



## THE IMPACT OF HATHA YOGA PRACTICES AND SURYA NAMASKAR FOR DEVELOPING WOMEN PHYSIOLOGICAL PARAMETERS

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### Abstract

Traditional Hatha Yoga is a holistic yogic path, including moral disciplines, physical postures (asana), purification procedures (shatkriya), poses (mudra), yogic breathing (pranayama), and meditation. The Hatha yoga predominantly practiced in the West consists of mostly asanas understood as physical exercises. It is also recognized as a stress-reducing practice. Influenced our way of living and we have tended to drastically deviate from those well established ancient principles practiced and professed by our sages. We are trying to seek apparently comfortable living conditions where physical activities have been replaced by labour saving machines and appliances and thus have grossly confronted the nature. Food habits, on the other hand, have changed. Eating of more and more artificially preserved and processed food items lacking ingredients essential for maintaining good health is on the increase. Our exaggerated expectations remaining unfulfilled, have resulted into elevated stress levels in our life. All these have given rise to so many disorders like high blood pressure, diabetes and obesity. In the promotion of physical and mental health and prevention of many of these disorders, yoga is supposed to play a vital role (O. P. Jaggi). Yoga - practitioner's integrated personality changes for the better as yoga has got holistic approach. In the promotion of physical & mental health and prevention of many of these disorders, yoga is supposed to play a vital role. I. Yoga practitioner's integrated personality changes for the better as yoga has got holistic approach. Dr. Gharote from Lonavala studied the therapeutic effect of yoga on cases of obesity and the results were assessed - through measurements of skin - fold at various points. Results showed significant decrease in skin - fold measurement both in males and females (M.L. Gharote, 1973). However, we have studied in the present work the effects of yogic practices on fat accumulating parameters by measuring weight, waist - line, hips etc. in a group of women.

**Key words: yoga, meditation, mudra**

### Introduction

A large number of persons attend clinics or follow other practices for reducing obesity and for improving physical look. These are the cases in which influence of the state of mind of the persons on their bodies are fairly predominant. In the case of women it is seen that with increasing age there is increase in fat accumulation mainly at the hip regions. Our aim was study the long term effects (at least for 6 month duration) of yogic practices on weight, waist - line, hips and chest flexibility in case of a group of women who performed yogasanas and pranayamas regularly.

### Method

There has been a regular class of yoga practices in Brindavan Yoga Hall at Thilai Nagar in Trichy from 10:30 hours to 12:00 hours in the morning for women for the last 17 years. In this study, in the beginning of admission and thereafter every month, the measurements of weight, waist, hips, maximum value for the chest after complete inhalation and minimum value of the chest after exhalation were recorded. The women covered in the present study were in the age group of 22 to 69 years. Participants were taught yoga practices and were supervised by the trained and experienced yoga teacher. They practiced yogasanas and pranayamas followed by 20 minutes of relaxation techniques like Shavasana, Makarasana or Yoganidra. The asanas taught in this study were vajrasana, suryanamaskara, pavanmuktasana, bhujangasana, salabhasana, trikonasana, hastapadasana, cakrasana, dhanurasana, viparitkarani, sarvangasana and

pranayamas followed by relaxation postures. In this group, there were women who were overweight and some were having different ailments like asthma, spondylosis (neck and back) and some were having no complaint. Due care was taken for yoga - practices contraindicated in some individual subjects depending upon their physical conditions. In the present study, in the beginning of admission and thereafter every month, the measurements of weight, waistline, hips, maximum value of chest after complete inhalation and minimum value after exhalation were recorded. They were told the importance of balanced diet and were instructed to follow moderation in dietary habits.

### Results and discussions

In this paper we have compiled the data for 26 women who had been coming continuously at least for 6 months daily except Saturdays and Sundays. Though originally we have collected data for 32 women, but six women for personal reasons could not maintain regularity and they reported to the yoga teacher after a gap of two or three months in between the fixed span of six months decided in the present study. All these irregular yoga - practitioners showed gain in body weights and increase in other parameters as compared to the general trend shown in case of regular yoga practitioners. It is worth mentioning here that the yoga practitioners were told the importance of balanced diet and they were instructed to do normal daily activity as before joining yoga class.

The data obtained during the present study are shown in Table - 1. Statistical analysis was carried out



with respect to weight-parameter in order to study its distribution in the subjects. The % cumulative probability less than the weight (as shown in Table-2) plotted against the weight revealed that the entire population of subjects is composed of two different

groups, one of subjects from S.No. 1 to 14 (normal group) and another Serial No. 15 to 17. Incidentally only 3 subjects having body weight 84 kg and 94 kg fell in the obese group.

