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EFFECT OF SURYA NAMASKARA PRACTICES ON THE COMPONENTS OF PHYSICAL FITNESS AND ITS TRENDS OF GOVERNMENT SCHOOL STUDENTS, CHANDIGARH

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ABSTRACT

The objective of the study was to determine the effect of Suryanamaskar yogic training on the Components of Physical fitness i.e. Strength, Speed, Endurance, Flexibility, and Coordination. The subjects for this study were selected from Government School, Chandigarh. A total of 65 students were randomly selected for the study. Yoga plays an important role as the ancient system of mental healing while dealing with all the components of body i.e. physical, mental, emotional, moral, and spiritual being. Suryanamaskar is an ancient dynamic Yogic training that concentrates on Physical, Mental as well as spiritual health also. It is a sequential combination of 12 Yogic postures made up of a variety of moment in spinal column forward and backward bending performed dynamically in synchrony with the breath. In this study, Suryanamaskar was considered the independent variable and components of physical fitness were considered the dependent variable. Strength was measured by the handgrip dynamometer test in Kg. Speed was measured by the flying 30 meters test in time seconds. Endurance was measured by the sit-up test in 30 seconds. Flexibility was measured by the sit and reach test in cms. Coordination was measured by an alternate hand wall toss test. Repeated measure design was used for this study. The test was started four weeks prior to the treatment and thereafter every two weeks observations were taken up to the end of six weeks of Suryanamaskar dynamic training. To determine the effect of suryanamaskar on physical fitness components, and level of significance was set at 0.05 levels. In relation to fitness components, a significant ($p < 0.05$) effect of Suryanamaskar was found at the end of six weeks of dynamic training.

KEYWORDS: Suryanamaskar, Strength, Speed, Endurance, Flexibility, Coordination

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INTRODUCTION

Suryanamaskar is a graceful combined sequence of twelve postures along with regulated breathing and relaxation. It relieves stiffness, revitalizes the body, refreshes the mind and purifies subtle energy channels. There are number of study have been conducted on Suryanamaskar and found significant improvement in flexibility (Choudhary and Krzytof, 2010). Suryanamaskar is an ancient Indian method of offering prayers to the rising Sun in the morning along with a series of physical postures with regulated breathing aiming at range of physical, mental and spiritual benefits (Parag and Manjunath, 2012).

Physical fitness, generally, is a state of health and well-being. Moreover, Physical Fitness has been measured through its five basic components i.e. Strength, Speed, Endurance, Flexibility, and Coordination. Although, there is no single way to measure a physically fit person and no single way to get achieve it. Therefore we need to know and understand every dimension of the components of physical fitness. The foremost component of physical fitness is strength. Strength is a maximal force that can be applied against a resistance. The second component Speed is the ability to move from one place to another in the shortest possible time. Endurance is a capability of a person's ability to repeatedly apply maximal force over a period of time. Flexibility can be defined as the ability to execute movements with greeter amplitude of range. One of the most important benefits of a flexibility program is the potential for relaxation. Physiologically, relaxation is the cessation of muscular tension. Undesirably high level of muscular tension has several negative side effects, such as decreasing sensory awareness and raising blood pressure. It also wastes energy, contracting muscles requires more energy than relaxed muscles. Furthermore, habitually tens muscles tend to cut off their own circulation. Reduced blood supply is results in a lack of oxygen and essential nutrients and causes toxic waste products to accumulate in the cells. This process predisposes one to fatigue, aches, and even pain. (Michael, 2004).

The practice of yoga asanas is the best way to improve the fitness components especially flexibility. There are plenty of studies that have been done to see the effect of Yogic asana-s on flexibility and Suryanamaskar is itself a combination of seven Specific asanas. Going through many research papers this query has been rise to find in which trend (pattern) fitness components improve and how much time need for significant improvement in all components of physical fitness. The objective of the

study was to determine the effect of Suryanamaskar on fitness components and its trends of Government school Students, Chandigarh.

METHODS

SUBJECTS

The subjects for this study were selected from the Government School Students, Chandigarh. Sixty- four Students in the age group of 12 – 16 were selected randomly for this study.

VARIABLES

Suryanamaskar was considered as an independent variable and Fitness components were considered as the dependent variables.

