

International Journal of Childhood and Development Disorders

E-ISSN: 2710-3943
P-ISSN: 2710-3935
IJCDD 2023; 4(1): 14-17
© 2023 IJSA
<https://www.rehabilitationjournal.com/childhood-development-disorders/>

Received: 01-11-2022

Accepted: 06-12-2022

S Senthil Kumaran

Ph.D., Research Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

K Ooraniyan

Ph.D., Research Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

N Kodeeswaran

Ph.D., Research Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Corresponding Author:

S Senthil Kumaran

Ph.D., Research Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Enhancing vital capacity and resting pulse rate among hearing impairment school students through brisk walking with pranayama

S Senthil Kumaran, K Ooraniyan and N Kodeeswaran

Abstract

The major goal of this study was to find out the Enhancing vital capacity and resting Pulse rate among hearing impairment school students through brisk walking with pranayama. A convenience sample 30 hearing impairment school students were randomly selected from Coimbatore district. Their aged of the subject ranged from 15 to 17 years and the were divided into two equal groups consists of 15 each Experimental group underwent given training acted as group I and control group acted as group II. The training was given to the experimental group for 3 day per week for the period of 12 weeks. The control group was not under-going any sort of training except the routine work. The collected pre and post data was critically analyzed with dependent 't' test. The level of significance was fixed at 0.05 levels for all the cases in order to find out the significance. The result clearly proved that the vital capacity and resting pulse rate better improvement on hearing impairment school students through brisk walking with pranayama.

Keywords: vital capacity, resting pulse rate and brisk walking and with pranayama

Introduction

The ancient Indian science of Yoga makes use of voluntary regulation of the breathing to make respiration rhythmic, and to calm the mind. This practice is called Pranayama. Pranayama is a Sanskrit word meaning "restraint of the prana or breath". The word is composed of two Sanskrit words, Prana, life force, or vital energy, particularly, the breath, and "ayama", to suspend or restrain. It is often translated as control of the life force (prana). These Yogic practices provide an opportunity to study the effects of selective nostril breathing carried on effortlessly for prolonged periods. Pranayama means control of breath and it involves three main phases which is much more important to keep strength of respiratory system and thus a whole of human body. These are best practiced in the early hours of the morning or after sunset

Vital Capacity

The vital capacity is called the sum total volume of air that can be expired after maximum inhalation or maximum air that a person can breathe in after forced expiration. It is very important to measure a person's respiratory health. A decreased vital capacity also seems to be an indication of restrictive lung disease where the lungs cannot expand out completely. In such cases of normal vital capacity, this improper functioning of the lungs indicates obstructive lung disease where the lungs are blocked in the airways. $VC = \text{Tidal volume (TV)} + \text{Expiratory reserve volume (ERV)} + \text{Inspiratory reserve volume (IRV)}$

Heart Rate

Heart rate (or pulse rate) is the frequency of the heartbeat measured by the number of contractions of the heart per minute (beats per minute, or bpm). The heart rate can vary according to the body's physical needs, including the need to absorb oxygen and excrete carbon dioxide, but is also modulated by numerous factors, including (but not limited to) genetics, physical fitness, stress or psychological status, diet, drugs, hormonal status, environment, and disease/illness as well as the interaction between and among these factors. It is usually equal or close to the pulse measured at any peripheral point.

Methodology

A convenience sample 30 hearing impairment school students were randomly selected from Coimbatore district. Their aged of the subject ranged from 15 to 17 years and they were divided into two equal groups consists of 15 each Experimental group underwent given training acted as group I and control group acted as group II. The training was given to the experimental group for 3 day per week for the period of 12 weeks. The control group was not undergoing any sort of training except the routine work. The collected pre and post data was critically analyzed with dependent ‘t’ test. The level of significance was fixed at 0.05 levels for all the cases in order to find out the significance.

