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Effect of yoga asanas and pranayama on selected physiological and psychological variables among adolescents

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Abstract

The investigation was to find out the effect of yoga asanas and pranayama on selected physiological and psychological variables among adolescents. The sample for the present study consisted of 60 aged men between 16 to 20 years were subjects divided into three equal groups (N= 20). Group I was yoga asanas group (AEG), Group II was pranayama Group (YEG) and Group III was Control Group (CG). The experimental groups trained for 12 weeks three days a week and for 50 minutes per day. All the three groups underwent a pre and post-test for the study variables Physiological (pulse rate, percent body fat, systolic and diastolic blood pressure) and psychological (level of job anxiety and level of occupational stress). The results indicated that all the study variables (physiological and psychological) except the systolic blood pressure had substantial difference between the groups at 0.05 level of confidence. The systolic blood pressure did not yield any significant result with the F-value being 1.90 at 0.05 level. It was concluded that yoga asanas and pranayama programs assist to advance the physiological variables such as pulse rate and drop the percent body fat. Further these exercises also aid in considerably reducing the anxiety and occupational stress which result in a healthful living.

Keywords: Yoga asanas, physiological, psychological variables

Introduction

The term yoga is an art of skillful living. It combines exercise, breathing, diet, relaxation and meditation in the physical and mental form to make the body tougher and better. It accentuates the association of body, mind and breath, the harmonization of breath and effort, the use of preparation, counter pose, series of related postures and alteration of positions to suit individual needs resulting to know one self. An individual cannot practice yoga without variations happening within self, becoming extra conscious that it impacts on life and understanding the way one lives.

Though Yoga practice can be of low impact but the exquisiteness of it is that it is handy to everybody, as the period can be adjusted to each person's level of fitness or state of health. The health of the our body and mind rest on the trustworthiness of the health of our innerstructures- the heart, lungs, digestive system, glands, mind, the nervous system etc. If the organs in the body are dynamic and the body has passable resistance power, it resists the toxic effects of medicines, which give rise to diseases and side effects. Further, yoga develops fitness, lowers blood pressure, promotes relaxation and self-confidence and decreases stress and anxiety. Individuals who indulge in the training of yoga incline to have decent co-ordination, posture, flexibility, concentration, sleeping habits and digestion. Studies have shown that yoga accelerates the metabolic activity of an individual thereby reducing the risk of hypokinetic diseases and extending the longevity of life. On the other hand aerobic exercise is referred to as the activity carried in the presence of oxygen. It is also termed as cardio exercises, wherein the oxygen is used in the bodies metabolic or energy producing procedure. Aerobic exercises involve the utilization of large muscle groups activity performed at moderate intensity over an extended period of time. In this type of activity the heart and the lungs are overloaded which causes them to work harder thereby resulting in enhanced fitness levels. The significant indication be bicycling, cross country, skiing, skating, fitness walking, jumping, rope running, stair climbing and swimming are classified as aerobic exercises.

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This apart, an individual should discover something to relish by undertaking an activity that keeps the heart rate raised for constant time period for a healthier life. The benefits of aerobic exercises are many fold which results in enjoyment of life. Taking the above factors into consideration this study is an attempt to identify the impact of yogic exercises and aerobic training on a few selected physiological and psychological components of middle aged male individuals.

Methods and Material

The sample for the present study consisted of 60 adolescents aged men between 16 to 20 years were selected as subjects and were randomly assigned into three an equal groups (N= 20). Group I was yoga asanas group (AEG), Group II was pranayama Group (YEG) and Group III was Control Group (CG). The experimental groups trained for 12 weeks three days a week and for 50 minutes per day. A 5 minute warm and 5 minute cool down was administered for the experimental groups every day. All the three groups underwent a pre and post-test for the study variables. The variables which were chosen for the study were Physiological (pulse rate, percent body fat, systolic and diastolic blood pressure) and psychological (level of job anxiety and level of occupational stress). Analysis of covariance (ANACOVA) was used as the statistical tool to define the significant difference between groups and post hoc-test was used to test the significant difference of pairs of adjusted final group means.

Results and Discussion

Table 1: Showing the Analysis of Co-Variance for the mean difference among the yoga asanas, pranayama and control groups

| Variables | Sources | SS | MS | F-value |
|-------------------------------------|---------|-----------|--------|---------|
| Pulse Rate (Beats per minute) | BG | 241.42 | 120.81 | 11.06 |
| | WG | 585.29 | 10.92 | |
| Percent Body Fat (Millimeter) | BG | 346963.85 | 14.60 | 25.17 |
| | WG | 316086.96 | 0.58 | |
| Systolic Blood Pressure (mm/hg) | BG | 91.56 | 45.82 | 1.86 |
| | WG | 1353.87 | 24.57 | |
| Diastolic Blood Pressure (mm/hg) | BG | 75.85 | 37.86 | 4.35 |
| | WG | 471.96 | 8.69 | |
| Job Anxiety (Points Scored) | BG | 323.48 | 161.84 | 35.96 |
| | WG | 224.78 | 4.50 | |
| Occupational Stress (Points Scored) | BG | 816.71 | 408.95 | 59.44 |
| | WG | 367.45 | 6.88 | |

*Significant at 0.05 levels Table 1: showing the Analysis of Co-Variance for the mean difference among the aerobic, yogic and control groups

In the outcomes in the above table-I indicates that in all the study variables (physiological and psychological) except the systolic blood pressure are significant between the groups at 0.05 level of confidence. The systolic blood pressure did not yield any significant result with the F-value being 1.90 at 0.05 level. In order to find out the significance of the difference of all possible pairs of adjusted post-test means Scheffe’s Post Hoc test was applied. The results of the test are presented in (Table 2).

