

Impact of Pranayama on Selected Components of Blood : An Analytical Study

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Abstract

The objective of the study was to assess the impact of Pranayama training on selected components of blood. For the present study subject selected were students of Bachelor of Arts studying in Mahadev Desai Gram Seva Mahavidyalaya. Randomly 30 students were selected for the study and then subjects was divided into two equal groups randomly consisting of 15 subjects each belonging to one experimental (Group A) and one control group (Group B). Group A were exposed to Pranayama and group B was control group. Experimental group participated in Pranayama training for eight weeks. The variables and test items selected for the present study were cholesterol, blood glucose, hemoglobin, WBC, RBC, platelets. For analyzing the data t-test was used to find out the significant difference between pre-test and post-test. This study revealed significant difference in pre-test and post-test of experimental groups of selected blood components i.e. cholesterol, blood glucose, hemoglobin, WBC, RBC, platelets. This shows that Pranayama training has an impact on selected components of blood.

Key words- Pranayama training, components of blood, cholesterol, blood glucose, hemoglobin

Introduction

Pranayama is the first step towards re-orienting and improving the functioning of mind and body by learning to utilize the air we breathe. The Yogis were the first to discover the importance of this and so actually devised an exact science of breathing. They called it PRAN-AYAMA, from the Sanskrit word pran means breathe, and ayama means cessation. Pran is the link between the physical and the astral bodies. It is Pran that pumps blood from the heart into the arteries. Pranayama implies correct breathing and control over breathe. The purpose of yoga breathing exercises is to supply the body with oxygen and clean carbon dioxide. Oxygen in the blood is vital for

assimilation of food we eat for fulfilling body's various needs like rebuilding tissues, providing energy for functioning of brain, nerves, heart and other vital organs. One can live without food and water for days together but one cannot live without air even for a few minutes. If the breath is steady and clam, the mind is also becomes steady and calm. Pranayama practice reduces the impurities of blood and mind. Studies of the breathing have shown that the methods of respiration affect the whole organism. By practicing Pranayama one can have good appetite, cheerfulness, good figure, strength, stamina, good concentration, courage, and high standard of health. It has been said that, there is no purificatory action greater than Pranayama. As a result of breathing, the freshly oxygenated blood (during inhalation) travels from lungs to the heart. The heart pumps it via arteries and blood vessels to each and every part of the body, where in turn it seeps into every tissue and bone cell. This improves the blood circulation and more oxygen/prana or cosmic energy reaches to all parts of our body. The objective of the study was to assess the effect of Pranayama training on selected components of blood.

Hypothesis

It was hypothesized that there would be no significant effect of Pranayama training on selected components of blood.

Experimental

Sample

For the present study, subjects selected were the students of Bachelor of Arts studying in Mahadev Desai Gram Seva Mahavidyalaya. Thirty students were selected for the study and then subjects were divided into two equal groups randomly consisting of 15 subjects each belonging to one experimental (Group A) and one control group (Group B). Group A was exposed to Pranayama and group B was control group. Experimental group participated in Pranayama training



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for eight weeks. Age group of subjects was varying from 18 to 22 years. Methods used for analysis of variables are shown in Table 1 and schedule of Pranayama training is given in Table 2.

Table - 1 The variables and test items selected for the present study

Variables	Measured by the Instrument
Cholesterol	Bio-chemistry analyzer
Blood groups	Bio-chemistry analyzer
Hemoglobin	Fully automatic hematology analyzer
RBC	Fully automatic hematology analyzer
WBC	Fully automatic hematology analyzer
Platelets	Fully automatic hematology analyzer

Table 2 Schedule of Pranayama training

Pranayama	Mon	Tue	Wed	Thu	Fri	Sat
Yogic Exercise	5 min.	5 min.	5 min.	5 min.	5 min.	5 min.
Omkar	5 min.	5 min.	5 min.	5 min.	5 min.	5 min.
Suryabhedan	5 min.	5 min.	5 min.	5 min.	5 min.	5 min.
Chandrabhedan	5 min.	5 min.	5 min.	5 min.	5 min.	5 min.
Bhastrika	5 min.	5 min.	5 min.	5 min.	5 min.	5 min.
Bhamari	5 min.	5 min.	5 min.	5 min.	5 min.	5 min.
Anulom-vilom	10 min.	10 min.	10 min.	10 min.	10 min.	10 min.

Note:

1. One minute rest was given between each Pranayama.
2. Above mentioned program was taken for first four weeks then in next four weeks 2 min. were increases in all Pranayama and in Anulom-vilom 3 min. were increased.
3. The training schedule was conducted in the morning session at 6a.m. to 7a.m.