Serial No.	Weight Before	Weight After	Waist		Hips		Chest		Chest	
			Before	After	Before	After	Before	After	Before	After
1	65	67	90	88	102	103	99	100	94	93
2	65	59	95	92	109	104	97	95	95	93
3	73	73	98	99	121	122	103	103	101	100
4	63	63	92	93	114	114	91	90	89	87
5	57	55	93	92	101	95	96	98	95	95
6	54	55	94	90	105	101	88	89	85	85
7	68	68	90	88	107	108	100	99	98	97
8	60	57	87	83	100	96	89	88	87	86
9	94	87	108	100	123	117	110	105	108	103
10	87	82	95	96	127	124	107	106	105	104
11	60	57	88	82	101	97	98	99	96	96
12	84	78	106	104	123	118	115	111	114	109
13	54	53	84	85	100	97	93	94	91	90
14	51	48	90	85	100	94	90	85	89	89
15	50	49	73	72	100	100	83	83	81	81
16	59	57	77	77	110	105	90	92	88	86
17	63	60	80	81	107	106	95	94	93	90
18	68	62	84	79	107	102	100	98	97	92
19	74	72	102	100	126	122	104	103	103	101
20	58	56	87	88	106	105	92	94	90	90
21	55	55	88	88	104	14	94	93	90	88
22	67	65	87	84	105	102	95	95	94	92
23	67	66	97	95	108	108	102	102	101	100
24	63	62	95	92	106	107	100	99	98	97
25	73	73	94	94	109	109	100	103	98	100
26	65	64	97	97	108	106	103	103	102	100

Table 1: Initial and final measurements for the various Parameters in case of a group of women who practiced Yoga for 6 months regularly.

he results show that in all three women body weight, hips and waistline measurements had decreased. Some more data are needed to prove the statistical significance of these observations. The percentage changes in body weight, waistline, hips and chest flexibility are shown in Table-3 in the same order of serial number as shown in Table-1.

Serial No.	Weight (kg)	No. of persons	Cumulative Frequency (n)	% Cumulative Probability less than the weight (2n-1)/N, N=26
1	50	1	1	1.92
2	51	1	2	5.77
3	54	2	4	13.46
4	55	1	5	17.31
5	57	1	6	21.15
6	58	1	7	25.00
7	59	1	8	28.85
8	60	2	10	36.54
9	63	3	13	48.08
10	65	3	16	59.61
11	67	2	20	67.31
12	68	2	20	75.00
13	73	2	22	82.69
14	74	1	23	86.54
15	84	1	24	90.38
16	87	1	25	94.23
17	94	1	26	98.08

Table 2: Data for the distribution of population for statistical analysis

% Reduction in Weight	% Reduction in Waistline	%Increase in Chest Flexibility	%Reduction in Hips
-3.07	1.12	0	-0.98

9.23	3.16	0	4.59
0	-2.04	0	-0.83
0	-1.09	50	0
3.51	1.08	200	5.94
-1.85	4.26	33	3.85
0	2.22	0	-0.93
5	4.6	0	4
7.44	2.91	0	4.09
5.74	-1.05	0	2.36
5	6.82	50	3.96
7.14	1.89	100	4.06
1.85	-1.19	100	3
5.88	5.55	0	6
2	1.36	0	0
3.39	0	200	3.66
5	-1.25	100	0.93
8.82	5.95	100	4.67
2.7	1.96	100	3.17
3.45	-1.14	100	0.94
0	0	25	0
2.98	2.98	200	2.85
1.49	1.49	100	0
1.59	1.59	50	-0.94
0	9	0	0
1.53	1.53	400	1.85

Table 3: Percentage reduction in various parameters after 6 months.

### I. Reduction in weight

The bar chart on data of Table-3 is shown in Fig-1 and depicts the percentage reduction in weight after doing yogic practices for 6 months. Out of 26 ladies in this group, 19 practitioners lost the body-weights while 2 women gained the weight (of the order of 4%) due to dietary indiscretion during festivals. There were 5 women, in whose case there were no change in body-weight. Arithmetic average of % reduction in body-weight works out to be 3.03 while taking all the 26 women into consideration. In 93% of yoga practitioners covered in this study, either the body-weight has remained stable or there were reduction in body-weights.

