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EFFECT OF EIGHT WEEKS PRANAYAMA PRACTICES ON PULSE RATE, BODY MASS INDEX AND BREATHE HOLDING CAPACITY OF UNIVERSITY STUDENTS

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Abstract

For the purpose of the present study total 25 students were selected from the different departments of G. G.V Bilaspur Chhattisgarh. Age was ranging between 17 to 23 years. The purpose of the present study was to know the significant effect of pranayama practice on pulse rate, BMI and Breathe holding capacity of university students. To full fill the aim of the study total three variables pulse rate, BMI and breath holding capacity were selected variables for Pranayama practices. To know the nature of the data descriptive statistics- mean, standard deviation and standard error of mean was used. To know the significant effect of Pranayama practice on pulse rate, BMI and breathe holding capacity of university students, paired t-test was used. All statistical calculation was done with the help of SPSS 16.0 software. Level of significant was at at.05. On the basis of results and findings of the study, it may conclude that Significant effect of Pranayama practices was found on Pulse rate ($t = 6.218$, $p < .05$), BMI ($t = 4.528$, $p < .05$) and Breath holding capacity ($t = 7.570$, $p < .05$).

Key words: Pranayama, Pulse Rate, Body Mass Index, Breath holding capacity.

INTRODUCTION

The word "Yoga" comes from the Sanskrit word "yuj", which means "union. It is the union of the individual self with the universal self. It is about merging a healthy body with a disciplined mind for the purpose of spiritual development. Yoga is also a wonderful contact with the supreme, higher than the best known. It is about harnessing not only your inner power, but also the great natural power from which you were born. Yoga is viewed more beneficial form of physical activity than as a philosophy or a holistic way of life. Yoga asana are the art and science of life, guiding the evolution of the mind and body. Yoga therefore contains a system of disciplines to promote the combined growth of all aspects of the individual. When we begin our asana practice, we usually start with the outermost aspect of our physical personality, the physical body. Practicing poses and asana keeps your spine, muscles and joints healthy and flexible. Pranayama, or breathing exercises, are important not only to bring in fresh oxygen and strengthen the lungs, but also to have a direct effect on the brain and emotions.

Many people nowadays throughout the world say they practice yoga because of its supposed health benefits. Hindu religious views, which underlie the practice and typically become clear in more advanced phases of training, might be adopted without intentionally doing so. Yoga is a practice that has been around for ages and was created to help people with their physical, mental, emotional, and spiritual well-being. It has been a long-standing custom in India and is currently gaining popularity in Western culture. In a super conscious condition known as Samadhi, "yoga" refers to the unification of our particular consciousness with the Universal Divine Consciousness.

The number of times your heart beats in one minute is known as your heart rate. Your body adjusts heart rate naturally to match what you're doing or what's going on around you. Because of this, your heart rate rises at times of activity, excitement, or fear may decrease or increase during times of rest, serenity, or comfort. Your heart rate is a crucial signal of your general health. A high or slow heart rate may indicate a cardiac condition or other health issues. Having the ability to feel your heartbeat all around your body may also help doctors identify medical issues.

Body Mass Index is the measurement of body weight in relation to height of individual. It is individual's weight in kg divided by the square of height in meters. BMI explains person's current body weight and what should be actual body weight according to height of person as per BMI norms to remain fit and healthy. According to BMI norms there are different category of body mass index such that if a person having less than 18.5, it falls within the underweight range, 18.5 to 24.9- healthy weight category, 25.0 to 29.9-overweight category.
Every individual require oxygen to perform important functions of the body. Breath holding means a person hold a breath and prevent new oxygen from entering the body. There are various aspects of Pranayama to perform inhale, exhale and hold a breath. A normal person living sedentary life style can hold their breath 30 to 90 seconds. Daily life style can increase and decrease breathe holding capacity such as a person living healthy life style including physical activity, yoga, balance diet may enhance the performance of breath holding capacity. In other aspects a person living sedentary lifestyle and bad habit such as not doing any activity with bad habits of smoking, consuming alcohol, and underlying medical conditions has poor breath holding capacity.

Pranayama in Yoga is set of breathing exercise that improves various function of respiratory and circulatory system. So researcher is eager to know the effect of pranayama training on selected physiological variables such as pulse rate, BMI and breathe holding capacity.

OBJECTIVE OF THE STUDY

- To find out the effect of Pranayama on Pulse rate of University students.
- To find out the effect of Pranayama on Body Mass Index of University students.
- To find out the effect of Pranayama on Breathe holding capacity of University students.

