The Effect of Pranayama on Psycho-Physiological Aspects and Performance Ability of Nanded District Weightlifters

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Abstract

The present study was undertaken with a view to evaluate the efficacy of pranayama on psycho-physiological aspects and performance abilities of state level weightlifters. To achieve the purpose of this study out of forty (n= 40), 30 elite weightlifters (n = 30) from Nanded Dist of Maharashtra State, were selected randomly as sample by employing Fishers Random Table. The subjects’ age group was ranged from 18 to 22 Years.

This study was conducted with the following objectives in perspective: To assess status of psychological, morphological, physiological components and weight lifting performance of state level weightlifters. To design specific yoga training especially pranayama techniques considering the performance improvement in the weightlifters. To see the effect of pranayama practices on selected psychological, morphological and physiological of state level weightlifters. To see the effect of pranayama training on overall performance of weightlifters.

Key words: Weight lifting, Pranayama, Psycho-Physiological, Respiratory Function, Vital Capacity.

Introduction

Weight lifting is an arduous kind of event in sport, where a weightlifter has to lift heavy loaded iron plates. And it is oblivious that before lifting any kind of weight, the lifter has to develop breathing techniques which are favorable to achieve best performance.

In fact, correct breathing techniques help a person to burn more amount of fat and it has been proved that correct breathing improves the ability to lift weights. There is a practice adopted by many weight lifters who make the mistake of holding breath during exercising. This is one risky move that must be avoided. When a person is holding the breath and doing weightlifting at the same time, blood pressure rises higher and unnecessary burden is put on the heart (Greer, Dimick & Burns 1984). Therefore, it is advised that one devotes full concentration to controlled breathing while doing strength training. Each breath should
be steady and calm. It can be mentioned here that breathing too slow or too quick during weightlifting can have a negative impact on a person's health.

The weight lifters must be aware of maintenance of their own health, fitness as well as their respiratory functioning and vital capacity to achieve success. Since weightlifting is an anaerobic type of activity, pranayama if performed as per the principles of classical yoga (founded by Maharshi Patanjali), may enhance performance. Hence, the research study was planned.

**Objectives Of The Study:**

1) To assess status of psychological, morphological, physiological components and weight lifting performance of varsity level weight lifters.

2) To design specific yoga training especially pranayama techniques considering the performance improvement in the weightlifters.

3) To see the effect of pranayama practices on selected psychological, morphological and physiological of varsity level weight lifters.

4) To see the effect of pranayama training on overall performance of weight lifters.

**Deliminations Of The Study**

This study has been delimited to Anulom vilom, Ujjayi, Bhashrika and Bhramari pranayama practices.

This study has been delimited to state level male weightlifters of Marathwada Region, age group 18 to 25 years.

**Methodology**

The present study was undertaken with a view to evaluate the efficacy of pranayama on psycho-physiological aspects and performance abilities of state level weightlifters. To achieve the purpose of this study out of Forty (n=40), Thirty elite weightlifters (n = 30) from Nanded District of Maharashtra, were selected randomly as sample by employing Fishers Random Table. The subjects’ age group was ranged from 18 to 22 Years.
Inclusion and exclusion Criteria

* The weightlifters who practice weightlifting regularly and having a certain level of knowledge in competitive weightlifting were included in the experiment.
* The subjects who are expected to remain present till the experimental trials are finished were included in this study.
* The weightlifters suffering from known serious health problem, as discarded by the physician, were excluded.
* Final selection of the subjects was done as per the suggestion of the weightlifting coach.

Design of Experiment

A completely randomized group design (Rothstein, 1985) of two groups of equal numbers was adopted for this study.

Making use of table random numbers all the 60 subjects were divided randomly into two groups viz; Group –A (Pranayama; ; n₁ = 15 ) and Group – B (Control; ; n₁ = 15) with equal in numbers.

The design of the experiment has been planned in three phases.

Phase – I: Pretest ,
Phase- II: Training or Treatment ,
Phase- III: post test

Pre-test (Phase – I)

All the subject of different experimental and control groups were exposed to selected psycho-physiological components and performance abilities to record the pre test data.

Treatment stimulus (Phase – II)

After the pre test was over, all the subjects of experimental group were exposed to eight weeks training of selected pranayama practices for one hour daily in the morning except Sundays and Holidays. Every day after completion of training the subjects of the experimental group were exposed to regular practice of weightlifting daily for one hour.
The controlled subjects, although did not receive the above mentioned training, however, were kept busy with some recreational activities one hour daily in the morning except Sunday and holidays during the total period of experiment. After completion of daily one hour controlled period in the subjects of the control group were exposed to regular practice of weightlifting daily for one hour.

For a total period of eight weeks one yoga teacher was appointed to conduct the specially designed pranayama training intervention under the overall supervision of present investigator. The pranayama practices were selected with the consultation of experts from Research Department of S.R.T.M.U., Nanded (India)

**Post test (Phase – III)**

Finally, when the treatment or training period of eight-week was over, the post-test on psycho-Physiological aspects and performance in weightlifting was conducted for all the subject of both the control and experimental groups.

