EFFECT OF KAPALABHATI PRANAYAMA ON CARDIOVASCULAR ENDURANCE

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Abstract

The purpose of study was to find out the effect of kapalabhati pranayama training on cardiovascular endurance. To achieve this purpose of study, forty (40) male students were studying in GB. Pant University of Agriculture and Technology Pantnagar, Uttarakhand, for the year 2003-04, were selected as subjects at random for the present study. The ages of these subjects ranged between 18 to 25 years. Random group design was used for the purpose of the present study. The selected subjects were divided into two equal groups. Group "A" acted as experimental group and Group "B" acted as Control group. Both groups consist of twenty subjects each. The kapalabhati pranayama training was given to Experimental group for three days i.e. Monday, Wednesday, and Friday for eight weeks. The cardiovascular endurance was selected as criterion variable and it was measured by using cooper 12 minutes run/walk test. Analysis of co-variance (Ancova) was used to find out the significant differences if any between the experimental group and control group. The level of significance was set at 0.05 level. The results of the study showed that there was a significance difference. A significance improvement in cardiovascular endurance due to the kapalabhati pranayama training

Keywords: Kapalabhati Pranayama, Training, Cardiovascular Endurance.

Introduction

The word yoga is derived from the Sanskrit root yuj meaning to bind and yoke. The ancient yogis advocated the practice of pranayama to unite the breath with the mind, and thus with prana of life-force. Prana is energy, and ayama is the string and distribution of that energy. Most of people know that the practice of yoga makes the body strong and flexible. It is also well known that yoga improve the functioning of the respiratory circulatory digestive and hormonal systems. (Iyengar, 2001). Kapalabhati is one variety of pranayama. In Sanskrit kapala means skull and bhati means to shine thus kapalabhati is an exercise the practice of which imparts glow to the skull. (Sharma, 2000) In kapalabhati, the inhalation is slow but the exhalation is vigorous, there is a split second of retention of each exhalation. (Bains, Gill, Brar, Rathee, & Sing, 2004) .Cardio Vascular Endurance can be defined as the ability of heart and lungs to take in and to transport adequate amounts of oxygen to the working muscles for activities that involve large muscle masses, to be performed over long periods of time. (Kansal, 1996). Today Yogic practice has become popular throughout the word. But there are many Misconceptions about this practice due to lack of scientific information about them. Yogic practices are generally looked upon as exercise physiology. The physiology of Yogic Practices differs greatly from that of exercise physiology. The scientific nature of the Yogic Practices was first revealed when Late Swami Kuvalyanada ji started his scientific research in the field of Yoga in 1924. These research findings could remove several misconceptions about Yoga and removed the mystical sheath over it. He showed that a logical and scientific explanation could be possible for traditionally described technique of various practices. (Gore, 1984). In recent years more and more attention has been paid to nature of "physical fitness" not only in terms of general health, but particularly of the special physical requirements for competitive sports and certain highly specialized and demanding occupation. It is becoming increasingly obvious, though not generally appreciated that the achievement and maintenance of high levels of physicals fitness produce significant efforts on the working body. (Engene, 1967). Bhagvadgita indicates that pranayama has acquired an independent position, not merely as a psycho-physiological respiratory exercise for rendering the mind, fit for concentration but also as an independent sacrificial act (Kuvalayanda, 1956)

Materials and Methods

The purpose of the study was to find out the effect of kapalabhati pranayama on cardiovascular endurance variables. To achieve this purpose of study, forty (40) male students were studying in GB. Pant University of Agriculture and Technology Pantnagar, Uttarakhand, for the year 2003-04, were selected as subjects at random for the present study, on the basis of their interest in yoga and willingness to participate in the eight weeks

training program. The selected subjects were divided into two equal groups of twenty subjects each such as experimental group and Control group. The kapalabhati pranayama training was given to Experimental group for three days days i.e. Monday, Wednesday, and Friday for eight weeks and no training was imparted to the control group. Cardiovascular endurance was selected as criterion variable and it was tested by using cooper 12 minutes run/walk test. Analysis of Co-Variance (Ancova) was used to find out the significant differences if any between the experimental group and control group. The level of significance was set at 0.05 level.

Training Programme

For experimental group, training was given for three alternate days in a week for eight weeks. Training was given for one session in the morning only. The investigator prepared a suitable training programme for the subjects. The training programme was prepared with the help of the expert in yoga. During experimental period, the control group did not participate in any special programme apart from their regular activities.

Schedule for Experimental Group

Phase	Name of Pranayama	Repetition	Set
First Week	Kapalabhati	25	5
Second Week	Kapalabhati	30	5
Third Week	Kapalabhati	30	6
Fourth Week	Kapalabhati	35	6
Fifth Week	Kapalabhati	35	7
Sixth Week	Kapalabhati	40	7
Seventh Week	Kapalabhati	40	8
Eighth Week	Kapalabhati	45	8

Results and Discussion

Table - 1
ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR CARDIOVASCULAR ENDURANCE

Test	Groups Exp	Control Group	SS	MSS	F Ratio
Pre Test Means	1935	1920	2250	2250	0.308
			277500.	7302.63	
Post Test Means	1970	1879.50	52562.5	52562.5	5.973*
			334375	8799.34	
Adjusted Post Test Means	1966.29	1901.20	42032.26	42032.26	5.830*
			266738.96	7209.16	

*Significant at .05 level $F_{.05}$(1, 38) 4.10 (1, 37) 4.10,

The Table 1 shows that the pre-test means of kapalabhati pranayama group and control group on Cardiovascular Endurance were 1935 and 1920 respectively. The obtained F-ratio of .308 for pre-test is less than the table value of 4.10 for df 1 and 38 required for significant at .05 level of confidence. The post-test means of kapalabhati pranayama group and control group were 1970 and 1879.50 respectively. The obtained F-ratio of 5.973* for post-test is greater than the table value of 4.10 for df 1 and 38 required for significant at .05 level of confidence. The adjusted post-test means of kapalabhati pranayama group and control group were 1966.29 and 1901.20 respectively. The obtained F-ratio of 5.830*for adjusted post-test is greater than the table value of 4.10 for df 1 and 37 required for significant at .05 level of significance. (Ganguly, Gharoti and Jolly, 1981) with a view to see the immediate effect of Kapalabhati on cardio respiratory endurance & observed a significant improvement in the cardio vascular endurance after performing one minute of Kapalabhati as compared to hyperventilation of similar duration. (Gharote & Ganguly, 1973) Cardio vascular fitness plays a vital role in the maintenance by proper health and physical fitness. The purpose was to determine the effect of long term yogic training program on cardio-vascular efficiency Harvard step test was administered of 11 male students and results of the study indicated that one hour of daily yogic exercise including pranayama schedule significantly improved cardio vascular efficiency of the student.

On the basis of above discussion, it is concluded that the cardiovascular endurance was significantly improved due to the training of kapalabhati pranayama.

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