HYPOTHESIS OF THE STUDY:-

- It was hypothesized that there will be no significant effect of Pranayama on pulse rate of University students.
- It was hypothesized that there will be no significant effect of Pranayama on Body Mass Index of University students.
- It was hypothesized that there will be no significant effect of Pranayama on Breathe holding capacity of University students.

METHODS AND PROCEDURES

For the purpose of the present study total 25 students were selected from the different departments of G. G.V Bilaspur Chhattisgarh. Age was ranging between 17 to 23 years.

Selection of Variables:

1- Pulse rate
2- BMI
3- Breath holding capacity

Administration of test items

To know the significant effect of Pranayama training on pulse rate, BMI and breathe holding capacity pretest and posttest before and after pranayama training was taken by the researcher by applying standard testing protocol.

1- To measure the pulse rate of the subject researcher directed to place two fingers between the bone and the tendon above the radial artery, which is situated on the thumb side of the wrist and Count the beats in 15 seconds after feel the pulse? In order to determine subjects beats per minute, multiply this number by four.

2- To determine subject's body mass index researcher used simple calculation is by using weight and height of individual. BMI is calculated as given:

BMI= weight in kilograms/height in m^2.

According to BMI norms if a person having their BMI 25.0 or higher it means he is suffering from overweight, while a healthy range is 18.5 to 24.9.

3- To measure breathe holding capacity proper demonstration was given by the researcher then subjects were instructed to hold breathe after the command start. Breathe holding capacity was recorded between command start to end of holding breathe and measured with the help of stop watch.

Sequence of Pranayama Practices:

1- Yoga Prayer-
Om….. Om…. Om…..
Sahana vavathu,
Sahanou Bhunaktu,
Sahaveeryam-Karvavahai
Tejaswinaa Vadhitamastu,
Ma…Vidvishavahai,
Om……. Peace, Peace, Peace.

2- Anuloma Pranayama (Anulo-Vilom) - it is also known as alternative nostril breathing or Nadi shodhana pranayama. Anuloma pranayama performed by alternate breathing from both the nostril in cyclic manner. To perform this pranayama inhale from Eda Nadi and Exhale from Pingla Nadi then inhales from Pingla Nadi and exhale from Eda Nadi.

3- Kapalabhati Pranayama (Skull shining breathing technique)- Kapalbhati is important pranayama of Shatkarma. It includes forcefully continuous exhalations and automatic inhalation with fast breathing.

4- Bhramari Pranayama (Bumble Bee breath)- Bhramari pranayama also call Humming bee breath. It's helpful to calm breathing exercise that calms the nervous system and benefits to attach with our truest inside nature.

5- Sheetali Pranayama- Word sheetali come from Sanskrit source sheet which means cold. Sheetali pranayama is performed by roll up the tongue same as the shape of tube then forcefully inhale. This pranayama provides cooling effect perform mainly in summer season.

6- Sheetkari Pranayama- in sheetkari pranayama breathing through mouth by joining upper and lower row teeth then inhale by making sound see-see and exhale through nose. This pranayama also provides cooling effect perform mainly in summer season.

7- Om chanting- At the end of pranayama session Om chanting was performed in direction and command of yoga instructor.

STATISTICAL TECHNIQUE

For the purpose of the present study and to know the nature of the data descriptive statistics- mean, standard deviation and standard error of mean was used. To know the significant effect of Pranayama practice on pulse rate, BMI and breathe holding capacity of university students, paired t-test was used. All statistical calculation was done with the help of SPSS 16.0 software. Level of significant was at at.05.

RESULT AND FINDINGS OF THE STUDY

Table -1

Descriptive and comparative table of pre and post-test of Pulse rate

Variable	Test	N	Mean	Std. Deviation	Std. Error of Mean	t-value	Sig.
Pulse rate	Pre	25	74.640	3.315	.663	6.218*	.000
	Post	25	68.280	4.596	.919		

Table-1 explains the descriptive statistics i.e Mean, SD, Std. Error Mean of Pulse rate. The Mean and SD of pre and posttest of pulse rate is (74.640±3.315) and (68.280±4.596), t-value 6.218 and p-value .000, that shows significant effect of pranayama training on pulse rate.

