CHAPTER SIX

6. RESULTS

The designing, validation, and feasibility of IAYT for Obesity were carried out in the following phases: The complete study was conducted in four stages

In first phase: IAYT for obesity was derived based on the literature review of classical texts and recently published research articles.

This study developed a validated module of integrated Yoga as a prelude to an RCT for obese adolescents. The content validity was assessed in four steps. After enlisting the needs of obese adolescents at their physical, mental, emotional, spiritual and behavioral levels ;14 categories of yoga practices under five domains with yogic scriptural basis (Annamaya –physical, Pranamaya – vital energy, Manomaya- mental and emotional, Vijnanamaya – intellectual, and Anandamaya – spiritual and behavioral).

In second phase: Derived IAYT was validated by 16 subject matter (yoga) experts.The basis of integrated approach to Yoga therapy to achieve these goals was understood by studying several Yoga texts by the researcher under the guidance of senior Yoga masters. This was complemented by the present day scientific understanding. We then went on to compile the corrective techniques described in many texts (Patanjali Yoga sutra, Hatha Yoga pradipika, Hatharatnavali, Bhagavadgita and others) which offer a reversibility model.

Yoga practices with CVR less than 0.5 was removed from IAYT.The reason for their CVR less than 0.5 could be these practices are not focused & not having direct impact on adolescent obesity. The principle of selection of yoga practices is physical exercise along with relaxation of mind. However, few texts on Hatha Yoga lay more emphasis on improving health through different yogic practices. This module for obesity in adolescents reduces weight as it provides exercise effect to different parts of body especially arms, abdomen, hip and thigh region. Muscle work out in body region reduces adipose tissues leading to weight loss and strengthen the muscle power. It offers enough work out to burn excessive calories that results in proper balance of calorie intake and energy expenditure. Yoga practices provide deep relaxation to internal body systems which is essential to regain normal functioning of the system. Yoga also strengthens the mind determination to adhere to healthy lifestyle.

Practices of Manomayakosha like Bhajans (devotional music) & lecture on Bhakti Yoga releases stress in the mind with added relaxation. Practices of Vijnanamaya Kosha like lectures on Jnana Yoga & counseling helps to motivate children in the right direction towards success

& their goals of life by clearing the intellectual complexes & conflicts. Activity like Karma Yoga trains their mind to do work with the sense of duty & not as the burden of life which leads to relaxed mind.

These Yoga practices make IAYT unique from other Yoga modules in table no.

In third phase: Pilot study with two armed perspective RCT (Randomized Control Trial) was conducted for one month on overweight & obese adolescent subjects of a residential school in Sangamner, Pune, Maharashtra, India.

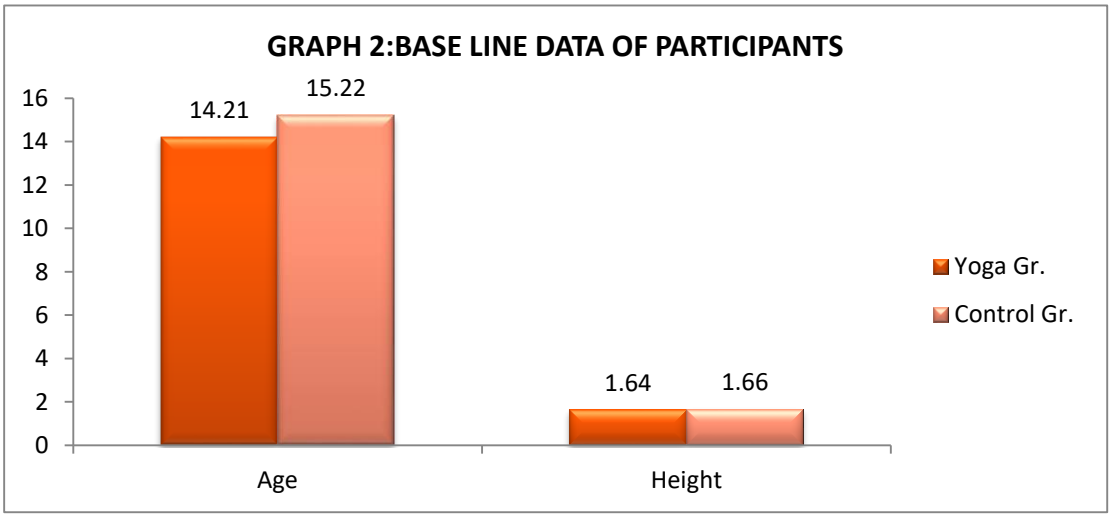
In forth stage, Main Study-2.The study was along with additional variables with larger sample size. That was more focused on anthropometric measurements and adipose tissues than chemical makers like serum cholesterol and triglycerides. Obesity especially abdominal is related to academic achievement and cognitive functions in children. Visceral adipose tissue have negative impact on cognitive functions leading to academic decrease among children with obesity because of its dangerous metabolic nature (Ontology, 2018)

RESULTS FROM PILOT STUDY

TABLE 11

SHOWS BASELINE DATA OF AGE AND HEIGHT OF PILOT -STUDY 1

Variables	Yoga Gr. n = 14	Control Gr. n = 9
Age	14.21 ± 1.84	15.22 ± 1.09
Height	1.64 ± 0.09	1.66 ± 0.09



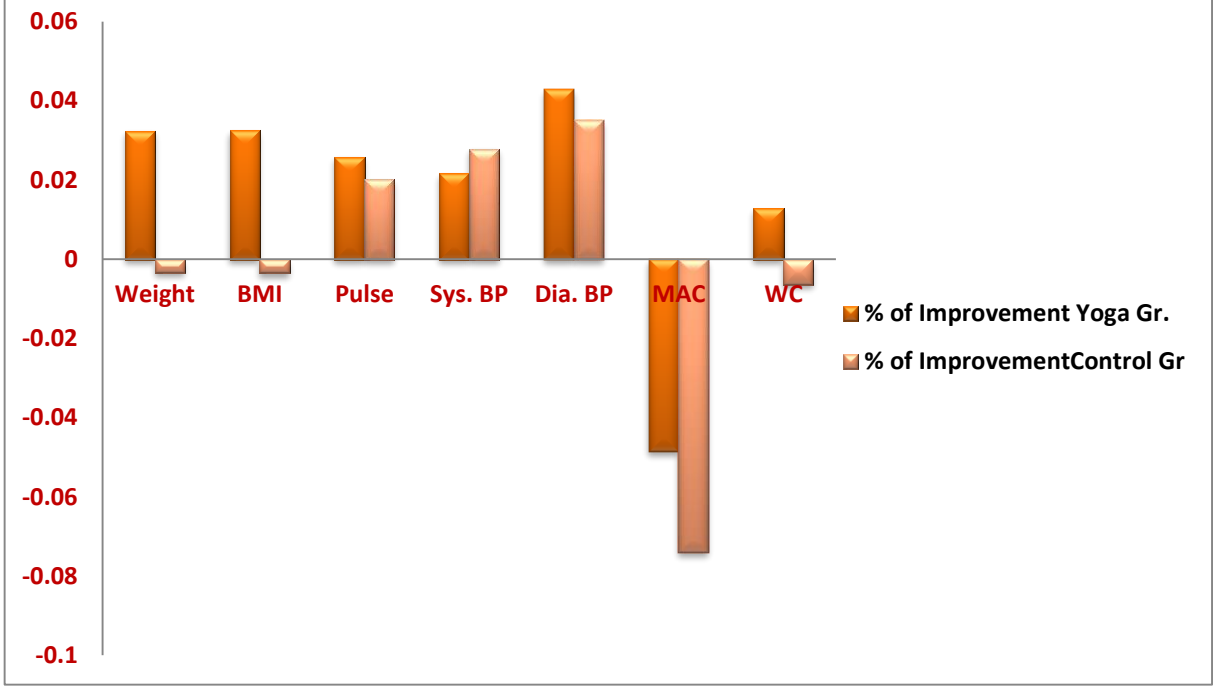
The average age of Yoga group was 14.21 ± 1.84 and that of control group was 15.22 ± 1.09. The average height of Yoga group was 1.64 ± 0.09 and that of control group was 1.66 ± 0.09. The minimum age in Yoga group was 11 years whereas that in control group was 14 years and the maximum age in both groups were 17 years. The minimum height in Yoga group was 1.51 meter and that of control group was 1.54 meter. The maximum height in Yoga group was 1.85 meter and that of control group was 1.75 meter.

TABLE 12

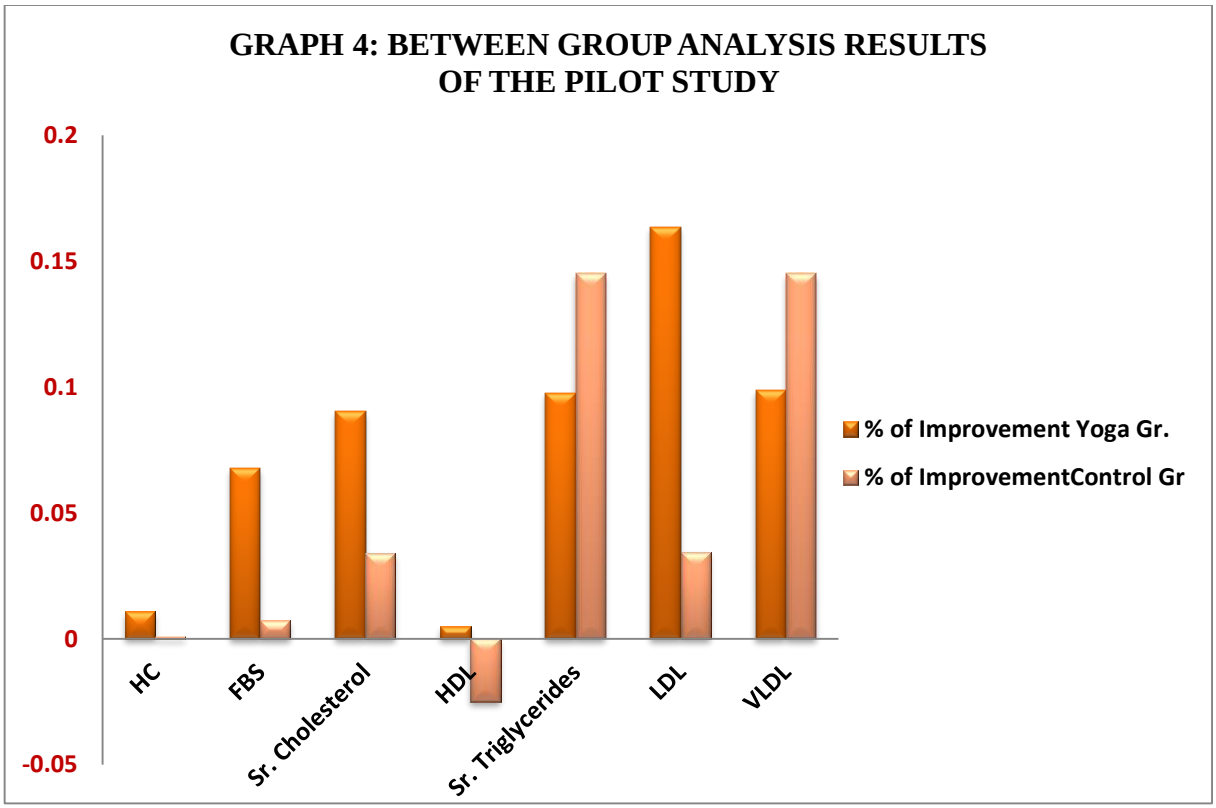
BETWEEN GROUP ANALYSIS RESULTS OF THE PILOT STUDY

Variables	Yoga Gr. (n = 14)			Control Gr. (n = 9)			T	*P Value*	Diff. in % of Improvement
	Pre Mean	Post Mean	% of Improvement	Pre Mean	Post Mean	% of Improvement			
Weight	81.64 ± 13.79	78.99 ± 13.47	3.24%	75.11±10.11	75.36 ± 10.46	-0.34%	0.684	0.501	3.58
BMI	30.17 ±4.37	29.19 ± 4.26	3.25%	26.87±1.71	26.97 ± 1.99	-0.35%	1.457	0.16	3.61
Pulse	77.35 ±4.60	75.35 ± 4.76	2.58%	71.33±4.60	69.88 ± 5.10	2.02%	2.612	.016*	0.56
Sys. BP	124.57 ±10.18	121.85 ± 7.87	2.17%	131.11±10.89	127.44 ± 6.02	2.79%	-1.81	0.085	-0.61
Dia. BP	81.74 ±12.28	78.21 ± 8.54	4.28%	85.33±8.26	82.33 ± 5.61	3.51%	-1.275	0.216	0.76
MAC	30.20 ±2.34	31.67 ± 1.68	-4.86%	29.61±2.11	31.81 ± 1.48	-7.42%	-0.203	0.841	2.55
WC	100.5 ±9.81	99.21 ± 8.57	1.28%	93.86±5.95	94.47 ± 5.50	-0.64%	1.468	0.157	1.92
HC	109.27 ±11.98	108.08 ± 12.03	1.08%	107.03±3.61	106.92 ± 3.93	0.09%	0.277	0.785	0.98
FBS	75.61 ±7.06	70.49 ± 8.46	6.76%	74.55±5.20	74 ± 9.63	0.74%	-0.918	0.369	6.02
Sr. Cholesterol	107.61 ±30.54	97.9 ± 20.23	9.02%	94.89±10.06	91.66 ± 8.13	3.40%	0.875	0.391	5.61
HDL	40.25 ±2.64	40.05 ± 1.89	0.48%	41.80±1.63	42.85 ± 1.86	-2.51%	-3.487	.002*	3
Sr. Triglycerides	115.85 ±30.07	104.54 ± 32.27	9.76%	110.98±21.38	94.88 ± 11.68	14.50%	0.856	0.401	-4.74
LDL	44.16 ±29.29	36.93 ± 20.42	16.36%	30.89±12.07	29.82 ± 9.92	3.45%	0.968	0.344	12.91
VLDL	23.19 ±	20.9 ± 6.45	9.87%	22.19±4.27	18.97 ± 2.33	14.51%	0.857	0.401	-4.64
*Significance at the level of 0.05									
Mann -Whiteny U Test Independent Sample T Test									

