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MOTOR IMAGERY AND REACTION TIME IN SPRINTING

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ABSTRACT

The purpose of this present study was to investigate how impact of motor imagery supports to enhance reaction time in sprinting. To work on the current experimental study 24 100 meters sprinters were selected. They were distributed in two groups, control (n=12) and experimental (n=12). Both groups were physically trained while experimental group was abetted with motor imagery sessions simultaneously and control group was involved in their regular training. The duration of the motor imagery was 8 weeks through video classes. Before commencement of 8 week motor imagery session a pre-test data was obtained, after 8 weeks of physical and mental practice the researcher was again taken final trial for the purpose of analysis of final result. The data was statically analyzed through SPSS (20 version). After analysis of the current study result showed the improvement of performance in all sprinters but due to some ways motor imagery group sprinter's does not improved reaction time in sprinting but the athletes were psychologically developing and psychologically stronger than other group.

Keywords: *Motor imagery, reaction time, sprinting.*

1. INTRODUCTION

Psychological training has a key role to provide assistance in enhancing sports performance (Weinberg & Gould, 2014). Motor imagery is defined as the neural system in which sensors of human body reproduced the action without any physical change. Motor Imagery is a cognitive stimulus tool for desire athletic performance (Holmes & Calmels, 2008). Motor imagery is a specific neural

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system which utilizing an inclusive assortment of kinesthetic imagery, mental imagery, movement imagery, mental practice, imagery rehearsal, visualization, vasomotor behavioral rehearsal and internal imagery (Kuan, 2014) that performed desired information for reaction timing in sprinting performance (Kawamori, Nosaka, & Newton, 2013). Sport psychology literature revel that motor imagery assists to boost achievement of sports performance (Morris, Spittle, & Watt, 2005). According to imagery involvements have significant use for influencing athletics' performance (Durand-Bush & Salmela, 2002). Motor imagery is a very helpful instrument to determine the sprinter's competitive performance, strength and its weaknesses after competition analysis (Taylor & Wilson, 2005). In the predictable imagination before competition scenario can prepare sprinters themselves to achieve their supreme performance which it counts maximum (Ungerleider, 2005). Research supports the worth of imagery for sustaining sports specific skills when optimizing motor practice (Driskell, Copper, & Moran, 1994). Motor imagery is a form of mental demonstration which spread on reminiscences and proficiency by recreating external events (Sternberg, 1988). Stephen Kosslyn created tentative evidence which has screening that motor imagery has intrinsic spatial properties and represents things in an 'analogue' perspective which implies that the motor representations experiences are like pictures, with intrinsically spatial representational properties of the sort that pictures have (Finke, Pinker, & Farah, 1989). Motor Imagination in present review include the benefit for athletes regarding improving sprinter's successful sport skills to help you perform better (Liggett, 2000) while helping to reduce sprinters overcome obstacles and achieve their full potential for obligatory performance (Greene, 2002). Motor imagery also used to assist players to anticipate brain activation, resolve problems, cope with difficulty, and strengthen optimistic physical performance (Weinberg & Gould, 2014).

Creative brain imagination puts the sprinter into a neurophysiological motor state in order to succeed peak performance (Grush, 2004). Imagery may be performed by individually or within the group to reduce negative voice and motor thoughts must be practiced by sprinters consistently and correctly to produce positive effects (Burton & Raedeke, 2008). Motor imagery technique is acquisition not only to see yourself perform in right angle on desire task but also useful for psychological strength and muscular activation (Korn, 1994). Accomplish practicing motor imagination athletes successfully build up their motivation level (Munroe, Giacobbi Jr, Hall, & Weinberg, 2000). Imagery can also help a performer serious injury and influence in rehabilitation context (Bowen, Palmer, & Yeates, 2010).

According to Cumming and Hall (2012) motor imagery revel significantly enhance performance. With growing success and interest in adapted sport, there is

a need for sport psychologists and coach's alike (Martens, 1996) further and more suitably understand the needs of sprinters with a physical impairment. With growing success and interest in adapted sport, there is a need for sport psychology consultants, researchers and coaches alike, to further and more suitably understand the needs of sprinters with a physical impairment (Stafford, 2005). Research indicates that motor practice can aid in motivating regarding sprinters recovery stage during healing processes (Driediger, Hall, & Callow, 2006). In research sensations the worth of imagery is convenient for sustaining athletic skill (Driskell *et al*., 1994). Motor imagery is expedient contraption when physical training is not possible more than any other performance enhancement (Ruvolo & Markus, 1992).

This study has been undertaken to see the impact between motor imagery and reaction time in sprinting. This study will provide the groundwork for additional research in related area; furthermore, this research will run the opportunity for sports organization, administrators and for the scholars of the sports sciences to explore advance knowledge in this area.

2. METHODS AND MATERIALS

2.1 Participants

The present study was based on experimental design method. To achieve the purpose of the study researcher was taken 24 (twenty-four) 100 meters male sprinters from Punjab University, Lahore Athletics team. The age of subjects was in between 19 to 24 years. Sprinters were divided into two groups, controlled (n=12) and experimental (n=12).

2.2 Procedure

Both groups were physically trained while experimental group was abetted with motor imagery sessions simultaneously. The duration of the motor imagery was 8 (eight) weeks. The motor imagery session was performed by video classes only. A pre-test data was obtained prior to commencement of 8 weeks motor imagery session. After completion of eight weeks of physical and mental practice the researcher was taken final trial for the purpose of analysis of final result.

2.3 Data Analysis

The obtained data was statically analyzed through SPSS (20 version). Paired sample *t*-test and correlation was performed.

3. RESULTS

Table 1: Paired sample *t*-test on experimental group of sprinters

	Paired Differences			t	df	Sig (2-Tailed)
	Mean	SD	SEM			
Experimental Pre and Post	0.010	0.014	0.004	2.600	11	0.025

Table 1 indicated that paired sample *t*-test was conducted to compare the reaction time before imagery practice and after imagery practice of experimental group for sprinters. There was a significant (0.025) difference between mean reaction times of sprinter's before and after imagery practice. It was concluded that motor imagery has a significant effect on the reaction timing of sprinters.

Table 2: Correlations of control & experimental groups

	Experimental Post Test
Experimental Pre Test	0.979*

*Correlation is significant at the 0.01 level (2-tailed).

Table 2 indicated that the correlation is significant at the 0.01 level. Correlation between all imagery variables after imagery training of experimental group was significant ($p<0.05$).

4. DISCUSSION

The goal of the present experimental effort to explore the supplementary background of motor task and athletics performance with specific to imagery content. The current scenario of athletics performance' the researcher emphasizes on modification of imagery function to ensure the ability of motor imagery (skill, strategy, goal, and affect). Although the researcher development experimental designed to measure several dimensions' motor imagery. In addition, the control group sprinters feel's positive development regarding motor imagery sessions. Furthermore, motor imagery task involved a decision regarding neural function of stimulus.

5. CONCLUSIONS

On the basis of result, the researcher summarizes the domain of motor imagery on reaction time. Motor imagery analysis appears as a very reliable system to

evaluate the body quick, practical, directly computerized. The relationship of imagery and confidence is consistent but although researcher doesn't see the significance difference among motor imagery on reaction time in sprinting thus motor imagery has no role on reaction time in sprinting.

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