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## Effects of fast suryanamaskar on reaction time of state level male football players

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### Abstract

The present study aimed to examine the “Effect of fast suryanamaskar on reaction time among state level male football players”. The subjects’ sample consists of forty-five (N=30) state level male football players ranging between 18-25 years of age were selected randomly. The subjects were divided into two groups namely: the Experimental Group (15 subjects in total) and the Control Group (15 subjects). Experimental Group-I (n=15) was given fast suryanamaskar training, and Group-II (n=15) was chosen as a control group. Initial (pre-test) and final (post-test) scores in the criterion was collected through the administration of Nelson Foot Reaction Time Test. The obtained data were computed using IBM SPSS computer software version 20. The level of significance was set at .05. To study the different training method’s effects on selected dependent variable, the pre-test and post-test means were compared by applying the paired sample ‘t’ test. 12 weeks of fast suryanamaskar training showed a significant effect on the variable of reaction time among state level male football players.

**Keywords:** Suryanamaskar, reaction time, football players, nelson foot reaction time test.

### Introduction

Surya Namaskar, also known as Sun Salutation, has been found to be beneficial for athletes and sports persons in various ways. It can be used as an alternative for aerobic fitness, especially in challenging conditions where regular exercise in open air is difficult, such as in extreme environmental conditions like Antarctica, cold and high altitude, hot desert, and microclimate in submarine and space (Bandyopadhyay *et al.* 2022) <sup>[1]</sup>. The practice of Surya Namaskar involves dynamic muscular movements synchronized with deep rhythmic breathing, which may contribute to the improvement in reaction time and neuro-muscular abilities. Therefore, incorporating Surya Namaskar into the training regimen of athletes may potentially enhance their physical and neuro-muscular abilities, ultimately improving their performance in sports. Another study on female volunteers found that the practice of Surya Namaskar led to an immediate decrease in both visual and auditory reaction time, suggesting its potential to improve neuro-muscular abilities (Bhavanani *et al.*, 2013) <sup>[4]</sup>. These findings indicate that Surya Namaskar may be beneficial in improving reaction time, which is crucial for athletes and sports persons.

Yoga is an ancient science involving the various form of practices such as asana (posture), pranayama (breathing exercise) and meditation (concentration technique) to awake ourselves and brings symmetry between psychic and somatic aspects of body functions (Bagya *et al.* 2018) <sup>[12]</sup>. Regular practise of any type of yoga influences cognitive functions by improving memory, strategic planning and concentration (Kuppusamy *et al.* 2020) <sup>[13, 14]</sup>. It is associated with self-esteem and higher academic performance which will be useful in modern curriculum (Kumar *et al.* 2020) <sup>[14]</sup>.

Yogic techniques, which aim at physical and mental self-culture, have convincing scientific bases and produce consistent physiological changes. It has been reported that yogis are capable of remarkable feats of endurance and controlling their autonomic functions. There is evidence that the practice of yoga improves cardiorespiratory efficiency and performance quotient (Nambinarayanan *et al.* 1992) <sup>[9]</sup>. The most admired and widely loved sport in the world is football. Football is the most watched amazing game in the world. It is a team sport played between two teams of 11 players.

Yogic exercises such as suryanamaskar are performed physically and mentally by people all over the world. Numerous previous studies have shown that yoga training enhances athletes' performance across a range of sports. Yogic exercise has a lot of potential applications in sports marketing. Basic motor fitness, physiological variables, specialised sports abilities, and psychological variables all play a role in the promotion of sports.

Reaction time is crucial in football due to the fast-paced nature of the game. Quick reaction time allows players to make split-second decisions, which can be the difference between success and failure on the field. In a study on college football players, the effects of audible plays at the line of scrimmage on reaction and response time were investigated (Finn, 1968) <sup>[5]</sup>.

Reaction time (RT) is the time taken for the initial response to a particular stimulus. It can be used as one of the tools to measure the status of mental health and provides an indirect index of the processing capability of the central nervous system (CNS) and sensorimotor performance (Senel and Eroglu, 2006) <sup>[10]</sup>. It can be influenced by yoga because it enhances physical & mental health and increases the performance of the practitioners (Esculier *et al.* 2012) <sup>[11]</sup>.

Reaction time is important in sports to develop fine motor skills for athletes in specific movements; this improves as a result of the extensive practice of those concerned with movements in athletic events. Rapid reaction time in athletes could be due to improved concentration and alertness, better muscular coordination, and improved performance in speed and precise tasks (Proctor and Dutta, 1996) <sup>[6]</sup>. To succeed in football, players need certain qualities. They should be physically fit and have good motor skills to perform technical and tactical moves accurately. This requires using proper training techniques. Research shows that changes in the body's physiological state directly affect physical fitness, which, in turn, affects performance. Therefore, the present study was designed to investigate the effects of fast suryanamaskar on reaction time of football players of Manipur.

### Statement of the problem

The main purpose of the study was to find out the effect of Fast Suryanamaskar on reaction time among state level male football players.

