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## Effects of Pranayama Practices and Interval Training On Selected Health Related Physical Fitness and Cardiopulmonary Variables among School Boys

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### Abstract

The purpose of the study was to find out the “effects of Pranayama Practices and interval training on selected health related physical fitness and cardiopulmonary variables among schools boys”. To achieve this purpose of the study sixty students from Government higher secondary school Markkampatti, were selected subjects at random. The age of subjects ranged from 13 to 17 years. They were divided into three groups. Experimental group I, Experimental group II, Control group. Experimental group I Pranayama practices, Experimental group II Interval training Experimental group III control group. Underwent no training the data was before and after twelve weeks training.

The analysis of covariance (ANCOVA) were used to the test the significance. Three groups were compared, whenever obtained “F” ratio for adjusted posttest was found to be significant, the Scheffé’s test to find out the paired mean differences if any, The 0.05 level confidence was fixed as the level of significance to the test ‘F’ ratio obtained by the analysis of covariance, which was considered as an appropriate.

**Keywords:** Pranayama, interval training, heart rate, Breath holding time.

### Introduction

Physical Education has long believed that exercise is essential to maintain good health. During the past twenty year a great deal of evidence has been reported by the medical researchers supporting the value of vigorous exercise for promoting health (Ted A. Baumgarthar 1987).

Yoga provides linkage between body mind and soul. Yoga starts from cleanliness of the body and mental through process, word and action of a man. (Iyengar.B.K.S.2004).

Pranayama means break in the moment of Breath; Prana meaning Breath and Yama meaning pause.

Woldemar Gerschler a professor of university of Freiburg in Germany, Interval or rest period, between the fast runs. Sprinting for 45 meters and jogging for 55 after each for distance up to 5 km. In other words each 400 meters the about would combined four 55 meter jogs.

The physical fitness parameters associated with health muscular endurance “is the ability of muscle group to develop maximal contractile force against as resistance in a single contraction (Heyward 2002).

Cardio Respiratory endurance perform dynamic exercise involving large muscle groups at moderated to high intensity for prolonged periods (Heyward 2002).

Heart rate, or heart pulse, is the speed of the heart beat measured by the number of poundings of the heart per unit of time.

Breath holding time - A through index of cardio pulmonary reserve measured by the length of the time that person who is a subject breathing normal duration is 30 seconds cardiac or pulmonary reserve is duration of 20 seconds or less.

### Statement of the problem

The purpose of the study was to find out the effects of pranayama practices and interval training on selected health related physical fitness and cardio pulmonary variables among school boys.

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**Hypothesis**

1. It was hypothesized that there would be a significant difference between experimental groups and control. Group an selected criterion variables due to pranayama practices and interval training.
2. It was hypothesized that there would be a significant differences between experimental groups on selected criterion variables due to pranayama practices and interval training.

**Methodology**

The study was formulated as a true random group design, consisting of pretest, posttest. The subjects (n=60) were randomly assigned to three groups of sixty school students. The groups were assigned as experimental group I, II and control group respectively.

**Table 1:** Test Selection

| S. No. | Criterion Variables          | Test Items                 |
|--------|------------------------------|----------------------------|
| 1.     | Muscular endurance           | Bent knee situps           |
| 2.     | Cardio Respiratory Endurance | 12 minutes run/walk        |
| 3.     | Heart rate                   | Radial pulse/ impulse rate |
| 4.     | Breath holding time          | Holding the breath/seconds |

**Table 2:** Intra Class Correlation Co – Efficient Values On Selected Criterion Variables

| S. No. | Tests                        | 'R' Value |
|--------|------------------------------|-----------|
| 1.     | Muscular endurance           | 0.55*     |
| 2.     | Cardio respiratory endurance | 0.57*     |
| 3.     | Heart rate                   | 0.615*    |
| 4.     | Breath holding time          | 0.89*     |

\* Significant at .01 level confidence (table value required for significant. 01 level confidence with at 9 was 0.767)

**Table 3:** Analysis of Co-Variance of Muscular Endurance of Pranayama Practices and Interval Training and Control Group

| Text               | Exp. i pranayama | Exp ii interval training | Control group | Source of variance | Sum of Squares | Df | Mean squares | F      |
|--------------------|------------------|--------------------------|---------------|--------------------|----------------|----|--------------|--------|
| Pre test           | 77.2667          | 29.25                    | 82            | Between            | 98.635         | 2  | 3566         | 0615   |
|                    |                  |                          |               | Within             | 175.467        | 56 | 59.74        |        |
| Post test          | 69.062           | 35.51                    | 70.052        | Between            | 125.74         | 2  | 110.25       | 11.306 |
|                    |                  |                          |               | Within             | 235.750        | 56 | 225.98       |        |
| Adjusted post test | 74.831           | 32.38                    | 72.382        | Between            | 205.25         | 2  | 198.75       | 44.58  |
|                    |                  |                          |               | Within             | 195.45         | 55 | 25.75        |        |
| Mean again         | 8.204            | 6.26                     | 11.948        |                    |                |    |              |        |

