

# Effect of Suryanamaskar and Taichi Training on Flexibility among Inter Collegiate Athletes

**V. Duraisami**, Assistant Professor, Dept of Yoga , TNPESU.

**S. Jayavel**, Director of Physical Education, APSA College of Arts & Science, Tirupatur.

## Abstract

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The purpose of the present study was to find out the effect of suryanamaskar and Taichi training on flexibility among inter collegiate male athletes. The study was conducted on 90 inter-collegiate male athletes. Totally three groups, namely, control & experimental group I & II, consisting of 30 athletes underwent eight weeks practice in suryanamaskar and taichi training whereas the control group did not undergo any type of training. The flexibility was measured before and after the experimentation using the standardized test to measure the flexibility. The data were analyzed by Analysis of Co-variance (ANCOVA) and it was concluded that the suryanamaskar and taichi training had significant ( $P < 0.05$ ) effect on the flexibility level.

**Keywords:** Suryanamaskar, Taichi, Flexibility.

## Introduction

The number of children and adolescents participating in organized athletic activities worldwide is increasing. However, physical fitness levels among youth are lower today than in previous decades. The combination of increased exposure and decreased preparedness for sports participation has led to an epidemic of both acute and chronic sports-related injuries in this population. Poor physical fitness, in addition to having negative health consequences, seems to be a risk factor for sports-related injury. Accurate injury surveillance data are required to better define the magnitude of the problem of injury in youth sports, as well as to identify specific risk factors for injury. From these data, targeted intervention strategies incorporating fitness training may be developed with the goal of preventing sports-related injury. Preliminary experience with several specific injury patterns--anterior cruciate ligament injuries and ankle sprains--has demonstrated the efficacy of such targeted prevention strategies is to improve the flexibility quality. In the practices of suryanamaskar and taichi training can develop the flexibility fitness for athletes.

Yoga means the experience of oneness or unity with inner being. This unity comes after dissolving the duality of mind and matter into supreme reality. It is a science by which the individual approaches truth. The aim of all yoga practice is to achieve truth where the individual soul identifies itself with the supreme soul or God. Yoga has the surest remedies for man's physical as well as psychological ailments. It makes the organs of the body active in their functioning and has good effect on internal functioning of the human body. Yoga is a re-education of one's mental process, along with the physical.

Surya Namaskara, like most asanas, is recommended to be performed on an empty stomach. Therefore some recommend a gap of at least two hours after eating and before performing the namaskara. It is generally practiced in the morning before breakfast or in evening . The Chinese characters for Tai Chi Chuan can be translated as the 'Supreme Ultimate Force'. The notion of 'supreme ultimate' is often associated with the Chinese concept of yin-yang, the notion that one can see a dynamic duality (male/female, active/passive, dark/light, forceful/yielding, etc.) in all things. 'Force' (or, more literally, 'fist') can be thought of here as the means or way of achieving this ying-yang, or 'supreme-ultimate' discipline.

### **Statement of the Problem**

The purpose of the study was to find out the effect of suryanamaskar and taichi training on flexibility among inter collegiate male athletes.

### **Hypothesis**

It was hypothesized that there would be a significant differences on flexibility among male athletes due to suryanamaskar and Taichi training than the control group.

### **Review of Related Literature**

Lee MS, Lee EN, and Ernst E. (2008) evaluated evidence from randomized clinical trials testing the effectiveness of tai chi for increasing aerobic capacity. Systematic searches were conducted on fourteen electronic databases without restrictions on population characteristics or the language of publication. The outcome measures considered for inclusion were changes in maximal oxygen consumption as a test for aerobic capacity. Five randomized clinical trials (RCTs) met all inclusion criteria. Three RCTs compared the effects of tai chi with no treatment. The meta-analysis failed to show an effect of tai chi on aerobic capacity compared with sedentary controls [n=151, weight mean difference, ml/kg/min, 0.50, 95% confidence intervals -1.14 to 2.15, P=0.55]. Two RCTs compared tai chi with conventional physical exercise including brisk, low intensity and moderate intensity walking, and aerobic exercise. The results show that tai chi was not statistically significantly superior to physical exercise. In conclusion, the existing evidence doe not suggest that regular tai chi is an effective way of increasing aerobic capacity.

