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Effect of yogic exercises on physiological variables among the adolescents

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Abstract

An attempt has been made to investigate the Effect of Yogic Exercises on Physiological Variables among the Adolescents. Fifty male students of U.G. college level were practiced different types of yogic exercises like Surya Namaskar, Asanas, Pranayam and Meditation for eight weeks by maintaining a schedule. The physiological variables are resting heart rate and blood pressure. The resting heart rate was measured by Pulse Oximeter and blood pressure was measured by Omron Blood Pressure Monitor. In results, it was found that there was significant difference between pre-test and post-test. So, it was evident that yogic exercises impact significantly on physiological variables among the adolescents.

Keywords: Yoga, physiology, adolescents, Surya Namaskar, Asanas, Pranayam, Meditation etc.

Introduction

Yoga is the art of living (Ajmeer Singh *et al.*, 2008). It includes Yama, Niyama, Asana, Pranayam, Dharana, Dhyana and Samadhi. Yogic exercises are the important aspects in our life. It is also considered as a way of life. So, practice of yoga is being emphasized in all institutional level.

Physiology is the study of normal function in human body (Morehouse, Lawrence and Augustus, 1986) [6]. It is a sub-section of biology, covering a range of topics that include organs, anatomy, cells, biological compounds, and how they all interact to make life possible. Among them, resting heart rate and blood pressure are very important functional variable.

Heart rate is the number of heartbeats per unit of time, usually per minute. It is based on the number of contractions of the ventricles (the lower chambers of the heart). Blood pressure is the pressure that exerted by the blood upon the walls of the blood vessels and especially arteries and that varies with the muscular efficiency of the heart, the blood volume and viscosity, the age and health of the individual, and the state of the vascular wall.

So the study, Effect of Yogic Exercises on Physiological Variables among the Adolescents is taken into consideration.

Statement of the problem

The problem of the study was to investigate the effect of yogic exercises on physiological variables (resting heart rate and blood pressure) among the adolescents.

Hypothesis

It was hypothesized that yogic exercises have the positive effect on resting heart rate and blood pressure among the adolescents.

Delimitations

1. Only male students were selected.
2. No. of students was fifty.

Limitations

Subjects are not from the same cultural group, economical status, educational and family background, food habits, nutrition, mental growth and mental set up. Thus any influence of those factors on personality, will be beyond the control of the investigator.

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Procedure

Selection of Subjects

Fifty male students of U.G. level of Vivekananda Mission Mahavidyalaya were practiced different types of yogic exercises like Surya Namaskar, Asanas, Pranayam and Meditation for eight weeks by maintaining a schedule.

Criterion Measures

1. Resting Heart Rate – Pulse Oximeter.
2. Blood Pressure– Omron Blood Pressure Monitor.

Statistical Analysis

Pre-test and Post-test results were taken and compared by employing ‘t’ test at 0.05 level of confidence.

Exercise Programme

Table 1

| Name of Exercise | | Monday | Wednesday | Friday |
|------------------|---|---------|-----------|---------|
| Surya Namaskar | | 8 min. | 8 min. | 8 min. |
| Asanas | Padmasana, Dhanurasana, Halasana, Shirsana, Ardhamatseyendrasana, Chakrasana, Sabbangasana, Mayurasana, Bakasana and Paschimatyasana. | 25 min. | 25 min. | 25 min. |
| Pranayam | Anulom-Vilom and Kapalbhati | 5 min. | 5 min. | 5 min. |
| Meditation | | 2 min. | 2 min. | 2 min. |

Programme Schedule

Table 2

| | |
|-----------|-------------------|
| Frequency | 03 days in a week |
| Duration | 40 minutes |
| Time | 4:10 pm – 4:50 pm |

Presentation and analysis of data

Table 1: Mean and standard deviation of pre-test and post-test results of physiological variables among adolescents

| Variables | Pre-test | | Post-test | |
|---------------------------------|----------|--------|-----------|--------|
| | Mean | S.D. | Mean | S.D. |
| Resting Heart Rate (Beats/Min.) | 70.280 | 7.990 | 63.140 | 6.538 |
| Systolic Blood Pressure (mm-hg) | 134.580 | 24.915 | 123.340 | 23.384 |
| Diastolic Blood Pressure(mm-hg) | 79.100 | 7.249 | 72.240 | 6.358 |

From table -1 it was observed that pre-test result was greater than post-test result in case of Resting Heart Rate, Systolic Blood Pressure and Diastolic Blood Pressure. It indicated that

Resting Heart Rate, Blood Pressure (Systolic and Diastolic) became superior due to yogic practices.