Fig. 1

Graphical presentation of mean values of pre and posttest in relation to Pulse rate

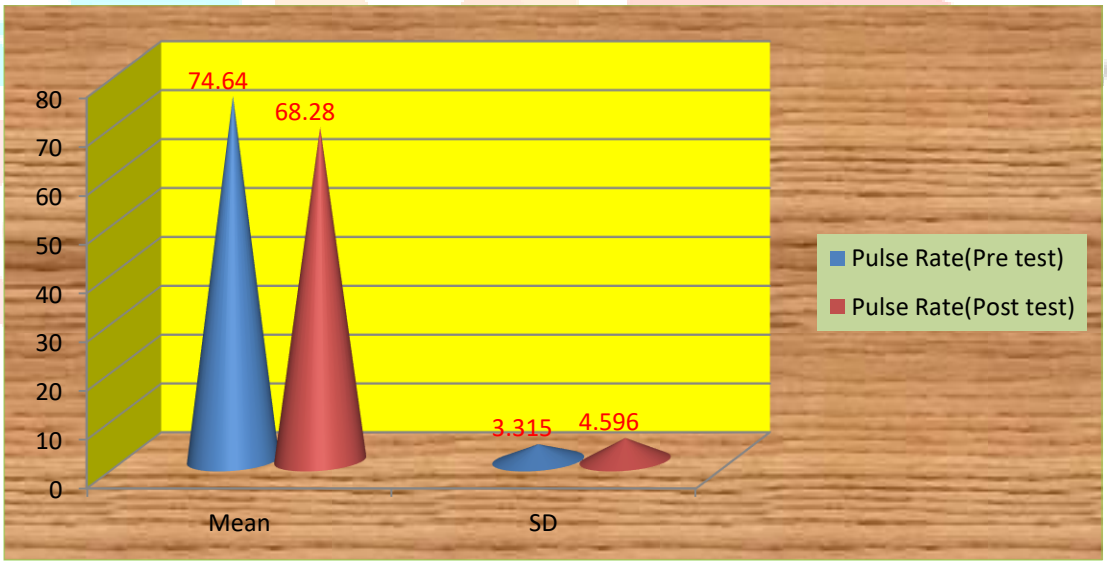


Table -2

Descriptive and comparative table of pre and post-test of Body Mass Index

Variable	Test	N	Mean	Std. Deviation	Std. Error of Mean	t-value	Sig.
BMI	Pre	25	25.666	1.993	.398	4.528*	.000
	Post	25	23.365	2.317	.463		

Table-2 clarifies the descriptive statistics i.e Mean, SD, Std. Error Mean of BMI. The Mean and SD of pre and posttest of BMI is (25.666±1.993) and (23.365±2.317), t-value 4.528 and p-value .000, that shows significant effect of pranayama training on BMI.

