



THE EFFECT OF SIX WEEK SURYANAMASKAR PRACTICES ON MOTOR FITNESS VARIABLES IN COLLEGE-LEVEL WOMEN'S BALL BADMINTON PLAYERS

Physical Education

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ABSTRACT

The aim of present study was the effects of six-week Surya Namaskar (Sun Salutation) Practices on Motor fitness Variables in College-Level Women's Ball Badminton Players were studied. The subjects for this study were confined from SRM Group of Institutions, Tamil Nadu, India. Their ages ranged from 18 to 25 years. 15 state level players were selected for experiment group and 15 state level players were selected for control group. The study was conducted only for women players and the Motor fitness Variables like reaction time, leg strength and body flexibility were selected for this study. The mean (M) and the standard deviation (SD) of the collected data were computed. To find out the significance of difference between the two means, the 't' ratio was determined. The level of significance was fixed at 0.05 level of confidence. Result of the study indicated that the six week of the suryanamaskar practice have shown improvements on the subjects. The pre-test and post-test comparisons in respect of all motor fitness variables like reaction time, leg strength and flexibility variables were positive and significant at 0.05 level of significance.

KEYWORDS

Surya Namaskar, Ball Badminton, Flexibility, Reaction time, College women players

INTRODUCTION

Ball badminton is a fast reaction and racket game like badminton but the ball is made up of woolen and looks like a tennis ball. Reaction time is a simply means how fast an athlete is able to respond to stimulus. The ball badminton players may be required more motor fitness like reaction time, leg strength, flexibility, agility, and balancing abilities to become better performers. 'Suryanamaskar' or the 'sun salutation' a set of dynamic postures, is considered neither an Asana nor a part of traditional Yoga. Suryanamaskar is a complete physical exercise that is believed to be conceived and propagated by the King of Aundh, Late Shrimant Balasaheb Pant Pratinidhi in the 1920s (1). During suryanamaskar, muscles of the entire body experience stretch and pressure alternately and therefore it is said to give more benefits with less expenditure of time. Suryanamaskar increases the mobility of almost all the joints of the body evident from kinematics studies using three-dimensional motion capture in ten healthy Yoga practitioners (2). The series of the movement stretch the spinal column and massage, tone and stimulate vital organs through alternately flexing the body forward and backwards(3). While performing suryanamaskar breathing exercise (pranayam) gives more oxygen to your lungs. The rhythm of breathing becomes heavy with vitality. Each breath becomes deep and clear. It carries more oxygen to the part of your body (3). Surya Namaskar involves mindful movements and breathing, which can help enhance mental clarity and focus. As a result, regular practice might improve cognitive functions, including reaction time, by training the brain to respond more quickly and efficiently. The smooth flow of movements in Surya Namaskar might also help improve coordination between the brain and muscles, which could potentially lead to faster reaction times during physical tasks. Stress and anxiety can negatively affect reaction time (4). Surya Namaskar, through its integration of controlled breathing and physical movement, has been shown to reduce stress and improve overall mood, which might indirectly improve reaction time (5). Surya Namaskar involves mindful movements and breathing, which can help enhance mental clarity and focus. As a result, regular practice might improve cognitive functions, including reaction time, by training the brain to respond more quickly and efficiently (6). The various postures involved in Surya Namaskar, such as the downward dog, upward dog, and cobra poses, target multiple muscle groups, particularly in the back, hamstrings, hips, and shoulders. Regular practice enhances muscle flexibility and joint mobility over time (7). The dynamic movement in Surya Namaskar promotes increased blood circulation throughout the body, improving flexibility by enhancing muscle and joint health (8). The aim of present study was the effects of six-week Surya Namaskar (Sun Salutation) Practices on Reaction Time and Flexibility in College-Level Women's Ball Badminton Players.

Methodology

The study was conducted on 30 numbers college women ball

badminton players. All subjects were fully informed of the risks and discomfort associated with the investigation before accepting their willingness to act as subjects. Subjects were randomly selected into two group of 15 subjects each. Group A, the experimental group participated in suryanamaskar practice. Group B, the control group were allowed to perform their regular physical activities but denied for participation in Suryanamaskar practice. The training stimuli adopted for a six week long included Suryanamaskar practice as follows, Suryanamaskar is consist of 12 asanas in sequence manner the asanas include pranamasana (prayer pose), hastauttasana (raised arm pose), hastapadasana (hand to foot pose), ashwa sanchalanasana (equestrian pose), parvatasana (mountain pose), ashtang namaskar(eight limb salutations), bhujangasana (cobra pose), parvatasana (the mountain pose) ashwa sanchalana asana(equestrian pose), hastapadasana(hand to foot pose),hastauttasana (raised arm pose), tadasana (pranamasana). The above stated Suryanamaskar practice were performed thrice in a week for one hour in the morning sessions under the direct supervision of the investigator. Pre and posttest measurements were noted. Prior to practicing the exercises the subjects were being asked for getting warmed-up for 5 minutes and to follow the demonstration of each pose.

