ORIGINAL ARTICLE

ACUTE EFFECT OF SHORT TERM 61- POINT RELAXATION TRAINING ON MAXIMUM EXPIRATORY PRESSURE AND BREATH HOLDING TIME

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Abstract

Stress in the present time has become a common part of our lives. Stress affects various body systems and diminishes our potential as an individual. The ancient practice of yoga has been reported to reduce the ill effects of stress on our body and improves our performance. Various relaxation techniques are used to reduce anxiety and other stress related symptoms. Further, there are studies which report the effect of long term yoga training on pulmonary function tests. However, the effect of short term 61-point relaxation (PR) training on pulmonary function is not much reported. Therefore, the present study was performed to study the effect of one month "61-PR" training on maximum expiratory pressure (MEP) and breath holding time (BHT) in healthy adult males. Young healthy male medical students (n = 20) in the age group 19 ± 0.84 years (18 – 22) were selected for the study. MEP and BHT were measured before and after 61-PR training. Both MEP and BHT were significantly increased after one month of the training. Hence, the present study shows that 61-PR training causes an improvement in the pulmonary functions and increases body's endurance to stress.

Key words: Yoga, Stress, pulmonary functions, shavasana

Introduction

There are a number of reports on the effect of long term yoga training on pulmonary functions.[1-8] However, to the best of our knowledge the effect of short term 61 –PR training on pulmonary functions has not been studied so far. Buffalo health study concluded that pulmonary function is a long term predictor for overall survival rate in both genders and could be used as a tool in general health assessment.[9,10]

Earlier reports have demonstrated improved reaction time and respiratory pressures following twelve weeks of yoga training.[11] Regular Hatha yoga practice can elicit improvement in health related aspects of physical fitness.[12] A classical relaxation posture in yoga is known as the corpse pose or "Shavasana".

The ancient Hatha yoga manual also describes other deeper forms of relaxation methods like "travelling through your own corpse". The 61-PR is a modified version of this technique. "Shavasana" is practised in a relaxed supine position, feet apart and palms facing up to gently open the chest. The neck should be extended. This technique is useful to relax the mind and body, which in turn reduces stress and calms the individual. Assessment of MEP and BHT is suggestive of subject's muscular power. In view of facts, since there are very few reports on the effect of 61 –PR on respiratory parameters available from Uttrarakhand, therefore, the present study was undertaken.

Materials and Methods

The study was conducted in the department of Physiology, Government medical college, Haldwani. Adult male medical students (n = 20) in the age group of 19 ± 0.84 (18-22) years were included for the study. Care was taken while selecting the subjects that they should be physically and mentally fit, non-smoker, free from any respiratory and cardiovascular disease and co-operative. Ethical committee of Government Medical College, Haldwani was informed about the study and with its approval informed written consent was obtained from the subjects participating in the study. The study procedure was explained to the students.

To begin with, maximum expiratory pressure (MEP) and breath holding time (BHT) were recorded of all the students. For measuring MEP, an aneroid blood pressure gauge was attached to a mouth piece of standard dimension. The subject was asked to sit and inspire deeply and then a nose clip was applied. Further, the subject was asked to blow into the tube of blood pressure gauge as

forcefully as possible so as to push the pointer as high as possible. This recording was recorded in mmHg.

Breath holding time (BHT) was measured in the subjects in sitting position with nose clip. The subject was asked to hold his breath as long as he can. The time period was recorded in seconds.

Thereafter, the students were allowed to practice 61-PR technique daily for one month under supervision. During this period, they were restricted for performing other exercises in any form. 61-PR technique is a modified form of "Shavasana" or corpse poses (a classical relaxation posture in yoga). The students were asked to lie in relaxed supine position with feet apart and palms facing up to gently open in the chest with neck extended. After one month the MEP and BHT were recorded again in these subjects.

Statistical Analysis

The pooled data obtained from the study were subjected to SPSSV16 (SPSS windows version 16 software). Paired t-test was applied. A p value < 0.05 was considered significant.

Results

Initially, at the beginning of the study, the resting value of MEP was 93.5 ± 2.087 mmHg (Table 1; Fig 1 (A)). After practising 61-PR technique for 1 month, there was a significant improvement in MEP values and it increased to 106.5 ± 2.205 mmHg (Table 1; Fig 1(A) $p < 0.05$ as compared to before values by Student's t-test for paired observations). In the case of BHT, the initial resting value was 22.65 ± 0.775 sec (Table 1; Fig 1 (B)). Thereafter, there was a significant increase in BHT after practising 61-PR technique and it was 29.1 ± 0.64 sec (Table 1; Fig 1 (B) $p < 0.05$ as compared to before values by Student's t-test for paired observations).

