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A study of yogic program on the selected physical variables of state level sportspersons from Haryana state

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Abstract

The study was undertaken to assess the effect of yogic program on selected physical fitness variables of State level sportspersons, for the purpose 60 male sports persons with minimum State level participation were selected from Haryana State. The samples were selected from MD University with age of the subjects ranged between 18 to 22 years. The variables for the study were Cardio-vascular Endurance, Speed and Agility, which were assessed by 12 Min Run/Walk Test, 50 Yard Dash and Shuttle run respectively. The subjects were divided into two groups' i.e. Experimental group and Control Group. Pre-test of all the groups were taken on the selected variables and the experimental group was given a yogic training program for 08 weeks and the control group continued with the daily routine activity. The collected pre and post data was analyzed by computing Descriptive analysis, paired sample 't' test and independent sample 't' test. A Significant difference has been found in the pre and post-test values of Experimental group for the selected physical variables, No significant difference has been found in the pre and post-test values of Control group for the selected physical variables, No significant difference has been found in the pre-test values of Experimental and Control group for the selected physical variables, A significant difference has been found in the post test values of Experimental and Control group for the selected physical variables and finally it can be concluded that Yogic exercises are effective for improvement of physical fitness variables among sports persons.

Keywords: Yoga, cardio-vascular endurance, speed, agility

Introduction

Yoga is not restricted to any particular age group. It is therapeutic for patients but it is also practiced in normal individuals to keep physically fit. A study reporting increased physical fitness in school children practicing yoga has been reported. It is thus advisable to start early. Yoga also slows down ageing as shown by a decrease in the reduction of baroreflex sensitivity with age in subjects who were practicing yoga for five years. Yogic asanas are isometric exercises that involve a coordinated action of synergic and antagonist muscles in bringing about steadiness, flexibility and accuracy of movement. Improvement is seen in static motor performance, hand eye coordination, hand grip strength, cardiovascular endurance, anaerobic power, thermoregulatory efficiency, and orthostatic tolerance.

The practice of Yoga for six months to one year improves performance by increasing stretch duration, endurance and decreasing the onset of fatigue. The mechanisms of yogic breathing may involve improvement in oxygen consumption with better oxygen delivery, utilization and minimal energy expenditure as seen in subjects who practiced pranayama. A higher work rate with reduced oxygen consumption per unit of work without increase in blood lactate levels is reported. There is an accompanied increase in peripheral blood flow, along with a decrease in body weight. Regular and continuous use of any muscle prevents fat deposition, increases flexibility and heightens performance. Ujjayi with long and short kumbhak (breath holding) may exert their effects by alterations in the skeletal muscle activity, ANS discharge, and cerebral blood flow. Breath holding with a short kumbhak increases oxygen consumption, while a long kumbhak during Ujjayi decreases oxygen consumption, and metabolic rate. Siddhasana is also known to increase oxygen consumption, and metabolic rate compared to shavasana. Virasana likewise induces a hyper metabolic State temporarily characterized by increased ventilation, and enhanced sympathetic activity.

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This gets neutralized on assuming a shavasana posture (Rai and Ram, 1993a). Yoga can improve exercise performance by increasing flexibility, psychological motivation and decreasing heart rate, minute ventilation, oxygen consumption/unit work and respiratory quotient. Above all, yoga increases the subjective well-being in subjects. Yoga techniques are known to improve one’s overall performance and work capacity. Sharma *et al.* conducted prospective controlled study to explore the short-term impact of a comprehensive but brief lifestyle intervention based on yoga, on subjective wellbeing 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 wellbeing scores of 77 subjects within a period of 10 days as compared to controls. Therefore, even brief intervention can make an appreciable contribution to primary prevention as well as management of lifestyle diseases. This is vital in the elderly and Hatha yoga practices for 6 months by seniors [65-85years] has shown significant improvement in quality of life and physical measures compared to walking exercise and wait-list control groups.

