

Effect of Yogic Exercise on Selected Physiological Variables of working People

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ABSTRACT: The purpose of the study was to find out the Effect of Yogic exercise on selected physiological variables such as pulse rate and breath holding time and blood pressure of working people. Twenty working people from Sivaganga district were selected as subjects at random and their age was between thirty and thirty five years. The selected Asanas were Padmasana, Vajrasana, Paschimottanasana, Matsyasana, Bhujangasana, Savasana. The pre-test was taken and recorded. The Treatment yogic exercises was introduced and training was given to eight weeks to the group. After the eight weeks of yogic exercise training post test was taken. For statistical analysis t- ratio was used to find out the effect of Yogic exercise on physiological variable such as pulse rate, breath holding time and blood pressure of working people in Sivaganga District. The 0.05 level of confidence was used to find out the significant level. Based on the result, the physiological variable pulse rate and breath holding time was insignificant, and the physiological variable systolic blood pressure was significant.

Keyword: yoga, pulse rate, breathholding time, blood pressure.

Date of Submission: 23-10-2017

Date of acceptance: 07-12-2017

I. INTRODUCTION

Yoga exercise is very different from other forms of exercise in which an individual might participate, for example, sports, aerobics, or gymnastic workouts. Most forms of physical exercises require a vigorous and often competitive use of the body to increase the heart rate and achieve a cardiovascular workout. Such exercise often leaves the individual sweat, exhausted and all out of breath. Yoga is something different. It is performed slowly and with great awareness of the breath control. After yoga class the individual may feel relax rather than tired.

Yoga will also require to observe how an individual feels both mentally and physically and to be aware of the development. The aim is not to develop muscles, but to promote wellness, good health and the well being of mind, body and spirit.

Geetha (1983) stated that god created men and women as equal partners to share life, its rewards and burdens, joys and sorrows. If life can be compared to a chariot, then men and women are its two wheels. The material and spiritual burdens of life fall equally on the shoulders of men and women. They desire good health, mental peace and poise in life. Yoga is beneficial to both men and women. Women need yoga even more than men as the responsibilities thrust upon them by nature. When we read of the conditions that prevailed in those days we get the impression that women were pre eminent in many fields. It was the Goddess Parvathi who first gained knowledge of yoga by imparting Lord Shiva to teach her. The status of working people today has considerably improved. They shines in various fields, such as intelligence and creativity. In life men and women to perform many roles, role of a daughter, sister, wife, husband, mother, father and friend. They have to give their best in all these roles.

Apart from the traditional roles mentioned above, a woman has an additional part to play in society. In this age of competition, she becomes a doctor, lawyer, politician, professor, typist, teacher, nurse, telephone operator etc. and has acquitted herself worthily. Yet, when the struggle exhausts even the upper limits of her patience, her body and mind get fatigued and her natural attention towards her family and children lessons. This results in negligence and frustration. **Janice Hankes (1996)** says work can affect the working people in two ways – physically and mentally. The physical environment in which they work, the location, furniture, equipment, heating air conditioning etc. and the actual physical nature of their work for example, sitting, standing, repetitive, strenuous of whatever, can all affect working people. The teachers and professors are always standing at the time of class hours. The telephone operators, typist and record clerks are always sitting. So they can suffer directly physical symptoms such as back aches, pains, discomfort and injury and also mentally by being under stress. If they suffer from mental stress over a period of time, like pressures of the

work, deadline of work, excess work load, this too can manifest itself to physical and mental problem, for examples, headaches, sleeping disorders and stomach problems.

In the first instance they will be affected mentally, for example they may feel pressurized, anxious panicky, resenting or angry, these feelings can again take the platform for physical and physiological problems.

II . REVIEWS

Madanmohan¹ (1992) there is evidence that the practice of yoga improves physical and mental performance. The present investigation was undertaken to study the effect of yoga training on visual and auditory reaction times (RTs), 40 mm Hg test, breath holding time after expiration (BHT exp), breath holding time after inspiration (BHT insp), and hand grip strength (HGS).

Raju² et.al. (1994) the effect of yoga breathing practice on exercise tests was studied in athletes in two phases: sub-maximal and maximal exercise tests. Results: At the end of phase I (one Year) both groups (control and experimental) achieved significantly higher work rate and reduction in oxygen consumption per unit work. There was a significant reduction in blood lactate in the experimental group, at rest. At the end of phase II (two years) the oxygen consumption per unit work was found to be significantly reduced and the work rate significantly increased in the experimental group. Blood lactate decreased significantly at rest in the experimental group only.

Johnson and Nelson³ (1988) observed that the heart rate is an index of the physiological strain incurred by the players during play. It has been observed that resting heart rate is indicative of physical fitness from the stand point that resting heart is lowered as a result of conditioning. The resting pulse rate of a trained individual decreases reflecting a stronger contraction of a heart and a more forceful expulsion of blood with each contraction. Heart rates of top level players at rest tend to be much lower than the average of 72 beat/min found in general population.

