



# Impact Of Surya-Namaskar On Explosive Strength Of Boys' Upper-Body

<sup>1</sup>Pawan deep, <sup>2</sup>Rohit Chauhan, <sup>3</sup>Amish Thakur

<sup>1</sup>Ph.D scholar, <sup>2</sup>Ph.D scholar, <sup>3</sup>M.P.Ed

<sup>1</sup>physical education,

<sup>1</sup>Dav University, Jalandhar, India.

**Abstract:** This study sought to find out how Surya-Namaskar, a type of yoga, affected upper body explosive strength. The study involved a randomized controlled trial with a sample of individuals separated into two groups: the experimental group, which engaged in Surya-Namaskar practice, and the control group, which did not partake in any particular training. Using a medicine ball throw test, the participants' upper body explosive strength was evaluated both before and after the intervention. The experiment's findings showed that individuals in the experimental group who regularly practiced Surya-Namaskar throughout the intervention period significantly increased their upper body explosive strength. However, the control group did not experience any significant changes in explosive strength at the same period. This implies that Surya-Namaskar has a beneficial effect on the growth of upper body explosive strength. The results of this study have applications for academics, athletes, fitness buffs, and others who want to improve their upper-body explosive strength. Surya-Namaskar may provide an efficient substitute for conventional strength training exercises in workout regimens. Additionally, it demonstrates how yoga practices may enhance physical performance and offers fresh perspectives on the fields of exercise science and training approaches. Future studies may also look at the underlying processes resulting in the reported increases in explosive power after Surya-Namaskar training. In conclusion, this study advances our knowledge of how Surya-Namaskar affects upper-body explosive strength. It creates new study opportunities in the area of yoga-based training and its conceivable advantages for improving physical performance, particularly in the context of developing explosive strength.

**Index Terms -** yoga, Surya-namaskar, asana, strength, explosive strength.

## I. INTRODUCTION

Yoga is incredibly old—certainly far older than the only trustworthy record we currently have, which is archaeology. The archaeological evidence points to a well-developed system of yoga practice that must have existed for a very long time before the figurines and seals were created. The fact that yoga leaves little behind other than myths and legends about the amazing abilities that some of the more advanced practitioners of the arts have has made it impossible to trace the history of the practice. Sunrise, the calmest hour of the day, is the optimum time to perform Surya Namaskar. As much as possible, practice outside with the rising sun. Sunset is another great time for exercise since it ignites the digestive fire. However, Surya Namaskar can be performed at any time as long as the stomach is empty. Solution to the sun is the fundamental translation of the Surya Namaskar. It is a very old custom that dates back to the time of the Vedic culture. Twelve asanas are linked together by the practice's physical foundation in a series that is dynamically executed. The sequence of these poses is intended to alternately extend the spine in both directions. Sunset is another great time for exercise since it ignites the digestive fire. However, Surya Namaskar can be performed at any time as long as the stomach is empty. Solution to the sun is the fundamental translation of the Surya Namaskar. It is a very old custom that dates back to the time of the

