



Effect of surya namaskar on core stability in young females-an experimental study

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Abstract

Suryanamaskar is a sequence of 12 powerful yoga poses which stimulates every large muscle groups in the body. It leads to alternate compression and stretching of abdominal organs which may help to tackle digestive or stomach related problems and also help to regulate menstruation. Because of lack of time and hectic schedule, it becomes difficult for the women to do exercise regularly. Nowadays, almost everyone suffers from some form of back pain. So, here arises the need to found out the influence of asana with surya namaskar practices on core stability among young females. A sample of 15 young females were taken as per inclusion and exclusion criteria. The subjects were made to do suryanamaskar for 15 days (2 times/days) and 2 sets of it increased every 5th day. Plank and dynamic abdominal endurance test were used to measure core stability. When mean difference of both the tests were compared, findings revealed improvement in core stability. It can be concluded that performing suryanamaskar for 15 days has shown improvement in core stability among young females.

Keywords: suryanamaskar, core stability, plank test, dynamic abdominal endurance test

Introduction

Core stability is achieved through the stabilization of one's torso, thus allowing optimal production, transfer and control of force and motion to terminal segment during an integrated kinetic chain activity [7,1] Many studies has been done on female athletes which suggest risk of lower extremity injury increases with decreased lumbopelvic(core) stability as athletic activities are closed chain in nature. If core stability is compromised, then it loses control over the movement and also on transferring the load over the joints while producing the movement.

In Indian culture, yoga has traditionally been a part of daily routine which is meant for attaining a healthy lifestyle. [7, 4] In this pandemic to boost immune system people are taking help of yoga. Surya Namaskar is a yogic technique composed of dynamic muscular movements synchronized with deep rhythmic breathing. [7, 3] In COVID-19, it causes hyper-inflammatory response in critically ill patients and leads to acute respiratory distress syndrome (ARDS) and patient may experience muscular pain and various body aches due to inflammatory response. So, to prevent that people are recommended to do yoga or exercise which help them to concentrate on their breathing which may improve their oxygenation and help to reduce aches by reducing the body stress and relaxes the muscle by improving the circulation. Increases awareness towards yoga also helps to maintain the physical activity level. Suryanamaskar not only works on cardiorespiratory and musculoskeletal system mainly but apart from that it also helps to regulate the menstruation, function of ovaries by stimulating the blood flow of reproductive organs and reducing the stress by regulating the hormones.

The WHO estimates that approximately 40% of people over 70 years suffer from OA knee and 80% of individuals experience low back pain (LBP) during their lives. [7, 5] remarkably, the dysfunction and delayed onset of transversus abdominis and atrophy of multifidus appear in

people with LBP which may causes spinal instability [7, 2] So, here the aim of the study is to maintain good core stability to prevent further back injuries and to prevent some disorders by regulating the systems of the body.

Materials and Methods

This study was conducted in AIMS College of physiotherapy, Ahmedabad by randomized control trial. The young adult females, with the age group of 18-25 years, Obese individuals, Person who are not engaged in sports activity, Abdominal endurance test grade<5, Plank test<1 min, Subjects willing to participate were included in the study. The person having chronic low back pain, engaged with regular sports activity, Pregnant women, any systemic illness, any cardiovascular condition, any neurological condition, Recent spine or extremity fracture were excluded from the study.

Procedure

Simple randomization was conducted using Microsoft excel. The materials used were pen, paper, stop watch, plinth. Before starting the study verbal consent was taken from the participants. Total 15 individuals were included in the study. They were asked to perform suryanamaskar twice a day. Then progression was made gradually in which 2 sets increases every 5th day. Before starting suryanamaskar plank test and dynamic abdominal endurance test were used to check their core stability. At the end of finishing of protocol of 15 days both the test were further taken. Pre and Post data were compared to see the effect of suryanamaskar.

