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Effect of Suryanamaskar on minimum muscular fitness of sedentary life peoples of Aurangabad city

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Abstract
The Purpose of this study was to keep fit or physical fitness a need of the days in human society. In this age lack of muscular fitness leads towards the various disorders in human body. The muscular fitness of sedentary people's more over today's medical sciences has also given graters importance towards the development of muscular fitness. Various reports also revealed that practice of Suryanamaskar result for improvement of muscular fitness. Hence it was therefore considered appropriate by research scholars to investigate the effects of Suryanamaskar on minimum muscular fitness of sedentary life peoples. The aim of this study was find out the "effect of Suryanamaskar on minimum muscular fitness of sedentary life peoples of Aurangabad city". Whole population (N=100) of this study were tested and selected a total number of 60 male sedentary peoples from administrative employee in the age group of 30-50 years who had failed into three to six test items with the help of purposively method of sampling from Vivekanand college Samarth nagar Aurangabad. And the subjects were divided into two group by randomly method i.e, 30 experimental group and 30 control group. Sedentary peoples of the experimental group were given the 30 minutes Suryanamaskar, but the controlled group did not part in Suryanamaskar program. The duration of Suryanamaskar program was six weeks which was given six days in a week. Pre and post test conducted on the both the groups and data was analyzed by independent sample t-test. The results showed that the descriptive statistics gain of pre and posttests of subjects on Test 1 Abdominal and Psoas muscles, Test 2 Abdominal muscles without Psoas, Test 3 strength of Psoas and Lower Abdominal muscles, Test 4 strength of the Upper Back muscles, Test 5 strength of the Lower Back muscle and Test 6 strength of Back and Hamstring muscles as experimental group was (7.33 ± 5.2, 7.33 ± 5.8, 7.00 ± 5.3, 7.33 ± 4.4, 7.67 ± 5.0 and 8.33 ± 3.7) respectively and the descriptive statistics gain of pre and posttests control group was (1.33 ± 5.0, 1.67 ± 5.3, 1.33 ± 4.3, 1.33 ± 5.0, 0.33 ± 3.1 and 1.00 ± 3.0) respectively. The calculated 't' value of subjects in Test 1 Abdominal and Psoas muscles, Test 2 Abdominal muscles without Psoas, Test 3 strength of Psoas and Lower Abdominal muscles, Test 4 strength of the Upper Back muscles, Test 5 strength of the Lower Back muscle and Test 6 strength of Back and Hamstring muscles was 4.52, 3.93, 4.50, 4.84, 7.34 and 8.25 respectively. To determine the effect of Suryanamaskar on minimum muscular fitness of sedentary peoples of Aurangabad city, independent sample t-test was used at 0.05 levels of significance in relation to pre and post-test of Kraus – Weber's minimum muscular fitness tests. A significant level at 0.05 (p = 0.001) effect of Suryanamaskar was found to improve the minimum muscular fitness of sedentary peoples, and it was also concluded that the beneficial effect of Suryanamaskar can be applied to all sedentary peoples to improve the fitness, physical health and sports activities of the sedentary peoples.

Keywords: Suryanamaskar program, sedentary people and Kraus - Weber's minimum muscular fitness test

Introduction
The wealth of the nation resides on the health and vitality of its people. Every nation is becoming increasingly concerned about physical fitness of its men, women and children; recognized physical fitness is fundamental and useful living in any capacity. Physical fitness is the basic of all activities in our society. Physical fitness is defined as asset of attributes that people have or achieve that relates to the ability to perform physical activity (USDHHS, 1996). Physical fitness means different things to different people and may include muscular strength, muscular endurance, cardio respiratory endurance, body composition and flexibility. The association between the muscular fitness and quality of life is impressive.

The main need today is to develop system through effective health care be made both accessible and acceptable to the people. Kraus – Weber tests for muscular fitness are not designed to determine optimum level of muscular fitness but rather to determine whether or not the individual has sufficient strength and flexibility in the part of the body upon which demands are made to normal daily living. Lot of awareness is seen among the people of our country regarding the level of physical fitness. However, not much scientific investigation has been carried out to find out and evaluate fitness status of our youth and sedentary peoples. Suryanamaskar is a form of sun worship and can trace its origin back to the Vedas. But the literal meaning of Suryanamaskar is 'Salutation to the Sun'. Suryanamaskar consist of twelve different postures and is done along with chanting of mantras in every posture. Suryanamaskar is traditionally performed on empty stomach at sunrise which is considered the most spirituality favorable time and facing the rising Sun.