Vedic culture. Twelve asanas are linked together by the practice's physical foundation in a series that is dynamically executed. The sequence of these poses is intended to alternately extend the spine in both directions. Surya Namaskar strength and flexibility make it one of the most effective and comprehensive ways to build health and stamina while also preparing a practitioner for yoga's more in-depth techniques. Three components—rhythm, energy, and form—support it. The twelve poses, which are always carried out in the same order, clearly show the shape. The subtle energy known as prana is activated by such steady and continuous performance of postures that are coordinated with the breath. Similar to how biorhythms of the body are described in the past by the science of the twelve zodiac phases, this continuous and rhythmic flow represents the rhythm of the cosmos. Since Surya Namaskar awakens the mental body in a way that no other modern sport or activity can, the rhythmic superimposition of its structure and energy on our psychosomatic organism may be a transformative force [2]. Dawn, when it is the quietest of the day, is the ideal time to practice Asana. Practice outside whenever it's possible while facing the rising sun. Evening is also a good time to practice because it animates the fire in the stomach. In any event, asana can be practiced whenever the stomach is empty. Asana's primary meaning is to respond to the sun. It is a remarkably outmoded tradition that dates back to the Vedic era. The training's physical foundation combines twelve asanas in a progressionally performed order. These poses are desired because they extend the spine both forward and backward. Every asana is entered with alternate internal and outward breaths when performed traditionally. Two configurations of the twelve poses are considered to make up an entire round of asana, with the second set's modification requiring that the opposite leg move through the pose first. As rational research into yoga expands, its beneficial aspects are also being studied. Asana provides more benefits with less effort. Asana practice unquestionably enhances overall health and wellness. Cardio respiratory endurance refers to the body's ability to continue supplying skeletal muscles with oxygen when they are being sustained by muscular fitness during physical activity [3]. The ability to work against resistance is a sign of muscular fitness. The maximum force that a particular muscle or muscle group is capable of producing is known as muscular strength. There is no one test for determining muscle strength because the maximal force that may be produced relies on a number of variables, including the size and number of muscles engaged, the percentage of muscle fibres activated, the coordination of the muscle groups, etc. Maximum strength (isometric and dynamic), explosive strength, endurance strength, and isokinetic strength are the key elements of muscular fitness that are associated to health [4]. However, in circumstances when there is a limited amount of time to produce force, such as the body's descent after losing equilibrium or during explosive sports activities, the production of explosive muscle force, which is frequently evaluated as the rate of force development (RFD), is thought to be functionally essential. Numerous neurological, mechanical, and architectural factors, including agonist neural drive, maximal strength, fascicle length, fascicle angle, and muscle-tendon unit (MTU) stiffness, are hypothesized to have an impact on the creation of explosive force. It has implications for enhancing health and athletic performance, but it is unknown how different strength-training modalities affect explosive force generation and its numerous determinants [5–11]. Yoga is a form of exercise that can improve physical and mental well-being, balance out all bodily systems,

### **Objectives of the study**

1. To find out the significant difference between pre and post-test of explosive strength of upper body.
2. To find out the important role of Surya Namaskar in the field of physical education.

### **Hypotheses**

1. It was hypothesized there may be a significant difference on explosive strength of upper body due to Surya Namaskar practice among physical education students.

## **II. Methodology**

### **Selection of subjects**

To achieve the purpose of the present study total 40 physical education students were randomly selected using purposive sampling from DAV University, Jalandhar, aged ranged between 17 to 25.