GRAPH 3 :BETWEEN GROUP ANALYSIS RESULTS OF THE PILOT STUDY



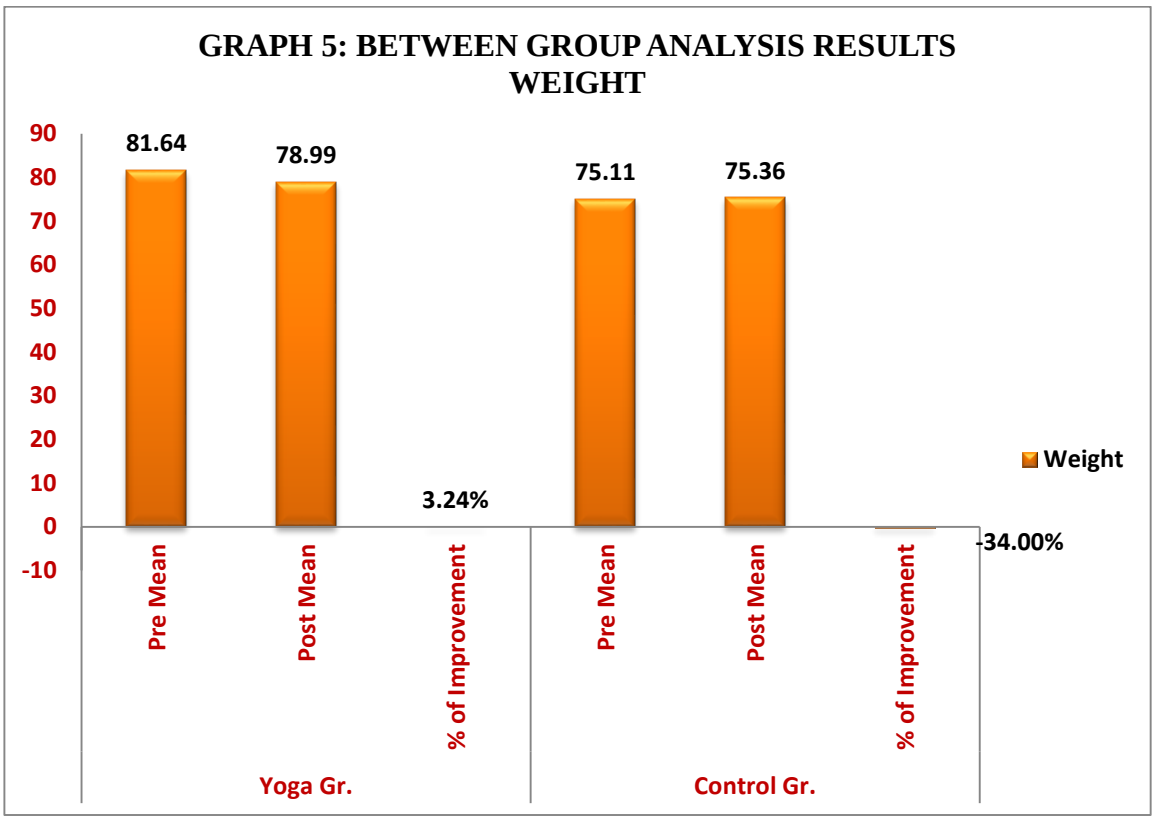
GRAPH 4: BETWEEN GROUP ANALYSIS RESULTS OF THE PILOT STUDY

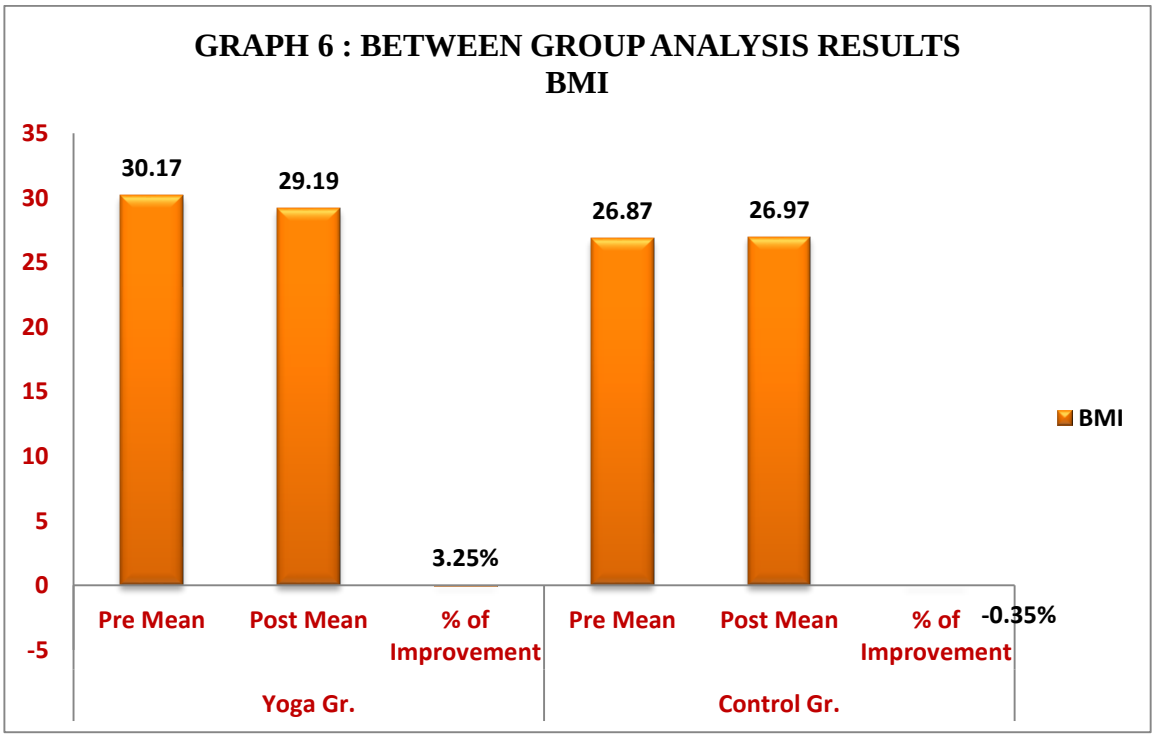


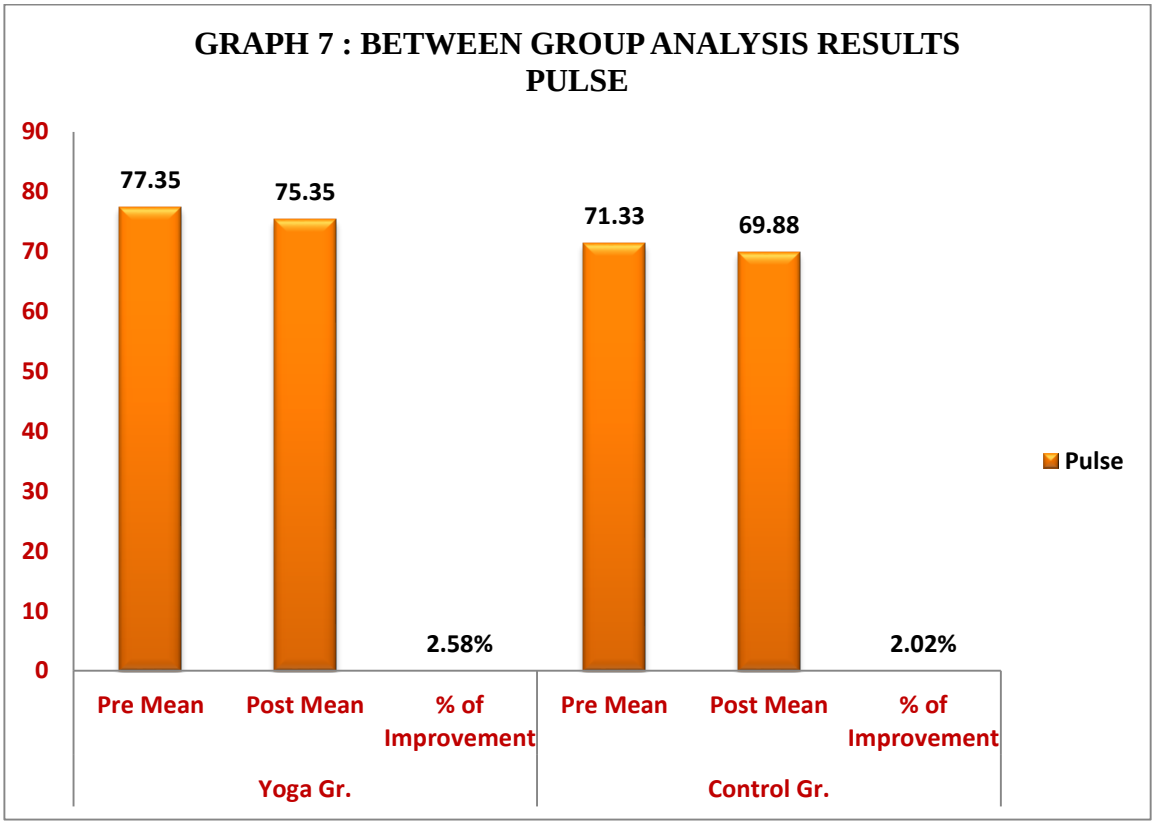
Percentage of improvement (reduction) of weight & serum cholesterol, waist circumference, hip circumference, serum cholesterol, low- density lipoprotein, high- density lipoprotein is

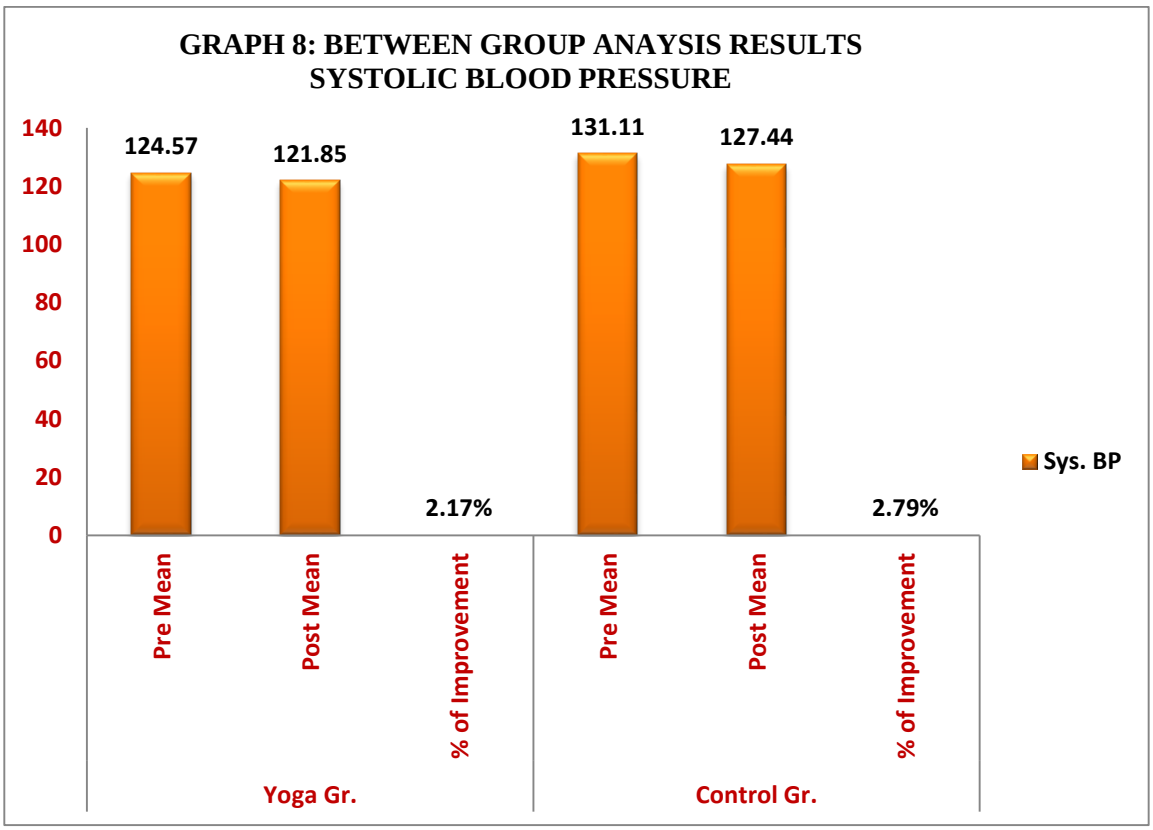
more in Yoga group than that of control group. Percentage of improvement (reduction) of serum triglycerides & very low -density lipoprotein were more in control group than that of Yoga group.