TESTING OF PHYSICAL FITNESS COMPONENTS

TEST FOR STRENGTH

The strength of the body was measured by Handgrip Dynamometer or Grip strength test. The subject was asked to remove his shoes and sit properly and be relaxed. Then the subject was asked to use his dominant hand applies his hand grip pressure as possible on the dynamometer. (It's an instrument that helps to examine the grip strength in kilograms.) The examiner records the maximum reading. The score was expressed in the number of kilograms. Three trials were given and the highest score was recorded.

TEST FOR SPEED

The speed of the subject was measured by flying 30 meters test. First of all the subject was asked to be relaxed and calm down. Then the subject conducts a warm-up for 10 minutes. The examiner assumed the mark of 60 meters straight from point A to point C with cones and also places a cone at 30 meters point B. the subject started with the commands of "Go" and the examiner note down the reading of the subject from point A to B and also Point B to C. The record of the score and time was taken two times and the best score was recorded.

TEST FOR ENDURANCE

The endurance of the subject was measured by a sit-up test. The subject was asked to conduct a warm-up for 10 minutes. Then the subject lies down on the mat with the knees bent, feet flat on the ground, and places his hand near their ears. The assistant holds the ankle joint and feet. The examiner gives a command "start" and starts the stopwatch. The subject sits up and touches the knees with their elbow, then returns back on the ground and continues to perform as many as possible in 30 seconds. The examiner count and records the number of correct sit-ups

completed in 30 seconds. Then the recorded score to assess the final performance record.

TEST FOR FLEXIBILITY

Flexibility of lower back and leg muscles was measured by Sit and Reach test. The subject was asked to remove shoes and place his/her feet against the testing box while sitting on the floor with straight knees. Then the subject was asked to place one hand on top of the other hand so that the middle fingers of both hands were together at the same length. The subject was asked to lean forward and place his hands without bouncing over the measuring scale on the top of the box for at least one second. Bending of the knee was not allowed. The score was expressed in a number of centimeters. Three trials were given and the highest score was recorded.

TEST FOR COORDINATION

Fitness component Coordination of the subject was measured by an Alternate hand wall toss test (to measure the hand-eye coordination). The subject was asked and shows the mark point which is 2 meters far from the wall. The subject stands behind the marked point and faces the wall. Then the subject had thrown the ball from one hand in an underarm action against the wall and attempted to be caught with the opposite hand. Again the ball is thrown back against the wall and caught with the initial hand. This test can continue for 30 seconds. The score was expressed in the number of thrown in a set period of time.

EXPERIMENTAL DESIGN

The repeated measures design was used for this study. One group of total 64 students was created. Total treatment duration was six weeks. Tests were administered in equal interval of two weeks. The tests were started four weeks prior to the Suryanamaskar treatment and took place every two weeks, for three times. Thereafter, test took place every two weeks during the treatment.

Trials	1	2	3	4	5	6
	Pr-treatment	Pr-treatment	Treatment	Treatment	Treatment	Treatment
Time (weeks)	-4	-2	0	+2	+4	+6

All participants were briefed introduced to the general objectives and requirements of Suryanamaskar. Suryanamaskar training was carried for a period of six weeks, five days per week. The scheduled time of practice lasted for 30-40 minutes. Each day of the first week, Suryanamaskar practice was demonstrated to the group by the expert and the most important points were reviewed several times.

Afterward, a review of the most important and common mistakes was conducted once per week. The pace of Suryanamaskar was 2 minutes for each round. Each step took around 10 seconds. To investigate the effect of suryanamaskar practices of Physical fitness components on Government School students, Chandigarh.

RESULT

The mean values and standard deviation of different trails are show in table 1.

TABLE 1 DESCRIPTIVE STATISTICS OF SIX DIFFERENT TRIALS OF AGGREGATE FITNESS COMPONENTS

	Mean	Std. Deviation	N
Trial-1	29.75	4.45673	63
Trial-2	29.77	4.41654	63
Trial-3	30.88	4.09532	63
Trial-4	30.65	3.85476	63
Trial-5	31.96	2.06745	63
Trial-6	32.36	1.07643	63

