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Effect of varied yogic practices on muscular strength among Silambam students

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Abstract

There is evidence to prove that yogic practice improves strength parameters. The present investigation was undertaken to study the effect of yogic practice on selected strength parameters on school boys who had undergone 10 weeks yoga asana practice programme. The Suitable parameters (Muscular Strength, Muscular Endurance, Body Weight) were used before and after the training Programme. The results showed that there is greater improvement in Muscular Strength, Muscular Endurance and Lean Body Mass in the experimental group than the Control group.

Keywords: Asanas, muscular strength, muscular endurance, body weight

Introduction

Yoga is a science, which deals with the ranges of the physical and spiritual being and which discovers great secrets of Physical, Psychological and other higher realities and worlds. (Saraswati Satyananda: 1999) [5].

“Yoga can help man to transform his life into what it should be an Experiment with Truth”. Yogic practices can increase our lung capacity and respiration, improve our ability to resist stress, reduce body weight and girth, decrease cholesterol and blood sugar levels and thus stabilize, restore the body’s natural systems.

Yoga is compressing one’s evolution into a single life or a few months or even a few hours of one’s bodily existence (Satyanarayana Sastry: 1988) [6].

Asanas

Asanas occupies the first place in Hatha yoga while they form the third part of Patanjali in eight fold yoga (Astanga yoga). Asana is derived from the verb “root” which means to sit and remain’. According to Patanjali “asana” is defined as “Sithira sukham Asanam”- Patanjali yoga Sutra II:46.

According to this sutra, Asana means any posture of the body which would be steady and comfortable and which could be maintained for an adequately learning period. (Rao V.S.S.M: 1988) [4].

Classification of Asanas

Asanas can be classified into three major groups; Cultural asana, Relaxative asana, Meditative asana.

Yoga and physical education

Yoga and Physical Education are not contradictory but complementary disciplines.

Meaning of Yoga and Physical Education

The nature of yoga is that it can be varied and specific. Asanas are generally static type of exercise. Whereas, physical education involves vigorous and repetitive type of muscular exercises. They are generally dynamic in nature. When we compare yoga and physical education in terms of energy expenditure yoga is said to have minimum expenditure of energy. It does not lead to fatigue, for a long time and they bring about a feeling of freshness. But, physical education consumes a lot of energy and often leads to fatigue and bodily discomfort.

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Yoga emphasizes on the health of the inner vital organs more than muscular development and the asana contribute to the flexibility and strength of the spine. Yoga has contributed for the prevention of sports injuries. Yoga has helped the promotion and learning of many specific sports skills and psychological factors. Yoga helps in the maintenance of physical fitness during the preparatory period as well as in off-season. (Gharote. M.L: 1988)^[2].

Training

Training means various physical exercises and other objects methods and procedures, which are used for the improvement, maintenance and recovery of performance capacity and performance readiness. (Hardayal Singh: 1991)^[7].

Muscular strength

Strength is a conditional ability which depends largely on the energy liberation processes in the muscles. Strength is the most important motor ability in sports, as it is a direct product of muscle contractions. Strength and strength training assume high importance for achieving good performance in all sports. Strength is the ability to overcome resistance or to act against resistance and strength must not be the product of only muscular contraction. But the product of voluntary muscle contractions by the neuro-muscular system (Uppal, A.K).

Muscular endurance

The muscular endurance is an important component of physical fitness after muscular strength. The term endurance is synonymous with the term stamina.

The muscular endurance or stamina enables and individual to perform sustained work by a particular muscle group over a period of time. The muscular endurance is the ability of a muscle to maintain a certain level of tension or to repeat identical movements or pressures over the maximal period of time with one's maximal effort. When the individual sustains a certain degree of tension over a long period of time, it is known as his endurance capacity. The muscular endurance can either be static or isometric or dynamic or isotonic. The term Isometric muscular endurance is given to exercise where the individual holds a maximum static muscular contraction without any change in the length of the muscle fibers.

The term isotonic muscular endurance is based on the fact that

in this type of muscular endurance, the muscles continue to contract and relax during a sub maximal load over a period of time. The training in muscular strength or muscular endurance programs generally improves both, may be to different degrees. Still there are some definite differences between the muscular strength and endurance. The muscle groups of the same strength may possess different degree of muscular endurance or stamina. (Clark David and Harison H. Clarke: 1973)^[1].

Statement of the problem

Most schools in India lack good strength training equipments which could be used to improve strength among the school boys. Further, Resistance training in gymnasium with heavy weights is also not always advisable for them. Hence, they need to apply yogic asana which does not require any equipment and can use their own body weight as resistance to improve it. Hence the present problem was selected in order to identify the "Effect of yogic practice on selected strength parameters among school boys"

Hypothesis

1. It was hypothesized that, there would be a significant difference between experimental and control group on body weight (Lean Body Mass).
2. It was hypothesized that, there would be a significant difference between experimental and control groups on selected muscular strength and muscular endurance variables.

Significance of the study

The Research finding may bring to light the effectiveness of yogic training program in increasing the selected strength parameters among school boys. The study may create awareness of selected yogic asanas, among school students.

The finding of this research may help to motivate people to conduct further research on the subject The result of the investigation may help to find out the effectiveness of the yogic practices to develop and maintain a good physique. The study may be of interest to those who are involved in Yoga research.