Outcome Measure

Dynamic Abdominal Endurance Test: used for testing the endurance of abdominals. Scoring procedure
Normal (5): Hands behind neck until scapula clear the table. (20-30 seconds hold)
Good (4): Arms cross over chest until scapula clear the table

(15-20 seconds hold)

Fair (3): Arm straight until scapula clear the table (10-15 Seconds hold)

Poor (2): Arms extended towards knees, until top of scapula lift from the table (5-10 seconds hold)

Trace (1): Unable to raise more than head off the table.

Plank Test: Hold an elevated position for as long as possible. Upper body supported off the ground by elbows and forearms, and the legs straight with the weight taken by the toes and then stopwatch is started. Scoring is as follows

Rating	Time
Excellent	> 6 minutes
Very Good	4-6 minutes
Above average	2-4 minutes
Average	1-2 minutes
Below average	30-60 seconds
Poor	15-30 seconds
Very Poor	<15 seconds

Result and Discussion

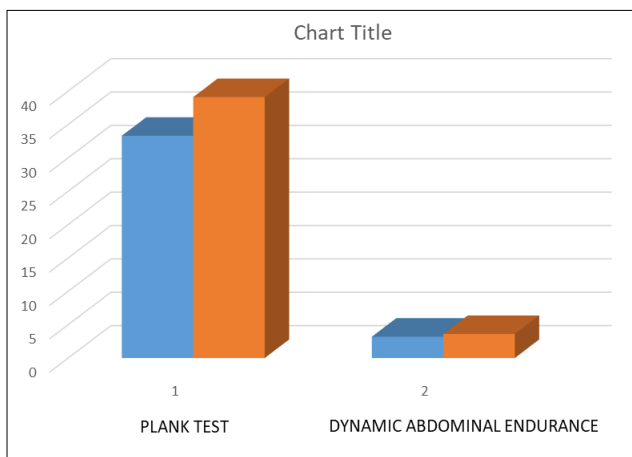


Fig 1: Plank test and Dynamic Abdominal Endurance Test

Graph 1 shows the characteristics of suryanamaskar on core stability which is decremental in pre stage and gradually increases after training.

Table 1: Mean and Standard Deviation of core stability before and after performing surya namaskar

	Pre Mean ± SD	Post Mean ± SD
Dynamic Abdominal Endurance Test	3.2±0.414	3.6±0.487
Plank Test	33.30± 6.64	39.09± 6.81

The above table (table 1) shows pre and posttest values. It revealed that there is a difference in both plank and dynamic abdominal endurance test after respective training for a period of 15 days. Similar was study done by K Tamizhmaran, reports that 12 weeks (5 days) practice of suryanamaskar and pranayama helped in increase the muscle strength and endurance in middle aged obese persons [7,6]. That is because of number of repetitions done in suryanamaskar which helps to strengthen the core muscles of abdomen, pelvis and back. Due to the presence of some asanas like Tadasana, Anuvittasana, Uttanasana, Urdhva Mukha Svanasana they all engaged our abdominals and affect the pelvic bowl. As maintaining a single pose for a specific period of time it improves core muscles ability to

generate the muscular force and holding time (endurance) without any compensatory movement. The core muscles have a stabilizing effect on lumbo-pelvic system. [7, 2] The trunk muscles are prime movers and important stabilizers of the spine which help to prevent the back injury if treated well then. So, good core stability will improve the muscle coordination, control and quality of the movement.

Conclusion

Within the findings of the study, it can be concluded that performing the suryanamaskar for 15 days (2 times/day) shows increased core stability among young females. Hence, practices such as yoga should be promoted among the females of all ages along with the precautions. Due to current lifestyle and posture assumed by the females whole day they are more likely to have back pain and other systematic problems. So, by recommending them to do surya namaskar regularly, it will not only prevent the back injuries but also help them to regulate their reproductive, metabolic and cardio-respiratory system. It can be considered as a therapeutic option for this population [7, 8].

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Conflict of Interest: None

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