Now pair-wise comparison between trials is show in table 2

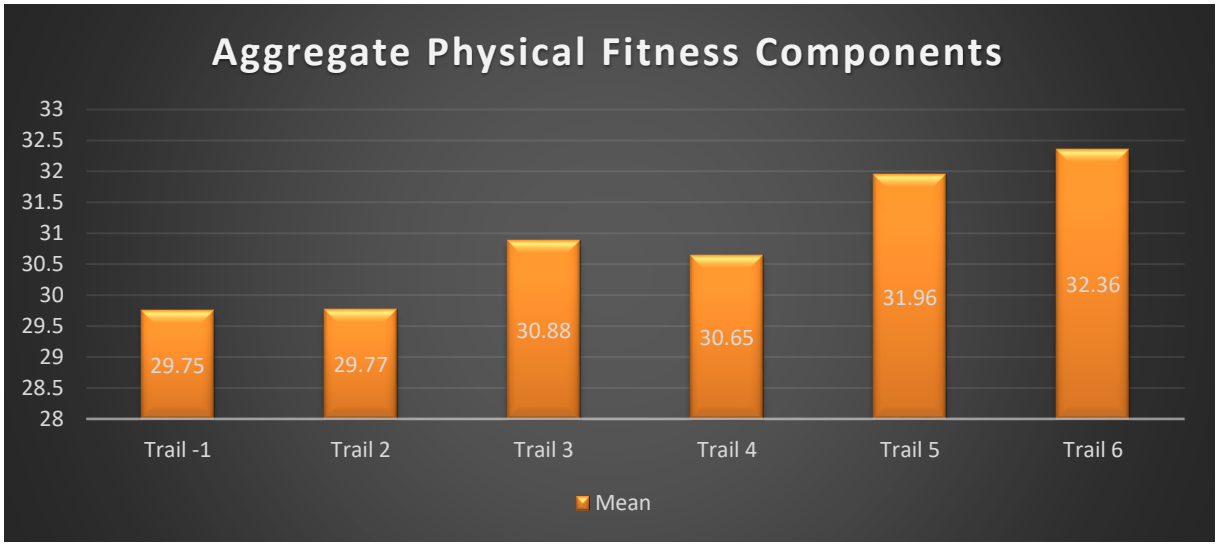

TABLE 2: PAIR-WISE COMPARISON OF ALL SIX TRIALS OF AGGREGATE FITNESS COMPONENTS

Trails	Mean difference	Sig.
Trial1	- .231	1.000
Trail2	-.423	1.000
Trial3	-1.192	1.000
Trail4	-5.500*	0.002
Trial5	-7.908*	0.000
Trial6		

Trial2 Trail3 Trial4 Trial5 Trial6	-.192 -.962 -5.269* -7.677*	1.000 1.000 0.003 0.000
Trial3 Trial4 Trial5 Trial6	-.769 -5.077* -7.485*	1.000 0.007 0.000
Trial4 Trial5 Trial6	-4.308* -6.715*	0.000 0.000
Trial5 Trial6	-2.408*	0.000

*The mean difference is significant at the 0.05 level.

Table 2 shows that it is no difference between trial 1 and trial 2, trial 1 and trial 3, trial 2 and trial 3. This shows that no improvement took place in fitness components before the start of the treatment or practice of Suryanamaskar. There is no significant difference between trial 3 and trial 4. This indicated that the short duration (two weeks) of practice does not significantly improve the performance of all five components. There is a significant difference between trial 3 and trial 5, trial 3 and trial 6, Trial 4 and trial 5, trial 5 and trial 6. This indicated that the 4 weeks of practice of Suryanamaskar is sufficient to bring a significant improvement in fitness components.

DISCUSSION

The purpose of the study was to determine the effect of Suryanamaskar on physical fitness components and its trend on Government school students of Chandigarh. The finding of the study revealed that there was a significant improvement found in components of physical fitness due to the regular practice of suryanamaska. From Suryanamaskar asana's point of view, Muscle length can be modified and stretching is the primary method by which muscle lengthening can occur. A muscle has both an origin and an insertion point, basically the two ends of a muscle. At each end of the muscle, a tendon attaches that muscle to the bone. Stretching involves taking these two ends of the muscle further apart to lengthen the muscle and tendons and maintain this length of the muscle in the long term. Body Muscle has a visco-elastic property. Basically, this means that it is not perfectly elastic, like a rubber band. When a rubber band is stretched it returns to its normal length. Over time, however, when muscles are stretched they experience creep, that

is, they gradually get longer, thus increasing the performance of all components of physical fitness.

In the study, the pair-wise comparison shows that the duration of six weeks of treatments was sufficient to bring out the significant difference (improvement) in Physical fitness components and also shows that the short duration of only two weeks of the treatment was not effective enough to bring about any significant difference, while a significant difference was noted after at least four weeks of treatment. In this way, the present study confirmed that the practices of Suryanamaskar have a significant improvement found in all five components of physical fitness which also improvement in the level of Physical and mental Health of school going students.

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