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Effect of Yogic Practices and Interval Training on Selected Physiological and Bio-Chemical Variables Among University Students

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ABSTRACT:

The purpose of the present study was to investigate the Yoga has a complete message for humanity. It has a message for the human body, it has a message for the human mind, and it has also a message for the human soul. Intelligent and capable youth must come forth to carry this message to every individual not only in India, but also in every other part of the world. The purpose of the study was to find out whether there is any significant improvement on the efficiency of the Physiological and Biochemical variables through selected asanas and interval training.

Keywords: yoga ,Asanas, Physiology, Bio Chemical, University students.

INTRODUCTION:

The objective of yoga is solidarity of the body, brain and soul with the attention on body stance, breathing and contemplation. A few types of yoga exist to address the issues of differing ways of life and characters. Yoga is a great soul of the Universe. It can promote the social well-being through limbs of yoga (Asanas, Pranayama, Kriyas, Mudras and Meditations). To practising yoga regularly it can make you into sound body and sound mind. Yoga is the costless permanent treatment for more diseases, alaguraja,. It is a practical holistic philosophy designed to bring about profound state as well is an integral subject, which takes into Consideration man as a whole, alaguraja,

Yoga has a complete message for humanity. It has a message for the human body, it has a message for the human mind, and it has also a message for the human soul. Intelligent and capable youth must come forth to carry this message to every individual not only in India, but also in every other part of the world. The purpose of the study was to find out whether there is any significant improvement on the efficiency of the Physiological and Biochemical variables through selected asanas and interval training.

INTERVAL TRAINING:

Interval training involves activities that are more intermittent. It consists of alternating periods of relatively intense work and active recovery. It allows for performance of much more work at a more intense workload over a longer period of time than if working continuously. Interval training is to subject the body to repeated but short intermittent periods of reduced intensity. Interval training is advocated by many of the top coaches, trainers and performers who have used it to advantage. According to Kalafs and Aeaheim the following four factors are significant in interval training.

- A pre-determined pace, carefully timed at which the athlete covers the set distance, and a predetermined number of repetitions in running the distance.
- A specific distance that is repeated at given number of times.
- A recovery period during which the athlete jogs slowly and relaxes.

METHODOLOGY :

To execute this investigation, the research scholar employed random sampling method. The study was conducted on a total sample of ninety boy students drawn randomly from one hundred and fifty students of Department of Physical Education And Sports Sciences, Andhra University, Visakhapatnam, age was ranged from 18 to 25 years. The pre and post tests design employing analysis of covariance technique was adopted. The purpose of the study was to find out whether Asanas and interval training had any influential effect, individually and collectively on the selected Physiological variables and Bio-chemical variables. Further it was aimed to find out which of the experimental variables were more effective. For this purpose, the research scholar followed the following procedure. The subjects for the study were selected at random and divided into three homogenous groups based on their initial performance. Among the three groups, the control group was strictly under control without undergoing any special activity. The experimental groups were subjected special activity. The experimental groups were subjected to the experimental treatment.

EXPERIMENTATION –I

The selected ten Asanas training was given in six days a week except Sunday. The duration of the exercises was 20 minutes during the first month 30 minutes during the next month and 40 minutes during the third month in the morning from 6:30 A.M. to 7.10 A.M

EXPERIMENTAL – II

The interval training was practiced by the subjects three days per week over a period of three months. Before giving the interval training the subjects were asked to warm up. The duration training schedule was 20 minutes during the first month 30 minutes during the second month and 40 minutes during the third month in the morning from 6:30 am to 7:10 am.

CRITERION MEASURES: The following criterion measures were chosen for testing the hypothesis.

1. Vital capacity was recorded in liters / minute.
2. Pulse rate was measured in beats per minute.
3. Breath holding time was recorded in seconds.
4. Red blood cells, white blood cells and serum cholesterol was measured through blood analysis.

Test Administration of Physiological variables

Vital Capacity

Purpose; To measure the lung capacity.

Equipment: Peak flow meter

Scoring: The subject score was read in litre/minute on a scale fastened to the outside of the peak flow meter.

Pulse rate :Equipment : Stop watch

Breath holding Time :Objective :To measure the breath holding time. **Equipment :**Stop watch

Scoring: The time of holding is till the moment the subject let the air out was clocked by using the stop watch, to the nearest one tenth of a second as breath holding time.

