



EFFECTS OF YOGA PRACTICES ON DEVELOPMENT OF IMMUNITY

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ABSTRACT:

The present investigation was carried out to know the effects of yoga in enhancement of immunity. It was overall six months study carried out at Yoga Centre, Ashti. Sixty individuals, thirty males and thirty females were selected for the present study. Control group and Experimental group were having fifteen males and fifteen females each. Complete blood count and Differential blood count of control and experimental individuals were measured before and after the study because by these tests we would be able to know the immunity of individuals.

The results of the present study showed remarkable changes in average values of Complete blood count and Differential blood count of experimental males and females after 6 months practice of yoga. The average total WBC Counts of males in experimental group raised from 5478/cumm to 6788/cumm and of females increased from 5347/cumm to 6549/cumm after the 6 months practice of yoga. Values of RBC Counts also showed rise from 4.5 ml/cumm to 5.3 ml/cumm in experimental males and from 4.3 ml/cumm to 5.1 ml/cumm after practicing yoga. Hemoglobin percentage was also increased from 12.3gm% to 13.7gm% in males and 11.5% to 12.8 gm% in females after yoga practice.

The differential blood count showed remarkable increase in average counts different types of White Blood Cells from 57% to 62% in males and 47% to 51% in females in Neutrophils, from 25% to 35% in males and 23% to 31% in females in Lymphocytes, from 04% to 05% in males and 3.6% to 04% in females in Monocytes. Decrease in Eosinophil counts was observed from 2.0% to 1.5% in experimental males and from 1.5% to 01% in females after completion of experiment. These results indicated the improvement in immunity of experimental group of individuals after yoga practice.

KEYWORDS:

IMMUNITY, YOGA, ASANAS, BLOOD COUNT.

INTRODUCTION:

The term "Yoga" is derived from English word "Yoke" and Sanskrit root "Yuj" which means union (Feuerstein, 2011). Yoga is a psycho-somatic-spiritual discipline for achieving union and harmony between our mind, body and soul and the ultimate union of our individual consciousness with the universal consciousness in a super conscious state known as Samadhi. Yoga is a great gift that has its origin in Indian civilization.

Immunity is an ability of human body against pathogen or disease producing organism. The foreign invader which possesses the ability to cause disease is called pathogen. The process of producing a disease is called pathogenicity. If a foreign agent enters into the body our immune system gives response in different ways to get rid of it from the body. The responses of our body immune system are not one and the same for all pathogens or foreign agents. The immune response depends on type of foreign agent entering in the body. Pathogens are of different types like protozoans, helminths, bacteria, fungi, viruses etc.

Immune mechanism is a defense mechanism of the body and is classified into two categories, innate or inborn immunity and acquired immunity. For a pathogen to produce a disease, it is essential that it must enter the

internal system of the body and establish there to multiply in number to produce pathogenesis. This does not happen easily because the body is protected with different mechanism which prevent the entry of pathogen inside the body (Espinosa, V and Rivera, A; 2016). Examples are skin, mucus membrane, chemical factor, commensal organism cellular components etc. These are called as innate mechanisms or non-specific mechanisms because they afford resistance to all type of foreign invaders irrespective of the biological nature (Latha P.Mahadev; 2000).

In contrast the acquired resistance develops only in individuals in response to specific pathogens and the particular individual acquires the property of resistance to that pathogen through the activation of the immune system of the body (Tragiannidis et al., 2012). So normally this second type or acquired resistance is known as immunity although this term is often used more liberally to designate all types of resistance to infectious diseases.

No study has however systematically reviewed the effects of yoga on immunity so the present investigation was carried out from 1st April 2022 to 30th September 2022 and it deals with effects of yoga in enhancement of

immunity mechanism in human being.

METHODOLOGY:

The present study was carried out in Yoga Centre, Sati Maidan, Ashti. Sixty subjects of age group 50 to 60 yrs. were selected randomly of which 30 were males and 30 females visiting the Yoga Centre who had not yet started practicing Yoga. The same subjects chosen as both study as well as control group. The subjects were selected after taking a detailed clinical history and physical characteristics such as age, weight and body mass index. The subjects selected were having less immunity and had frequently suffered with infections such as cough, cold, viral and bacterial etc. The Complete blood count and Differential blood count of all the subjects were measured in P.H.C., Ashti before and after the experimental period

RESULTS:

TABLE 1: VARIATIONS IN AVERAGE COMPLETE BLOOD COUNT BEFORE AND AFTER THE EXPT. PERIOD (6 MONTHS)