Statistical analysis

The means and standard deviations of vital capacity and resting Pulse rate were calculated for brick walk with pranayama for the pre as well as posttests. The collected data was analyzed using “t” test. Statistical significance was set to a priority at $p < 0.05$. All statistical tests were calculated using the statistical package for the social science (SPSS)

Table 1: Analysis of ‘t’ ratio of the pre and post-test for experimental and control group on vital capacity

Groups	Test	Mean	SD	SEM	“T” Ratio
Experimental Group	Pretest	33.45	5.27	0.45	67.5*
	Posttest	38.52	5.23		
Control Group	Pretest	33.46	5.27	0.06	1.25
	Posttest	34.10	5.64		

*significant level 0.05 level (degree of freedom 2.14 and 14)

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on pre and post-test on selected variables namely vital capacity of experimental group. The mean

values of pre and post-test of experimental group were 33.45 and 38.52 respectively. The mean values of pre and post-test of control group were 33.46 and 34.10 The obtained ‘t’ ratio on experimental group were 67.5 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant. The result clearly proved that the vital capacity better improvement on hearing impairment school students through brisk walking with pranayama.

Table 2: Analysis of ‘t’ ratio of the pre and post-test for experimental and control group on resting pulse rate

Groups	Test	Mean	SD	SEM	“T” Ratio
Experimental Group	Pretest	66.40	1.30	0.23	20.55*
	Posttest	64.53	1.25		
Control Group	Pretest	66.13	1.19	0.32	0.56
	Posttest	66.33	0.90		

*significant level 0.05 level (degree of freedom 2.14 and 14)

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on pre and post test on selected variables namely resting Pulse rate of experimental group. The mean values of pre and posttest of experimental group were 66.40 and 64.53 respectively. The mean values of pre and posttest of control group were 66.13 and 66.33. The obtained ‘t’ ratio on experimental group were 20.55 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant. The result clearly proved that the vital capacity and resting pulse rate better on hearing impairment school students through brisk walking with pranayama.

