



## The Effect of Yoga Therapy on Blood Oxygen Level

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### ABSTRACT

The present work entitled "the effect of yoga therapy on blood oxygen level – A study". The study was conducted on 16 subjects at men's hostel Mangalore University. These subjects divided into two groups, 12 subjects in experimental group, 4 subjects in control group. The subjects were divided into two groups based on sample random sampling between the age 21 and 26 years. The study was conducted in a period of 36 days. Body Mass Index (BMI), Haemoglobin, and Haemoglobin Saturation were used as parameters. These parameters were measured both at the beginning and at the end of the study, using pre-post experimental test design. The yoga therapy group obtained significance increasing in the Body Mass Index ( $t = -4.0299$ ,  $p = 0.0019$ ), Haemoglobin ( $t = -5.2129$ ,  $p = 0.0002886$ ), Haemoglobin Saturation ( $t = 3.3166$ ,  $p = 0.006872$ ). There were no significant changes in the subject of control group the study conducted for longer duration with more no: of subjects may give higher significant results. To get better results, the study may be carried out with controlled Life-style and changes in the diet. From the earlier study we can conclude that Yoga Therapy works well in the management Oxy-haemoglobin deficiency.

### KEYWORDS

BMI, Oxymetry, yoga therapy

### INTRODUCTION

Good health is one of the greatest resources for creativity and wealth. Health is not a static state – it is dynamic ever changing. We can never claim that we are always healthy but only that we are healthy at a particular moment. Health is like a live wire. Now we feel it, the sensation is energizing, the absence it is a state when the body and mind are dull and slow. Disease exists when there is an imbalance. Good health results from right diet, adequate physical activity and mind, which is stress free. The dramatic changes in our life style, sedentary way of working, wrong dietary habits, lack of physical activity, smoking and alcoholism leading to many psychological and psychosomatic problems.

Oxy-haemoglobin deficiency or lack of sufficient oxygen in blood level is one of the cardio-respiratory disorders. Oxygen is very essential for life. Because of some cardiac or respiratory disorder some are not able to get sufficient oxygen for their body cells. By that they are straggling in between life and death. By proper yogic practices, this disorder could be brought under control. Also, many other complications associated with this problem are also kept at lower level and thus one can lead healthy, wealthy life.

Yoga therapy is the system that prevents and cures various diseases and disorders through yogic practices. The yogic practices concentrates on purification of the body and mind, and through this integrated holistic approach one can overcome several kinds of afflictions in life. It was co-ordinated and organized into the system by Maharishi Patañjali. Sage Patañjali defines yoga as, systematic practice for purifying one's mind, intellect and body. Yogic practices with their unique characteristics have an important impact on the physical and mental stability. Yoga offers a largely unexplored, widely available resources for the management of stress related ailments like

Diabetes Mellitus, Hypertension. It is an asset for preventive care and focused on preserving health.

### Objectives of the study

1. To find out the impact of yogic practices on blood oxygen level.
2. To find out the effect of blood oxygen level.

### Null Hypotheses

In order to study the problem scientifically, the following Null Hypotheses were set:

1. There is no significant change in pre and post Haemoglobin levels.
2. There is no significant change in pre and post Haemoglobin Saturation levels.
3. There is no significant change in pre and post BMI levels.

### Materials and methods

The present study was conducted to assess the effect of selected yogic practices on the subjects to improve the system of the body. The age group will be between 21 -26. There were 16 subjects; 12 in experimental group and 4 in controlled group. The yoga therapy was given to experimental group only. Daily sessions of classes were taken in the morning for one hour from 6.30 AM to 7.30 AM. The Yogic practice includes a series of Asana, Pranayama, and Meditation and followed by the relaxation techniques. Hence a period "t" test was employed in the study to analyze the significance of the results statically. The tests were done for both experimental and control group subjects.

### PARAMETERS

The following parameters were selected based on the requirement for the current study. The three parameters are dis-

cussed below;

**A) Body Mass Index**

Body Mass Index (BMI) was calculated using formula Weight/ Height in (Meter<sup>2</sup>) and used as body parameter for the study.

**B) Blood Pressure:**

It is the pressure exerted by the blood on the walls of the blood vessels. There is Systolic and Diastolic blood pressure and are measured by the instrument Sphygmomanometer. In an adult generally the range for blood pressure is 120/80 mmHg. It is Systolic/Diastolic Blood pressure

**C) Hemoglobin:**

Hemoglobin is the iron-containing oxygen-transport metallo-proteinase in the red blood cells of all vertebrates. Hemoglobin in the blood carries oxygen from the respiratory organs (lungs or gills) to the rest of the body (i.e. the tissues) where it releases the oxygen to burn nutrients to provide energy to power the functions of the organism, and collects the resultant carbon dioxide to bring it back to the respiratory organs to be dispensed from the organism. It is reported in g/dl.