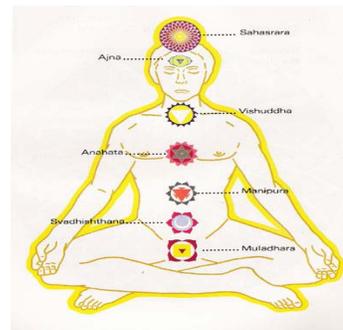
### II Reduction in waist -line

The bar chart depicting the percentage change in waist line is shown in Fig-2.

From the data collected for the waist line measurements. it is seen that there is reduction in waistline for 18 women while in case of 6 women there is slight increase in waist (of the order of a centimeter in each case). For two women there was found to be no change in this parameter. The average percentage reduction in waistline was found to be 2.11. In 81 % of the cases, the waistline parameter either decreased or remained stable.

### III Reduction in hips

The percentage reduction in circumference at hipline for all 26 women is shown in Fig-3. There



was decrease for 17 women and increase for 4 women circumference at hip points while in case of 5 women there was no change observed in this parameter as found in the study. In 85% of the participants who have come regularly for yoga class, either the same parameter was stable or it got decreased.

### IV. Increase in lung flexibility

The bar chart depicting % changes in lung-flexibility is shown in Fig-4.

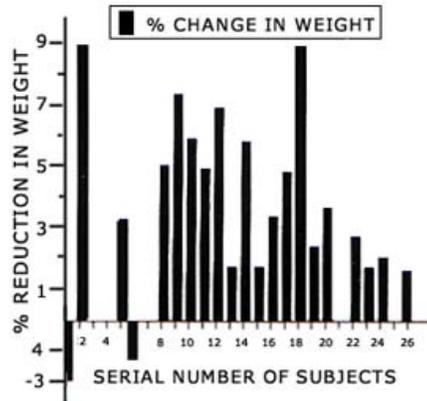
For 16 women there was increase in percentage lung flexibility and for 10 women there was no change in this parameter. None of them, however, showed decrease in their lung-flexibility.

No restriction on diet, behavior or other activities were advised in particular to be observed by yoga practitioners during the course of this study. Yoga is believed to have holistic approach and it imparts an all round improvement in our personalities. Habits covering ahar, vihar, acar and vicar are getting transformed in positive direction. It has been shown that there is general improvement in well-being among the yoga practitioners at physical and mental levels.

Their interpersonal relationship with the family members and in the society is improved considerably. The general reduction in mental stress due to relaxation, helps the body to cope up with the day to day activity efficiently. The yogic postures increase the blood circulation which reduces the toxicity in the body for

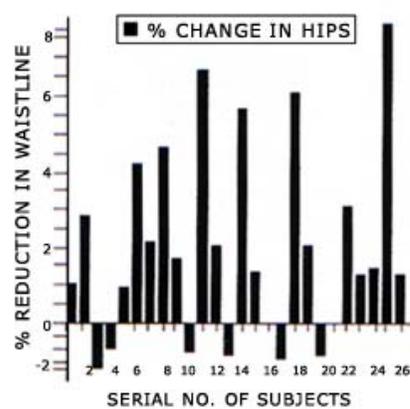
the overall healthy growth like improved functioning of various glands, kidney and liver. The percentage increase in positive attributes are supposed to be due to the holistic approach that is the outcome of yogic attitude people feel while undergoing yogic training.

Fig. 1



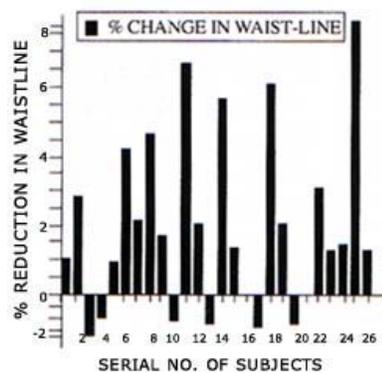
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Fig. 2



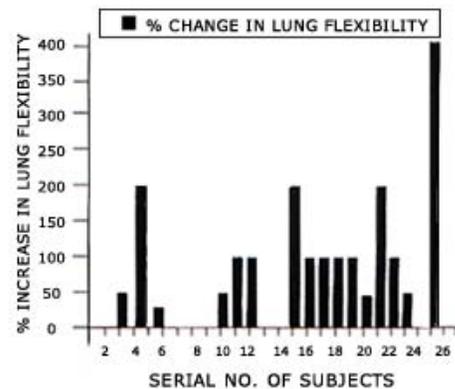
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Fig. 3



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Fig. 4



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