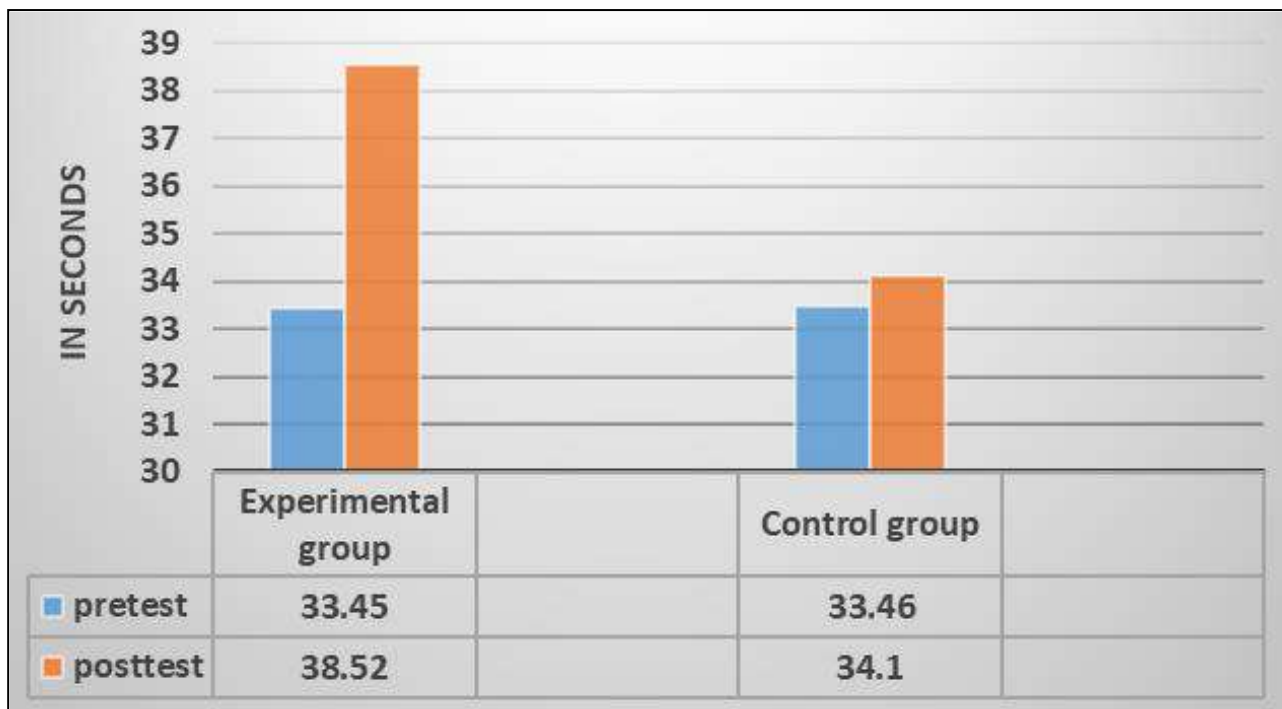


Fig 1: Vital capacity

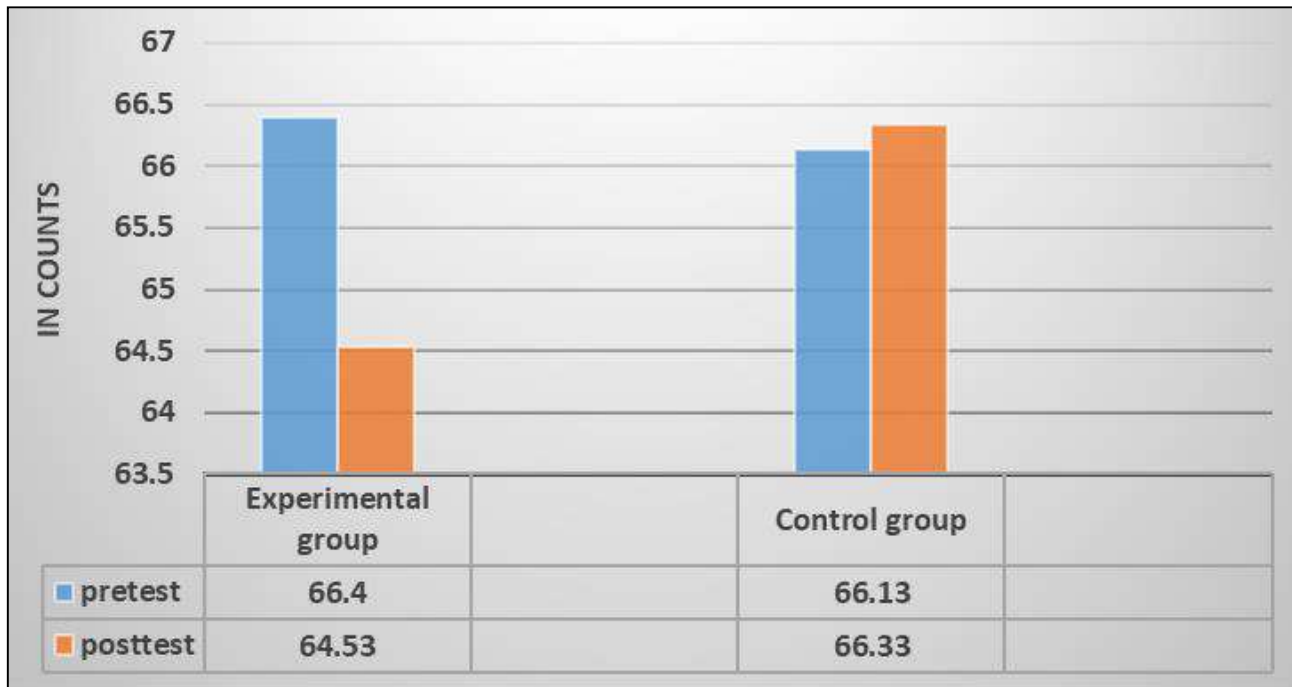


Fig 2: Resting pulse rate

Discussion on Findings

The present study was experimented the impacts of twelve weeks Enhancing vital capacity and resting Pulse rate among hearing impairment school students through brisk walking with pranayama. The results of this study indicated that brisk walking pranayama training was more efficient to bring out desirable changes over the vital capacity and resting Pulse rate among hearing impairment school students. Investigators have extended their interest to consider the vital capacity and resting Pulse rate commencement from the way a hearing impairment school students approaches the brisk walking with pranayama practices. Pre and post-test vital capacity and resting Pulse rate scores between the experimental and control groups were examined, there was a significant difference in posteromedial and posterior directions.

Conclusions

1. It was concluded that individualized combined impacts of brisk walking and pranayama group showed a statistically significant positive sign over the course of the treatment period on vital capacity and resting pulse rate of school level hearing impairment students.
2. It was concluded that individualized effect of control group showed a statistically insignificant over the course of the period on vital capacity and resting pulse rate of school level hearing impairment students.