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In Chinese philosophy and medicine there exists the concept of 'chi', a vital force that animates the body. One of the avowed aims of Tai Chi is to foster the circulation of this 'chi' within the body, the belief being that by doing so the health and vitality of the person are enhanced. This 'chi' circulates in patterns that are close related to the nervous and vascular system and thus the notion is closely connected with that of the practice of acupuncture and other oriental healing arts.

### **Methodology**

The purpose of the study was to find out the effect of suryanamaskar and Taichi training on flexibility among male athletes. For the purpose of this study, ninety athletes were chosen on random basis from Chennai only. Their age group ranges from 18 to 22.

The subjects were divided into three group of thirty each. The experimental group I would undergo suryanamaskar and the experimental group II undergo taichi training and third group consider as control group not attend any practices, and the pre test and post tests would be conducted before and after the training. Training would be given for eight weeks. It would be found out finally the effect of suryanamaskar and Taichi training on flexibility among athletes in scientific method. Flexibility was measured by the Equipments of meter Scale and measuring steel tape. The collected data were statistically analysed by using analysis of covariance (ANCOVA).

## Training Schedule

### Experimental Group I : Suryanamaskar Practices

Attention is to be brought to them when performing Surya Namaskara.

The following mantras are pronounced in each asana:

	Seed	Mantra Salutation	Chakra	Asana
1	om hram (? -Γ--Γ)	om mitraya nama? (?     )	<u>Anahata</u>	Pranamasana
2	om hrim (?     )	om ravaye nama? (?   )	<u>Vishuddhi</u>	Hasta Uttanasana
3	om hrum (?     )	om suryaya nama? (? -----Γ-- Γ--)	<u>Swadhisthana</u>	Hastapaadasana
4	om hraim (? -L--L)	om bhanave nama? (?   )	<u>Ajna</u>	Aekpaadprasarnaasana
5	om hraum (?     )	om khagaya nama? (?   )	Vishuddhi	Dandasana
6	om hra? (? -L--)	om pu??e nama? (? -----L --L)	Manipura	Ashtanga Namaskara
7	om hram (?     )	om hira?ya garbhaya nama? (?           )	<u>Swadhisthana</u>	Bhujangasana
8	om hrim (?     )	om maricaye nama? (?     )	Vishuddhi	Adho Mukha Svanasana
9	om hrum (?   )	om adityaya nama? (?     )	<u>Ajna</u>	Ashwa Sanchalanasana
10	om hraim (? --J--)	om savitre nama? (?     )	<u>Swadhisthana</u>	Uttanasana
11	om hraum (?   )	om arkaya nama? (?         )	Vishuddhi	Hasta Uttanasana
12	om hra? (? )	om bhaskaraya nama? (? )	Anahata	Pranamasana

**Experimental Group II : Taichi Training****Tai Chi Qigong**

Shibashi posture names (shibashi means 5 to 18 movements in Chinese)

Shibashi Set 1

Set 1 posture names

1 Start breathing (6)

2 Expand the chest (6)

3 Wave rainbow (6)

4 Separate cloud (6)

5 Stand monkey (4)

6 Row boat (6)

7 Play ball (6)

Group III : Control Group ( No Training).

**Computation of Analysis of Covariance and Post Hoc Test on Flexibility**

The statistical analysis comparing initial and final means of flexibility due to suryanamaskar and tai chi training among athletes is presented in Table I.

**Table I**  
**Computation of Analysis of Covariance on Flexibility**  
**(in Centimeters)**

	<b>Taichi Training</b>	<b>Surya Namaskar</b>	<b>Control Group</b>	<b>Source of Variance</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Squares</b>	<b>Obtained f</b>
<b>Pre Test Mean</b>	24.60	25.03	25.13	Between	4.8	2	2.41	1.02
				Within	205.6	87	2.36	
<b>Post Test Mean</b>	28.43	29.23	25.67	Between	210.2	2	105.08	25.87*
				Within	353.4	87	4.06	
<b>Adjusted Post Test Mean</b>	28.61	29.17	25.55	Between	226.9	2	113.43	33.78*
				Within	288.8	86	3.36	
<b>Mean Diff</b>	3.83	4.20	0.53					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86(df) =3.10 .

\* Significant

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II.

