

A COMPARATIVE STUDY ON EFFECT OF YOGASANA TRAINING ON STRENGTH AND ENDURANCE OF ABDOMINAL MUSCLES, LEG STRENGTH, THIGH GIRTH AND CALF GIRTH

(Received on: 21 Oct 2014, Reviewed on: 04 Jan 2015 and Accepted on: 15 Feb 2015)

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Abstract

The purpose of the investigation was to find out the effect of yogasana training on strength and endurance of abdominal muscles, leg strength, thigh girth and calf girth. The study Conducted on twenty five students, who were selected randomly from Satish Chandra Degree College, Ballia, U.P., India, at random and their age ranges from 18 to 24 years, one experimental group designed within this twenty five students. The pre and post tests were conducted before and after completion of six week training programme. Which was Bent knee sit ups for strength and endurance of abdominal muscles, Vertical jump test for leg strength and circumference of thigh and calf by steal tape. T-test was used to test the effect of yogasana training on variables used in the present study. The result of the study reveals that there was significant difference in 0.05 levels of strength and endurance of abdominal muscles, Leg Strength and calf girth among the subjects.

Keywords: Yogasana training, strength, endurance, abdominal muscles, leg strength, thigh, calf girth.

Introduction

Yoga asanas can be used for warm-up, to cool down, regeneration, compensation of muscle balances, synthesis of mind and body, activation or deactivation of the body and also as supplemental exercise. Psychological preparation can be divided into two types, they are general and specific.

The word 'Yoga' automatically calls to mind sage Patanjali the founder and father of yoga. He lived around three centuries before Christ, and was a great philosopher and grammarian. He was also a physician and a medical work is attributed to him. However this work is now lost in the pages of time.

His best known work is Patanjali Yoga Sutras or Aphorism on Yoga. The path outlined by him is called 'Raja Yoga' or the sovereign path. It is so called because of the regal, noble method by which the 'self' is united with the 'over self'. Patanjali's yoga has essentially to do with the mind and its modifications. It deals with the training of the mind to achieve oneness with the universe. Incidental to this objective are the acquisition of 'Siddhis' or powers.

Yoga means not only contemplation but also communion and yoking all powers of the body, mind and soul to God. It is a very ancient and efficient system of disciplines and is designed to produce the integration of the body, mind and spirit. It also helps one to achieve higher states of awareness

and self-realization by methodical efforts to attain perfection. The therapeutic benefits obtained by performing asanas are well known. The circulation of the blood is improved; tensions can be removed, and a feeling of well-being is induced. The muscles are strengthened; nerves soothed and physical endurance is increased. One important aspect is that blood vessels and nerves, that form the internal organs, are "massaged" by the twists and bending, ensuring proper functioning. Ageing bodies can have fewer aches and pains, stiffening of joints can be healed and depression alleviated.

Yoga is the oldest known science of development. Learning and participating in yoga makes one feel good because it positively affects the mind and body. It gives mental, physical and spiritual control. Developed thousands of years ago in India, yoga literally means joining- the joining of the individual self with the 'universal self'. This joining is achieved through the practice and mastering of specific physical postures called 'asana', breathing exercises called 'Pranayama' and 'Meditation' - this is known as the path of 'Raja Yoga', and its subdivision is 'Hatha Yoga'.

Methodology

Subjects for the present study were taken from twenty five students, who were selected randomly from Satish Chandra Degree College, Ballia, U.P., India, at random and their age ranges from 18 to 24 years, one experimental group designed within this twenty five students. The pre and post tests were conducted before and after completion of six week training programme. The medical examination was done in order assured that they all medically and physically fit. Their age has been verified from the college record. The selected subjects were assigned into one group. Group - 1 underwent yogasana training (n=25). The training period was limited to one hour per day for five days per week for six weeks.

Keeping the feasibility criterion in mind, the following Asanas was selected for the proposed training programme in the study and students was introduced with basic training of these Asana:

| Day | Schedule | Time |
|---------------------|--|---------------|
| 1 st Day | Preparatory Exercises PRAYER Three round of breathing, ohm... Surya namaskar (Five reputation) | (15 min.) |
| | ASANAS Vajrasana Padmasana Sasankasana Bhujangasana Janusirasana Vakrasana Ardhamasthyedrasana Pachimottansana Sarvangasana Halasana Matsyasana Dhanurasana Salbhasana Shavasana | (35 min.) |
| | MEDITATION Same schedule was repeated for Six weeks Sunday rest | (10 min.) |
| | | Total 60 min. |

The data on Strength and endurance of abdominal muscles were collected by Bent knee sit ups, Leg strength were collected by vertical Jump Test, Thigh and calf girth were collected by steal tape. All the subjects were tested on selected dependent variables prior to and immediately after the training programes.

Collection of Data

The data was collected two times in the interval six week training programme. Total six weeks of yogasana training was conducted. Observations for tests were collected prior to the treatment in the form of pre-test then after six weeks of yogasana training; observations for second test was collected in the form of post-test.

Analysis of Data and Results

The study was designed to find out the effect of yogasana training on strength and endurance of abdominal muscles, leg strength, thigh girth and calf girth. The objective framed in the present study to test the data collected on variables: strength and endurance of abdominal muscles, leg strength, thigh girth and calf girth. Pre and post tests were conducted prior and after completed six week training programme on experimental group. Statistical analysis was done by using the t-test. Significance level was set at 0.05% level of significance.