### Methods and procedure

For the purpose of the study, a random experimental control group design was adopted in this study. The subject's sample consists of N=30 state-level male football players ranging between 18-25 years of age who were randomly

selected from the football players of AIM Football Club, Khabam, Manipur. The subjects were randomly divided into two groups of 15 subjects each group namely: Experimental Group-I (n=15) was given fast suryanamaskar training and Group-II (n=15) underwent their usual training only to act as a control group. Test and criterion measure for testing reaction time was measured by using the Nelson Foot Reaction Time Test and the scores were recorded in number. The training was administered for a period of 12th weeks, 5 days a week, 1 session a day, each session lasting for 45 minutes. Both experimental group-I and Control Group-II were subjected to their usual training schedule. In addition to the above usual training schedule, the experimental Group-I had undergone fast suryanamaskar practice. The practice was meted out for 45 minutes to Group-I and Group-II. Pre-test and post-test data were collected through the administration of Nelson Foot reaction time test before the commencement and after the completion of experimental treatment. The obtained data were systematically computed using IBM SPSS computer software version 20 and the level of significance was set at .05. To reveal the different training method's effects on reaction time, the pre-test and post-test means were compared by applying the paired sample 't' test.

### Results and findings

The data were collected for 15 subjects from the experimental group and 15 subjects from control group. Analysis of all the collected data, their results and discussion are systematically presented as follows.

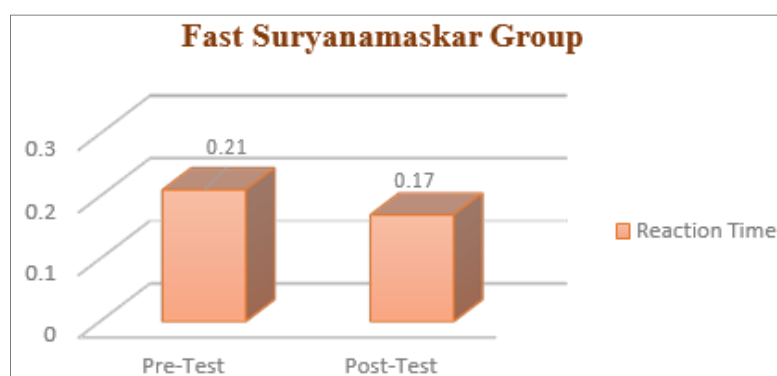
**Table 1:** Comparison of pre-test and post-test of fast suryanamaskar group on reaction time among state level male football players

Variable	Testing Condition	Mean	SD	MD	SEM	't'	Sig
Reaction Time	Pre-Test	0.21	0.017	0.032	.003	9.48*	0.000
	Post-Test	0.17	0.016				

\*Significance at .05 level Tabulated value of df (14)=2.14

An analysis of Table-1 shows that the pre-test and post-test mean of the fast suryanamaskar group on reaction time are 0.21 and 0.17 and their calculated 't' value is 9.48 which is greater than that of the tabulated value 2.14 at 0.05(14) level of confidence. It was indicated that there was a significance difference between the pre-test and post-test of the fast suryanamaskar group on reaction time among state level male football players.

The graphical representation of pre-test and post-test mean scores of reaction time for Fast Suryanamaskar group fig. 1.



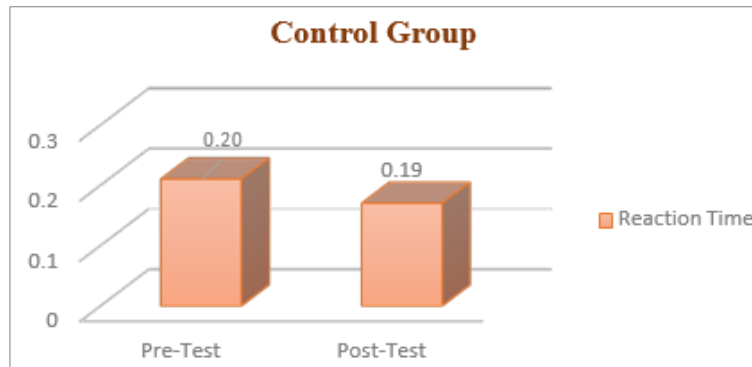
**Fig 1:** Fast Suryanamaskar Group

**Table 2:** Comparison of pre-test and post-test of control group on reaction time among state level male football players

Variable	Testing Condition	Mean	SD	M D	SEM	't'	Sig
Reaction Time	Pre-Test	0.20	0.010	0.006	0.004	1.58	0.136
	Post-Test	0.19	0.015				

\*Significance at .05 level Tabulated value of df (14)=2.14

An analysis of Table-2 shows that the pre-test and post-test and their calculated 't' value is 1.58 which is lower than that of tabulated value 2.14 at 0.05 (14) level of confidence. It was indicated that there was no significance difference between the pre-test and post-test of control group on reaction time among state level male football players. The graphical representation of pre-test and post-test mean scores of reaction time for the Control group fig. 2.

**Fig 2:** Control group

### Discussion of findings

The findings of the study confirmed that there was a significant difference between the pre-test and post-test of the fast suryanamaskar group on reaction time among state level male football players. It may be attributed to the fact that 12 weeks of fast suryanamaskar training may have improved the reaction time of the experimental group. However, no significant difference between the pre-test and post-test of the control group on reaction time. A study conducted by (Vairagade and Bhatt, 2021) [7] on female volunteers found that performing Suryanamaskar three times a day for two weeks showed a significant improvement in reaction time compared to a control group that performed breathing exercises for the same period. Another study conducted by (Begum *et al.* 2012) [8] revealed that short course of yoga has a beneficial effect on the reaction time and it can be used as a tool for improving the reaction time.

### Conclusion

**Based on the findings of the study, the following conclusion was drawn:** It was concluded from the finding that 12 weeks of weeks of fast suryanamaskar training showed significant improvement in the variable of reaction time among state level male football players. However, no significant improvement was observed in the control group.

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