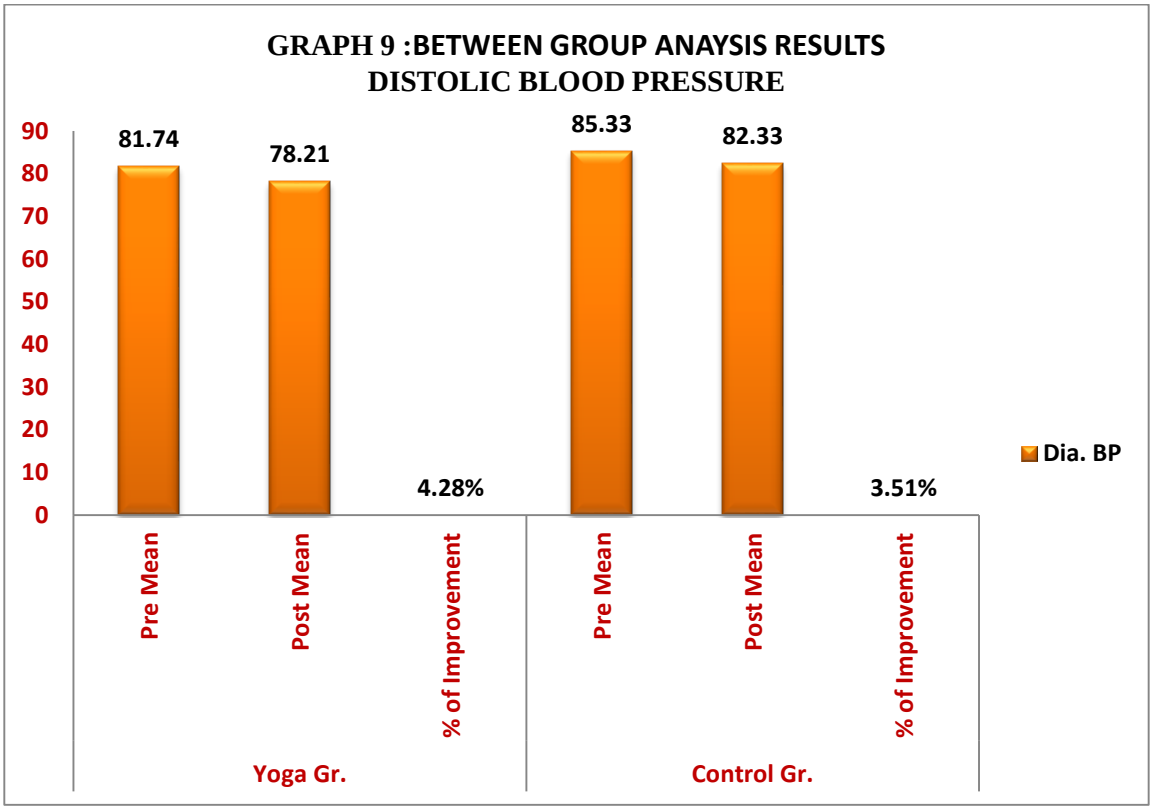
GRAPHS BETWEEN GROUP ANALYSIS YOGA AND CONTROL RESULTS PER VARIABLES OF STUDY ONE

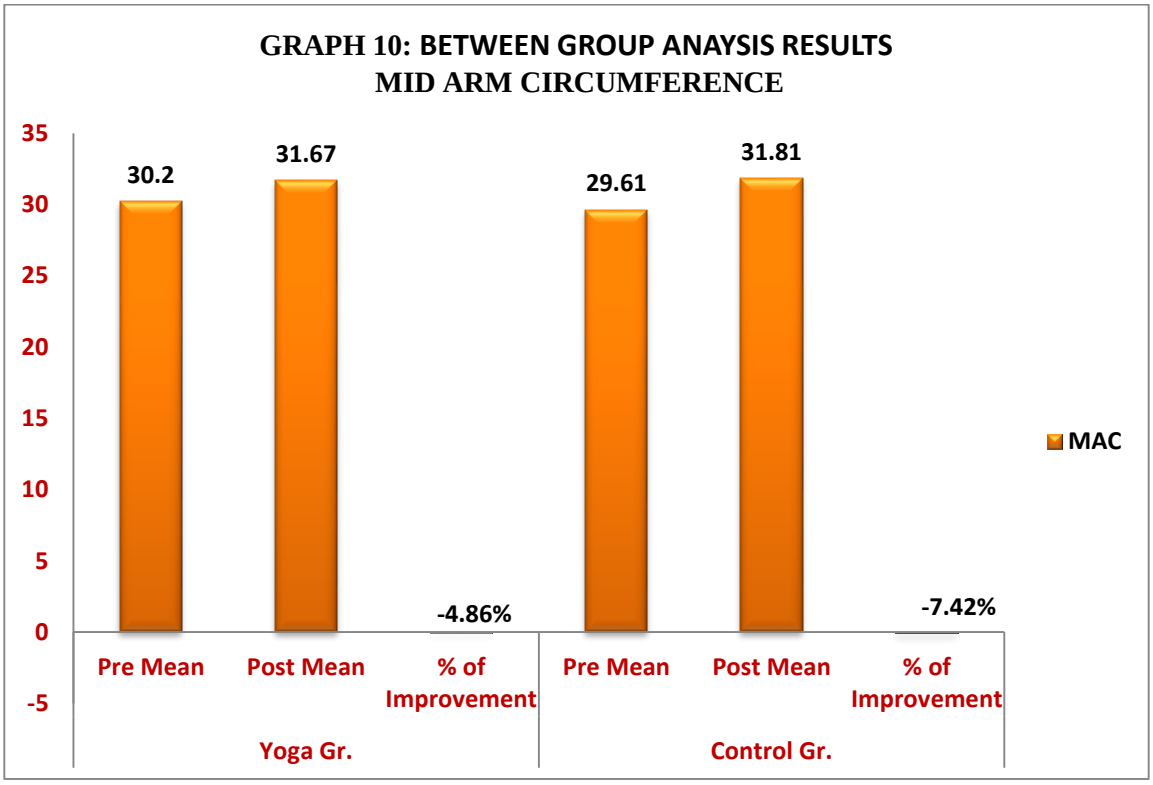


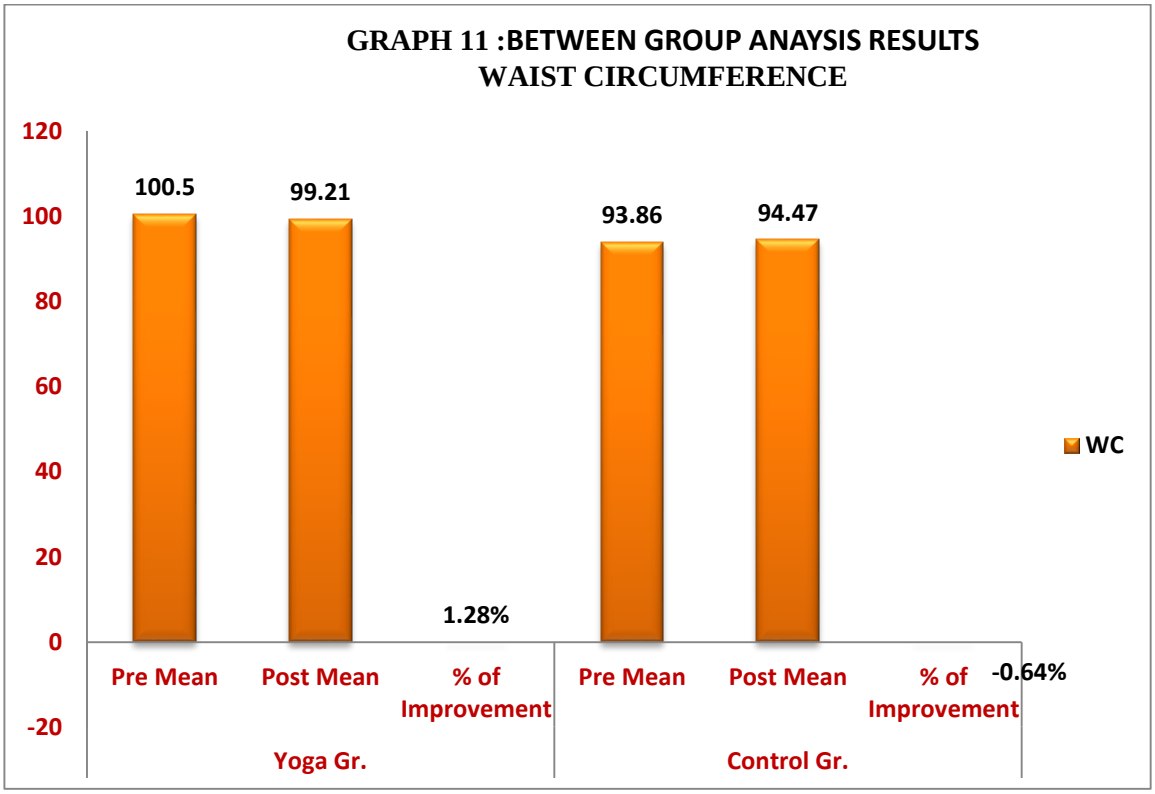


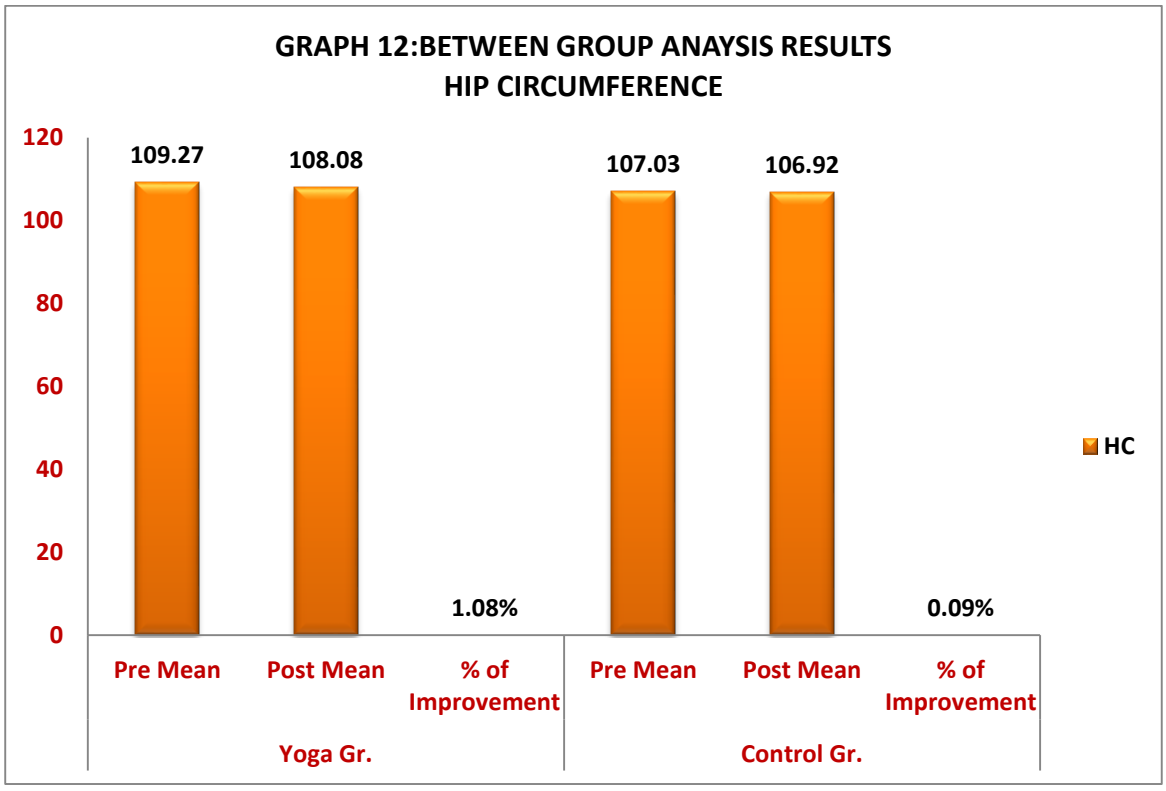

GRAPH 7 : BETWEEN GROUP ANALYSIS RESULTS
PULSE
90
80
70
60
50
40
30
20
10
0
77.35
75.35
2.58%
71.33
69.88
2.02%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
Pulse

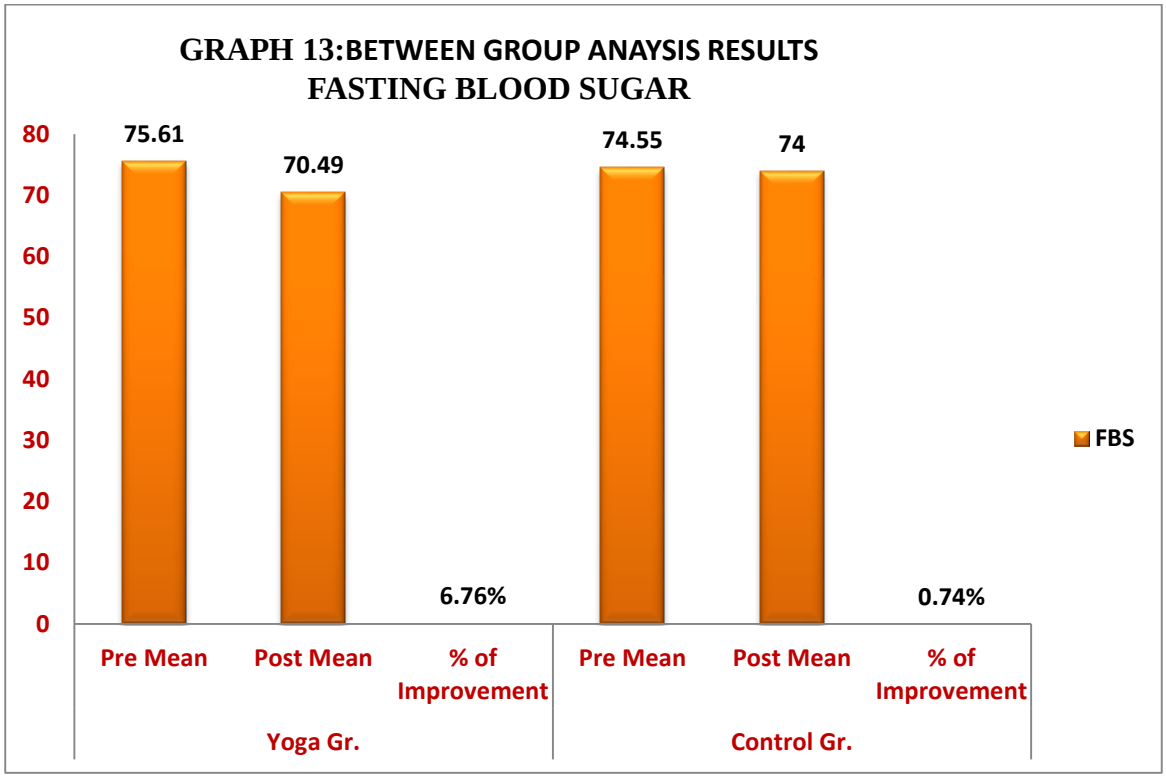

GRAPH 8: BETWEEN GROUP ANAYSIS RESULTS
SYSTOLIC BLOOD PRESSURE
140
120
100
80
60
40
20
0
124.57
121.85
2.17%
131.11
127.44
2.79%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
Sys. BP

