

IMPACT OF NADISODHANA PRANAYAMA ON HAEMOGLOBIN OF MALE SCHOOL GOING STUDENT

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Abstract

The aim of this study was to observe the effect of Nadisodhan Pranayama on Haemoglobin of subjects with the age range 14 to 15 years. For this 30 male subjects were drawn from Beliatore High School, Beliatore, Dist: Bankura (W.B) in June 2010, by using Simple Random Sampling. Pre post data were collected before and after intervention of Nadisodhana Pranayama for 30 days by using Cyanmethemoglobin method to determine the amount of hemoglobin in the blood. As calculated value of $t (=3.212)$ is greater than tabulated $t_{0.05} (29) (=2.045)$. It is concluded that Nadisodhan Pranayama plays positive and significant role to enhance haemoglobin level of the subjects.

Keywords: Nadisodhan, Pranayama, Inhalation and Hemoglobin

Introduction

As the entire world have started experiencing some or other problems among the youth which may hamper the future human resource, yogis from different part of the world are suggesting to give yoga practices to the youths. Hatha yoga a type of yoga has actually concentrated mainly on two of the eight paths, breathing and posture. Yogis believe breathing to be the most important metabolic function; we breathe roughly 23,000 times per day and use about 4,500 gallons of air, which increases during exercise. Thus, breathing is extremely important to health, and *prana*, or life-force, is found most abundantly in the air and in the breath. If we are breathing incorrectly, we are hampering our potential for optimal health. Pranayama, literally the "science of breathing" or "control of life force," is the yogic practice of breathing correctly and deeply.

Normally, optimal level of blood Haemoglobin is necessary for proper gases exchange among lungs and tissues and sound immunity. Hence, it was relevant to conduct this study to test the positive effects of Nadisodhan Pranayama in blood Haemoglobin implied in the reviewed related literatures and to highlight its importance to maintain sound health. In Hatha Yoga Pradipika (2:7-10) and Gherand Samhita (5:32-44), the method of Nadisodhan Pranayama is different than the technique adopted under this study. Nadisodhan Pranayama has been accepted as an elementary and a cleansing practice to clean the subtle energy channels of bioplasmic body before practice of others (Kumbhakas). Some of the previous findings related to the effect of Yoga practices have been found with involvement of Bhogal, et al., (1999) have

found that Meditation increased non significantly the blood Haemoglobin of subjects. Khare, et al., (1989) have found remarkable improve in Haemoglobin level, total WBC count and PCV as a consequence of Yoga practice. Deshpande, & Bhole, (1982) have concluded insignificant increase in Haemoglobin due to effect of Kapalabhati. Govindarajulu, N. & Shivanadanam, et al., (2004) have met significant mean gain in RBC count as a consequence of Yoga practices.

Methodology

Sampling

This study was conducted in 30 samples from Beliatore High School, Beliatore, Dist Bankura (W.B). Samples were selected by applying the simple random sampling using lottery method. 30 were males of age range 14-15yrs.

Research design: pre-post single group

Symbolically, $A Q_1 X Q_2$

Where;

A= single group

Q = pre- test

X= Nadisodhan Pranayama (45 min. for each morning and evening per day)

Q2= Post-test

Procedures

Cyanmethemoglobin method was used to determine the amount of hemoglobin in the blood. Firstly, by using CyanmetHaemoglobin method, blood Haemoglobin of each subject was measured and post measurement of blood Haemoglobin for the same subjects were taken after allowing practice of Nadisodhan Pranayama for 30 days. During the practice, each subject was allowed for inhalation (Puraka), retention (kumbhaka) and exhalation (Recaka) in equal ratio, thrice through left nostril and the same through right nostril and then inhalation through both nostrils and the exhalation through mouth which is supposed to be one round. Same procedure was suggested with different deep feelings in Puraka, Kumbhaka and Recaka steps. The reference of this technique can be obtained from Super Science of Gayatri written by Pandit Sriram Sharma Acaaya, founder of all worlds Gayatri Pariwara.

Results and Discussion

TABLE -1
COMPARISON OF MEAN VALUES OF PRE AND POST TEST
ON HEMOGLOBIN

Test	N	Mean	SD	df	MD	SE	't' value
Pre	30	14.68	1.73	29	1.11	0.34	3.21
Post	30	15.80	1.46				