Analysis of the data and results of the study

Table 1: Analysis of covariance for the pre and post tests data on body weight

| | Control group | | Experimental group | | Sources of variance | Sum of squares | Degrees of freedom | Mean squares | F-ratio |
|--------------------------|---------------|------|--------------------|------|---------------------|-------------------|--------------------|-----------------|---------|
| | Mean | SD | Mean | SD | | | | | |
| Pre-test Means | 34.80 | 5.89 | 36.66 | 5.66 | B W | 26.13 1265.73 | 1 28 | 26.13 43.06 | .607 |
| Post-test Means | 35.33 | 7.16 | 40.40 | 7.66 | B W | 192.53 1270.93 | 1 28 | 192.53 45.39 | 4.24* |
| Adjusted post test Means | 36.28 | | 39.45 | | B W | 73.92 30.42 | 1 27 | 73.92 1.13 | 65.61* |

B: Between the Group W: Within the Group, *Significant at 0.05 level of confidence (The tabulated F- ratio for df 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

The table 1 indicated that the pre-test means of control and experimental groups were 34.80 and 36.66 respectively. The F-ratio of .607 indicated no significant difference between the pre test means of both the group.

The post-test means of control and experimental groups were 35.33 and 40.40 respectively. The obtained F-ratio of 4.24 for the experimental group was significant at 0.05 level, because

the 'F' value was higher than the required table value 4.20 with df 1 and 28.

The adjusted post test means of control and experimental groups were 36.28 and 39.45 respectively. The 'F' value was 65.61. The obtained 'F' value was higher than the required table value 4.21 with a df 1 and 27.

Table 2: Analysis of covariance for the pre and post tests data on muscular strength (PUSH -UP)

| | Control group | | Experimental group | | Sources of variance | Sum of squares | Degrees of freedom | Mean squares | F-ratio |
|--------------------------|---------------|------|--------------------|------|---------------------|------------------|--------------------|-----------------|---------|
| | Mean | SD | Mean | SD | | | | | |
| Pre-test Means | 17.60 | 4.97 | 17.70 | 5.32 | B W | 132.30 741.20 | 1 28 | 132.30 26.47 | .89 |
| Post-test Means | 17.93 | 4.61 | 22.13 | 5.11 | B W | 132.30 662.67 | 1 28 | 132.30 23.66 | 5.59* |
| Adjusted post test Means | 16.46 | | 23.60 | | B W | 324.93 298.13 | 1 27 | 324.93 11.04 | 29.42* |

B: Between the Group W: Within the Group, *Significant at 0.05 level of confidence (The tabulated F- ratio for df 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

The table 2 indicated that the pre-test means of control and experimental groups were 17.60 and 17.70 respectively. The F-ratio of .89 indicated no significant difference between the pre test means of both the group.

The post-test means of control and experimental groups were 17.93 and 22.13 respectively. The obtained F-ratio of 5.59 was

significant at 0.05 level, because obtained 'F' value was higher than the required table value 4.20 with df 1 and 28.

The adjusted post test means of control and experimental groups were 16.46 and 23.60 respectively. The 'F' value was 29.42. The obtained 'F' value was higher than the required table value 4.21 with a df 1 and 27.

Table 3: Analysis of covariance for the pre and post tests data on muscular endurance (SIT -UPS)

| | Control group | | Experimental group | | Sources of variance | Sum of squares | Degrees of freedom | Mean squares | F-ratio |
|--------------------------|---------------|------|--------------------|------|---------------------|--------------------|--------------------|-------------------|---------|
| | Mean | SD | Mean | SD | | | | | |
| Pre-test Means | 16.00 | 6.68 | 19.06 | 7.87 | B W | 70.53 1490.93 | 1 28 | 70.53 53.245 | 1.325 |
| Post-test Means | 16.40 | 6.73 | 28.20 | 6.67 | B W | 1044.30 1256.00 | 1 28 | 1044.30 44.85 | 23.281* |
| Adjusted post test Means | 17.56 | | 27.03 | | B W | 641.105 389.218 | 1 27 | 641.105 14.415 | 44.47* |

B: Between the Group W: Within the Group, *Significant at 0.05 level of confidence (The tabulated F- ratio for df 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

The table 3 indicated that the pre-test means of control and experimental groups were 16.00 and 19.06 respectively. The F-ratio of 1.325 indicated no significant difference between the pre test means of both the group.

The post-test means of control and experimental groups were 16.40 and 28.20 respectively. The obtained F-ratio of 23.281 was significant at 0.05 levels, because the 'F' value was higher than the required table value 4.20 with df 1 and 28.

The adjusted post test means of control and experimental groups were 17.56 and 27.03 respectively. The 'F' value was 44.47. The obtained 'F' value was higher than the required table value 4.21 with a df 1 and 27.

Discussion on findings

The results of the findings on Body weight show that there was a significant increase in Lean Body Mass in favor of the experimental group.

The result of Muscular strength (Push-up) of the experimental group shows significant improvement in Strength Endurance.

The results of Muscular Endurance (Sit-Up) of the experimental group shows increased muscular endurance than control group.

In their respective studies had arrived at similar conclusions where yogic practices have had positive impact on strength of their subjects.

Conclusions

1. Lean Body Mass shows significant improvement due to practice of specific asanas.
2. Muscular Strength and Muscular Endurance showed significant improvement in the experimental group when compared to the control group.
3. Yogasana can be a good alternative or an option to

develop the strength of school boys without the need to invest in expensive equipments or Multi gym machines.

4. Not only did the Muscular Strength, Muscular Endurance improve, the function of the internal systems of the body also attained stabilization and balance as reported by the subjects, which could have further contributed to the good general health of the subjects.

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