Fig. 2

Graphical presentation of mean values of pre and posttest in relation to BMI

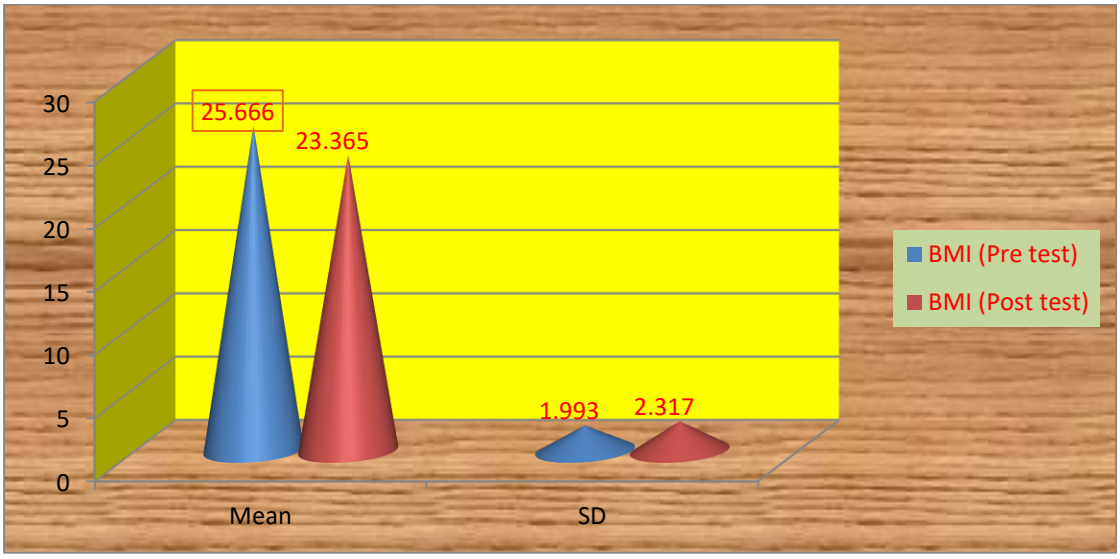


Table -3

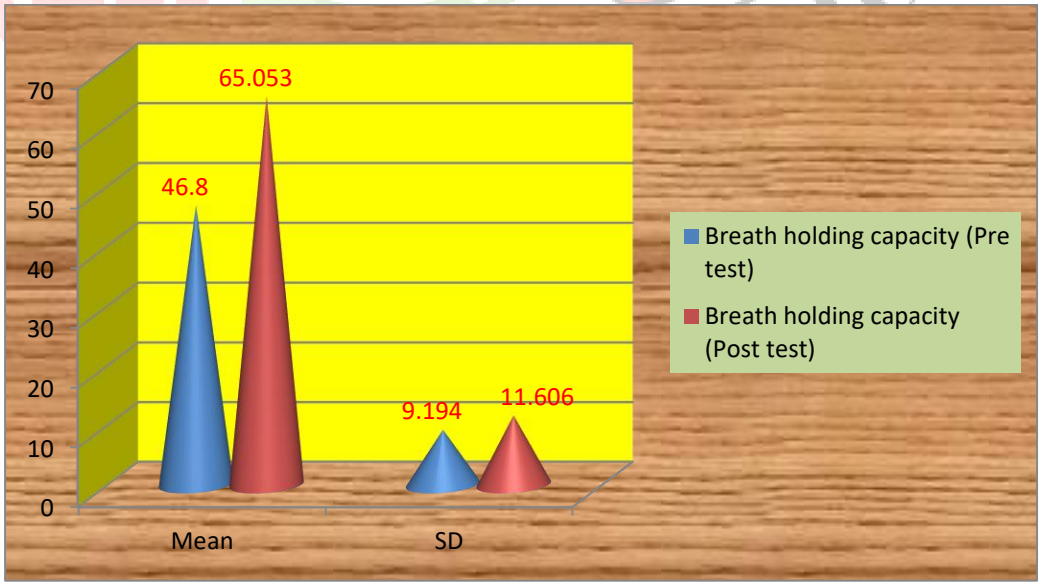
Descriptive and comparative table of pre and post-test of Breathe Holding Capacity

Variable	Test	N	Mean	Std. Deviation	Std. Error of Mean	t-value	Sig.
Breathe holding capacity	Pre	25	46.800	9.194	1.838	7.570*	.000
	Post	25	65.053	11.606	2.321		

Table-3 describes the descriptive statistics i.e Mean, SD, Std. Error Mean of breathe holding capacity. The Mean and SD of pre and posttest of breath holding capacity is (46.800±9.194) and (65.053±11.606), t-value 7.570 and p-value .000 that shows significant effect of pranayama training on breathe holding capacity.

Fig. 3

Graphical presentation of mean values of pre and posttest in relation to Breathe holding capacity



DISCUSSION

Result of the study shows that the Mean and SD of pre and posttest of pulse rate is (74.640±3.315) and (68.280±4.596), t-value 6.218 and p-value .000, that shows significant effect of pranayama training on pulse rate. Result shows that significant improvement of pranayama training on pulse rate of the student because our heart and lungs directly involves during performing pranayama that enhance working capacity of heart and lungs. Decrease in pulse rate shows the improvement in the performance of heart and lungs. The result also shows that the Mean and SD of pre and posttest of BMI is (25.666±1.993) and (23.365±2.317), t-value 4.528 and p-value .000, that shows significant effect of pranayama training on BMI. This result shows that before pretest the mean of BMI was 25.666 that come under over weight category according to BMI norms. After the training mean of posttest is 23.365 that comes under ideal weight category it shows significant improvement in the BMI from overweight category to ideal weight category. The Mean and SD of pre and posttest of breathe holding capacity is (46.800±9.194) and (65.053±11.606), t-value 7.570 and p-value .000 that shows significant effect of pranayama training on breathe holding capacity. The probable reason of improvement in breath holding capacity is pranayama contains breathing exercises (Puraka, Kumbhaka and Rechaka).

At the end it may conclude that there is significant effect of Pranayama training on pulse rate, BMI and breathe holding capacity of University students. Pranayama improves the working capacity of respiratory and circulatory system, pulse rate and breathe holding capacity are directly interrelated to heart and lungs.