*significant at 0.05 level of significance

Table no 1 reveals that

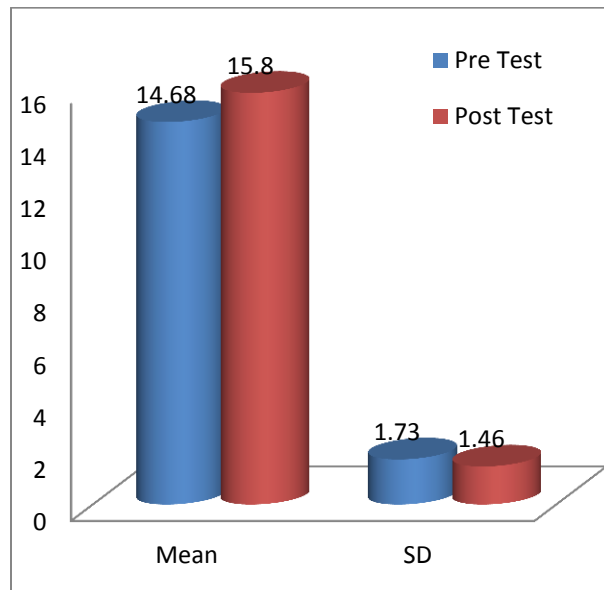


Fig. No. 1:

Interpretation of Findings

The following interpretation can be made on the basis of the results shown in the above output.

The values of the mean, standard deviation and standard error of the mean for the data on Haemoglobin in the pre and post testing are shown in the Table-1. These values can be used for further analysis.

2. It can be seen from Table-2 that the value of t statistic is 3.21. This t value is significant as the p value is 0.003 which is less than 0.05.

For one - tail test, the value of tabulated t at 0.05 level of significance and 29 (N -1 = 29) df which is 2.045. Since calculated value of t (=3.21) is greater than tabulated $t_{0.05}$ (29) (=2.045), Hypothesis may be accepted and it may be concluded that Practice of Nadisodhan Pranayama causes significant increase in blood Hemoglobin of the all subjects.

Discussion

This attributes to the fact that the Nadisodhan Pranayama intervention for one month had brought significant increase in the Haemoglobin level towards upper range of normalcy. During the practice of Nadisodhan Pranayama, in Kumbhaka phase low oxygen state is (hypoxia) created. The principal stimulus for RBC production in low oxygen state is a circulating hormone called erythropoietin. When the erythropoietin system is functional, hypoxia causes a marked increase in erythropoietin production, and erythropoietin in turn enhances RBC production until the hypoxia is relieved. In this stage, the rate of RBC production can rise to perhaps 10 or more time than normal (Guyton and Hall, 2006). Moreover, the selected subjects in this study were of normal health and suggested to take normal diet. It was hypothesized that there would be significant increase in Haemoglobin level of subjects due to practice of Nadisodhan Pranayama. Practice of Nadisodhan Pranayama brought change in Haemoglobin level, but it seemed that the change appeared towards upper limit of normalcy which signifies a healthy physiological status. So, it can be concluded that the practice of Nadisodhan Pranayama is physiologically safe for normal people of age group under study and hence can be recommended safely for other age groups to promote health. It can also be referred carefully to anemic patients as a therapeutic complement.

References

- Swami, Satyananda Saraswati (2004) Asana Pranayama Mudra Bandha. Yoga Publications Trust, Munger, Bihar, India, pp: 1-2.
- Singhal, J.C (2009) Yoga Perceived and Practised by Sages of India. Abhishek Prakashan,C-30,IInd Floor, New Moti Nagar, New Delhi-15,PP;2-3.
- Bhogal, R.S., Kulkarni, D.D., and Bera,T.K.(1999), "Effect of meditation in 'Shiva Samhita' preceded by Omkar on reducing time and selected biochemical and hematological parameter: A pilot study". Yoga-Mimamsa Vol. XXX, 4, pp. 10-28.
- Despande, R.R., Bhole, M.V. (1982). Effect of Kapalbhathi on some Constituents of blood. YogaMimamsa, Vol. XXI, 1 & 2, pp. 13-20.
- Govindarajulu, N., Shivanandanam, G. & Bera, T.K.(2004). Effect of Yoga Training on Biochemical Changess in Normal College Students.Yoga-Mimamsa, Vol. XXXVI, 1 & 2, pp. 1-10.
- Guyton, C, Arther & Hall E., John. (2006). Textbook of Medical Physiology. Elsevier India Pvt. Lt., New Delhi.
- Khare, K.C., Sangvi, V.C. & Sharma, D.C. (1989). Hematological, Biochemical & Ventileatory Response to Yoga in Adult.Yoga-Mimamsa, Vol. XXVIII, 1, pp. 65-72.
- Muktibodhananda, Swami (2003). Hathyoga Pradeepika. Yoga Publication Trust, Munger, Bihar, India.
- Niranjanananda Saraswati, Swami. (1997). Gherand Samhita. Bihar Yoga Bharati. Munger, Bihar.
- Edward L. Fox, Richard W. Bowers, Merle L. Foss. (2005). The Physiological Basis Of Physical Education And Athletics, (Wm.C. Brown Publishers Dubuque, Iowa, IVth Edition).