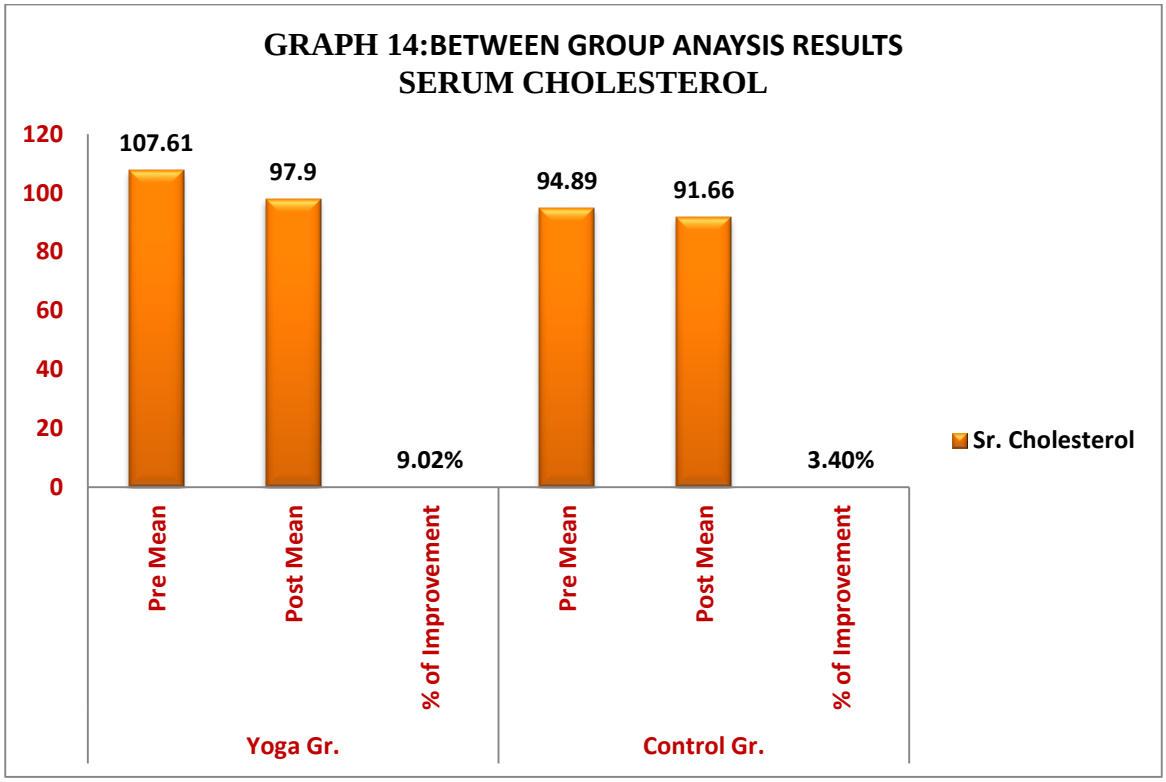

GRAPH 9 :BETWEEN GROUP ANAYSIS RESULTS
DISTOLIC BLOOD PRESSURE
90
80
70
60
50
40
30
20
10
0
81.74
78.21
4.28%
85.33
82.33
3.51%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
Dia. BP

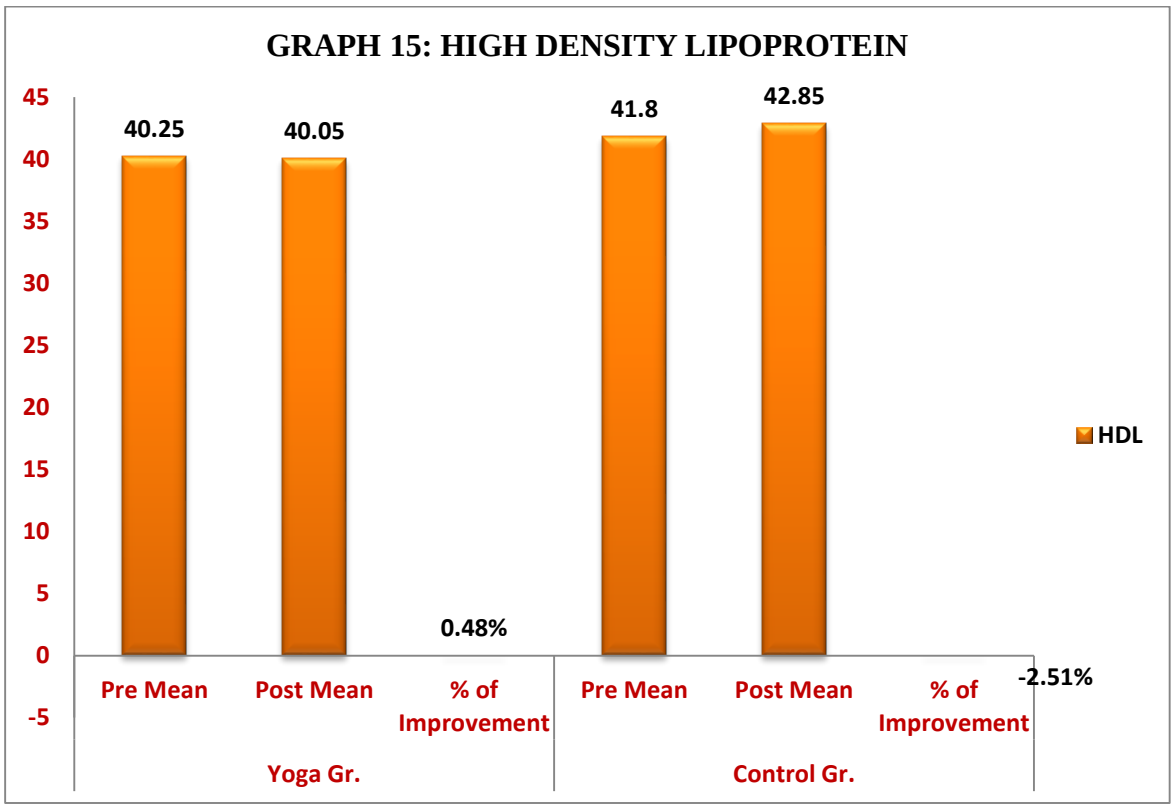

GRAPH 10: BETWEEN GROUP ANAYSIS RESULTS
MID ARM CIRCUMFERENCE
35
30
25
20
15
10
5
0
-5
30.2
31.67
-4.86%
29.61
31.81
-7.42%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
MAC

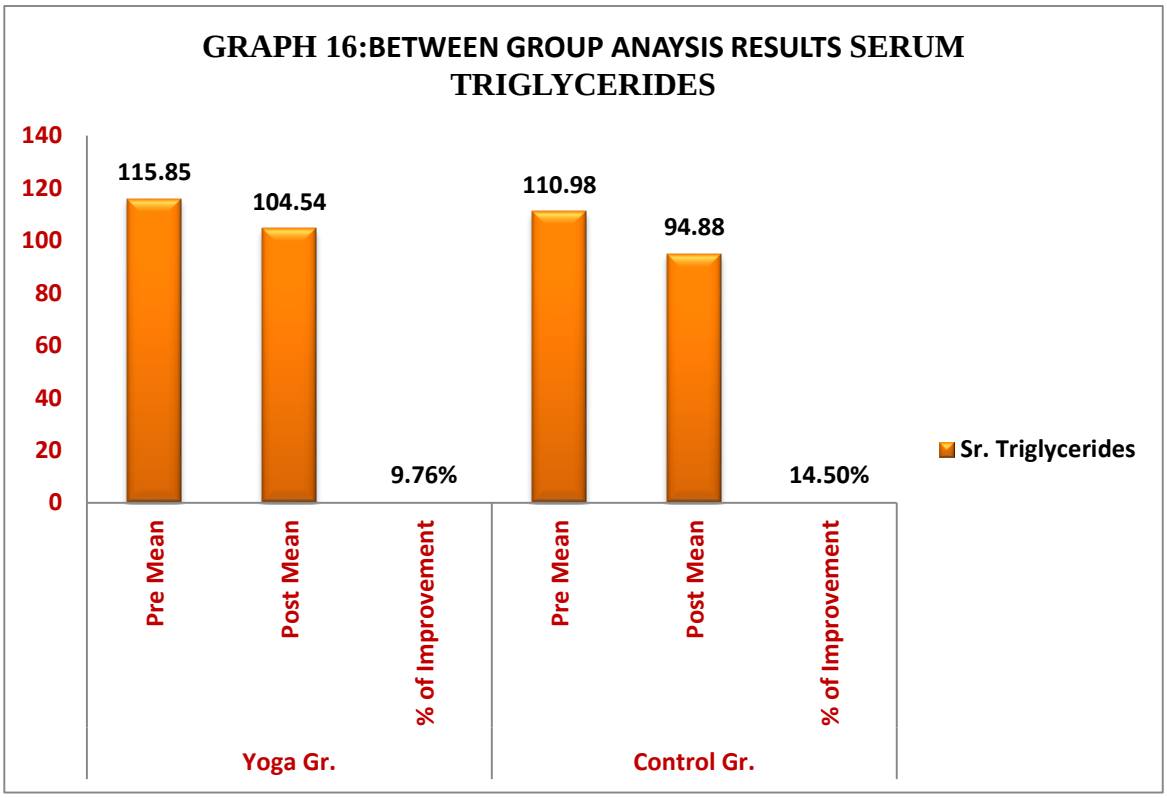

GRAPH 11 :BETWEEN GROUP ANAYSIS RESULTS
WAIST CIRCUMFERENCE
120
100
80
60
40
20
0
-20
100.5
99.21
1.28%
93.86
94.47
-0.64%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
WC


GRAPH 12:BETWEEN GROUP ANAYSIS RESULTS
HIP CIRCUMFERENCE
120
100
80
60
40
20
0
109.27
108.08
1.08%
107.03
106.92
0.09%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
HC

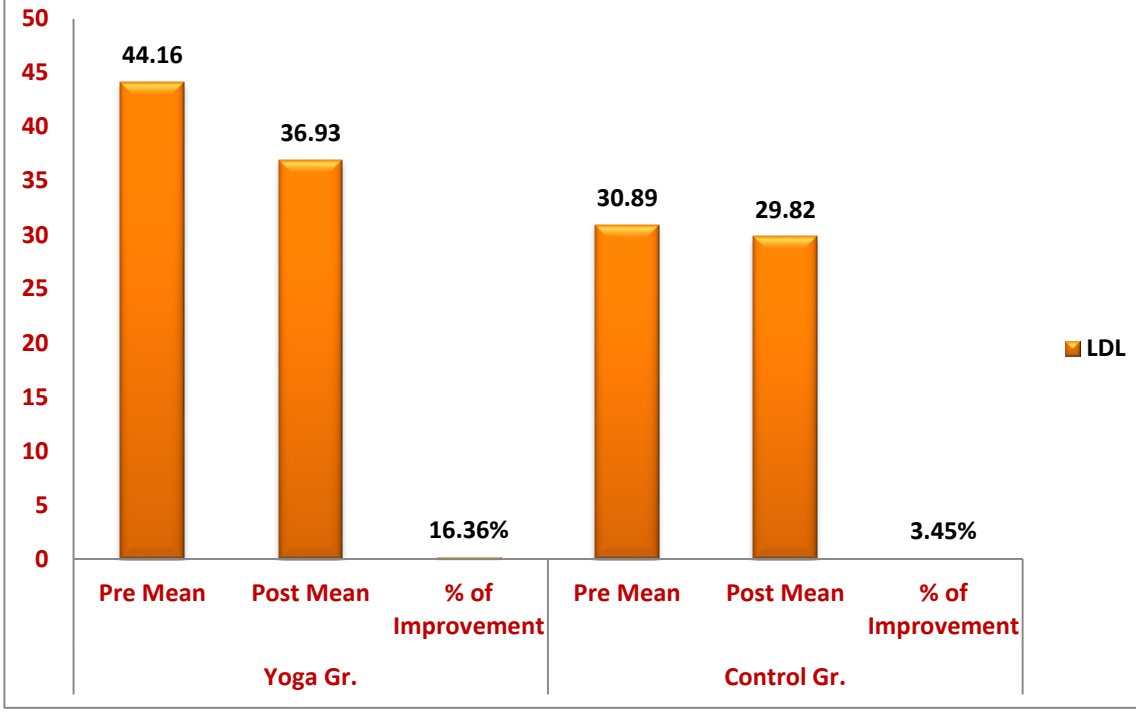

GRAPH 13:BETWEEN GROUP ANAYSIS RESULTS
FASTING BLOOD SUGAR
80
70
60
50
40
30
20
10
0
75.61
70.49
6.76%
74.55
74
0.74%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
FBS


