



## Effects of 6-Weeks Yogasanas Training on Agility and Muscular Strength in Sportsmen

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### ABSTRACT

The aim of the study is to assess the effects of 6-weeks yogasanas training on agility and muscular strength in sportsmen. A group thirty randomly selected male players of department of physical education, Guru Nanak Dev University, Amritsar (Punjab, India) aged 18 - 24 years, volunteered to participate in the study. They were randomly assigned into two groups: Y (experimental N=15) and C (control N=15). The subjects from Group Y were subjected to a 6-weeks yogasanas training programme. Student's t-test for independent data was used to assess the between-group differences for dependent data to assess the Post-Pre differences. The level of  $p \leq 0.01$  was considered significant. The agility and muscular strength significantly improved in Group Y compared with the control one. The yoga asana training may be recommended to improve agility and muscular strength. and may contribute to enhance sports performance.

**Keywords:** Yogasana, agility, muscular strength.

### INTRODUCTION

The term "yoga" and the English word "yoke" are derived from Sanskrit root "yuj" which means union. Yoga is a psycho-somatic-spiritual discipline for achieving union & harmony between our mind, body and soul and the ultimate union of our individual consciousness with the Universal consciousness (Madanmohan, 2008). yoga is an ancient practice that was developed to promote physical health as well as an awareness of one's true nature. It consists of a series of postures, called asanas, and various breathing exercises, called pranayama, which encourage balance between the physical, mental/emotional, and spiritual aspects of a human being. In short, yoga promotes health. Asana and pranayama have been incorporated alongside Ayurvedic medicine as the basis of a system of medical therapy. Yoga has been practiced for thousands of years. It is based on ancient theories, observations and principles of the mind-body connections. Substantial research has been conducted to look at the health benefits of yoga - yoga postures (*asanas*), yoga breathing (*pranayama*) and meditation. These yoga practices might be interacting with various somatic and neuro-endocrine mechanisms bringing about therapeutic effects (Malhotra and Singh, 2002). The overall performance is known to be improved by practicing yoga techniques (Upadhyay *et al*, 2008) and their effects on physical functions were reported (Hadi 2007). Yoga practices can also be used as psycho-physiological stimuli to increase the secretion of melatonin which, in turn, might be responsible for perceived well-being (Harinath *et al*;2004). Yoga may be as effective as or better than exercise at improving a variety of health-related outcome measures (Ross and Thomas; 2010) and as a result this study was undertaken to find out the effects of 6-weeks yogasanas training on agility and muscular strength in sportsmen.

### MATERIAL AND METHODS

#### Subjects

Thirty randomly selected male players of department of physical education, Guru Nanak Dev University, Amritsar (Punjab, India) aged 18 - 24 years, volunteered to participate in the study. Their body height ranged from 172 to 180 cm and body mass from 68 to 76 kg. They were randomly assigned into two groups: Y (experimental N=15) and C (control N=15). The subjects from Group A were subjected to a 6-weeks yogasanas training programme. This lasted for 6- weeks with consistent daily 50 min session, was conducted for continuous six days in a week with Sunday as a relaxing day. The training consisted of a variety of yogic asanas:

1. Pascimottanasana

2. Saravangasana
3. Dhanurasana
4. Chakra-asana
5. Halasana
6. Trikonasana

#### Selection of Variables and Tests:

The Subjects were tested on the following physical fitness variables.

#### Variables /Test

- Agility /Shuttle Run Test
- Muscular Strength / Sit-ups Test

#### Methodology

The Sit-ups test was used to assess the muscular strength. The score of the test is the number of correctly executed sit-ups performed by the subjects in 60 seconds. Shuttle Run test was used to monitor the agility of the subjects. The time taken by the subjects between the audible signal 'start' and the finishing of the run was recorded to be the score. The time was recorded correct in seconds.

#### Data Analysis:

Values are presented as mean values and SD. The Student 't' test was used to compare parameters within groups. Data was analyzed using SPSS Version 16.0 (Statistical Package for the Social Sciences, version 16.0, SPSS Inc, Chicago, IL, USA).

## RESULTS

The results of agility and muscular strength in sportsmen from the yoga asana (Y) and control (C) groups are presented in the following tables.

**Table 1:** Mean, Standard Deviation (SD) of Agility of Experimental and Control Groups

Groups	Number	Mean	S.D.	't' value
Experimental (Pre-test)	15	13.48	0.48	9.45**
Experimental ( Post-test)	15	12.52	0.51	
Control(Pre-test)	15	13.85	0.38	0.65
Control(Post-test)	15	13.79	0.38	

\*\*Significant at  $p < 0.01$  level

Table-1 shows that the mean of agility of pretest of experimental group and posttest of experimental group was 13.48 and 12.52 respectively, whereas the mean of agility of pre test of control and post test of control group was 13.85 and 13.79. The "t" value in case of experimental group was 9.45\*\* and for control group it was 0.65. Since,  $H_0$  (null hypothesis) is rejected at .01 level of significance.

**Table 2:** Mean, Standard Deviation (SD) of Muscular Strength of Experimental and Control Groups

Groups	Number	Mean	S.D.	't' value
Experimental (Pre-test)	15	19.13	1.68	13.47**
Experimental ( Post-test)	15	23.33	1.49	
Control(Pre-test)	15	20.53	1.95	0.54
Control(Post-test)	15	20.33	1.98	

\*\*Significant at  $p < 0.01$  level

Table-2 shows that the mean of muscular strength of pre test of experimental group and post test of experimental group was 19.13 and 23.33 respectively, whereas the mean of muscular strength of pretest of control and posttest of control group was 20.53 and 20.33. The "t" value in case of experimental group was 13.47 and for control group it was 0.54. Since,  $H_0$  (null hypothesis) is rejected at .01 level of significance.

## DISCUSSION

We found significant increases in agility and muscle strength. Scientific studies on yoga demonstrate that yoga improves dexterity, strength and musculoskeletal coordination of the practitioners. Postures assumed during yoga practice are mainly isometric exercises which provide optimally maintained stretch to the muscles. In this study, the 6-weeks of yogasanas training programme showed significant improvement in balance and agility. These findings are supported by other reports. Yogic techniques are known to improve one's overall performance and work capacity. Sharma et al (2008) conducted prospective controlled study to explore the short-term impact of a comprehensive but brief lifestyle intervention based on yoga, on subjective well being in normal and diseased subjects. Normal healthy individuals and subjects having hypertension, coronary artery disease, diabetes mellitus or a variety of other illnesses were included in the study. They reported significant improvement in the subjective well being scores of 77 subjects within a period of 10 days as compared to controls. Yoga asana were also shown to improve flexibility and health perception (Cowen and Adams, 2005). Muscular strength increased significantly in Y group (Table 2). Prior yoga investigations that specifically measured isometric muscular strength with the hand dynamometer yielded conflicting results. Blumenthal et al. (1989) showed no changes, whereas Madanmohan et al (2008) reported significant improvements in hand-grip strength resulting from yoga practice. However, since isometric strength is specific to the muscle group and the joint angle being tested, (Kitai and Sale, 1989) hand-grip strength is a poor measure of general body strength.

## CONCLUSION

In conclusion, the present study suggests that a 6-weeks of yoga asanas training had significant effect on balance and agility through a variety of effects (Monro; 1997). These data provide more evidence to support the beneficial effect of yoga asana training on agility and muscular strength and thus, such training may be recommended to enhance sports performance.

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