Ganguly⁴ experimented that daily one hour training in yogic physical culture for three weeks as per national fitness corps programme was found to improve cardiovascular endurance significantly as measured by 20 inch Harvard Step test.

Swamy Kuvalyananda⁵ Salabhasana, Vipartithakarani exercises lower parts and nerves of lower parts and nerves of lower extremities are activated. Thus asana are found capable of preserving health not only of the brain and spinal cords, but also of all cranium and spinal nervous preaching thought body.

Aggarwal⁶(1975) writes “The literature in any field forms the foundations upon which all future work will be built”

A study of relevant literature is an essential step to get a full picture of what has been done with regard to the problem under study. Such a review brings about deep and clear perspective of the overall field.

Moorthy⁷ (1982) stated in his study that yogic asanas as well as physical exercises improve flexibility of 90 boys and 90 girls after six weeks training as judged by cureton, flexibility tests yogic exercises keep the body virile and supple.

¹ Madanmohan “Effect of Yoga Training on Reaction Time, Respiratory Endurance and Muscle Strength”, Indian Journal of Physiology and Pharmacology, 36 (4), (1992), PP.229-33.

² Raju, P.S., Madhavi, S., Prasad, K.V., Reddy, M.V., Reddy, M.E., Sahay, B.K., A Murthy, K.J. “Comparison of effects of Yoga and Physical Exercise in Athletics”, Indian Journal of Medical Research, 100: (1994), PP.81-

³ Johnson, B.L. and Nelson, J.K. Practical Measurements for Evaluation in Physical Education (4th ed) (London: Burgess Publishing) 1986, PP.61-8.

⁴ S.K. Ganguly, “Effect of term Yogic Training Programme On Cardiovascular Endurance”, SNIPES Journal, 4:2 (1985), P.45

⁵ Swamy Kuvalyananda, Rational of Yogic Poses and other Articles (Bombay: Kaivalyashrama), 1985, P.47.

⁶ Aggarwal, J.C. Practical Approach to Measurement in Physical Education (Philadelphia: Lea and Febiger) 1975, P.123.

⁷ Moorthy, A.M. “Influence of Selected Yogic Exercise on Minimum Muscular Fitness of the Elementary School Children”, India, SNIPES Journal, 15(1982), P281

III. METHODOLOGY

Statement of the Problem:

The purpose of the study was to find out the effect of yogic exercise on selected physiological variable such as pulse rate and breath holding time and blood pressure of working people.

Hypothesis:

It was hypothesized that there would be a significant effect of yoga on working people in pulse rate.

It was hypothesized that there would be a significant effect of yoga on working people in breath holding time.

It was hypothesized that there would be a significant effect of yoga on working people in blood pressure.

Selection of Subjects:

Twenty working people from Sivaganga district region were selected as subjects at random and their age was between thirty to thirty five years. : The investigator reviewed the available scientific literature the most essential physiological variables such as pulse rate, breath holding blood pressure were selected . The standard test and equipment sphygmomonometer was used to assess the Blood pressure and manual methods use were used to find out the Breath holding time and pulse rate. The initial test was taken before the treatment and the final test was taken after eight weeks.

The Selected Yogasanas

1. Padmasan
2. Vajrasana
3. Pachimottanasana
4. Matsyasana
5. Bhujangasana
6. Savasana

To find out mean for ungrouped data the formula explained by Clarek8 and Clarke was used.The collected data was treated with t-ratio.

VI. RESULT AND DISCUSSION

Table –I

The Mean, Standard Deviation, Standard Error Of The Mean, Difference Between Mean, Standard Error Of The Difference Between Mean And T-Ratio For The Scores In Breath Holding Time Pre-Test And Post- Test In Working People

Group	Mean	Standard deviation	Standard error of the mean	Difference between mean	Standard error of difference between mean	Obtained t-ratio	Table t-value
Pre test	29.6	3.952	0.884				
				1.65	12.283	*1.283	2.09
Post test	31.25	4.175	0.934				

*** Insignificant at 0.05 level of confidence, df 19.**

t-ratio required for significant at 0.05 level was 2.09 for a degree of freedom 19. Table shows the mean, standard deviation, standard error of the mean of pre and post test difference between mean, standard error of difference between mean, obtained t-ratio, table t value, 29.6, 31.25, 3.952, 4.175, 0.884, 0.934, 1.65, 12.283, 1.283,2.09 respectively. The table value at 0.05 level of confidence is 2.09 the obtained value is 1.283 is lesser than the table value. Hence, the hypothesis was rejected.