**Selection of Variables**

The investigator reviewed various scientific literatures pertaining to the effect of yoga practices on selected psycho-physiological variables from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected and appropriate tools were used (Table 1):

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Variables</th>
<th>Tools/Method used</th>
<th>Criterion Measures</th>
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<tbody>
<tr>
<td>A)</td>
<td>Morphological Aspects</td>
<td></td>
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<tr>
<td>01</td>
<td>Height</td>
<td>Stadiometer</td>
<td>Nearest to 0.005 M.</td>
</tr>
<tr>
<td>02</td>
<td>Body weight</td>
<td>Weighing machine</td>
<td>Nearest to 0.5 Kg.</td>
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<tr>
<td>03</td>
<td>BMI (Body Mass Index)</td>
<td>Formula with the scores of body height and weight</td>
<td>Nearest to 0.01 Pt.</td>
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</table>
B) **Physiological Aspects**

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<tr>
<td>04</td>
<td>Vital Capacity</td>
<td>Spiro Meter</td>
</tr>
<tr>
<td>05</td>
<td>PEFR</td>
<td>Peak flow meter</td>
</tr>
<tr>
<td>06</td>
<td>Breathing Holding Capacity</td>
<td>Stop Watch</td>
</tr>
<tr>
<td>07</td>
<td>B.P. (Blood Pressure)</td>
<td>Sphygmomanometer</td>
</tr>
<tr>
<td>08</td>
<td>Heart Rate</td>
<td>Feeling of pulse and use of stop watch</td>
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</table>

B) **Psychological**

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<tbody>
<tr>
<td>09</td>
<td>Personality</td>
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<td></td>
<td>Personality test</td>
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C) **Performance in Weightlifting**

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<tr>
<td>10</td>
<td>Performance in Weightlifting</td>
<td>Snatch and Clean &amp; Jerk</td>
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</table>

**Collection of Data**

The data were collected two times i.e., during pre-test and post-test for each variable by administering their respective tests. The tests were administered in a hall. To ensure the data collected was reliable each subject was given sufficient number of trials to perform the respective test for each variable.

The tests used were explained to the subjects prior to their administration. The subjects were given chance to practice the tests and made them familiar with the same.

**Reliability of Data**

Reliability of data was ensured in establishing the instrument reliability, testers’ reliability, and reliability of tests.

**Statistical Analysis**

Descriptive statistics was applied to process the data. Further, the efficacy of the pranayama training was evaluated by employing inferential statistics i.e., 2 x 2 x 12 Factorial ANOVA. The results of factorial ANOVA were then substantiated to Scheffe’s post hoc analysis.
Major Findings

The result of factorial ANOVA followed by Scheffe’s post hoc test revealed that –

- Pranayama group showed significant superiority over the Control group in reducing Body Weight (CD=0.21, p<0.05).

- Pranayama group showed no significant superiority over the Control group in body height (CD=0.06, p>0.05).

- Pranayama group showed significant superiority over the Control group in improving Body Mass Index (CD=0.23, p<0.05).

- Pranayama group showed significant superiority over the Control group in increasing Vital Capacity (CD=0.25, p<0.05).

- Pranayama group showed significant superiority over the Control group for increase in PEFR (CD=0.30, p<0.05).

- Pranayama group showed significant increase in Breath Holding Capacity as compared to Control group (CD=0.38, p<0.05).

- Pranayama group showed significant superiority over the Control group in reducing Pulse Rate (CD=0.21, p<0.05).

- Pranayama group showed significant superiority over the Control group in reducing Systolic Blood Pressure (CD=0.24, p<0.05).

- Pranayama group could not show superiority over the Control group in altering Diastolic Blood Pressure (CD=0.15, p>0.05).

- Pranayama group could not show significant improvement in Personality score than the Control group (CD=0.16, p>0.05).

- Pranayama group showed significantly better improvement in Snatch event than the Control group (CD=0.28, p<0.05).
Pranayama group showed significantly better improvement in Clean & Jerk event than the Control group (CD=0.31, p<0.05).

**Conclusion**

On the basis of the results, the present investigation concludes the followings:

- Pranayama training contributes to improve body mass index, breath holding capacity, and circulo-respiratory function by reducing pulse rate and blood pressure, which are the attributing factors of weightlifting performance.
- Eight weeks intervention of Pranayama does not alter the personality profile of the weightlifters.
- Pranayama training improves both snatch as well as clean and jerk performance in weightlifting.

**Recommendation**

The results and conclusion recommends the followings:

- Pranayama training is recommended for the weightlifters because it helps to improve the morphological and physiological attributes of weightlifting performance.
- Since Pranayama cannot be separated from other yoga practices, some preparatory Asanas as suggested in the training intervention might be included to have a composite effect.
- It is recommended that the coaches of weightlifting events must include selected Pranayamas in their regular training schedule.

**Contribution To The Knowledge**

Weightlifting is an international level of sports, where top performance is depending upon many strategies. Although application of yoga in sports is gradually recognized, the special impact of pranayama training on weightlifting performance is not
known. The present investigation could unfold the applicability of pranayama training especially in enhancing weightlifting performance. The result of this study could add a quantum of knowledge to the literature of world sports about the need of pranayama in the training schedule of weightlifters.

Selected References