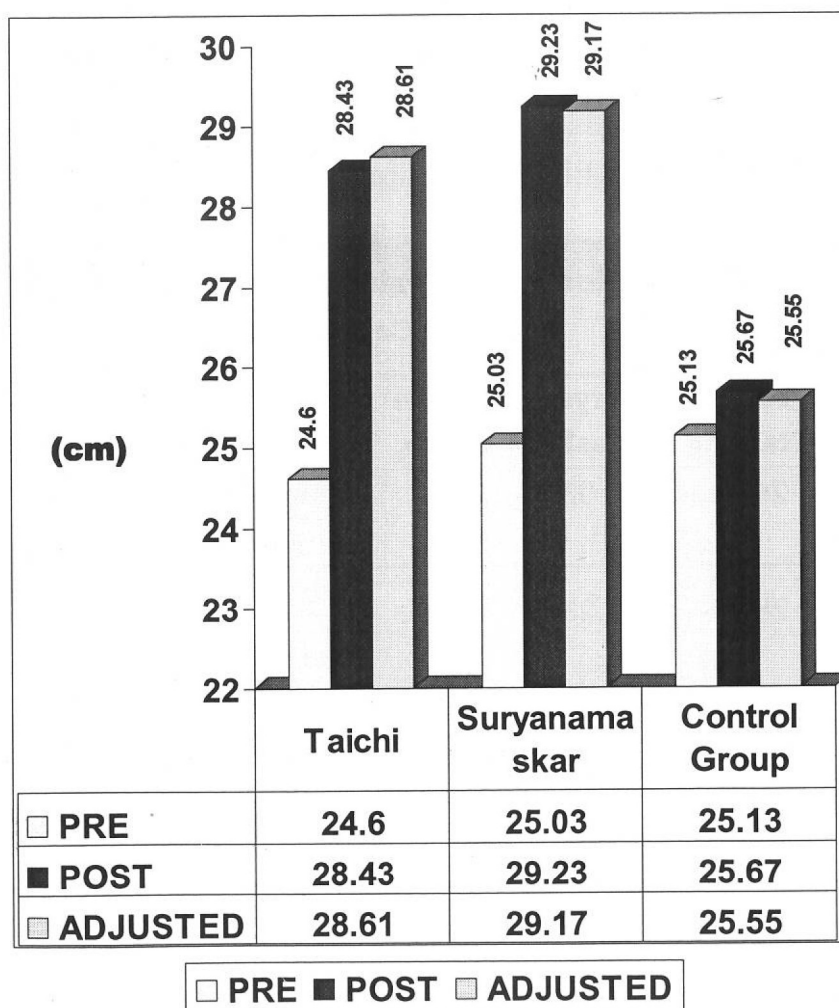
**Table II**  
**Scheffe's Confidence Interval Test Scores on Flexibility**

Means			Mean Difference	Required C I
Tai Chi Training Group	Surya namaskar Group	Control Group		
28.61	29.17		0.56	1.19
28.61		25.55	3.07*	1.19
	29.17	25.55	3.62*	1.19

\* Significant at 0.05 level of confidence

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I

**Figure -1**  
**Bar Diagram on ordered Adjusted Means of Flexibility**  
**(Scores in Centimeters)**



## **Results and Discussions of Flexibility**

Taking into consideration of the pre test means and post test means adjusted post test means were determined and Analysis of Covariance was done and the obtained F value 33.78 was greater than the required value of 3.10 and hence it was accepted that the suryanamaskar and tai chi training significantly improved the flexibility among male athletes at 0.05 level.

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between suryanamaskar group and control group and tai chi training group and control group on flexibility.. This proved that due to eight weeks suryanamaskar practices and tai chi training flexibility was significantly improved among athletes.

## **Discussion on the Findings of Flexibility**

The Analysis of Co-variance of Flexibility indicated that experimental group-I (Taichi Training), experimental group II (Suryanamaskar Practices), were significantly improved than the control group on Flexibility. It may be due to the effect of Suryanamaskar and Taichi Training.

The findings of the study showed that the experimental group II (Suryanamaskar) had improvement Flexibility more than the experimental group I (Taichi Training). Nearly everything in life requires balance. Suryanamaskar and Taichi Training on its own is a good step toward a healthy life style. However, as individual, it is important to realise that we need to work on our body as well as our mind. We can use Suryanamaskar and Taichi Training not only as part of a program to improve flexibility, but also as a way to assist in attaining other goals, Alder PA and Roberts BL, (2006) .

## **Conclusion**

There was a significant improvement in flexibility of experimental groups when compared to the control group. Suryanamaskar group has shown mild improvement than the Taichi training.

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