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Effects of anulom viloma on the cardio - respiratory function of university players

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Abstract

The prevalent objectives of the study were to investigate the effects of Anuloma Viloma Pranayam on the cardio-respiratory functions of Interuniversity players. Subject for the present study were taken from C.C.S.U twenty university players in different games were selected as the subject for the study. The study was conducted during the month of Sept 2016 to Aug. 2016. The subjects were randomly assigned to two groups. Ten (10) were in experimental group and another Ten (10) were kept in control group, their age ranged 20 to 25 years. For assessment of vital capacity measure by the Spiro meter in liters, however breath holding capacity (after inspiration & expiration) was measure by the standard stop watch. Before administrating the initial test subject were properly oriented to the correct procedure at performing test. Six weeks of treatments with Anuloma Viloma to experimental group, control group was given no treatment. For determine the significance difference of initial of pre & post-test means, t-test was employed. The level of significant set up at .05 level of confidence. After analysis of data, it was found that the mean performance of the experimental group is certain measure of Respiratory Rate ($t=6.54$, $P<0.5$); Finally, increase in cardio respiratory functions of Anuloma Vilomamay be attributed due to increase in strength among respiratory system, the circulating systems and the digestive systems

Keywords: Cardio-respiratory functions of university players

Introduction

The preparation of sports man represents a multifaceted process of purpose fuel activity. It is a complex combination of factors, which helps in the development of sports person, and ensures basic level that determines his sports performance ability. Asana is the main yogic tool for balancing the physical body. It consists of various static posture and physical movements performed to release tensions, improve flexibility maximize the flow of energy and remove fixation. The objective of asana is the create a free flow of energy is order to help to direct our attention within. Pranayam means control of life force through the art of breathing Pranayama is the fourth post of the eight-fold yoga described in the yoga sutra of patanjali iyengar describes Pranayama as follows.

“prana” means breath, respiratory, life, vitality energy or strength when used in the plural, it denotes vital breaths or currents of energy (prama-vayus) “Ayama” means stretch, extension, expansion, length, breath, regulation, prolongation, restraint of control.

Anuloma Viloma is a breathing technique. In Sanskrit Anuloma means with the natural order and Viloma means going against. Thus it is called Alternate Nostril Breathing Technique. In this Breathing Technique, you inhale through one nostril, retain the breath, and exhale through the other nostril. A healthy person breathes mainly through the left nostril that is the path of the ida nadi, and then through the right nostril, the path of the Pingala nadi. If you are really healthy, you will breathe through the Ida nostril about one hour and fifty minutes, then through the Pingala nostril.

But in many people, this natural rhythm is disturbed. Anuloma Viloma balances the rhythm of breathing and restores, equalizes flow of Prana in the body.

In one instances (Tellas Setal 2004) [8]. Documented stopping of heart rate for 15 seconds on electro cardio gram in a yogi. Also reduction in respiratory rate as low as 4 minutes has found in a yogi doing Pranayamas. Increase in breath holding time, vital capacity and other lung functions have been found improved in subjects practicing yoga exercises (Madan Mohom

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et al. 2004) [7]. Cardio respiratory deals with heart and exchange of gases between blood of man and its environment. If heart rate is much less, then the players would not get fatigue soon as their wilt be less pressure on the heart (Bowman A.J. et al. 1997). If vital capacity of the players is high then more amount of O₂ could be inhaled and maximum of CO₂ could be exhaled out (Culos – Reed S et al. 2006) [4]. This will thus purify the blood and thus give more energy to the players. More is the capacity of the players to hold breath in itself will certainly increase the endurance of the players in long run (Jam SC 1991).

Methodology

Training Program

Anuloma Viloma is applied for 6 weeks. Firstly the players slightly bent forward at an angle of 60° by keeping hands on knees. Close eyes and relax for a while. Exhale deeply and retain the air outside.

Then contract the abdominal muscles inward and upward as for as possible. Remain in the position as long as breath is released out. Release the abdomen to return in normal position. Repeat it after normal respiration for 10 times or as many as convenient.

Anuloma Viloma was only practically applied on experimental group. This training program was implemented only for 5 days in a week. There was no hindrance in their daily routine program.

Selection of Variables:

The physiological variables selected for this study are as follows.

1. Resting Heart Rate (Resting)
2. Respiratory Rate
3. Vital Capacity
4. Breath Holding Capacity (After expiration)
5. Breath Holding Capacity (After inspiration)

Criterion Measures

The criterion measure chosen for this study were as follows.

Heart Rate: The purpose of this test was to measure the number of heart beat of the subject in one minute.

Heart rate was taken in early morning by electronic watch. The tester requests the subjects not to do any exercised in case come subject do the exercises prior of test they were asked to sit down quietly for ten minutes before taking his heart rate.

Total number of heart beats p/minutes for each subject was recorded as his score.

Respiratory rate

The respiratory rate was noted by keeping palm on the stomach and counting the total number of breath for a period of 30 seconds and doubled later on to get the respiratory rates per minute.

In one minute the number of breath was counted. This total number was saved as authentic data.