TABLE 1
THE DIFFERENCE OF SIGNIFICANCE FOR MEAN IN PRE-TEST AND POST-TEST OF EXPERIMENTAL GROUP IN THE BENT KNEE SIT UPS

| Pre Test Mean | Post Test Mean | Mean Difference | Standard Deviation | "t" Ratio |
|---------------|----------------|-----------------|--------------------|-----------|
| 32.25 | 34.16 | 1.8 | 0.54 | 3.80* |

*Significant at .05 Level "t" 0.05 (24) = 2.064

It is seen from table - 1 that Mean difference in Bent Knee Sit ups is 1.8, whereas 't' value is 3.80. It is more than significant level. So there was significant difference in pre and post-test at .05 level.

TABLE 2
THE DIFFERENCE OF SIGNIFICANCE FOR MEAN IN PRE-TEST AND POST-TEST OF EXPERIMENTAL GROUP IN THE VERTICAL JUMP

| Pre Test Mean | Post Test Mean | Mean Difference | Standard Deviation | "t" Ratio |
|---------------|----------------|-----------------|--------------------|-----------|
| 17.64 | 18.67 | 1.36 | 0.27 | 5.40* |

*Significant at .05 Level "t" 0.05 (24) = 2.064

It is seen from table - 2 that Mean difference in Vertical jump is 1.36, whereas 't' value is 5.40. It is more than significant level. So there was significant difference in pre and post-test at .05 level.

TABLE 3
THE DIFFERENCE OF SIGNIFICANCE FOR MEAN IN PRE-TEST AND POST-TEST OF EXPERIMENTAL GROUP IN THE THIGH GIRTH

| Pre Test Mean | Post Test Mean | Mean Difference | Standard Deviation | "t" Ratio |
|---------------|----------------|-----------------|--------------------|-----------|
| 54.45 | 54.36 | 0.09 | 0.09 | 0.59 |

*Significant at .05 Level "t" 0.05 (24) = 2.064

It is seen from table - 3 that Mean difference in Thigh Girth is 0.09, whereas "t" value is 0.59. It is not more than significant level. So there was no significant difference in pre and post-test at .05 level.

TABLE 4
THE DIFFERENCE OF SIGNIFICANCE FOR MEAN IN PRE-TEST AND POST-TEST OF EXPERIMENTAL GROUP IN THE CALF GIRTH

| Pre Test Mean | Post Test Mean | Mean Difference | Standard Deviation | "t" Ratio |
|---------------|----------------|-----------------|--------------------|-----------|
| 34.02 | 34.15 | 0.13 | 0.06 | 2.83* |

*Significant at .05 Level "t" 0.05 (24) = 2.064

It is seen from table - 3 that Mean difference in Thigh Girth is 0.13, whereas "t" value is 2.83. It is more than significant level. So there was significant difference in pre and post-test at .05 level.

Discussion and Findings

It is revealed that from analysis of data there were significant differences in Bent knee sit ups, Vertical Jump and calf girth. There was no significant difference in Thigh girth. Because of

such training, the energy production abilities of Muscles are improved. Mostly this change is seen in lower portion of the body. It becomes helpful to maintain workload for a longer period. The idea behind yogasana is simple: exploit the muscles' cycle of lengthening and shortening to increase power. Yogasana exercise starts with rapid stretching of the muscle (eccentric contraction) followed by a shortening of the same muscle (concentric contraction). The goal of yogasana training is to train the nervous system to react quickly to the lengthening of the muscle by rapidly shortening the same muscle with maximum force. This process is called the stretch-shortening cycle. The result of this study shows that there was improvement because of six-week yogasana training programme in strength and endurance of abdominal muscles, leg strength and calf girth.

Conclusions

From the results of comparative effect among the yogasana training on criterion variables, it was concluded that the significant difference was shown in strength and endurance of abdominal muscles, leg strength and calf girth. Strength and endurance of abdominal muscle showed more significant difference compared to leg strength and calf girth. Whereas

Calf girth showed least significant difference compared to two other variables. There was no significant difference in thigh girth.

References

- Karpoor, Chandrashekhar (2013), "Effect of Six Weeks Yogasana Training on Selected Physiological Parameters", *International Journal of Physiology*, Vol.1 Issue-1 pp 17-20, ISSN 2320-608X
- Kumar, B., Joshi, K, Shah, Municipal. C. K. (2013), "A Comparative Study on Effect of Plyometric Training On Strength And Endurance of Abdominal Muscles, Leg Strength, Thigh Girth and Calf Girth", *A Journal Physical Education and Computer Science in Sports*, Vol. 1 No.8, No.1.pp36-38, ISSN 0975-7732
- Swami, S. S, (1996), *Asana Pranayama, Mudra Bandha*, Munger, Bihar: U.B.S. Publishers and Distributors.
- Verma, J. P. (2009). *A Text Book on Sports Statistics*, New Delhi, India: Sports Publication.
- Wilmore, J.H and Costill, DL, (2005) *Physiology of Sport and Exercise*. 3rd ed. Champaign IL: Human Kinetics.
- Yadav, S. K., Kumar, Anil, (2014), "Effect of yogasana on selected hematological variables of female college students", *A Multidisciplinary Quarterly International Refereed Research Journal*, Vol IV ,Issue-3 July , pp 159-165, ISSN 2231-413X
<http://www.Yoga.com>
<http://verticaljumpzone.com>, 2011