Table 2: showing Schaffer’s test of significance between paired adjusted post-test means on the selected Physiological and psychological variables

| Variables | Adjusted Post Test Means | | | Mean Difference | F-value |
|-------------------------------------|--------------------------|-------------|-----------|-----------------|---------|
| | Control Group | yoga asanas | pranayama | | |
| Pulse Rate (Beats per minute) | 83.5 | 81.28 | - | 2.02 | 3.916 |
| | 83.3 | - | 78.41 | 4.89 | 22.89* |
| | - | 81.28 | 78.41 | 2.87 | 7.89* |
| Percent Body Fat (Millimetres) | 21.75 | 20.67 | - | 1.08 | 30.577* |
| | 21.75 | - | 20.08 | 1.67 | 73.048* |
| | - | 20.67 | 20.08 | 0.59 | 9.10* |
| Systolic Blood Pressure (mm./hg) | 123.24 | 121.57 | - | 1.67 | 1.151* |
| | 123.24 | - | 120.2 | 3.04 | 3.822* |
| | - | 121.57 | 120.2 | 1.37 | 0.788* |
| Diastolic Blood Pressure (mm./hg) | 80.82 | 78.12 | - | 2.7 | 3.659* |
| | 80.82 | - | 79.96 | 0.86 | 0.891* |
| | - | 78.12 | 79.96 | 1.84 | 3.995* |
| Anxiety (Points Scored) | 32.15 | 28.57 | - | 3.58 | 31.86* |
| | 32.15 | - | 26.53 | 5.62 | 78.646* |
| | - | 28.57 | 26.53 | 2.04 | 10.39* |
| Occupational Stress (Points scored) | 131.24 | 126.11 | - | 5.13 | 40.154* |
| | 131.24 | - | 122.22 | 9.04 | 124.69* |
| | - | 126.11 | 122.22 | 3.91 | 23.326* |

*Required value for significance at 0.05 level = 5.545

Table 2: showing Schaffer’s test of significance between paired adjusted post-test means on the selected physiological and psychological variables Table 2 showed that the difference between the adjusted means for the control group and yoga asanas group was 2.02; control group and pranayama group was 4.89 and yoga asanas group and pranayama group was 2.87. The obtained F-ratio of the above comparisons was 3.906, 22.876 and 7.877 respectively. The table F-ratio was 5.545. The results show that the mean difference between the control group and pranayama group was recorded to be significant whereas the mean difference

between the control group and yoga asanas group was found to be insignificant. The difference between the adjusted means of percent body fat for the control group and yoga asanas group was 1.08; control group and pranayama group was 1.67 and yoga asanas group and pranayama group was 0.59. The obtained F-ratio of the above comparisons was 30.577, 73.048 and 9.103 respectively. The table F-ratio was 5.545. Hence all the three comparisons were significant. The difference between the adjusted means of systolic blood pressure for the control group and yoga asanas group was 1.67; control group and pranayama group were 3.04 and yoga

asanas group and pranayama group was 1.37. The obtained F-ratio of the above comparisons was 1.151, 3.822 and 0.778 respectively. The table F-ratio was 5.545. Hence all the three comparisons were statistically insignificant.

The difference between the adjusted means of diastolic blood pressure for the control group and yoga asanas group was 2.7; control group and pranayama group were 0.86 and yoga asanas group and pranayama group was 1.84. The obtained F-ratio of the above comparisons was 3.659, 0.891 and 3.995 respectively. The table F-ratio was 5.545. Hence all the three comparisons were statistically insignificant.

The difference between the adjusted means of job anxiety for the control group and yoga asanas group was 3.58; control group and pranayama group was 5.62 and yoga asanas group and pranayama group was 2.04. The obtained F-ratio of the above comparisons was 31.86, 78.646 and 10.393 respectively. The table F-ratio was 5.545. Hence all the three comparisons were significant.

The difference between the adjusted means of occupational stress for the control group and yoga asanas group was 5.13; control group and pranayama group was 9.04 and yoga asanas group and pranayama group was 3.91. The obtained F-ratio of the above comparisons was 40.154, 124.69 and 23.326 respectively. The table F-ratio was 5.545. Hence all the three comparisons were significant.

Discussion

The key purpose of the study was to know the influence of the yoga asanas and pranayama programs on the selected physiological variables like pulse rate, percent body fat, diastolic and systolic blood pressure, psychological variables like job anxiety and occupational stress among adolescents aged men. The results showed that the selected physiological and psychological variables of the subjects enhanced meaningfully after undergoing the yoga asanas and pranayama for a period of twelve weeks. The changes in the selected parameters are attributed to the proper planning, preparation and execution of the above two training programs for the adolescents aged men.

Conclusion

It is concluded that yoga asanas and pranayama programs assist to advance the physiological variables such as pulse rate and drop the percent body fat. Further these exercises also aid in considerably reducing the anxiety and occupational stress which result in a healthful living.

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