References

1. Sengupta P. Health impacts of yoga and pranayama: A state-of-the-art review. *International journal of preventive medicine.* 2012;3(7):444.
2. Jayawardena R, Ranasinghe P, Ranawaka H, Gamage N, Dissanayake D, Misra A. Exploring the therapeutic benefits of pranayama (yogic breathing): a systematic review. *International journal of yoga.* 2020;13(2):99.
3. Bhargava R, Gogate MG, Mascarenhas JF. Autonomic responses to breath holding and its variations following pranayama. *Indian J Physiol Pharmacol.*

- 1988;32(4):257-264.
4. Pramanik T, Sharma HO, Mishra S, Mishra A, Prajapati R, Singh S. Immediate effect of slow pace bhastrika pranayama on blood pressure and heart rate. *The Journal of Alternative and Complementary Medicine.* 2009;15(3):293-295.
5. Dinesh T, Gaur GS, Sharma VK, Madanmohan T, Kumar KH, Bhavanani AB. Comparative effect of 12 weeks of slow and fast pranayama training on pulmonary function in young, healthy volunteers: A randomized controlled trial. *International journal of yoga.* 2015;8(1):22.
6. Ankad RB, Herur A, Patil S, Shashikala GV, Chinagudi S. Effect of short-term pranayama and meditation on cardiovascular functions in healthy individuals. *Heart Views.* 2011;12(2):58.
7. Kinabalu K. Immediate effect of ‘nadi-shodhana pranayama’ on some selected parameters of cardiovascular, pulmonary, and higher functions of brain. *Thai journal of physiological sciences.* 2005;18(2):10-16.
8. Sharma VK, Trakroo M, Subramaniam V, Rajajeyakumar M, Bhavanani AB, Sahai A. Effect of fast and slow pranayama on perceived stress and cardiovascular parameters in young health-care students. *International journal of yoga.* 2013;6(2):104.
9. Singh S, Gaurav V, Parkash V. Effects of a 6-week Nadi-shodhana pranayama training on cardio-pulmonary parameters. *Journal of Physical Education and Sports Management.* 2011;2(4):44-47.
10. Pramanik T, Pudasaini B, Prajapati R. Immediate effect of a slow pace breathing exercise Bhramari pranayama on blood pressure and heart rate. *Nepal Med Coll J.* 2010;12(3):154-157.
11. Kaminsky DA, Guntupalli KK, Lippmann J, Burns SM, Brock MA, Skelly J, Hanania NA. Effect of yoga breathing (pranayama) on exercise tolerance in patients with chronic obstructive pulmonary disease: a randomized, controlled trial. *The Journal of Alternative*

- and Complementary Medicine. 2017;23(9):696-704.
12. Novaes MM, Palhano-Fontes F, Onias H, Andrade KC, Lobão-Soares B, Arruda-Sanchez T, de Araujo DB. Effects of yoga respiratory practice (*Bhastrika pranayama*) on anxiety, affect, and brain functional connectivity and activity: a randomized controlled trial. *Frontiers in psychiatry*. 2020;11:467.
 13. Thakare V. *Pranayama for Enhancing Respiratory and Cardiovascular Function*. Ashok Yakkaldevi; c2021.
 14. Benicewicz AJ. *Mechanisms of change of pranayama: A qualitative study exploring how voluntarily controlled breathing reduces depression*. Alliant International University; c2015.
 15. Denman LN. *The Influence of Pranayama Breathing Techniques, After Traumatic Brain Injury on Self-perception of Health Related Quality of Life* (Doctoral dissertation, Appalachian State University); c2015.
 16. Agarwal SK. A study on effects of selected yogic practices on psychological variables of hearing and speech impaired children. *International Journal of Physical and Social Sciences*. 2012;2(3):118-123.
 17. Patient R.P.I. A study to compare the effect of pursed-lip breathing and nadi-sodhana pranayama on cardio-respiratory parameter in patient with Copd.
 18. Rothenberg RL. *Restoring Prana: A Therapeutic Guide to Pranayama and Healing Through the Breath for Yoga Therapists, Yoga Teachers, and Healthcare Practitioners*. Singing Dragon; c2019.