

Motor Coordination and Its Association with Cognitive Prophecy of Intercollegiate Male Table Tennis Players

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Abstract

Motor coordination in male table tennis players and its association with their cognitive prophecy was analysed in this study. With the help of purposive sampling 50 intercollegiate table tennis players (Average age 20.11 years) were selected. The study area was State of Chhattisgarh India. Standardized mirror drawing apparatus was used to assess motor coordination i.e. hand eye coordination in male table tennis players. The cognitive prophecy of selected male table tennis players was measured by non-verbal test of intelligence given in MGTI prepared by Mehrotra (1984). Results obtained through Pearson correlation revealed that motor coordination i.e. hand eye coordination was significantly related with cognitive prophecy in male table tennis players. The results are discussed in the light of well documented theories of cognitive and perceptual skills.

KEYWORDS : Cognitive prophecy, Motor coordination, Table tennis

INTRODUCTION

In a sport like table tennis basic physical, physiological and mental factors, hand eye coordination is among the most important factors. According to nature of sport hand eye coordination (cricket, table tennis) or foot eye coordination (track and field) are important. In any case whatever the nature of sport visual information from eyes coordinate with other part of body so visual motor skill or perceptual skill can be simply termed as motor coordination. Hence with the help of visual cue and information brain guides our hands to move precisely. Hand-eye coordination, or eye-hand coordination, is the ability to do activities that require the simultaneous use of our hands and eyes, like an activity that uses the information our eyes perceive (visual spatial perception) to guide our hands to carry out a movement. We use our eyes to direct attention to a stimulus and help the brain understand where the body is located in space (self-perception).

Hand eye coordination is use of hands to do certain task that is based on visual information provided by our eyes. This skill is not only useful in academics, day to day task but plays a major part towards excellence in sports such as table tennis. The success of table tennis player is about intercepting a coming ball with optimum skills. In table tennis a player needs to intercept an approaching ball with the help of visual information. So it is important for a player to have good hand eye coordination to execute the shot after estimating its velocity and position. This is a split second decision and needs supreme motor coordination to execute a shot.

Higher level of hand eye coordination is based on collective effort of our hands and eyes and hence becomes extremely complex cognitive ability. Hand eye coordination requires visual information to maneuver our hands in desired manner.

According to Ludeke and Ferreira (2003), hand eye coordination may be referred to as perceptual-motor response with movement of hands according to visual information provided by eyes. It is the skill of an individual to synchronised his/her motor responses with the hands according to visual stimuli. It is a measure of an individual's ability to perform a quick and accurate response to a stimulus with the movement of the hands.

Hemphill (2000) noted that there are two kinds of circumstances in which athletes use their eye-hand coordination: Pro-action situations in which the movement is initiated by the athlete based on visual information about a target, such as throwing a baseball and serving in tennis. In these situations, accuracy rather than speed of movement is the priority. Since psycho-motor abilities are part of cognitive domain number of researcher examined the possible linkage between intelligence with psycho-motor abilities. The greatest and statistically significant correlations with the factor of general intelligence are obtained in motor variables whose structure is characterized by predominant coordination, balance, speed of alternative movements and explosive strength, than in motor tasks consisting of unusual movement structures, where maximum speed is required along with the correct performance of the task. Other motor abilities do not have statistically significant relations to intelligence (Popoviæ 2010). However the results are somewhat confounding with Rabbit et al. (1999) reported strong correlation between psychomotor abilities and general intelligence while Mohan et al. (1982) reported non-significant association between psychomotor ability and intelligence. Despite the literature on linkage between cognitive prophecy and visual motor skills, no study yet have been conducted in which association between hand eye coordination in male table tennis players was assessed with their cognitive prophecy. This is also noticeable that Bootsma and van Wieringen (1990) Rodrigues et al. (2002), Toriola et al. (2004), Ak and Kocak (2010), Chu et al. (2012), Faber et al. (2014) conducted some of the aspects such as attacking forehand drive, head eye and arm coordination of table tennis players, hand eye coordination as selection tool for highly talented table tennis players, coincidence anticipation along with reaction time of table tennis players and motor skill in table tennis players. Hence the present study was planned.

HYPOTHESIS

In the present study it was hypothesized that hand eye coordination in male table tennis players will be significantly associated with their cognitive prophecy.

METHODOLOGY

To test the abovementioned hypothesis, following procedure was adopted:

Sample :

50 intercollegiate table tennis players (Average age 20.11 years) were selected. The study area was State of Chhattisgarh India. The age range of subjects was 18 to 22 years. Purposive sampling was used for selection of sample.

Tools :

A digital mirror drawing apparatus was used to assess hand eye coordination of selected male table tennis players. In this test, error while drawing is recorded and fewer errors indicate good hand eye coordination.