\* Significance difference 0.05 level

**Table 4:** Analysis of Co-Variance of Cardio Respiratory Endurance of Pranayama Practices and Interval Training

| Text               | Exp. i pranayama | Exp ii interval training | Control group | Source of variance | Sum of Squares | Df | Mean squares | F     |
|--------------------|------------------|--------------------------|---------------|--------------------|----------------|----|--------------|-------|
| Pre test           | 82.266           | 35.25                    | 79.65         | Between            | 115.93         | 2  | 102.93       | 0.357 |
|                    |                  |                          |               | With in            | 3513.45        | 56 | 45.88        |       |
| Post test          | 75.066           | 43.51                    | 78.062        | Between            | 813.60         | 2  | 813.60       | 27.14 |
|                    |                  |                          |               | Within             | 2014.80        | 56 | 59.43        |       |
| Adjusted post test | 74.83            | 39.62                    | 75.35         | Between            | 932.470        | 2  | 932.47       | 41.07 |
|                    |                  |                          |               | Within             | 575.196        | 55 | 34.27        |       |
| Mean again         | 7.2              | 8.26                     | 1.588         |                    |                |    |              |       |

\*Significance difference 0.05 level

**Table 5:** Analysis of Co-Varaince of Heartrate of Pranayama Practices and Interval Training

| Text               | Exp. i pranayama | Exp ii interval training | Control group | Source of variance | Sum of Squares | Df | Mean squares | F      |
|--------------------|------------------|--------------------------|---------------|--------------------|----------------|----|--------------|--------|
| Pre test           | 82.667           | 79.733                   | 82            | Between            | 115.93         | 2  | 38.64        | .3615  |
|                    |                  |                          |               | Within             | 3513.46        | 56 | 62.74        |        |
| Post test          | 75.0667          | 76.666                   | 83.6          | Between            | 813.60         | 2  | 406.8        | 11.306 |
|                    |                  |                          |               | With in            | 2014.80        | 56 | 35.97        |        |
| Adjusted post test | 74.83196         | 78.053                   | 83.53         | Between            | 932.420        | 2  | 466.23       | 44.58  |
|                    |                  |                          |               | Within             | 575.196        | 55 | 60.488       |        |
| Mean again         | 7.6003           | 3.067                    | .1.6          |                    |                |    |              |        |

\*Significance difference 0.05 level

**Table 6:** Analysis of Co-Variance of Breath Holding Time of Pranayama Practices and Interval Training

| Text               | Exp. i pranayama | Exp ii interval training | Control group | Source of variance | Sum of Squares | Df | Mean squares | F     |
|--------------------|------------------|--------------------------|---------------|--------------------|----------------|----|--------------|-------|
| Pre test           | 42.386           | 42.83                    | 42.476        | Between            | 2.241          | 2  | 1.120        | 0.06  |
|                    |                  |                          |               | Within             | 99.09          | 56 | 19.403       |       |
| Post test          | 52.104           | 50.54                    | 42.385        | Between            | 1094.96        | 2  | 547.78       | 32.58 |
|                    |                  |                          |               | Within             | 957.970        | 56 | 16.806       |       |
| Adjusted post test | 52.264           | 50.310                   | 42.44         | Between            | 1080           | 2  | 25.40        | 176.2 |
|                    |                  |                          |               | Within             | 171.635        | 55 | 548.08       |       |
| Mean again         | 7.2              | 8.26                     | 1.588         |                    |                |    |              |       |

\*Significance difference 0.05 level

### Conclusions

1. The health related physical fitness experimental group had achieved significant improved on Muscular endurance, cardio respiratory endurance when compared to control group.
2. It was observed that the twelve weeks of pranayama practices and interval training improve the Muscular endurance, cardio respiratory endurance among school boys.
3. The cardio pulmonary variables and Heart rate was significantly reduce due to influence twelve weeks training Pranayama practices, interval training compared to control group.
4. It was observed that the twelve weeks of pranayama practices and interval training improve the breath holding time among school boys.

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