

EFFECT OF PRANAYAMA PRACTICES ON RESTING HEART RATE AND BREATH HOLDING TIME AMONG EARLY ADULthood

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ABSTRACT

The purpose of the study is to assess the effect of pranayama practices on resting heart rate and breath holding time among early adulthood. This study was delimited to the thirty early adulthood were selected from the students of M.S. University Departments, Tirunelveli at random. The study was delimited to the age group of 20 to 28 years. The selected subjects were divided in to two groups of 15 each. Group I underwent Pranayama practice for six weeks and Group II acted as control who did not take part in specific training. Resting heart rate and breath holding time were selected as dependent variables for this study and they were tested by using radial pulse and nostril hold methods respectively. The study was based on the groups pre-test and post-test design. The study was aimed at mainly in finding out the effects of training on selected dependent variables. The data collected from the three groups were statistically analysed for significance, the analysis of covariance (ANCOVA) was used and the 'F' ratio was found out. Hence, to make the adjustments for difference in the initial means and test the adjusted post test means for significant difference, the analysis of covariance was used. In all the cases to test the significance, 0.05 level of significance was fixed. It was concluded that, the experimental group namely Pranayama practice group have achieved significant improvement on resting heart rate and breath holding time.

Key words: Pranayama, Resting Heart Rate, Breath Holding Time

INTRODUCTION

Yoga is the science of right living and, as such, is intended to be incorporated in daily life. It works on all aspects of the person: the physical, vital, mental, emotional, psychic, and spiritual. Yoga aims at bringing the different bodily functions into perfect coordination so that they work for the good of the whole body (Swami Satyananda Saraswati, 2002). Yoga focuses on harmony between mind and body. Yoga derives its philosophy from Indian metaphysical beliefs. The word yoga comes from Sanskrit language and means union or merger. The ultimate aim of this

philosophy is to strike a balance between mind and body and attain self-enlightenment.

To achieve this, yoga uses movement, breath, posture, relaxation and meditation in order to establish a healthy, lively and balanced approach to life. The benefits of various yoga techniques have been professed to improve body flexibility, performance, stress reduction, attainment of inner peace and self-realization. The system has been advocated as complementary and treatment to aid healing of several ailments such as coronary heart disease, depression, anxiety disorders, asthma and extensive rehabilitation for disorders including musculoskeletal problems and traumatic brain injury.

Statement of the Problem

The purpose of the study was to assess the effect of pranayama practices on resting heart rate and breath holding time among early adulthood.

METHODOLOGY

To achieve the purpose of the study, thirty early adulthood were selected from the students of M.S. University Departments, Tirunelveli at random. The study was delimited to the age group of 20 to 28 years. The selected subjects were divided in to two groups of 15 each. Group I underwent Pranayama practice for six weeks and Group II acted as control who did not take part in specific training. Resting heart rate and breath holding time were selected as dependent variables for this study and they were tested by using radial pulse and nostril hold methods respectively. The study was based on the groups pre-test and post-test design. The study was aimed at mainly in finding out the effects of training on selected dependent variables. The selected subjects were underwent uniform curriculum content and received same Pranayama training for a period of six weeks and three alternative days for 1-1 ½ hours. The subjects were instructed not to change their lifestyle or perform any other vigorous physical exercises during training.

The Pranayama practice schedule consisted of

1. Warm-up - 10 mins.
2. Pranayama – 40-60 mins.

3. Warm down - 10 mins.
4. Meditation - 10 mins.

The Pranayama practiced were;

1. Adama (Kanista) Pranayama (abdominal breathing)
2. Madhyama Pranayama (Thoracic breathing)
3. Aadya (Jesta) Pranayama (clavicular breathing)
4. Poorna mudra Pranayama (Full breathing)
5. Nadishuddhi Pranayama (Alternate nostril breathing)
6. Bahya Pranayama (the external breathing)
7. Sitali Pranayama
8. Sitkari Pranayama

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ANALYSIS OF DATA

The influence of independent variables on the selected criterion variable was determined by subjecting the collected data to the analysis of covariance and it was presented in table I.