GRAPH 14:BETWEEN GROUP ANAYSIS RESULTS
SERUM CHOLESTEROL
120
100
80
60
40
20
0
107.61
97.9
9.02%
94.89
91.66
3.40%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
Sr. Cholesterol


GRAPH 15: HIGH DENSITY LIPOPROTEIN
45
40
35
30
25
20
15
10
5
0
-5
40.25
40.05
0.48%
41.8
42.85
-2.51%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
HDL


GRAPH 16:BETWEEN GROUP ANAYSIS RESULTS SERUM TRIGLYCERIDES
140
120
100
80
60
40
20
0
115.85
104.54
9.76%
110.98
94.88
14.50%
Pre Mean
Post Mean
% of Improvement
Pre Mean
Post Mean
% of Improvement
Yoga Gr.
Control Gr.
Sr. Triglycerides

GRAPH 17:BETWEEN GROUP ANAYSIS RESULTS LOW DENSITY LIPOPROTEIN



GRAPH 18 :BETWEEN GROUP ANAYSIS RESULTS VERY LOW DENSITY LIPOPROTEIN

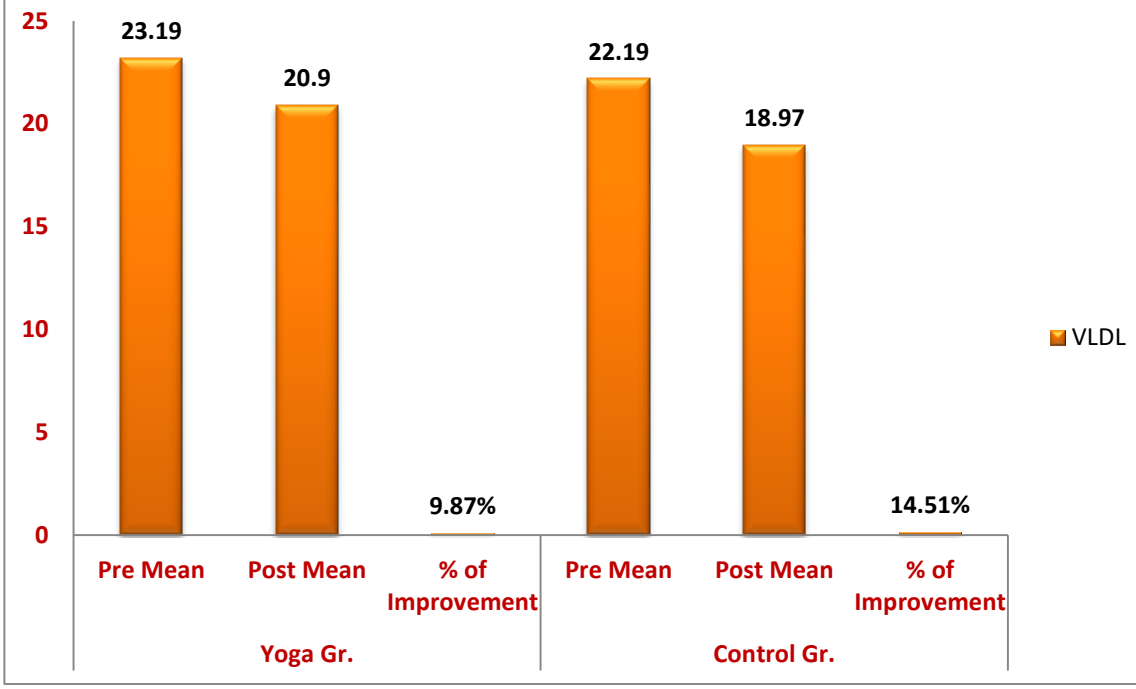


TABLE 13

SHOWS WITHIN GROUP ANALYSIS RESULTS (PARAMETRIC TEST) OF YOGA GROUP (n= 14).

Variables	Pre	Post	T	*P* Value
Weight	81.64 ± 13.79	78.99 ± 13.47	7.29	0.000**
Systolic blood pressure	124.57 ± 10.18	121.85 ± 7.87	1.84	0.08
Diastolic blood pressure	81.74 ± 12.28	78.21 ± 8.54	2.71	0.01*
Mid arm circumference	30.20 ± 2.34	31.67 ± 1.68	-2.8	0.01*
Waist circumference	100.5 ± 9.81	99.21 ± 8.57	0.77	0.45
Fasting blood sugar	75.61 ± 7.06	70.49 ± 8.46	2.06	0.05*
HDL	40.25 ± 2.64	40.05 ± 1.89	0.32	0.75
Triglycerides	115.85 ± 30.07	104.54 ± 32.27	4.02	0.001**
VLDL	23.19 ± 6.03	20.90 ± 6,45	4.15	0.001**
***Significance at the level of 0.05 ****Significance at the level of 0.001**				
Paired sample t test				

Weight, blood pressure, mid-arm circumference, waist circumference, fasting blood sugar, high-density lipoprotein, very low- density lipoprotein, serum triglycerides were normally distributed in Yoga group. There is significant reduction in weight ($p = 0.000$), diastolic blood pressure ($p = 0.018$), fasting blood sugar ($p = 0.059$), very low- density lipoprotein ($p = 0.001$), serum triglycerides ($p = 0.001$) after intervention. There is significant increase in mid-arm circumference ($p = 0.01$). There is non-significant reduction in systolic blood pressure (p = 0.08), waist circumference ($p = 0.45$) & high-density lipoprotein ($p = 0.75$).

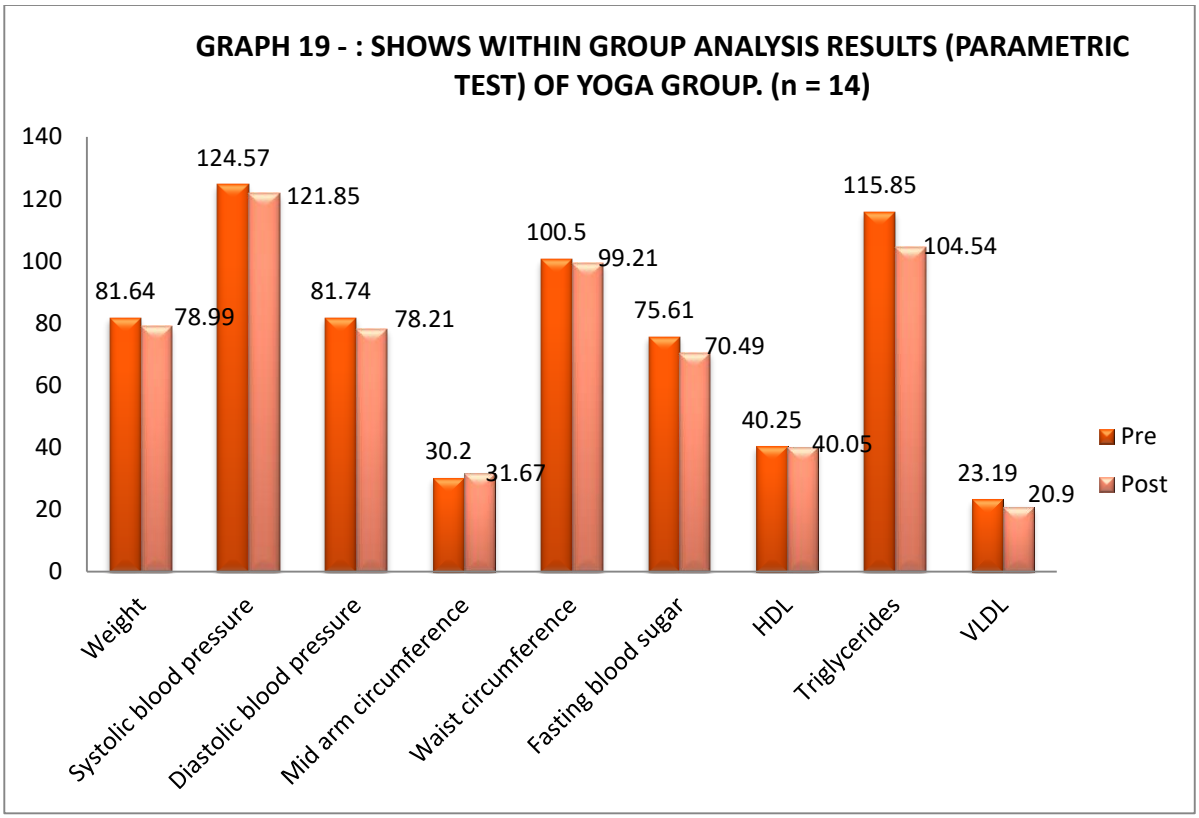


TABLE 14

SHOWS WITHIN GROUP ANALYSIS RESULTS

(NON- PARAMETRIC TEST) OF YOGA GROUP (*n* = 14)

Variables	Pre	Post	Z	*P Value*
BMI	30.17 ± 4.37	29.19 ± 4.26	-3.29	0.001**
Pulse rate	77.35 ± 4.60	75.35 ± 4.76	-2.07	0.038*
Hip circumference	109.27 ± 11.98	108.08 ± 12.03	-2.55	0.011*
Sr. cholesterol	107.61 ± 30.54	97.90 ± 20.23	-2.1	0.035*
LDL	44.16 ± 29.29	36.93 ± 20.42	-1.16	0.245
* Significance at the level of 0.05 **Significance at the level of 0.001				
Wilcoxn Test				

BMI, pulse rate, hip circumference, serum total cholesterol, low- density lipoprotein were not normally distributed in Yoga group. There is significant reduction in BMI (p = 0.00), pulse rate (p = 0.03), hip circumference (p = 0.01), serum total cholesterol (p = 0.03). There is non-significant reduction in low- density lipoprotein (p = 0.24).

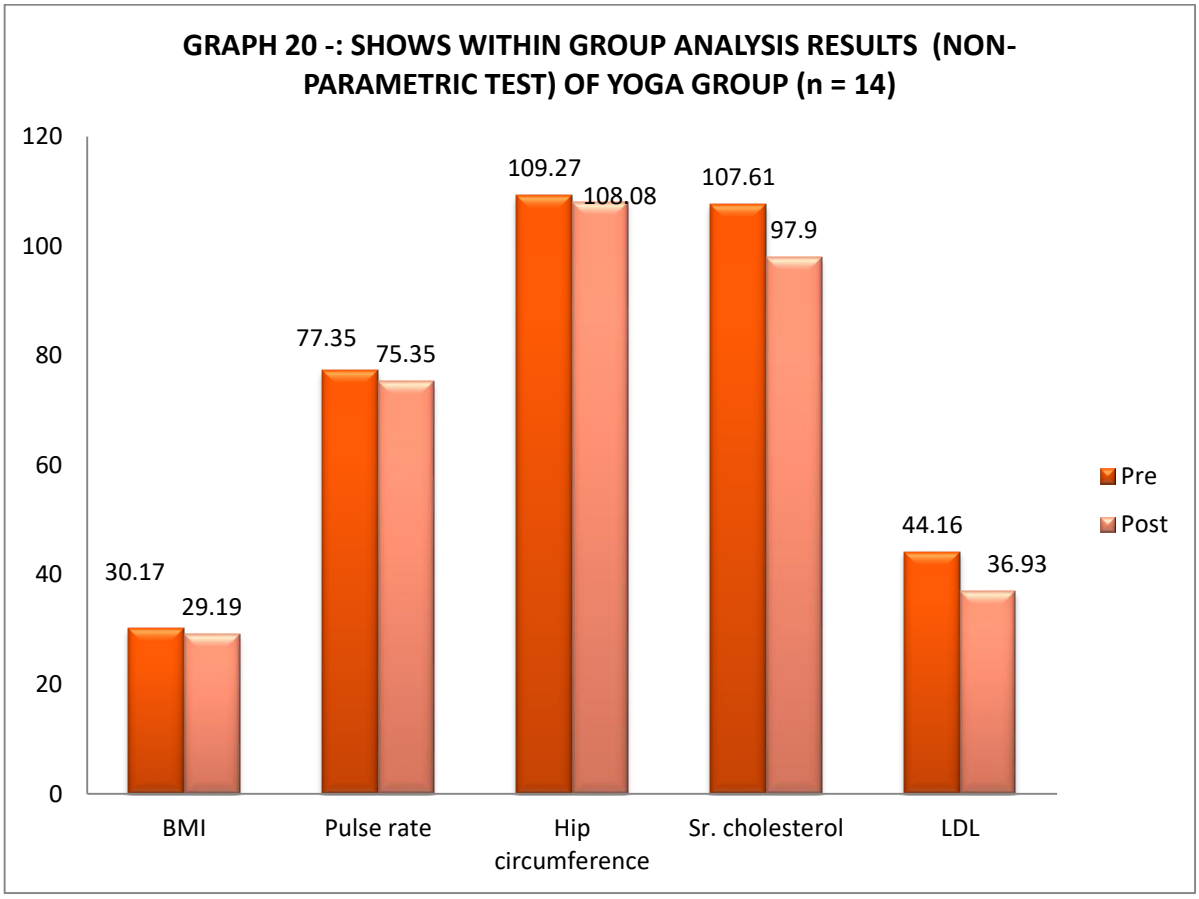


TABLE 15

SHOWS WITHIN GROUP ANALYSIS RESULTS

(PARAMETRIC TEST)

OF CONTROL GROUP (*n* = 9)

Variables	Pre	Post	T	*P Value*
Weight	75.11 ± 10.11	75.36 ± 10.46	-0.495	0.634
BMI	26.87 ± 1.71	26.97 ± 1.99	-0.522	0.616
Systolic blood pressure	131.11 ± 10.89	127.44 ± 6.02	1.584	0.152
Diastolic blood pressure	85.33 ± 8.26	82.33 ± 5.61	2.25	0.055
Waist circumference	93.86 ± 5.95	94.47 ± 5.50	-0.514	0.621
Fasting blood sugar	74.55 ± 5.20	74 ± 9.63	0.194	0.851
Sr. cholesterol	94.89 ± 10.06	91.66 ± 8.13	0.26	0.26
HDL	41.80 ± 1.63	42.85 ± 1.86	-3.088	0.015*
Triglycerides	110.98 ± 21.38	94.88 ± 11.68	3.437	0.009*
LDL	30.89 ± 12.07	29.82 ± 9.92	0.331	0.749
VLDL	22.19 ± 4.27	18.97 ± 2.33	3.438	0.009*
*** Significance at the level of 0.05**				
Paired sample t test				

Weight, BMI, blood pressure, waist circumference, fasting blood sugar, Serum cholesterol, high-density lipoprotein, low- density lipoprotein, very low- density lipoprotein, serum triglycerides were normally distributed in control group. There is significant reduction in high-density lipoprotein (p = 0.15), serum triglycerides (p = 0.009) & very low- density lipoprotein (p = 0.009). There is reduction in weight (p = 0.634), BMI (p = 0.616), systolic blood pressure (p = 0.152) , diastolic blood pressure (p = 0.055), waist circumference (p = 621), fasting blood sugar (p = 0.851), serum total cholesterol (p = 0.260) & low- density lipoprotein (p = 749) but without significance.