CONCLUSIONS

On the basis of results and findings of the study, it may conclude:

- Significant effect of Pranayama Training was found on Pulse rate ($t = 6.218$, $p < .05$).
- Significant effect of Pranayama Training was found on BMI ($t = 4.528$, $p < .05$).
- Significant effect of Pranayama Training was found on Breath holding capacity ($t = 7.570$, $p < .05$).

Initially it was hypothesized that there will be no significant effect of Pranayama training on pulse rate, BMI, Breath holding capacity of University students is not accepted at .05 level of significant.

REFERENCES

- Alter, Michael. J. (2004). Science of flexibility. Human Kinetics.
- Bal, B.S. and Kaur, P.J. (2009). Effect of selected asanas in hatha yoga on agility and flexibility level. Journal of sports and health research. 1(2): p.75-87.
- Barrow M. Harold and Rosemary McGee, A Practical Approach to Measurement in Physical Education (Philadelphia: Lea and Febiger, 1971), p.123.
- Choudhary R, Krzytof Stec. The effect of dynamic
- Clarke H. Harison, David H. Clarke, Application of Measurement to Physical Education, Sixth Edition. Prentice Hall, Inc. Eagalwood Cliff, New Jersey p.123.
- Clarke, H. H. (1957). Relationships of Strength and Anthropometric measures to Physical Performance involving the trunk and legs. Research Quarterly, 28:233.
- Harlod M, Barrow, Rojemary Mcgee. A practical Approach to measurement in physical education Second edition Philavelelphiaa lea and febiger, 1973.
- Harlod M. Barrow, and Rojemary Mcgee (1973). A practical Approach to measurement in physical education Second edition Philavelelphiaa lea and febiger,.
- Harree Dietrich. Principles of Sports Training" Berlin: Sportverlag, 1982.
- Kansal, D.K. (1996). Test and Measurement in sports and Physical Education. New Delhi: D.V.S.Publication.
- Kerketta I, Singh K, Bisht S. Effect of six weeks training of Suryanamaskar on flexibility and agility. Laxmi Book Publications, Solapur, 2015; 4(4):1-4.
- Kerketta, I., Singh, K. & Bisht S. (2015)Effect of six weeks training of Suryanamaskar on flexibility and agility.Laxmi Book Publications, Solapur, 4(4):p.1-4.
- Parag, J. and N, K. manjunath. (2012). The effect of Suryanamaskar on sustained attention in school children. Yoga physical therapy.2(2): p.2-4.
- Pratima M Bhutkar, Milind V Bhutkar and Govind B taware and B R doddamani ; Effect of Suryanamaskar practice on cardio-respiratory fitness parameters: A pilot study. 2008
- Rajkumar J.(2010). The Impact of Yogic Practices the Intercollegiate Soccer Players", Indian Journal for Research in Physical Education and Sports Sciences, 5(1), p.1-7.
- Ramaswami, Srivatsa (2005). The Complete Book of Vinyasa Yoga. Da Capo Press. ISBN 978-1-56924-402-9.

- Shankar, G and Pancholi, B. (2011). The effect of Suryanamaskar yoga practice on the heart rate, boold pressure, flexibility and upper body muscle endurance in healthy adults. International journal of health sciences and research. 1(1): p.2-6.
- Shrikrishna, "Essence of Pranayama" (Lonavala: Kaivalyadhama Asharam Publication, 2nd edition 1996), p.13.
- Singh K, Singh R. Relationship of selected anthropometric variables with the velocity of ball in pace bowling in cricket. International Journal of Applied Research. 2015; 1(10):613-616.
- Singh K, Singh R. Relationship of Selected Anthropometric Variables with the Throwing Distance of Cricket Ball in Cricket. Academic Sports Scholars. 2015; 4(8):1-6.
- Singh K, Singh R. Relationship of selected physical fitness variables with the performance of male long jumpers. International Journal of Physical Education and Sports. 2016; 1(1):23-27.
- Singh K, Singh R. Selected Anthropometric Variables as Predictors of Fast Bowling Performance in Cricket. Academic Sports Scholars. 2016; 5(6):01-09.
- Singh K. effect of eight weeks training of Suryanamaskar on flexibility of Cricket players. International Journal of Applied Research. 2016; 2(4): 665:667.
- Singh K. Effect of four weeks pawanmuktasana yogic training on abdominal strength, back strength and flexibility of physical education students. International Journal of Physical Education and Sports. 2016;1(2): 32-38.
- Singh R, Singh K. Difference between batsman and fast bowlers in relation to grip strength, back strength, leg strength and flexibility in cricket. International Journal of Advanced Research and Development. 2016; 1(1):97-99.