Scooping	7.40 ± 1.41	8.33 ± .82	.93	.206	4.52*

\* Significant at 0.05 level of confidence (2.14), 1 and 14.

Table - 1 shows the obtained ‘t’ ratios for the selected variables are; 6.52 (Depth Perception), 8.12 (eye hand coordination), 3.87 (hitting) and 4.53 (scooping). The obtained ‘t’ ratios were tested at 0.05 level of significance. From the results it was inferred that the mean gains / losses made from pre to post-test were statistically significant, since the t- ratio reached the significant level 2.14 at 0.05 for degree of freedom. The obtained results confirm the effect of psychomotor drill practices positively on psychomotor variables and Skill Performance variables. The changes observed from pre-test to post-test mean on the selected variables are as follows;

In the psychomotor variables the changes made from pre to post-test means are; 0.39 (depth perception), 2.34 (eye hand coordination), 1.0 (hitting) and .93 (scooping). As the changes in psychomotor drills on depth perception, eye hand co-ordination and skill performance variables were found to be statistically significant the formulated hypothesis related to this was accepted. Following this, to have visual presentation on changes made from pre-test to post-test means on psychomotor drills on depth perception, eye hand co-ordination and skill performance variables of psychomotor drill group were presented in tables 1.

**Table 2:** Computation Of ‘T’-Ratio Between Pre And Post Test Means Of Control Group On Psychomotor Drills On Eye Hand Co-Ordination And Skill Performance Variables

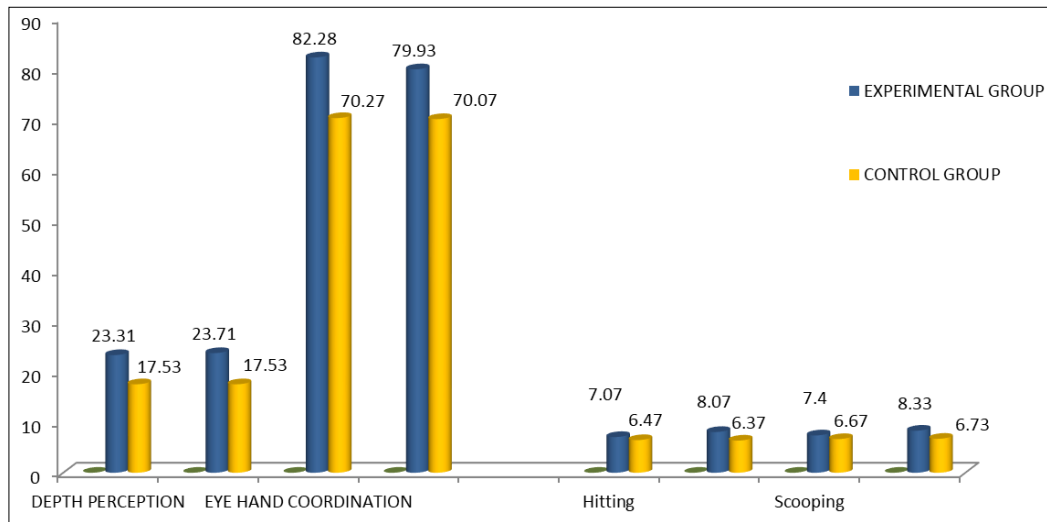
Variables	Pre Test Mean ± SD	Post Test Mean ± SD	M.D	SEM	‘t’- ratio
Psychomotor Variables					
Depth Perception (In Centimeters)	17.53 ±1.19	17.53 ±1.19	.002	.003	.823
Eye Hand Coordination (Numbers in Error)	70.27 ±13.35	70.07 ±13.29	.20	.262	.764
Skill Performance Variables					
Hitting	6.47 ±.424	6.37 ±.444	.20	.11	1.87
Scooping	6.67 ±.513	6.73 ±.492	.67	.153	.435

\* Significant at 0.05 level of confidence (2.14), 1 and 14.

Table - 2 shows the obtained ‘t’ ratios for the selected variables are; .823 (depth perception), .764 (eye hand coordination), 1.871 (hitting), .435 (scooping). The obtained ‘t’ ratios were tested at 0.05 level of significance. From the results it was inferred that the mean gains / losses made from pre to post-test were statistically insignificant, since the t- ratio failed to reach the significant level 2.14 at 0.05 for degree of freedom 1, 14. The changes observed from pre-test to post-test mean on the selected variables are as follows; In the psychomotor drills on depth perception, eye hand co-ordination and skill performance variables changes made from pre to post-test means in are; .002 (depth perception), .20 (eye hand coordination), .20 (hitting) and .67 (scooping).

As the changes in Psychomotor and skill performance variables were found to be statistically insignificant, the formulated hypotheses were rejected. Following this, to have visual presentation on changes made from pre-test to post-test means on psychomotor drills on depth perception, eye hand co-ordination and skill performance variables of control group were presented in tables-2.

Graphical representation of pre-test and post-test means of Control group psychomotor Drill training programme, psychomotor drills on depth perception eye hand co-ordination and skill performance variables are presented in figures -2.



**Fig 1:** Means values of depth perception eye hand co-ordination, dribbling, pushing experimental group and control group

### Discussion on the findings

The results of the study indicate that the psychomotor drills were significantly influenced to increase the psychomotor variables level and skill performance of male hockey players. The results of the study indicate that there is a significant improvement on depth perception and eye hand co-ordination, skill performance of the psychomotor drills group when compared to the control group. This study is supported by Wilkins and Gray (2015) [2] who found the changes in psychomotor variables can be linked to sports skill performance and Wiggins *et al.* (2014) [1] who found acquisition of psycho-motor skills are important predictor of skill acquisition. The findings were further in agreement with the findings of Sangeetha and Pushparajan (2014) [3].

### Conclusions

The results of the study reveal that there is a significant improvement on depth perception, eye hand co-ordination and skill performance in the psychomotor drills and skill performance group when compared to the control group. These changes are due to training as well as due to participating in psychomotor drills training. The training inspires changes in psychomotor variables and skill performance.

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