Objectives and Hypothesis

For the purpose of the study following objectives were set:

- To find out the effect of yogic exercise program on the Cardio-vascular Endurance of the State level players.
- To find out the effect of yogic exercise program on the Speed of the State level players.
- To find out the effect of yogic exercise program on the Agility of the State level players.
- To compare the effect of yogic exercise program on the Cardio-vascular Endurance of the Different groups.
- To compare the effect of yogic exercise program on the Speed of the Different groups.
- To compare the effect of yogic exercise program on the Agility of the Different groups.

Based on the objectives of the study following hypotheses were framed for the study

- There would be no significant effect of yogic exercise program on the Cardio-vascular Endurance of the State level players.
- There would be no significant effect of yogic exercise program on the Speed of the State level players.
- There would be no significant effect of yogic exercise program on the Agility of the State level players.
- There would be no significant effect of yogic exercise program on the Cardio-vascular Endurance of the Different groups.
- There would be no significant effect of yogic exercise program on the Speed of the Different groups.
- There would be no significant effect of yogic exercise program on the Agility of the Different groups.

Procedure and Methodology

The study was undertaken to assess the effect of yogic program on selected physical fitness variables of State level sportspersons, for the purpose 60 male sports persons with minimum State level participation were selected from Haryana. The samples were selected from Haryana University, with age of the subjects ranged between 18 to 22 years. The variables for the study were Cardio-vascular Endurance, Speed and Agility, which were assessed by 12 Min Run/Walk Test, 50 Yard Dash and Shuttle run respectively. The subjects were divided into two groups’ i.e. Experimental group and Control Group. Pre-test of all the groups were taken on the selected variables and the experimental group was given a yogic training program for 08 weeks and the control group continued with the daily routine activity. The collected pre and post data was analyzed by computing Descriptive analysis, paired sample ‘t’ test and independent sample ‘t’ test.

Results and Discussion

Table 1: Descriptive analysis and results of Paired sample ‘t’ test for difference between pre and post test scores of physical fitness variables of yogic exercise group

| S. No. | Variables | Group | Mean | SD | N | ‘t’ | Sig. |
|--------|---------------------------|-------|-------|------|----|--------|-------|
| 1 | Cardio-Vascular Endurance | Pre | 2.34 | 0.29 | 30 | 22.09* | 0.002 |
| | | Post | 2.68 | 0.28 | 30 | | |
| 2 | Speed | Pre | 7.44 | 0.35 | 30 | 18.99* | 0.003 |
| | | Post | 7.04 | 0.38 | 30 | | |
| 3 | Agility | Pre | 10.87 | 0.68 | 30 | 42.11* | 0.000 |
| | | Post | 10.61 | 0.71 | 30 | | |

Table no. 1 clearly indicates the Descriptive analysis and results of Paired sample ‘t’ test for difference between pre and post test scores of physical fitness variables of yogic exercise group, which shows that the mean and standard deviation values for pre and post-test for Cardio vascular Endurance, Speed and Agility are found to be 2.34 ± 0.29/2.68 ± 0.28, 7.44±0.35/7.04±0.38 and 10.87 ± 0.68/ 10.61 ±0.71 respectively, whereas the values of paired sample ‘t’ test shows that a significant difference has been observed in the pre and post-test values of experimental group for Cardio-Vascular Endurance (22.09*), Speed (18.99*) and Agility (42.11*), which are significant at 0.05 level. The graphical representation of descriptive analysis has been shown in fig no. 1

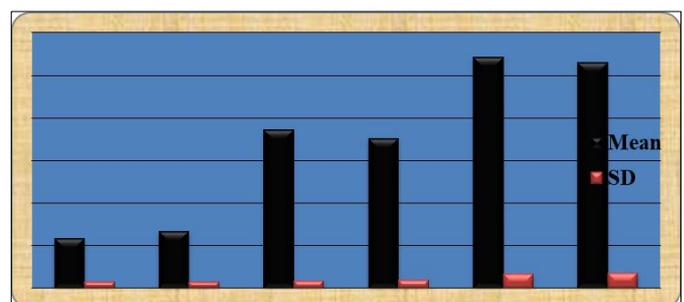


Fig 1: Graphical Representation of Descriptive analysis of pre and post test scores of physical fitness variables of yogic exercise group