Material and Method

Method of the study

The present study was an experimental research which was conducted with a purpose to see the effect of the Suryanamaskar in improving minimum muscular fitness of sedentary people such as muscular strength and flexibility.

Research Design

True experimental design was used for this study to check the hypothesis; this research was based on pre-test and post-test equivalent group design.

Method of Sampling

For the present research whole population a total number of 60 male sedentary peoples were selected who had failed into three to six test items on the basis of purposively method of sampling technique from Vivekanand college administrative employee Aurangabad city.

Selection of Variable

The study was taken to pinpoint the variables was Kraus - Weber's minimum muscular fitness test consist of six items which indicate the level of muscular strength and flexibility of key muscle group.

Procedure of the study

The researcher assembled all the subjects from his population and was given to them instruction about the need, importance description of the experiment and explanation of Kraus - Weber tests and Suryanamaskar program and selected a total number of 60 male sedentary peoples in the age group 30-50 years old who had failed into 3 to 6 test items with the help of purposively sampling technique. The selected subjects were pre-tested by Kraus - Weber minimum muscular fitness tests and after that the subjects were divided into two even groups i.e, experimental and control group with the help of randomly method of sampling and six weeks Suryanamaskar program which was given six days in a week was manipulated only on experimental group not control group. After Suryanamaskar program both the groups i.e, experimental and control groups, were post tested for data collection.

Statistical Tools

After data collection, data of pre-test and post-test of both the groups i.e, experimental and control group, compared by independent sample t-test and interpretation were drawn.
The level of significance was kept at 0.05 to test the hypothesis.

Results of the study

The obtained results are present in the following table which represents the results of descriptive analysis and independent sample t-test to compare the mean of groups i.e, experimental and control group.

Table 1: Descriptive statistics to gain the pre and post-tests of experimental and control group

Test	Group	N	Mean	SD
Strength of Abdominal Plus Psoas Muscles Test	Experimental	30	7.33	5.20
	Control	30	1.33	5.07
Strength of Abdominal Minus Psoas Muscles Test	Experimental	30	7.33	5.83
	Control	30	1.67	5.30
Strength of Psoas and Lower Abdominal Muscles Test	Experimental	30	7.00	5.35
	Control	30	1.33	4.34
Strength of Upper Back Muscles Test	Experimental	30	7.33	4.49
	Control	30	1.33	5.07
Strength of Lower Back Muscles test	Experimental	30	7.67	5.04
	Control	30	0.33	3.19
Floor Touch Test	Experimental	30	8.33	3.79
	Control	30	1.00	3.05

Table no. 1 shows that there were 30 subjects each in experimental and control group. The mean gain in Test 1 Abdominal and Psoas muscles, Test 2 Abdominal muscles without Psoas, Test 3 strength of Psoas and Lower Abdominal muscles, Test 4 strength of the Upper Back muscles, Test 5 strength of the Lower Back muscle and Test 6 strength of Back and Hamstring muscles as experimental group was (7.33 ± 5.2, 7.33 ± 5.8, 7.00 ± 5.3, 7.33 ± 4.4, 7.67 ± 5.0 and 8.33 ± 3.7) respectively and the descriptive statistics gain of pre and posttests control group was (1.33 ± 5.0, 1.67 ± 5.3, 1.33 ± 4.3, 1.33 ± 5.0, 0.33 ± 3.1 and 1.00 ± 3.0) respectively.