TABLE –II

The Mean, Standard Deviation, Standard Error Of The Mean, Difference Between Mean, Standard Error Of The Difference Between Mean And T-Ratio For The Scores In Pulse Rate Time Pre - Test and Post- Test In Working People

Group	Mean	Standard deviation	Standard error of the mean	Difference between mean	Standard error of difference between mean	Obtained t-ratio	Table t-value
Pre test	71.8	4.019	0.988				
				0.9	1.466	**0.613	2.09
Post test	70.9	4.851	1.084				

**** Insignificant at 0.05 level of confidence, df 19.**

t-ratio required for significant at 0.05 level was 2.09 for a degree of freedom 19. Table shows the mean, standard deviation, standard error of the mean of pre and post test difference between mean, standard error of difference between mean, obtained t-ratio, table t value, 71.8, 70.9, 4.019, 4.851, 0.988, 1.084, 0.9, 1.466, 0.613, 2.09 respectively. The table value at 0.05 level of confidence is 2.09 the obtained value is 0.613 is lesser than the table value. Hence, the hypothesis was rejected.

Table –III

The Mean, Standard Deviation, Standard Error Of The Mean, Difference Between Mean, Standard Error Of The Difference Between Mean And T-Ratio For Systolic Blood Pressure Between Pre -Test and Post -Test For working People

Group	Mean	Standard deviation	Standard error of the mean	Difference between mean	Standard error of difference between mean	Obtained t-ratio	Table t-value
Pre test	118	2.753	0.616				
				4.2	1.255	*3.347	2.09
Post test	112.2	4.894	1.094				

*** significant at 0.05 level of confidence, df 19.**

t-ratio required for significant at 0.05 level was 2.09 for a degree of freedom 19. Table shows the mean, standard deviation, standard error of the mean of pre and post test difference between mean, standard error of difference between mean, obtained t-ratio, table t value, 118, 112.2, 2.753, 4.894, 0.616, 1.094, 4.2, 1.255, 3.347, 2.09 respectively. The table value at 0.05 level of confidence is 2.09 the obtained value is 3.347 is higher than the table value. Hence, the hypothesis was accepted.

Table –Iv

The Mean, Standard Deviation, Standard Error Of The Mean, Difference Between Mean, Standard Error Of The Difference Between Mean And T-Ratio For Diastolic Pressure Between Pre- Test And Post – Test In Working people

Group	Mean	Standard deviation	Standard error of the mean	Difference between mean	Standard error of difference between mean	Obtained t-ratio	Table t-value
Pre test	83.8	2.505	0.560				
				0.7	1.05	0.666**	2.09
Post test	84.5	3.993	0.892				

**** insignificant at 0.05 level of confidence, df 19.**

t-ratio required for significant at 0.05 level was 2.09 for a degree of freedom 19. Table shows the mean, standard deviation, standard error of the mean, difference between mean, standard error of difference between mean, obtained t-ratio, table t-value 83.8, 84.5, 2.505, 3.993, 0.560, 0.892, 0.7, 1.05, 0.666 respectively. The table value at 0.05 level of confidence is 2.09 the obtained value is 0.666 is lesser than the table value. Hence, the hypothesis was rejected.

II. CONCLUSION

Based on the result the physiological variable pulse rate and breath holding time was insignificant. But, the mean value of the post test is lesser than the mean value of pre-test. It indicates there would be a difference between pre-test and post test due to eight weeks of yogic exercise on pulse rate. Based on the result, the physiological variable breath holding time was in signification. But the mean value of the post test is greater than the mean value of pre-test. It indicates that there would be a difference between pre-test and post test after eight weeks of yogic exercise on breathholding time. It was concluded that the yogic exercises influence the physiological variables systolic blood pressure was significant. The influence of yogic exercise on the other variable like pulse rate and breath holding the were insignificant, even though it insignificant. But mean difference shows the moderate changes in the variables, pulse rate and breath holding time. It was viewed that the eight weeks training in not enough for the effective improvement. Because, it is a slow process of training method, it needs longer duration for significant effective changes.

Based on the result the mean value of the post test in advantages people those who working may not have lots of time in exercise, but yoga need less space and less equipment. So the working people may casting adapted to yogic practices then the exercise. The selected variable is most relevant to the health related fitness. If the Internal organs are so turned, the life of an individual may also long. Practice the asana regularly the flexibility of muscles and joints of an individual may increase. It will reduce muscle tightness it will reduce the injuries like sprain, strain etc. So injuries like strain, sprain may be avoided during their household work (or) in the working place. Lung volumes will increase due to yoga practice. It will improve the efficiency of the lung volumes so the risk of lung diseases like asthma will reduce in future.

Possible Application

1. The similar study can be conducted for all age group above fifteen years old.
2. The similar study can be conducted for various sports persons
3. The similar study can be conducted for people those selected by stress.
4. The similar study can be conducted for people those selected by blood pressure
5. The similar study can be conducted for people those selected by diseases like asthma and bronchitis and allergy.

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IOSR Journal Of Humanities And Social Science (IOSR-JHSS) is UGC approved Journal with Sl. No. 5070, Journal no. 49323.

Dr.K.Usha Rani "Effect of Yogic Exercise on Selected Physiological Variables of working People." IOSR Journal Of Humanities And Social Science (IOSR-JHSS). vol. 22 no. 12, 2017, pp. 01-05.