**D) Haemoglobin Saturation:**

Haemoglobin Saturation is the percentage between the capac-

ities of haemoglobin that compounded with oxygen. In other words it is the saturation of ox haemoglobin in blood. Normal range of HbO<sub>2</sub> is 90-99 % of Hb. Lack of sufficient Oxygen in blood is known as Hypoxia and Hypoxemia. It is a condition in which the body or a region of the body is deprived of adequate oxygen supply. Hypoxia may be classified as either generalized, affecting the whole body, or local, affecting a region of the body.

**Pulse oximeter:**

Pulse oximetry is a simple, relatively cheap and non-invasive technique to monitor oxygenation. It monitors the percentage of haemoglobin that is oxygen-saturated.

**Yogic practices**

**The following Yogic practices were given to Experimental group over a period of 36 days:**

Svastikasana Vajrasana Supta vajrasana Tadasana- I Tadasana -II Trikonasana Parsvakonasa Parsvottanasana Prasarithapadathanasana anusirsasana Purvottnasana Pavanamuktasana Bhujangasana Salabhasana Dhanurasana Ustrasana Bharadhwajana Viparitararani Uttanapadasna Pranayama like – Ujjayee Anuloma Viloma Bhastrika and relaxation techniques.

**RESULTS**

**Experimental group -Blood oxygen level**

Sl. no	Parameters	Mean		S D		t-value	df	P-value	sig
		Before	After	Before	After				
1	B.M.I	17.0667	17.5341	1.1203	1.3466	-4.0299	11	0.0019	S
2	Haemoglobin	14.1333	15.1667	1.0628	0.7126	-5.2129	11	0.0002	HS
3	SpO2	97.5	98.5	1.3817	0.7977	-3.316	11	0.0069	S

**S = Significant, HS = highly significant, NS = Non significant**

**Control group - Blood oxygen level**

Sl. no	Parameters	Mean		S D		t-value	df	P-value	sig
		Before	After	Before	After				
1	B.M.I	17.295	17.0725	0.8211	0.6636	1.4965	3	0.2314	NS
2	Haemoglobin	14.65	14.35	0.6191	0.6608	3	3	0.0576	NS
3	SpO2	98	97.5	1.1547	1.2910	1.7321	3	0.1817	NS

**Body Mass Index**

After yoga therapy, the BMI showed a significant increase (p =0.0019) Thus the Null Hypothesis is rejected.

**Haemoglobin**

The highly significant result sis obtained in case of haemoglobin, the proper Haemoglobin in the body (t=-5.2129, p=0.0002).Hence the null hypothesis is rejected.

**Haemoglobin Saturation**

The significant result obtained in case of haemoglobin saturation. (p =0.006872) Thus the Null Hypothesis is rejected.

**DISCUSSION**

The subjects felt pain for few days in the beginning .In the beginning days; they were practicing like an exercise. After few days, their respiratory rate and perspiration rate were brought to normal. There after the subjects started to experience freshness, relaxation and calmness. They improved with flexibility, working ability and positive thinking .Subjects were getting sound sleep after the practice .Their response was good enough and the time management is appreciated. Also, the excessive sweating and fatigue were reduced considerably .For the present study, the given data follows normal distribution and hence a Paired "t" test is used to access the effect of yoga therapy on selected subjects.

It is evident from the above results that all the subjects responded to the treatment positively. But the variation of the

of success is depended on the regularity of the practice, life-style and diet. There was a significant increasing in Body Mass Index (t= -4.0299, p= 0.0019), Haemoglobin (t=-5.2129, p= 0.0002) Haemoglobin Saturation ( t=-3.3166,p=0.006872 ),) in case of experimental group. There was no significant decrease in Body Mass Index (t= 1.4965, p= 0.2314), Haemoglobin (t=3, p= 0.05767) Haemoglobin Saturation ( t=-1.7321,p=0.1817), This indicates that there is no significant improvement in case of control group subjects.

**CONCLUSION**

The present study found significant improvement in the study to assess the effect of yoga therapy on blood oxygen level. By this can conclude that Yogic practice is very effective in blood oxygen deficiency. The study can be done with more subjects for longer duration may yield better result.