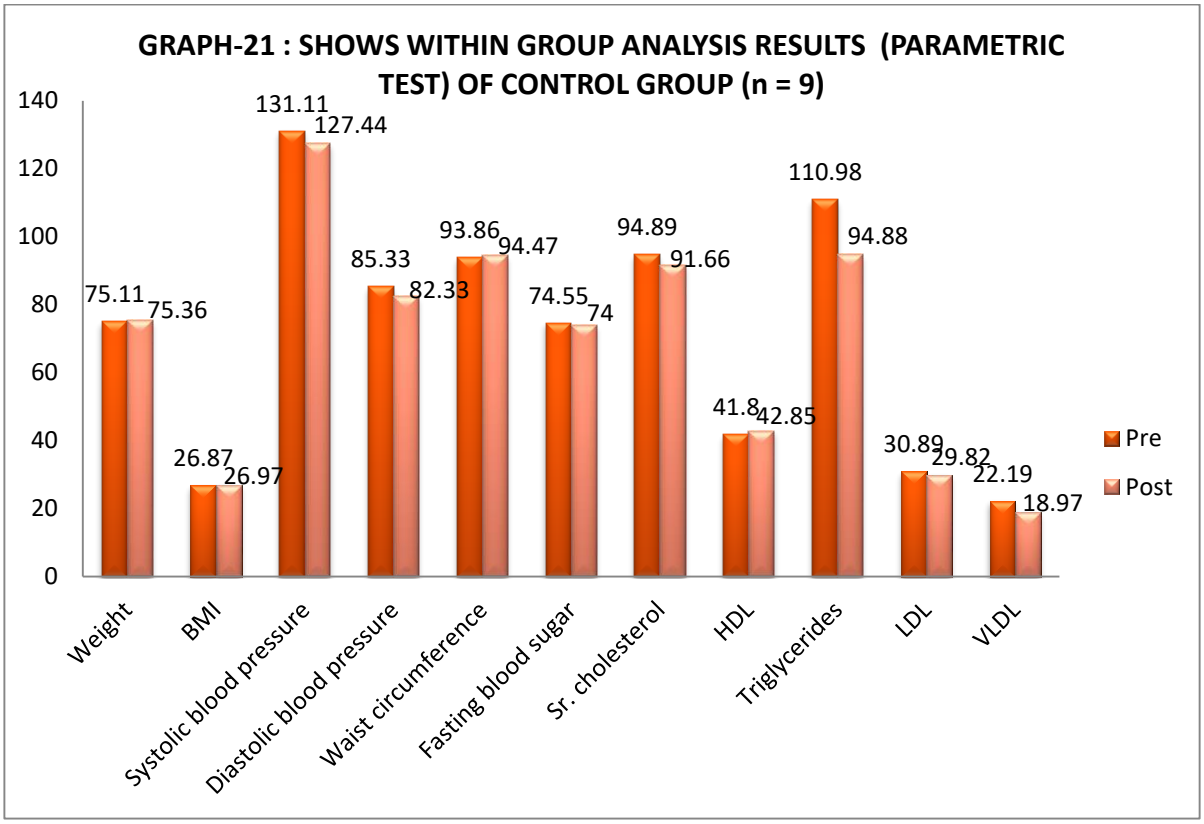


Table 16

SHOWS WITHIN GROUP ANALYSIS RESULTS (NON - PARAMETRIC TEST) OF CONTROL GROUP (n = 9)

Variables	Pre	Post	Z	*P Value*
Pulse	71.33 ± 4.60	69.88 ± 5.10	-1.219	0.223
Mid arm circumference	29.61 ± 2.11	31.89 ± 1.48	-2.433	0.015*
Hip circumference	107.03 ± 3.61	106.92 ± 3.93	-0.105	0.916
*Significance at the level of 0.05				
Wilcoxn Test				

Changes in pulse rate, Mid arm circumference & hip circumference

Data for these variables was not normally distributed in control group. Hence, Wilkococson's singed rank tes was performed. There is significant increase in Mid arm circumference (p = 0.015). There is reduction in pulse rate (p = 0.223) & hip circumference (p = 0.916) but without significanceafter one month compared to basline.

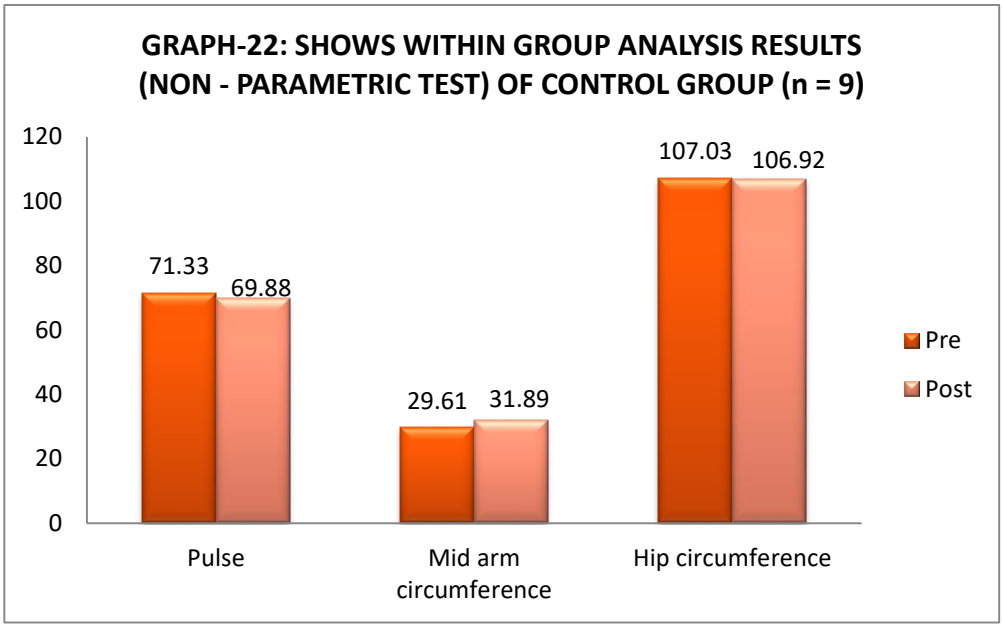
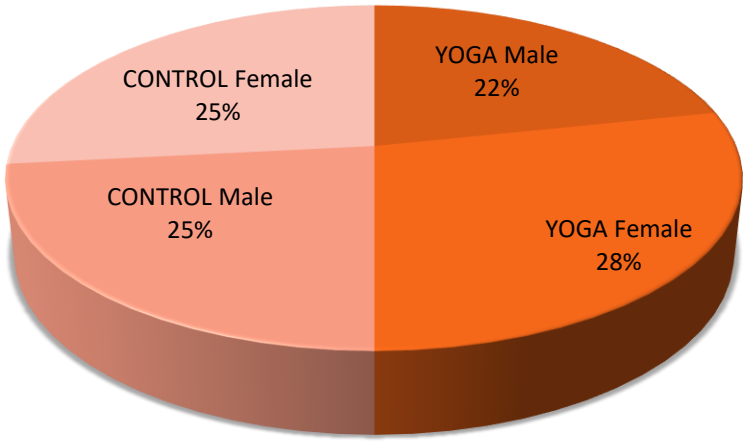


TABLE 17

SHOWS THE BASELINE DEMOGRAPHIC DATA OF AGE AND HEIGHT OF THE YOGA & CONTROL GROUP MAIN STUDY 2 AT DR KALMADI SHYAMARAV SCHOOL PUNE

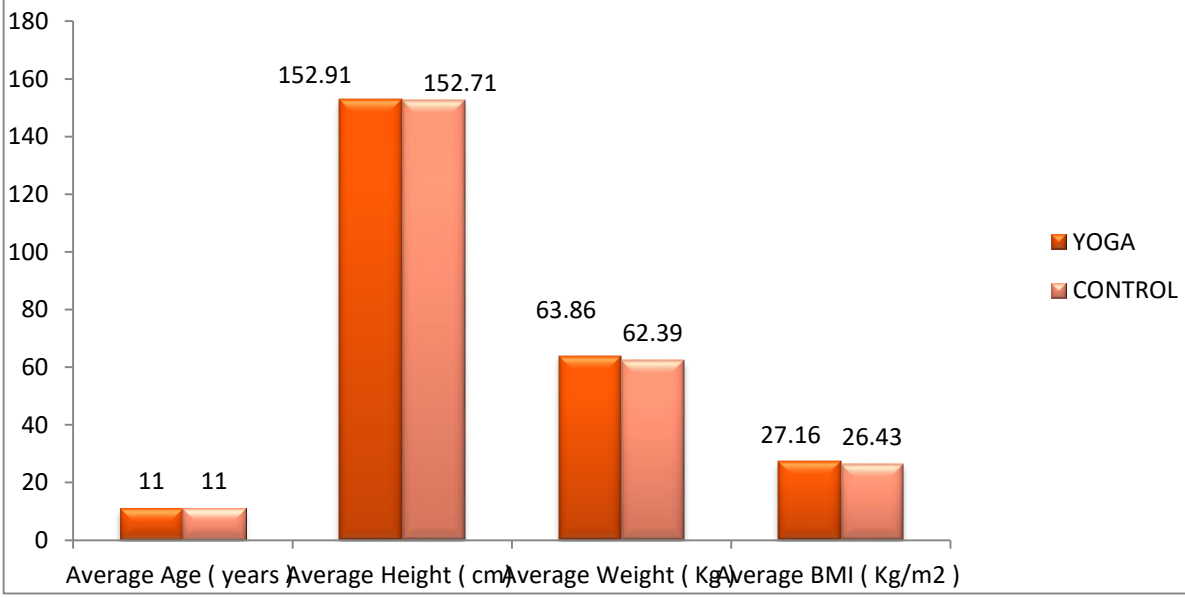
NO.	GROUP	YOGA		CONTROL	
	Gender	Male	Female	Male	Female
1	Gender	10	15	14	14
2	Average Age (years)	11 ± 1.4		11 ± 1.3	
3	Average Height (cm)	152.91 ± 6.97		152.71 ± 9.18	
4	Average Weight (Kg)	63.86 ± 15.52		62.39 ± 14.21	
5	Average BMI (Kg/m2	27.16 ± 5.04		26.43 ± 3.53	

GRAPH-23:- SHOWS THE BASELINE DEMOGRAPHIC DATA OF GENDER OF THE YOGA AND CONTROL GROUP OF MAIN STUDY



GRAPH-24:DEMOGRAPHIC DATA OF MAIN STUDY

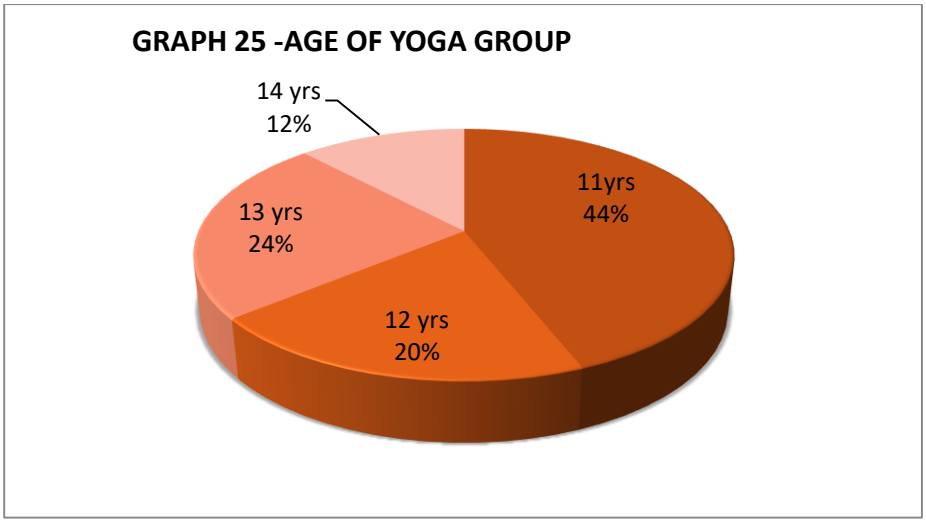
Shows The baseline demographic data of age and height of the yoga and control group



Parameters like abdominal circumference, waist circumference, hip circumference, total body fat percentage, trunk subcutaneous fat, trunk muscle percentage, legs subcutaneous fat, legs muscle percentage and sit ups per minute were normally distributed.