Mixed Type Group Test of Intelligence constructed by Mehrotra (1984) was used to assess cognitive prophecy (non-verbal intelligence) of selected male table tennis players. This test is divided into two sections - i.e. verbal and non-verbal intelligence test. Only non-verbal test was used to assess cognitive prophecy of male table tennis players.

Procedure :

Mirror Drawing test and MGTI was administered to each male table tennis player. Errors made while drawing a figure was recorded for each male table tennis players. The scoring for non-verbal section of MGTI was carried out as per answer key provided with manual. The data was tabulated and Pearson Correlation Coefficient was computed. The same is shown in table 1.

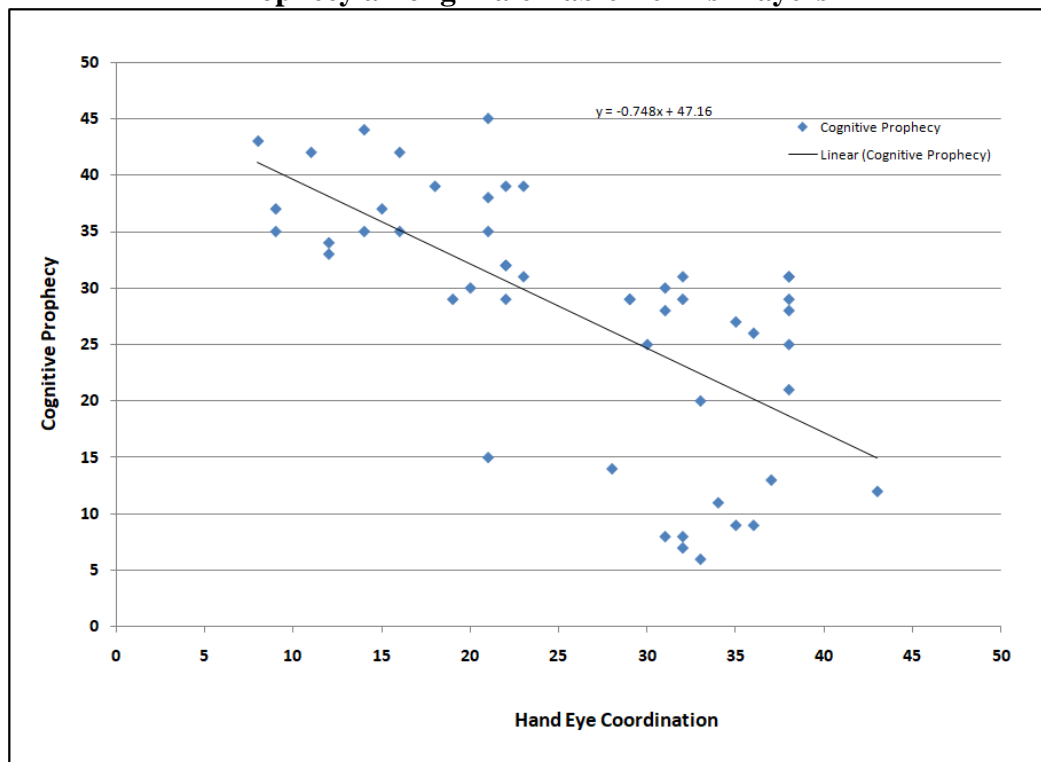
RESULT AND DISCUSSION

Table No. 1
Pearson Correlation Coefficient for Association between Visual Motor Skills and Cognitive Prophecy among Male Table Tennis Players

	N	Hand Eye Coordination	Intelligence
Visual Motor Skill (Hand Eye Coordination)	50	1	-.659**
Cognitive Prophecy (Non verbal intelligence)	50	-.659**	1

df(48)=0.39 at .01 level

Figure 1
Line Diagram Showing Association between Visual Motor Skills and Cognitive Prophecy among Male Table Tennis Players



The correlation coefficient as calculated by Pearson's formula was -0.659 with significance level of .01. It indicates negative significant correlation between the two variables. Hence increase in cognitive prophecy lead to decrease in less errors on mirror drawing test i.e. enhancement of hand eye coordination as cognitive prophecy increases. In a similar study Planinsec (2002a) revealed that cognitive factors influence complex motor task; similarly Thomas and Chissom (1972) emphatically

proved the association between motor coordination and intelligence. One more aspect is non verbal intelligence. It is judged by problem solving skills of participant in the form of pictures and diagrams. So appropriate processing of visual information is important to solve the problems. Hence same neural connections are there while performing motor coordination as in cognitive tasks. So their association is likely as was the case in this study.

CONCLUSION

On the basis of results, it was concluded that cognitive prophecy and motor coordination in male table tennis players are inter related.

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