Table 2: Descriptive analysis and results of Paired sample ‘t’ test for difference between pre and post test scores of physical fitness variables of Control Group

| S. No. | Variables | Group | Mean | SD | N | ‘t’ | Sig. |
|--------|---------------------------|-------|-------|------|----|------|------|
| 1 | Cardio-Vascular Endurance | Pre | 2.44 | 0.27 | 30 | 2.09 | 0.32 |
| | | Post | 2.45 | 0.26 | 30 | | |
| 2 | Speed | Pre | 7.36 | 0.33 | 30 | 1.89 | 0.19 |
| | | Post | 7.33 | 0.35 | 30 | | |
| 3 | Agility | Pre | 10.87 | 0.59 | 30 | 2.33 | 0.56 |
| | | Post | 10.76 | 0.69 | 30 | | |

Table no. 2 clearly indicates the Descriptive analysis and results of Paired sample ‘t’ test for difference between pre and post test scores of physical fitness variables of Control group, which shows that the mean and standard deviation values for pre and post-test for Cardio vascular Endurance, Speed and Agility are found to be $2.44 \pm 0.27/2.45 \pm 0.26$, $7.36 \pm 0.33/7.33 \pm 0.35$ and $10.87 \pm 0.59/10.76 \pm 0.69$ respectively, whereas the values of paired sample ‘t’ test shows that no significant difference has been observed in

the pre and post-test values of control group for Cardio-Vascular Endurance (2.09), Speed (1.89) and Agility (2.33), which are not significant at 0.05 level. The graphical representation of descriptive analysis has been shown in fig no. 2

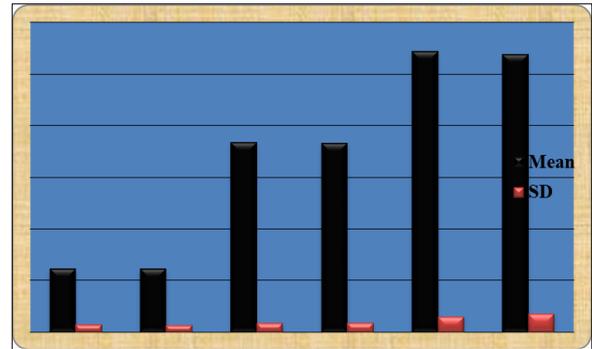


Fig 2: Graphical Representation of Descriptive analysis of pre and post test scores of physical fitness variables of Control group

Table 3: Descriptive analysis and results of Independent sample ‘t’ test for difference between Experimental group and control group for pre-tests scores of physical fitness variables

| S. No. | Variables | Group | Mean | SD | N | ‘t’ | Sig. |
|--------|---------------------------|---------------|-------|------|----|------|------|
| 1 | Cardio-Vascular Endurance | Exp. Group | 2.53 | 0.29 | 30 | 1.89 | 0.45 |
| | | Control Group | 2.52 | 0.28 | 30 | | |
| 2 | Speed | Exp. Group | 7.28 | 0.37 | 30 | 0.97 | 0.81 |
| | | Control Group | 7.27 | 0.37 | 30 | | |
| 3 | Agility | Exp. Group | 10.80 | 0.69 | 30 | 1.33 | 0.78 |
| | | Control Group | 10.82 | 0.65 | 30 | | |

Table no. 3 clearly indicates the Descriptive analysis and results of Independent sample ‘t’ test for difference between pre-test scores of physical fitness variables of Experimental and Control group, which shows that the mean and standard deviation values for pre-test for Cardio vascular Endurance, Speed and Agility are found to be $2.53 \pm 0.29/2.52 \pm 0.28$, $7.28 \pm 0.37/7.27 \pm 0.37$ and $10.80 \pm 0.69/10.82 \pm 0.65$

respectively, whereas the values of Independent sample ‘t’ test shows that no significant difference has been observed in the pre-test values of Experimental and control group for Cardio-Vascular Endurance (1.89), Speed (0.97) and Agility (1.33), which are not significant at 0.05 level. The graphical representation of descriptive analysis has been shown in fig no. 3