Analysis

Data was analyzed using t-test at 0.05 level of significance. The subjects of both groups were compared on selected components of blood variable i.e. cholesterol, blood glucose, hemoglobin, WBC, RBC and platelets.

Results

Data presented in Table 3 show that-

1. On comparing the mean scores of cholesterol of pre-test and post-test of experimental group significant difference was found whereas in pre-test and post-test of control group no significant difference was found.

2. Further, on comparing the mean scores of blood glucose of pre-test and post-test of experimental group significant difference was found whereas in pre-test and post-test of control group no significant difference was found.
3. Significant difference was found on comparing the mean scores of hemoglobin of pre-test and post-test of experimental group whereas no significant difference was found in pre-test and post-test of control group.
4. The WBC as a component of blood have significant difference in mean scores of pre-test and post-test of experimental group whereas no significant difference was found in pre-test and post-test of control group.
5. Also RBC as a component of blood have significant difference in mean scores of pre-test and post-test of experimental group whereas no significant difference was found in pre-test and post-test of control group.
6. There was significant difference in platelets as a component of blood in mean scores of pre-test and post-test of experimental group whereas no significant difference was found in pre-test and post-test of control group.

Conclusion

Yoga is a great gift that has its origin in Indian civilization. In one side it is a science to convert ordinary person into a divine personality and on the other hand it provides ways for salvation. It is a process of total health. The present study revealed significant difference in pre-test and post-test of experimental groups of selected blood components i.e. cholesterol, blood glucose, hemoglobin, WBC, RBC, platelets. This shows that Pranayama training has an effect on selected components of Blood. Results are in tune with earlier studies. Impact of Pranayama and Yoga asanas on blood lipid profiles and free fatty acids of 41 men and 23 women volunteers was studied¹ in two stages. In stage-I, Pranayama was taught for 30 days and in stage-II, yogic practices were added to Pranayama for another 60 days. A Significant reduction was observed in triglycerides, free fatty acids and VLDL-cholesterol in men and free fatty acids alone were reduced in women at the end of stage-I. A significant elevation of HDL-cholesterol was seen only





Table - 3 Values of t for experimental data

Variables	Group		Mean	SD	Mean Difference	t-ratio
Cholesterol	Experimental	Pre-test	135.25	23.35	19.58	8.86*
		Post-test	115.67	19.26		
	Control	Pre-test	106.99	13.83	3.21	1.30
		Post-test	110.20	14.39		
Blood glucose	Experimental	Pre-test	93.18	9.14	5.80	2.484*
		Post-test	88.57	6.00		
	Control	Pre-test	89.23	9.13	0.94	1.445
		Post-test	90.17	8.13		
Hemoglobin	Experimental	Pre-test	12.81	1.35	1.26	7.523*
		Post-test	14.07	0.88		
	Control	Pre-test	14.25	1.30	0.06	0.668
		Post-test	14.31	1.39		
WBC	Experimental	Pre-test	6.96	1.43	1.17	4.158*
		Post-test	8.13	1.32		
	Control	Pre-test	7.10	1.99	0.19	1.232
		Post-test	7.29	1.83		
RBC	Experimental	Pre-test	5.04	0.45	0.49	6.138*
		Post-test	5.53	0.40		
	Control	Pre-test	5.30	0.55	0.05	1.902
		Post-test	5.35	0.56		
Platelets	Experimental	Pre-test	221.20	55.45	21.47	4.21*
		Post-test	242.67	57.68		
	Control	Pre-test	219.20	56.42	1.93	1.748
		Post-test	221.13	56.93		

* Significant at 0.05 level $t_{0.05} (14) = 2.145$

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in the men at the end of stage-I. At the end of stage-II, free fatty acids increased in both men and women, and women demonstrated a significant fall in serum cholesterol, triglycerides, LDL-and VLDL-cholesterol. The results indicated that HDL-cholesterol was elevated in men with Pranayama, while triglycerides and LDL-cholesterol decreased in women after yoga asanas. Similarly impact of Kapalbhathi, Vaman and Bhramari Pranayama on 40 males of 12th standard was studied for two months². All the psychological and physiological tests were measured. By statistical analysis it was observed that there was a significant relationship between the practice of Kapalbhathi, Vaman and Bhramari on haemoglobin, E.S.R., F.V.C., physical and mental health.

Thus, to increase efficiency of blood and stay healthy one must practice Pranayama on daily basis. It is strongly advised that, those who are having health related problems such as high blood pressure; breathing problem etc. should consult doctors and yoga experts before starting any program related to Pranayama. In the last, we should return towards our own Indian tradition and utilize our treasure of knowledge along with the scientific methods of knowledge.

References

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