Table 2: Independent sample t-test to gain the tests of experimental and control group

Test	Group	Mean Difference	't' value	Sig. (2 – tailed)
Strength of Abdominal Plus Psoas Muscles Test	Experimental	6.00	4.52	0.001
	Control			
Strength of Abdominal Minus Psoas Muscles Test	Experimental	5.66	3.93	0.001
	Control			
Strength of Psoas and Lower Abdominal Muscles Test	Experimental	5.66	4.50	0.001
	Control			

Strength of Upper Back Muscles Test	Experimental Control	6.00	4.84	0.001
Strength of Lower Back Muscles test	Experimental Control	8.00	7.34	0.001
Floor Touch Test	Experimental Control	7.33	8.25	0.001

Table no. 2 shows the mean of gain in experimental and control group were compared with independent t-test. The calculated 't' value of subjects in Test 1 Abdominal and Psoas muscles, Test 2 Abdominal muscles without Psoas, Test 3 strength of Psoas and Lower Abdominal muscles, Test 4 strength of the Upper Back muscles, Test 5 strength of the Lower Back muscle and Test 6 strength of Back and Hamstring muscles was 4.52, 3.93, 4.50, 4.84, 7.34 and 8.25 respectively. To determine the effect of Suryanamaskar on minimum muscular fitness of sedentary peoples of Aurangabad city, independent sample t-test was used at 0.05 levels of significance in relation to pre and post-test of Kraus – Weber's minimum muscular fitness tests. A significant level at 0.05 ($p = 0.001$).

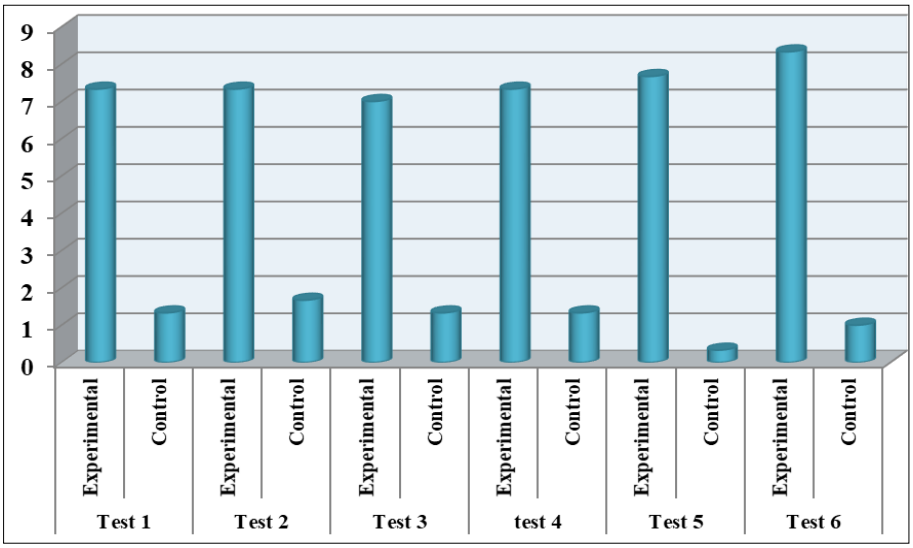

Fig 1: Comparisons of group mean to the Minimum Muscular Fitness tests of experimental and control group

The figure no. 1 shows that there was significant improvement in minimum muscular fitness tests of experimental group due to treatment

Discussion of findings

Discussion on the results of Kraus – Weber minimum muscular fitness test consists of six items which indicate the level of muscular strength and flexibility of key- muscle groups are given as; It was observed from the finding that the effect of Suryanamaskar on minimum muscular fitness of sedentary peoples from table No. 1, & 2 shows that there was a significant difference between experimental group and control group of subjects regarding to the all test items. This indicates that Suryanamaskar program had positive effect on minimum muscular fitness of experimental group. Therefore the set hypothesis that there will be significant effect of Suryanamaskar on minimum muscular fitness of sedentary peoples was accepted.

This finding was supported by Singh, K., *et al.* (2010) [2] studied the effect of Suryanamaskar on muscular endurance and flexibility among inter college student the results shows that muscular endurance and flexibility was significantly improved in group A compared with the control one, and it was also concluded that Suryanamaskar may be recommended to improve muscular endurance and flexibility.

Conclusion

On the basis of the result obtained in the study the researcher made the concluded that six weeks Suryanamaskar program was significantly effective to increase the minimum muscular fitness of sedentary peoples which indicate the level of muscular strength and flexibility of key – muscle groups and also the findings of this study may be helpful to the sedentary peoples to doing regular practice of Suryanamaskar to improve their health and fitness.

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