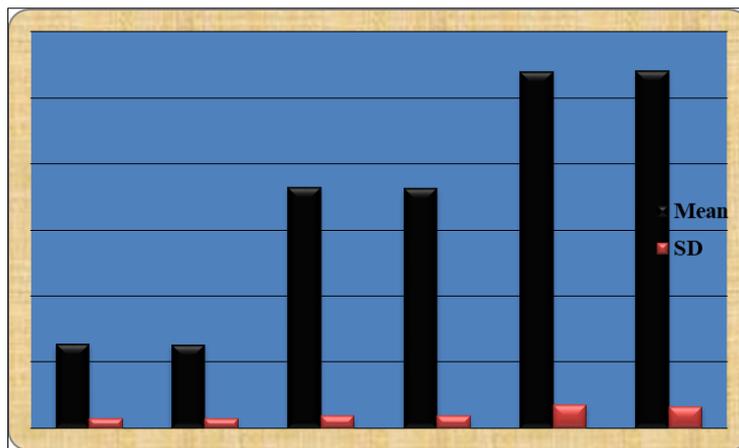


Fig 3: Graphical Representation of Descriptive analysis of pre-test scores of physical fitness variables for Experimental and Control group

Table 4: Descriptive analysis and results of Independent sample ‘t’ test for difference between Experimental group and control group for Post-tests scores of physical fitness variables

| S. No. | Variables | Group | Mean | SD | N | ‘t’ | Sig. |
|--------|---------------------------|---------------|-------|------|----|--------|------|
| 1 | Cardio-Vascular Endurance | Exp. Group | 2.78 | 0.29 | 30 | 3.098* | 0.05 |
| | | Control Group | 2.52 | 0.28 | 30 | | |
| 2 | Speed | Exp. Group | 7.78 | 0.37 | 30 | 2.882* | 0.04 |
| | | Control Group | 7.27 | 0.37 | 30 | | |
| 3 | Agility | Exp. Group | 10.88 | 0.69 | 30 | 2.139* | 0.05 |
| | | Control Group | 10.42 | 0.65 | 30 | | |

Table no. 4 clearly indicates the Descriptive analysis and results of Independent sample 't' test for difference between post test scores of physical fitness variables of Experimental and Control group, which shows that the mean and standard deviation values for post-test for Cardio vascular Endurance, Speed and Agility are found to be $2.78 \pm 0.29/2.52 \pm 0.28$, $7.78 \pm 0.37/7.27 \pm 0.37$ and $10.88 \pm 0.69/10.42 \pm 0.65$ respectively, whereas the values of Independent sample 't' test shows that a significant difference has been observed in the post test values of Experimental and control group for Cardio-Vascular Endurance (3.098*), Speed (2.882*) and Agility (2.139*), which are significant at 0.05 level. The graphical representation of descriptive analysis has been shown in fig no. 4

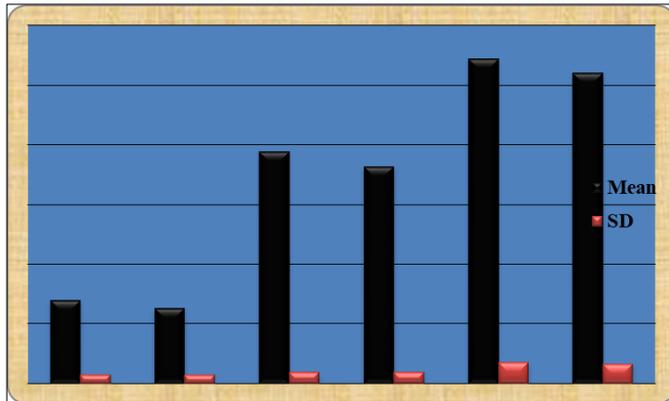


Fig 4: Graphical Representation of Descriptive analysis of post test scores of physical fitness variables for Experimental and Control group

Conclusions

Based on the results following conclusions can be made:

- A Significant difference has been found in the pre and post-test values of Experimental group for the selected physical variables.
- No significant difference has been found in the pre and post-test values of Control group for the selected physical variables.
- No significant difference has been found in the pre-test values of Experimental and Control group for the selected physical variables.
- A significant difference has been found in the post test values of Experimental and Control group for the selected physical variables.
- It can be concluded that Yogic exercises are effective for improvement of physical fitness variables among sports persons

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