Sr. No.	Blood Components	Control Group		Experimental Gp. Before Exp.		Experimental Gp. After Exp.	
		Male	Female	Male	Female	Male	Female
1	W.B.C.	5590/cumm	5125/cumm	5478/cumm	5347/cumm	6788/cumm	6549/cumm
2	R.B.C.	4.4ml/cumm	4.1ml/cumm	4.5ml/cumm	4.3ml/cumm	5.3ml/cumm	5.1ml/cumm
3	HGB	12.5gm%	11.2gm%	12.3gm%	11.5gm%	13.7gm%	12.8gm%
4	HT	41%	34%	40%	36%	46%	40%

WBC=White blood cells, RBC= Red blood cells, HGB= Hemoglobin, HT=Hematocrit

TABLE 2: VARIATIONS IN AVERAGE DIFFERENTIAL BLOOD COUNT BEFORE AND AFTER THE EXPT. PERIOD (6 MONTHS)

Sr.No.	Leucocyte count	Control Group		Experimental Gp Before Exp.		Experimental Gp. After Exp.	
		Male	Female	Male	Female	Male	Female
1	Neutrophils	52%	43%	57%	47%	62%	51%
2	Lymphocytes	21%	20%	25%	23%	35%	31%
3	Eosinophils	02%	01%	2.0%	1.3%	1.5%	01%
4	Monocytes	03%	2.5%	04%	3.6%	05%	04%
5	Basophils	00%	0.01%	0.02%	00%	0.01%	00%

The results of the present study showed remarkable changes in average values of Complete blood count and Differential blood count of experimental males and females after 6 months practice of yoga. The average total White Blood Cell Counts of males in experimental group raised from 5478/cumm to 6788/cumm and of females increased from 5347/cumm to 6549/cumm after the 6 months practice of yoga. Values of Red Blood Cell Counts also showed rise from 4.5 ml/cumm to 5.3 ml/cumm in experimental males and from 4.3 ml/cumm to 5.1

which was of 6 months, from 1st April 2022 to 30th September 2022. Out of 60 subjects, 30 subjects (15 males and 15 females) were selected for yoga practice. The diet and other life style were kept constant during experimental period.

THE YOGA PRACTICE INCLUDES FOLLOWING SCHEDULE-

- 1) Prayer- 5 min.
- 2) Yoga Asanas- 40 min
Suryanamaskar and different yogasanas
- 3) Meditation - 10 min
- 4) Prayer- 5 min

ml/cumm after practicing yoga. Hemoglobin percentage was also increased from 12.3gm% to 13.7gm% in males and 11.5% to 12.8 gm% in females after yoga practice.

The differential blood count showed remarkable increase in average counts of different types of White Blood Cells from 57% to 62% in males and 47% to 51% in females in Neutrophils, from 25% to 35% in males and 23% to 31% in females in Lymphocytes, from 04% to 05% in males and 3.6% to 04% in females in Monocytes. Decrease in Eosinophil counts was observed from 2.0% to 1.5% in

experimental males and from 1.5% to 01% in females while no change was observed in Basophil counts after completion of experiment.

DISCUSSION:

A complete blood count is a blood test to evaluate the overall health and to detect the disorders and infection. Less counts of RBC and hemoglobin indicated the anemic conditions in experimental group that exerted an effect on oxygen carrying capacity in those persons. When oxygen supply to the cell gets decreased, there was less energy production, immunity decreased and the person suffered from respiratory diseases and disorders. In the present study, the RBC count and hemoglobin % get increased after yoga practice indicating the increase in oxygen carrying capacity and immunity in experimental group of individuals.

The differential blood count showed the number of different types of WBCs which are the main cells related with immunity. They are known as soldiers of our body as they fight against the germs of diseases. The important WBC are lymphocytes because they attack on foreign organisms entering in the body. The count of lymphocytes were increased in experimental persons indicating the enhancement in immunity after doing yoga. Similar increase was observed in blood cell counts in the yoga group compared to controls (Naoroibam,et.al.,2016). The immunoglobulin levels were also found to increased after yoga practice compared to controls in pregnant women (Chen et.al.,2017). In present studies the Eosinophil counts were found decreased both in experimental males and females. Similar decrease in Eosinophil counts was observed in asthma patients after performing yoga (Agnihotri et.al.,2014). Yoga normalizes biochemical parameters and blood components by normalizing emotion (Solomon and Moss, 1964) and mental stress level after regular practice (Danner et.al.,1981).

CONCLUSION:

These studies suggest that yoga might improve protection against invading pathogens and infections by decreasing stress level and normalizing body functions and biochemical blood composition. But further studies are required to prove the beneficial effects of yoga on immunity.

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