ESTIMATION OF BIO-CHEMICAL VARIABLES

The Hematological parameters were measured by the following method

Counting the R.B.C Draw blood to the 0.5 marks in the R.B.C. pipette. Wipe tip clean and draw diluting fluid to the 1.01 mark shake for 3 minutes charge the chamber count the R.B.C's using 40 objectives in the 80 smallest squares as indicated in the diagram of the chamber

R.B.C. diluting fluid: - Hayem's fluid

1. Mercuric chloride 0.5 gm
2. Sodium chloride 1.0 gm
3. Sodium sulphate 5.0 gm
4. Distilled water to 200 ml

Formula:

$$\text{R.B.C. count} = \frac{\text{Number of cells counted} \times \text{diluting factor} \times \text{depth factor}}{\text{Area counted}}$$

Dilution is 1 in 200, depth is /10mm, Area counted is 80/400, 1/5 sq. mm.

$$\frac{\text{Number of counted} \times 200 \times 10}{1/5} = \text{Number of counted} \times 10,000$$

Bulk Dilution Method

1. Place 3.98 ml. dilution fluid in an ordinary 6" x 3/4" test tube.
2. Measure 0.02 ml. with a sahli pipette from a well mixed specimen of oxculated blood, taking care to see that the blood is not drawn beyond the mark. Carefully wipe the tip of the pipette.
3. Expel the blood into the diluting fluid, rinse the pipette in the fluid by sucking up fluid and re expelling it two or three times.
4. Mixing can be done by rotating either by hand or in mechanical or in a mechanical mixer

Technique of White Blood Cell counts:

The same principle discussed under total red blood cell count was also applied here. White blood cells are achieved by using the special white blood cell pipette or by bulk dilution where 20 cu. mm (0.02ml) of blood is mixed with 0.38 ml of diluting fluid in the small test tubes. The leucocyte pipette is smaller than the red cell pipette and is marked 0.5, I and II. It permits dilution Of the blood in the order of 1 in 2 or 1 in 10. The diluting fluids are as follows:

- a. Glacial acetic acid - 1.5 ml
- b. One percent solution of Gentian
- c. Violet in water - 1.0 ml
- d. Distilled water - 98.0 ml

The glacial acetic acid and the gentian violet slightly stain the nuclei of the leucocytes. The leucocytes therefore may be added to the diluting fluids in order to prevent the growth of moulds.

Micro dilution

1. The special white blood cell pipette is used.
2. Blood is drawn up to the 0.5 mark and the tip is wiped clear.
3. Diluting fluid is drawn to the 11 mark.
4. The pipette is well shaken at right angle to its axis to mix the fluid and cells.
5. After discarding the first few drops the counting chamber is charged.

When the lower power objective is used, the cells are magnified 100 times. The objective is used for the white cell count. It is usually labeled 10 or 16 mm. The cells in the four large corner squares of the counting chamber are counted, using the same technique of red blood cells count. The basic formula to be used calculation is

$$\begin{aligned} \text{Total white blood} &= \frac{\text{No. of cells counted} \times \text{Dilution factor} \times \text{Depth factor}}{\text{Area of chamber counted}} \\ &= \text{Cells/Cu. Mm} \\ &= \text{No. of cells counted} \times 20 \times 10 \end{aligned}$$

Cholesterol :The Principle

The reaction of cholesterol with ferric Per chlorate and sulphuric acid mixture in hot conditions to form a coloured complex having a maximum absorbance at 560 mm. is used in this kit.

Reagents provided;

- i) Colour reagent 250 ml
- ii) Cholesterol standard (200 mg o/o) 0.5 ml

Sample: Serum/E.D.T.A. plasma

Test Procedure

	Pipette into test tube	
	Standard	Test
Colour Reagent	5.0 ml	5.0ml
Serum/plasma		0.06
Standard	0.06	

mix well and immediately place in a boiling water bathe for exactly one minute. Cool under running tap and read absorbance of standard (s) and test (T) on a photo colorimeter using yellow green or on a spectra photometer at 560 mm.

$$\text{Cholesterol in mg \%} = \frac{\text{A of (T)}}{\text{A of (S)}} \times 200$$

Statistical Procedure: In this study the analysis of covariance was used to analyse the results. The scheff's post hoc test was used to analyse the means and differences between the means of the various group

CONCLUSIONS

Within the limitations imposed by the experimental conditions, the following conclusions were drawn.

1. Yogic practices and Interval Training had significantly improved the pulse rate, breath holding time, vital capacity and serum cholesterol.
2. When the experimental group-I (yogic practices) were compared with control group, there was significant improvement in pulse rate, vital capacity, breath holding time and serum cholesterol.
3. When the experimental group-II (Interval Training) was compared with control group, there was significant improvement in pulse rate, vital capacity, and breath holding time and serum cholesterol.
4. When the experimental group-I was compared with experimental group-II, experimental group-I had no significant difference in physiological variables where experimental group-II had a significant difference in physiological variables.

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