Discussion

61-PR training technique has been reported earlier to be of use in the management of stress,[13] causes improvement in psychomotor stability,[14] enhances immediate memory,[15]

improves the anti-oxidant levels.[16,17] The 61-PR training provides relaxation and it is mainly based on complex interaction of attention with breathing activity.[16,17] During the practice of this technique, one overrides the stimuli to the respiratory centres and hence achieves some control over respiration. This may improve the cardio-pulmonary performance of an individual. Moreover, respiration slows down during relaxation.[18] It is reported elsewhere that in relaxation there is a decrease in sympathetic activity on bronchioles whereas the parasympathetic activity increases. This leads to bronchoconstriction and increase in airway resistance. Hence, there is less use of alveolar ventilation when we are in relaxed state.[18] The increase in MEP can be attributed to the increase in airway resistance where more use of respiratory muscles is required for breathing. Further, relaxation produces slow and deep breathing and this in turn may cause prolongation of BHT. Thus, 61-PR training shows an improvement in MEP and BHT. Therefore, 61-PR training may be of great use in improving the respiratory functions.

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Table 1: Values of Maximum Expiratory Pressure (MEP) and Breath Holding Time (BHT) before and after 1 month of 61-PR technique.

Characteristics	No. of subjects	MEP (mmHg) mean ± SD	BHT (sec) mean ± SD
Before 61 PR training	20	93.5 ± 2.087	22.65 ± 0.775
After 1 month 61 PR training	20	106.5 ± 2.209*	29.1 ± 0.640*

* $p < 0.05$ as compared to before values (Student's t-test for paired observations)

Fig 1 A) shows the maximum expiratory pressure (MEP) in mmHg before and after 1 month of 61-PR technique whereas B) depicts the breath holding time (BHT) in sec before and after 1 month of 61-PR technique.

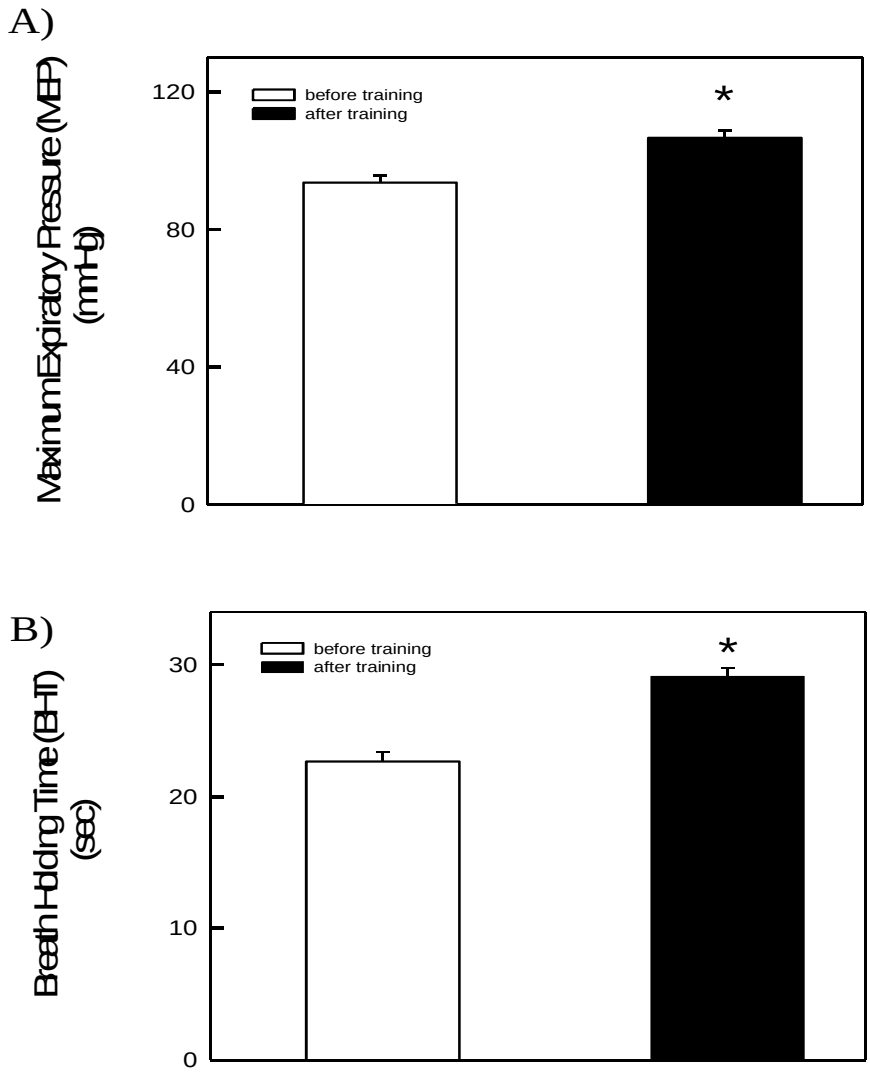

Fig 1
An asterisk mark denotes the significant increase in MEP and BHT after the training.