Table – I Type Of Variables, Test And Unit Of Measurements

S. No.	Variables	Test	Equipment	Unit of Measurements
1.	Reaction Time	Hand eye reaction	Reaction mobile apps	Milliseconds
2.	Leg Strength	Vertical Jump	Vertical Scale	Centimeters
3.	Flexibility	Sit and reach	sit and reach test box	Centimeters

Statistical Analysis:

Test scores were subjected to statistical analysis. Indices like means and standard deviations were computed for comparison. The mean and standard deviation values were calculated for the two variables: (a) reaction time, (b) leg strength, and (c) flexibility. To find out significance of the difference or the change that occurred between pre-and-post tests, 't' test was applied.

Results of the Study

Table II Mean, SD Scores And Result Of The Test Of Significance ('t') In Respect Of Motor Fitness Variables Of Experimental And Control Groups

Motor fitness Variables	Groups	Pre-Test		Post-Test		't'
		Mean	SD	Mean	SD	
Reaction Time	Group A	246	28.21	239.33	28.75	5.73*
	Group B	232.20	33.86	236.60	25.20	

Leg Strength	Group A	56.67	3.88	61.93	4.04	9.06*
	Group B	57.07	3.77	56.47	3.99	1.09
Flexibility	Group A	31.07	2.55	36.73	3.73	10.32*
	Group B	29.07	2.15	29.13	2.03	0.193

*significant at 0.05 level of significance with 14 degrees of freedom (2.145)

Table II indicates significant differences between pretest and posttest of the experimental group (Group A) on all the motor fitness variables namely reaction time, leg strength and flexibility. Whereas no significant difference were observed between pretest and posttest of the control group (Group B) on all stated motor fitness variables. The reaction time of experimental group (A) the obtained 't' value was 5.73 and found to be greater than the required 't' value 2.145 and significant at 0.05 level of significance with 14 degrees of freedom. The leg strength of experimental group (A) the obtained 't' value was 9.06 and found to be greater than the required 't' value 2.145 and significant at 0.05 level of significance with 14 degrees of freedom and the flexibility of experimental group (A) the obtained 't' value was 10.32 and found to be greater than the required 't' value 2.145 and it was significant at 0.05 level of significance with 14 degrees of freedom.

Discussion on Findings

Suryanamaskar has deep effect in detoxifying the organs through copious oxygenation and has a deeper relaxing effect. It reduces stress, rejuvenates us and improves circulation. By these movements, the whole musculoskeletal system is stretched and contracted in a systematic manner which provides more strength and flexibility to them (9). Its training improves the flexibility of body muscles especially leg, back, and chest and buttock muscles (10). The effect of Surya Namaskar yogasana on muscular endurance and flexibility in intercollege yoginis, concluded that a 6-week training programme of Surya Namaskar asanas had significant effect on muscular endurance and flexibility (11). the Immediate effects of Surya Namaskar on reaction time and heart rate in female volunteers and concluded that three rounds of Surya Namaskar produce significant shortening of Reaction Time in female subjects as part of a generalized sympathetic arousal as evidenced by significant rise in Heart Rate and Surya Namaskar may be used as an effective training means to improve neuromuscular abilities (12). A comparative study between Pilates and Surya Namaskar on flexibility in women having sedentary lifestyle using sit and reach test and shoulder and wrist test concluded that Surya Namaskar is beneficial in increasing flexibility in sedentary women as compared to pilates and can be incorporated in daily fitness routine (13). Yoga was found to have a positive effect on reaction time, likely due to improved mental focus, reduced anxiety, and enhanced neuromuscular coordination (14). In this present study the results shows that the effects of six week suryanamaskar practice group shows significant changes on selected motor fitness variables of reaction time, leg strength and flexibility of college level women's ball badminton players compared to the control group.

CONCLUSION

Surya Namaskar can positively impact reaction time by improving mental clarity, reducing stress, and enhancing coordination. It also improves flexibility by stretching key muscle groups and promoting joint mobility. Regular practice, especially when combined with mindful breathing, has the potential to yield significant physical and mental benefits. The findings underlined the effect of the six week Suryanamaskar practice is effective and improved the reaction time, leg strength and body flexibility among women college level ball badminton players.

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