Vital Capacity: Vital capacity was measured with dry Spirometer in liters and the Spiro-meter was placed on such a height that all subjects could tested in standing position. The inner dial of the Spiro-meter was set on zero mark at the beginning of the test.

The subject was requested to take the breaths before starting the test and after exhalation; the Spiro-meter was put in the subjects mouth, taking precaution that no air escapes through the edges of the mouth piece. The subjects were exhale slowly

and steadily while bending forward slightly until the maximum volume of air could be exhaled without taking in second breath. The subject was instructed to blow out air only through the mouth and not through nose. Each subject was provided a trail before, the final test. Best effort of each subjects was recorded as score in liters.

Breath holding capacity (After Expiration): Breath holding capacity after expiration of players was tested by an electronic watch. The players stand erect with legs bended. After getting signal the player exhale air through his nostrils. Then the nose would be locked or closed with nose clip. According to their capacity the players hold air outside.

The total time of air holding of the players was measured in seconds.

Breath holding capacity (after inspiration): Breath holding capacity after inspiration of player was tested by an electronic watch. The players stand erect with legs bended. After getting signal players inhale air through his nostrils. Then the nose would be locked or closed with nose clip. The total time of air holding capacity after inspiration of the players is measured in seconds.

Results and Discussion

The statistical analysis of data for the physiological comparison including vital capacity, resting heart rate, respiratory rate, breath holding capacity after expiration and inspiration between control and experimental group are systematically presented in this chapter.

For testing the significance level was set at 0.05. The value of ‘t’ ratio needed to be significant at 0.05 level with 18 degree of freedom was 2.10.

Mean Standard Deviation and t-value of pre test, post-test on physiological variables of experimental group pre given in table 1. Mean, Standard Deviation and t-value of post-test on selected physiological variables of control group and experimental group are given in table 1-5.

Table 1: Statistical significant difference of means standard Deviation and t-ratio of selected physiological variable with respect to Respiratory of experimental.

variables	Test Number	Means	S.Ds.	t-ratio
Respiratory Rate	Pre-Test 10	21.5	2.5	3.54*
	Post-Test 10	19.9	0.94	

Significant = 0.5 level

With regards to respiratory rate physiological variable of pre and post-test of experimental groups, they have obtained the mean values of 21.5 and 19.9 respectively, which are given in Table 2 reveals that significant difference was found out in (t=3.54, P< 0.05) pre and post-test of experimental groups. The results showed that there was significant effect of Anuloma Viloma on the respiratory rate functions of experimental groups.

Table 2: Statistical significant difference of means standard Deviation and t-ratio of selected physiological variable with respect to Vital capacity of experimental groups.

Variable	Test Number	Means	S.Ds.	t-ratio
Vital Capacity	Pre-Test 10	2810	400	4.09
	Post-Test 10	3420	254.95	

* = significant

With regards to respiratory rate vital capacity physiological

variable of pre and post-test of experimental groups, they have obtained the mean values of 2810 and 3420 respectively, which are given in Table 3 reveals that significant difference was found out in ($t=4.09$, $p<.05$) pre and post-test of experimental groups. The results showed that there was significant effect of Anuloma Viloma on the Vital Capacity functions of experimental group.

Table 3: Statistical significant difference of means standard Deviation and t-ratio in with respect to Resting Heart Rate physiological variable in Pre and Post-test of experimental groups.

Variable	Test-Number	Means	S.Ds.	t-ratio
Resting Heart Rate	Per Test 10	46.1	5.95	3.34*
	Post-test 10	36.1	5.93	

* = significant

With regards to Resting Heart Rate physiological variable of Pre and Post-test of experimental groups, they have obtained the mean values of 46.1 and 36.1 respectively, which are given in Table 4 reveals that no significant difference was found out in ($t=1.34$) pre and post-test of experimental groups. The results showed that there was no significant effect of Anuloma Viloma on the respiratory rate functions of Experimental groups.

Table 4: Statistical significant difference of means standard Deviation and t-ratio in with respect to Breath holding capacity (after expiration) of experimental groups.

Variable	Test Number	Means	S.Ds.	t-ratio
Breath Holding Capacity (After Expiration)	Pre-Test 10	51.7	14.3	3.87*
	Post-Test 10	56.4 s	56.4	

N.S.=Not Significant

Table 5 shows the reveals that no significant difference was found out in ($t=3.87$, $p<.05$) pre and post-test of experimental groups. The results showed that there was significant effect of Anuloma Viloma on the Breath Holding of Different Interuniversity players.

Table 5: Statistical significant difference of means standard Deviation and t-ratio in with respect to Breath holding capacity (after Inspiration) of experimental groups.

Variable	Test Number	Means	S. Ds	t-ratio
Breathing Holding Capacity (After Inspiration)	Pre-Test 10	46.9	7.19	0.65 NS
	Post-Test 10	52.5	5.64	

N.S. = Not significant

Table 5 illustrate the reveals that no significant difference was found out in ($t=0.65$) pre and post-test of experimental groups. The results showed that there was no significant effect of Anuloma Viloma on the Breath Holding Capacity (After Inspiration) functions of players.

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