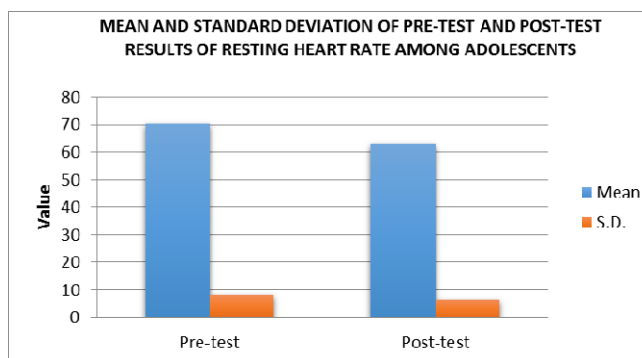


Fig 1: Mean and Standard Deviation of pre-test and post-test results resting heart rate among adolescents.

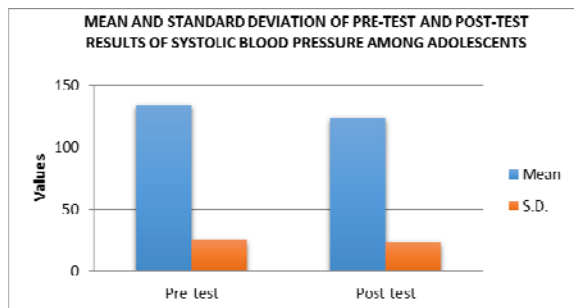


Fig 2: Mean and Standard deviation of pre-test and post-test results of systolic blood pressure among adolescents.

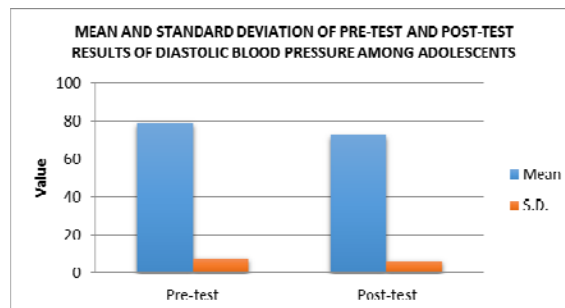


Fig 3: Mean and Standard deviation of pre-test and post-test results of diastolic blood pressure among adolescents.

Mean difference of pre-test and post-test results of physiological variables among adolescents**Table 4**

| Variable | Tests | Mean | S. D. | 't' value |
|----------------------------------|-----------|---------|--------|-----------|
| Resting Heart Rate (Beats/min.) | Pre-test | 70.280 | 7.990 | 4.890* |
| | Post-test | 63.140 | 6.538 | |
| Systolic Blood Pressure (mm-Hg) | Pre-test | 134.580 | 24.915 | 2.388* |
| | Post-test | 123.340 | 23.384 | |
| Diastolic Blood Pressure (mm-Hg) | Pre-test | 79.100 | 7.249 | 5.030* |
| | Post-test | 72.240 | 6.358 | |

* Significant at 0.05 level of Confidence

t._{0.5} (99) = 1.980

From Table – 2 it was observed that there was significant difference between pre-test and post-test result in relation to Resting Heart Rate. In case of Blood Pressure (Systolic and Diastolic), there was also significant difference between pre-test and post-test results.

Discussion of the findings

The obtained data on the subjects through application of statistical technique revealed that resting heart rate, systolic blood pressure and diastolic blood pressure become better through practice of yogic exercises.

It is evident significantly greater improvements in resting pulse rate; increasing maximum breath holding time, systolic blood pressure and diastolic blood pressure. Practice of yogic exercises helps the subjects to improve cardiorespiratory endurance and physiology of breathing process. Thus, yogic exercises help the subjects to develop their physiological characters which help them for developing better resting heart rate and blood pressure in a successful manner.

Conclusion

From the above findings, it can be concluded that yogic exercises helps to minimize both the resting heart rate and blood pressure (systolic and diastolic). During teaching as well as coaching, teacher and coaches should keep in mind about such physiological facts which help the students and athletes for better educational achievement as well as sports performances.

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