Table-I: Analysis of Covariance on Resting Heart Rate and Breath Holding Time of Pranayama Practice and Control Group

Variables	Adjusted post test mean values		Sources of Variance	Sum of Square	df	Mean Squares	F-ratio
	Pranayama practice Group	Control Group					
Resting Heart Rate	68.25	72.35	Between	1702.45	1	1702.45	4.70*
			Within	9785.26	27	362.42	
Breath Holding Time	36.15	32.24	Between	245.36	1	245.36	6.72*
			Within	985.12	27	36.49	

*Significant at .05 level of confidence.

(The table value required for significance at .05 level with df 1 and 27 is 4.21)

The mean values of Pranayama practice and control groups on resting heart rate and breath holding time were graphically represented in the figure I.

Figure-I: Mean Values of Pranayama Practice and Control Groups on Resting Heart Rate and Breath Holding Time

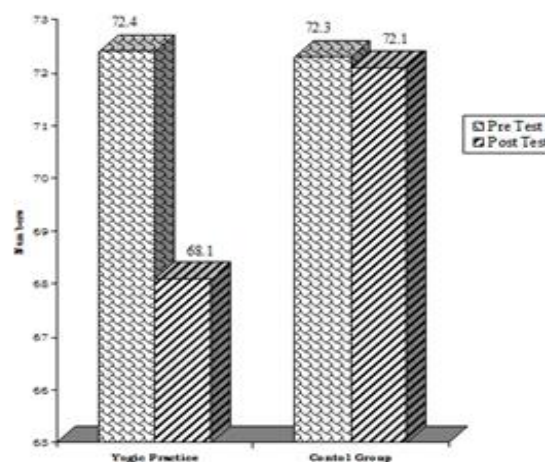


FIGURE I: MEAN VALUES OF YOGIC PRACTICE AND CONTROL GROUP ON RESTING PULSE RATE.

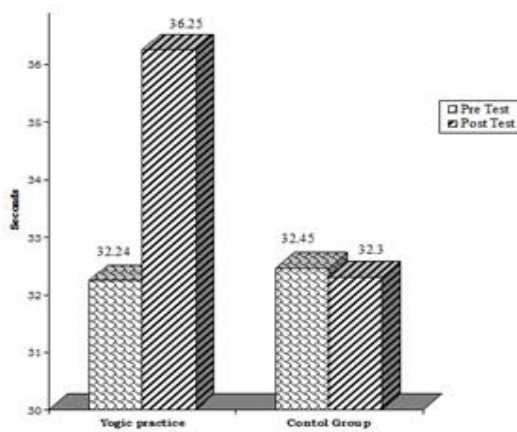


FIGURE II: MEAN VALUES OF YOGIC PRACTICE AND CONTROL GROUP ON BREATH HOLDING TIME.

DISCUSSION ON FINDINGS

The result of the study indicated that, there was a significant improvement on resting heart rate and breath holding time due to the effect of yogic practices. The result of the study also indicated that significant difference exists between Pranayama practice and control groups in developing the resting heart rate and breath holding time over six weeks of training programme among adults.

Raub, (2002) reported to that Yoga may help control such physiological variables as blood pressure, respiration and heart rate, metabolic rate to improve overall exercise capacity. Harinath, (2004) also reported that yogic practices for 3 months resulted in an improvement in cardio-respiratory performance. Joshi (1992) also reported that six weeks courses in pranayama" improve ventilator function in the form of lowered respiratory rate, and increases in the forced vital capacity , forced expiratory volume , maximum voluntary ventilation, peak expiratory flow rate , and prolongation of breath holding time.

Yadav and Das (2001) also reported significant increase in forced vital capacity, forced expiratory volume and peak expiratory flow rate and the end of 12 weeks yoga training. Ray et al. (2001), Cowen & Adams (2005), Raub (2002) also reported the same conclusion in their studies. Hence it is concluded from the result of the study and from the literature cited, a programme of Pranayama practice should be given due recognition and be implemented properly in the preparation of players for better performance. Therefore, it is inferred from the study that a programme of Pranayama practice will definitely improve the physiological fitness of adults.

CONCLUSIONS

1. There was a significant improvement on resting heart rate and breath holding time due to the effect of yogic practices.
2. The significant difference exist between Pranayama practice and control groups in developing the resting heart rate and breath holding time over six weeks of training programme among adults.

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