### Selection of variables

Independent variables

- Surya namaskar

Dependent variables

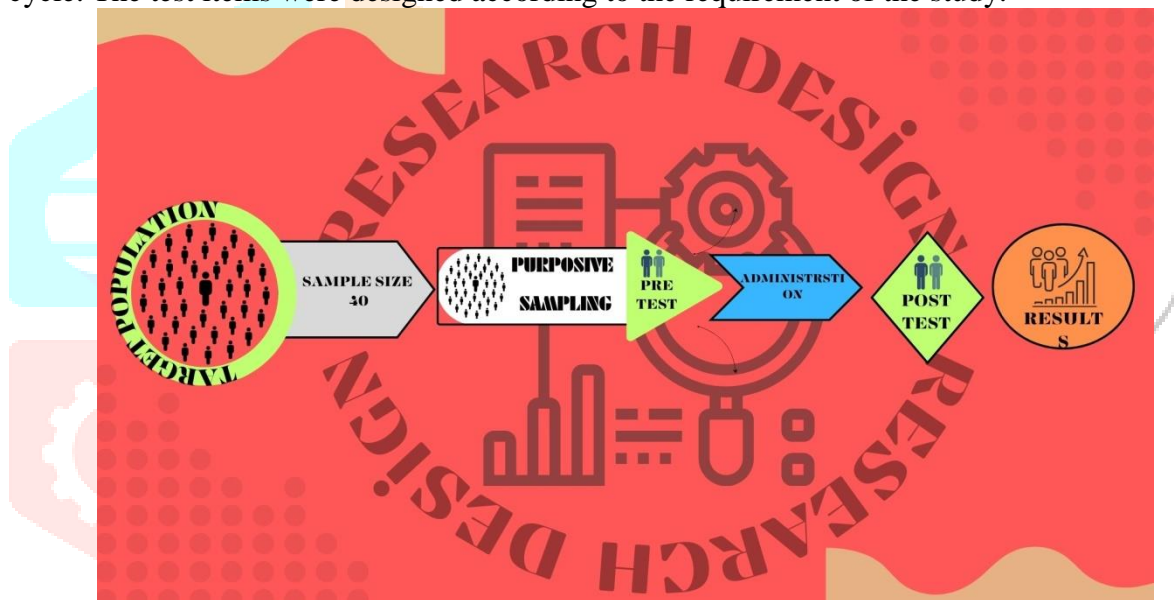
- Upper body explosive strength

### Criterion measures

Upper body Explosive strength was measured by medicine ball throw and recorded in the meters. The distance from the starting position to where the ball land was recorded. The measurement is recorded to the nearest 0.5 foot or 10 cm. The best result of three throws is used and support long-term health. Yoga can be practiced at any time on an individual basis after it has been learnt, removing frequent obstacles to physical activity including time constraints and bad weather.

### Experimental Design

A single group design was employed in the study to determine the impact of surya namaskar exercises on students' upper body strength and capacity. There were 40 total subjects, with ages ranging from 17 to 25. Data were gathered from each subject's pre-test and post-test of the eight weeks of training sessions, which included five days a week and 30 minutes each day of surya namaskar with complete rest to the subject after every cycle. The test items were designed according to the requirement of the study.



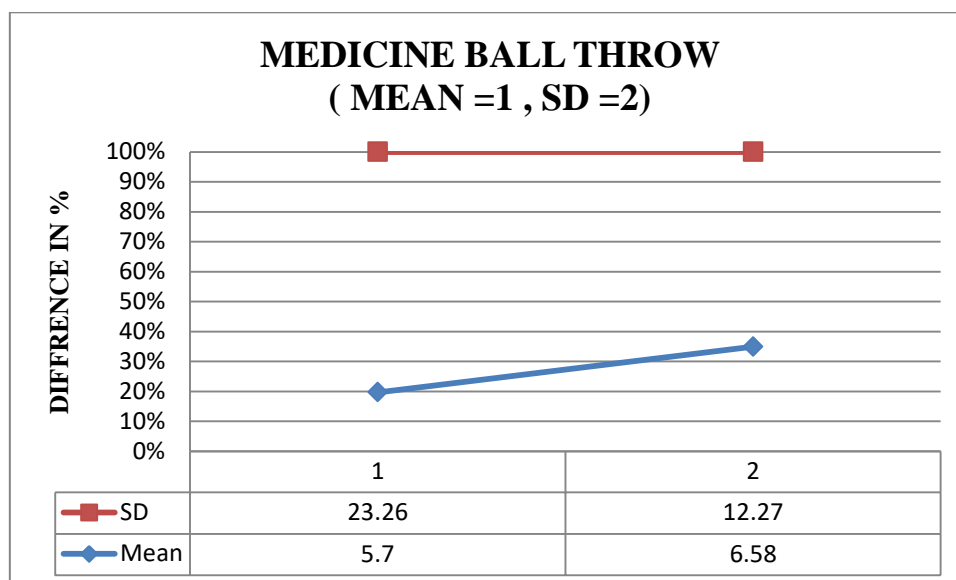
### Statistical Procedure

The data were analysed by applying descriptive statistical and paired t-test by the use of SPSS V 23.0. The level of significance was set for the study at 0.05

### III. Result and findings

MEDICINE BALL THROW (BOYS)		
Group	PRE TEST	POST TEST
Mean	5.70	6.58
SD	23.26	12.27
N	20	
T-value	-2.88	

*Table-1* Descriptive Statistics and independent Sample t-test of medicine ball throw of DAV University Level students pre and post test.



**Graph-1** show the mean and SD of medicine ball throw of DAV University Level physical education students pre and post test.

### Discussion on Hypotheses

As per the result of used test and data interpretation the Hypotheses was accepted

### IV. Discussion & Conclusion

The purpose of this study was to determine the effect of Suryanamaskar on upper body of physical education students of DAV university. The finding share similar to previous studies on yoga which have reported improvement in the strength of upper body by followingsurya namaskar. There is significant improvement in upper body strength by calculating from mean average to which is statistically. Surya namaskar poses helps in strengthening the upper part of the body muscles. The present study focused on upper body strengthening while performing the 12 yoga poses of Suryanamaskar [12]. Based on the analysis of the results obtained, we conclude that the significant differences were noted in the experimental group.

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