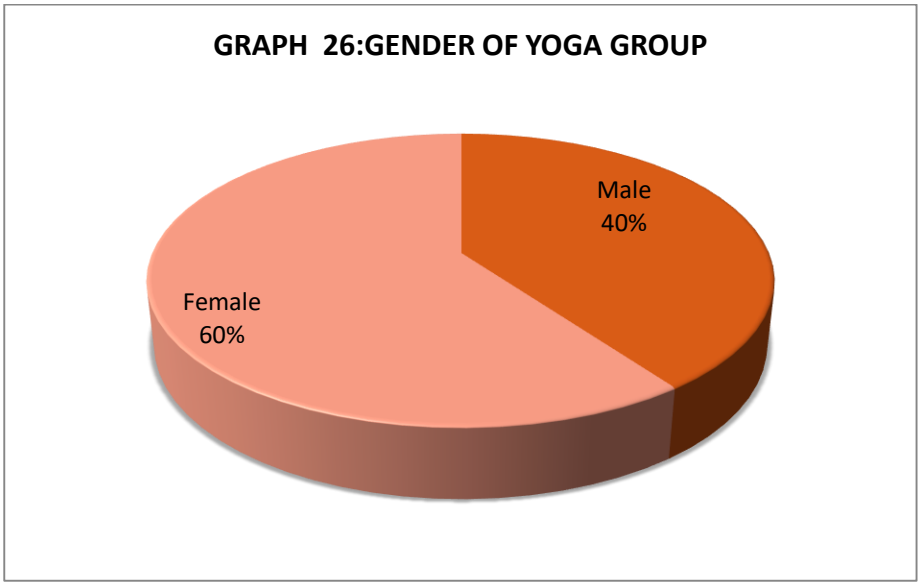
In yoga Group, ages of all participants were as follows:-

Age	No of Participants
11yrs	11
12 yrs	5
13 yrs	6
14 yrs	3



In Yoga Group, 10 male & 15 female participants were there.

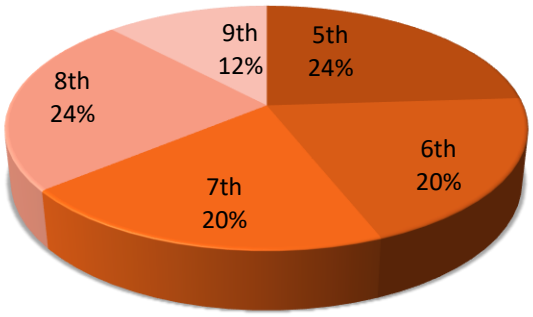
Gender	No of Participants
Male	10
Female	15



In yoga Group, no. of participants in each standard was as follows:-

STANDARD	No of Participants
5th	6
6th	5
7th	5
8th	6
9th	3

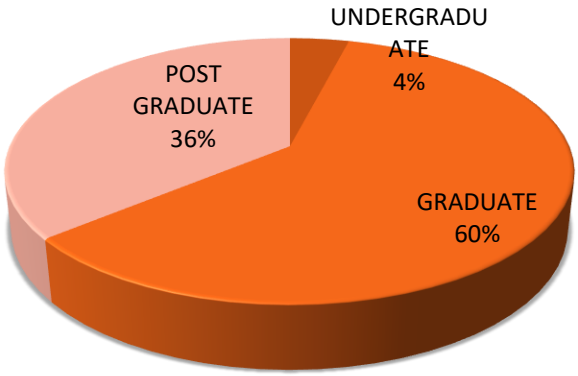
GRAPH -27:STANDARD OF YOGA GROUP



In yoga Group, status of parent education was as follows:-

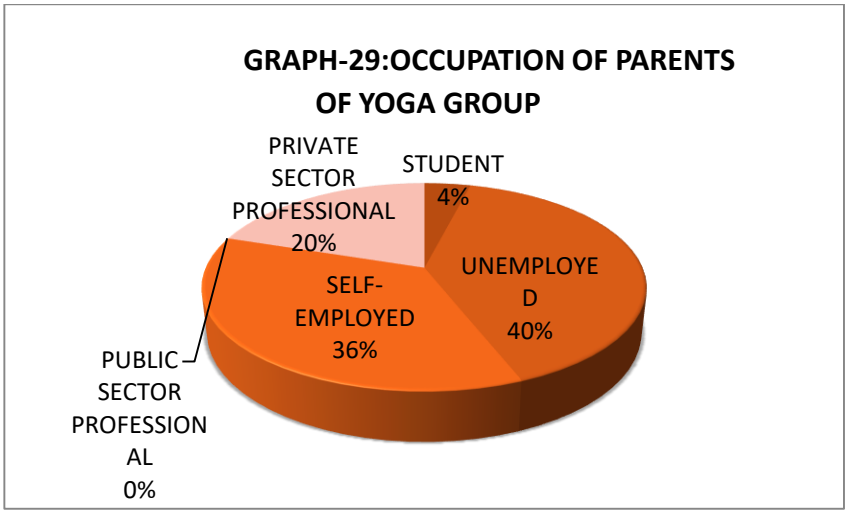
PARENTS EDUCATION	No of Participants
UNDERGRADUATE	1
GRADUATE	15
POST GRADUATE	9

GRAPH -28:PARENT EDUCATION OF YOGA GROUP



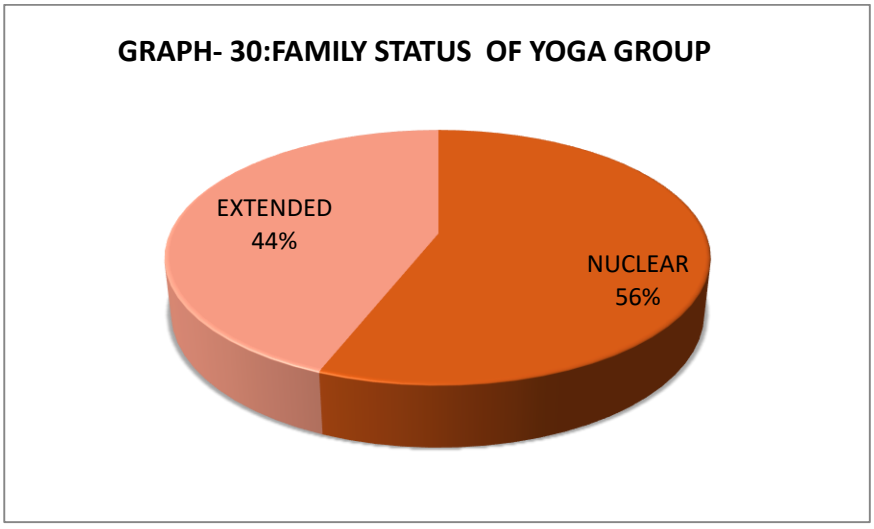
In yoga Group, status of parent occupation was as follows:-

OCCUPATION	No of Participants
STUDENT	1
UNEMPLOYED	10
SELF-EMPLOYED	9
PUBLIC SECTOR PROFESSIONAL	0
PRIVATE SECTOR PROFESSIONAL	5



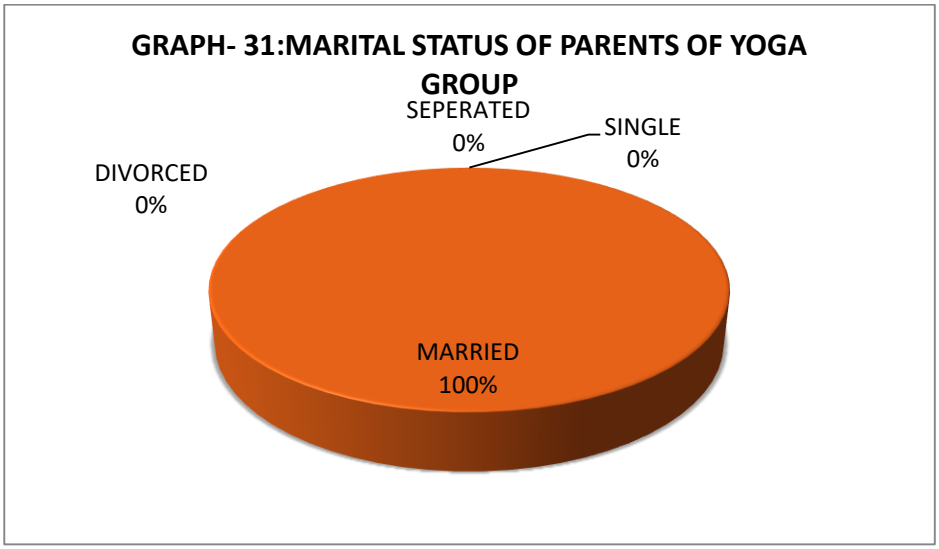
In yoga Group, status of family was as follows:-

FAMILY STATUS	No of Participants
NUCLEAR	14
EXTENDED	11



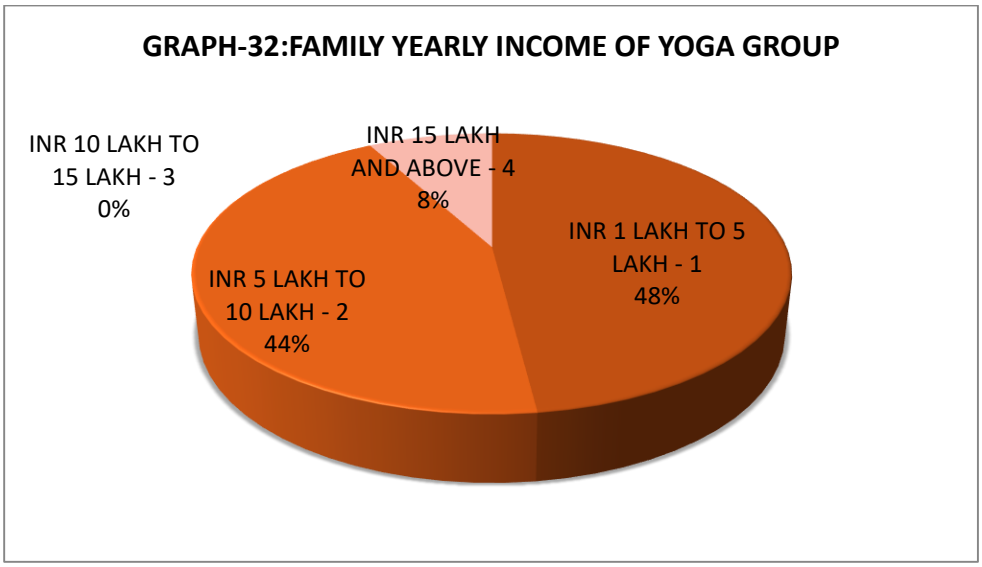
In yoga Group, marital status of parents was as follows:-

MARITAL STATUS	No of Participants
SINGLE	0
MARRIED	25
DIVORCED	0
SEPERATED	0



In yoga Group, family income was as follows:-

FAMILY INCOME/YEAR	No of Participants
INR 1 LAKH TO 5 LAKH - 1	12
INR 5 LAKH TO 10 LAKH - 2	11
INR 10 LAKH TO 15 LAKH - 3	0
INR 15 LAKH AND ABOVE - 4	2



The result of Physical parameters & physical tests are as follows:

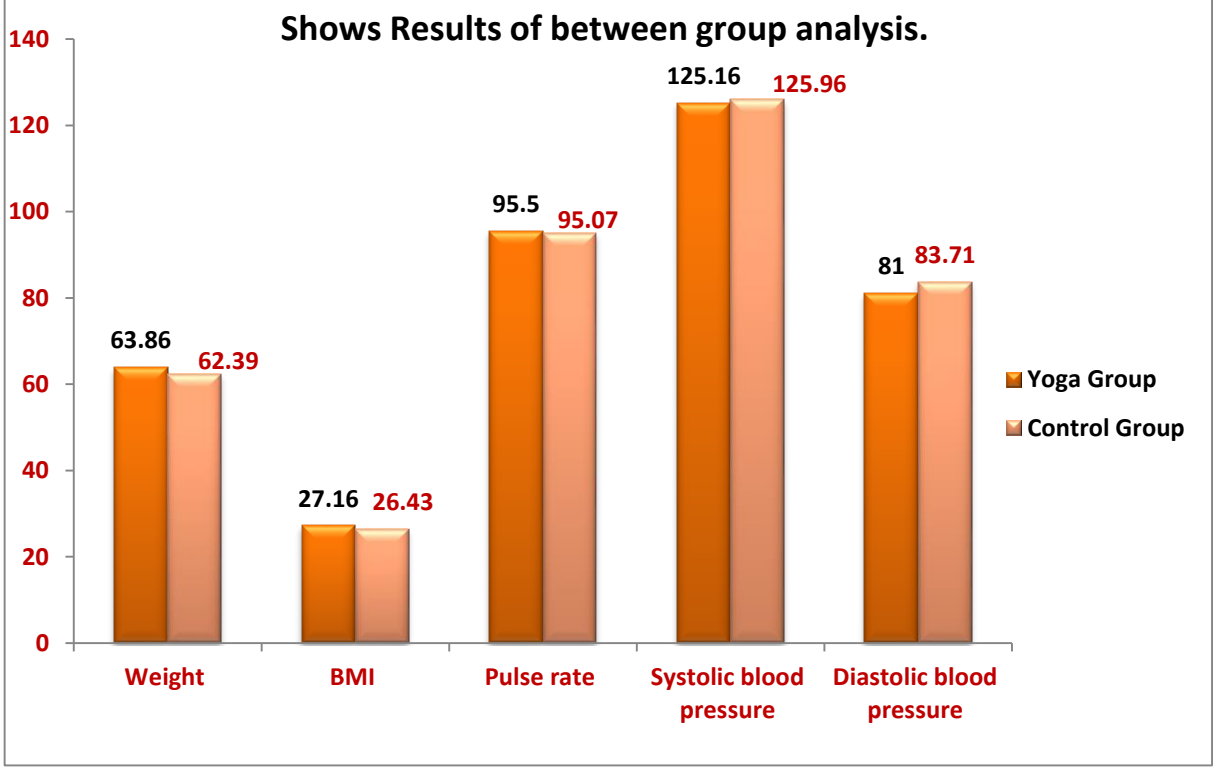
TABLE-18

SHOWS RESULTS OF BETWEEN GROUP ANALYSES

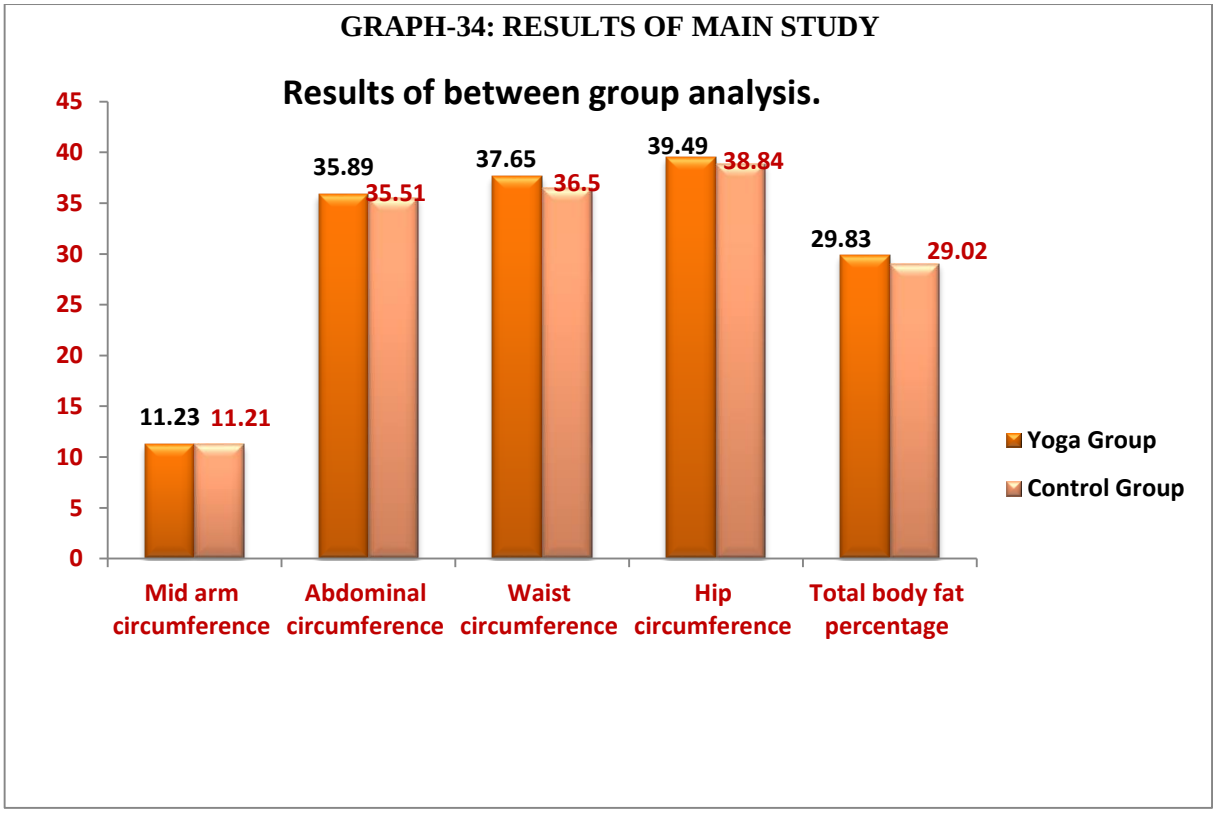
No.	Variable	Yoga Group		Control Group		t value	p value
		(n= 25)		(n= 28)			
		Pre	Post	Pre	Post		
1	Weight	63.86 ± 15.52	63.14 ± 15.28	62.39 ± 14.21	62.8 ± 14.73	0.517 a	0.6
2	BMI	27.16 ± 5.04	26.47 ± 4.85	26.43 ± 3.53	26.82 ± 3.58	0.053 a	0.95
3	Pulse rate	95.5 ± 11.7	97.37 ± 14.48	95.07 ± 12.7 7	93.85 ± 11.31	1.052 a	0.29
4	Systolic BP	125.16 ± 11.06	122.87 ± 13.43	125.96 ± 18.54	119.25 ± 13.68	0.883 a	0.37
5	Diastolic BP	81 ± 6.83	76.95 ± 8.79	83.71 ± 9.78	77.5 ± 8.05	0.330 a	0.74
6	Mid Arm Cir.	11.23 ± 1.03	11.07 ± 0.93	11.21 ± 1.37	11.35 ± 1.42	0.027 a	0.97
7	Abdominal Cir.	35.89 ± 3.69	35.5 ± 3.77	35.51 ± 3.27	35.42 ± 3.28	0.530 b	0.05∞
8	Waist Cir.	37.65 ± 4.48	37.77 ± 4.81	36.50 ± 3.01	36.99 ± 3.67	0.593b	0.79
9	Hip Cir.	39.49 ± 4.63	38.21 ± 4.71	38.84 ± 3.71	38.57 ± 3.93	2.479 b	0.54
10	Total body fat %	29.83 ± 3.46	27.76 ± 2.72	29.02 ± 2.65	28.96 ± 2.17	3.236 b	0.92
11	Resting metabolism	1382.83 ± 205.34	1404.33 ± 263.33	1369.25 ± 218.60	1388.33 ± 238.43	0.579 a	0.56
12	Subcutaneous fat	25.57 ± 5.58	21.96 ± 4.32	24.80 ± 5.11	22.75 ± 4.56	0.606 a	0.54
	(Whole body)						
13	Muscle percentage	27.13 ± 3.51	28.26 ± 2.89	27.20 ± 3.06	28.12 ± 2.93	.036 a	0.97
	(Whole body)						
14	Subcutaneous fat	39.23 ± 8.58	34.62 ± 6.47	38.90 ± 8.16	36.02 ± 7.03	0.383 a	0.7
	(Arms)						
15	Muscle% (Arms)	31.01± 6.78	33.98 ± 5.07	30.62 ± 7.27	33.47 ± 6.61	0.330 a	0.74
16	Subcutaneous fat	22.21 ± 5.35	19.23 ± 3.29	21.34 ± 4.32	20.07 ± 3.52	1.241 b	0.88
	(Trunk)						
17	Muscle %	20.58 ± 2.97	21.55 ± 2.20	20.87 ± 2.40	21.2 ± 2.08	-1.637b	0.36
	(Trunk)						
18	Subcutaneous fat	38.35 ± 8.27	34.27 ± 6.29	38.75 ± 8.81	35.92 ± 7.71	- 0.278 b	0.77
	(Legs)						
19	Muscle % (Legs)	41.94 ± 5.21	43.94 ± 4.65	42.06 ± 4.94	43.78 ± 4.95	- 0.701b	0. 14
20	Sit ups	32.95 ± 7.02	31.5 ± 9.38	30.21 ± 8.74	26.78 ± 7.36	- 0.942b	0.09
21	Flamingo	60.70 ± 37.07	65.75 ± 38.48	72.17 ± 56.41	91.89 ± 58.65	1.568 a	0.11
	Balance test						

∞ Significance at 0.05
a Mann-Whitney U test.
b Independent Sample t-test

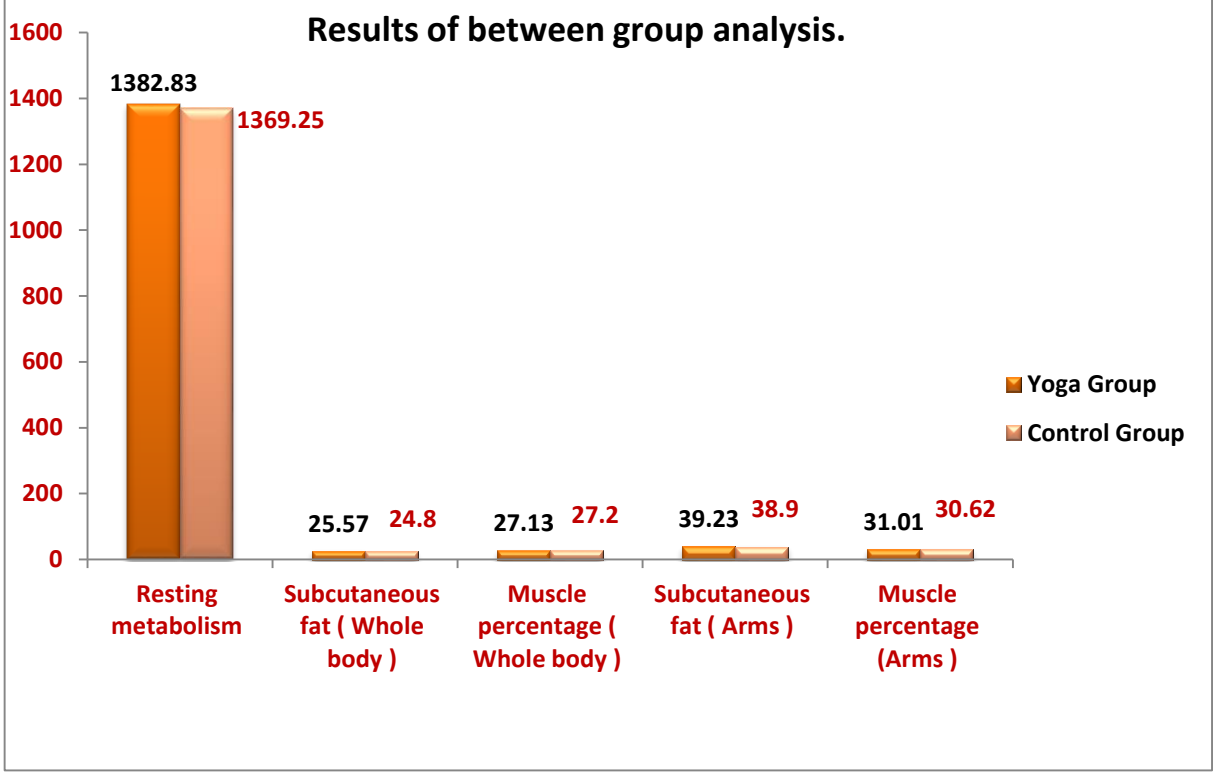
GRAPH - 33: RESULTS OF MAIN STUDY



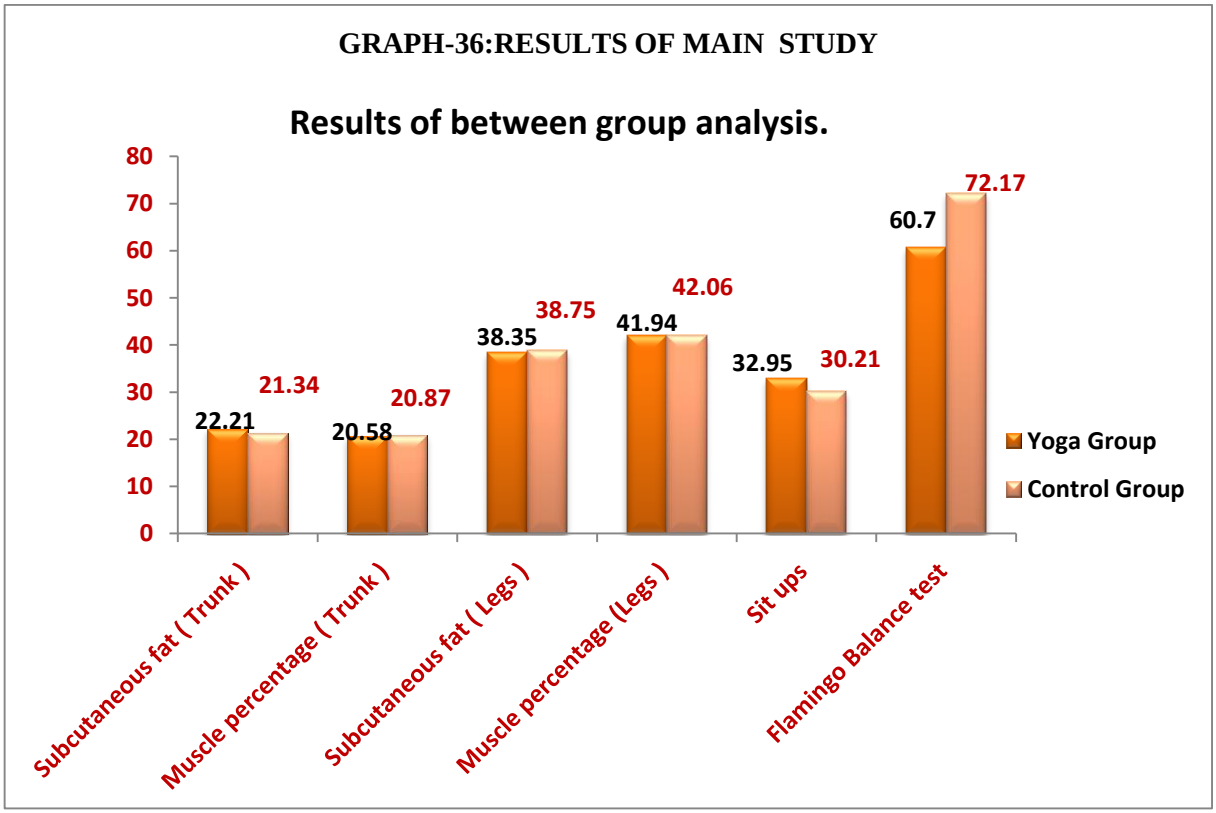
GRAPH-34: RESULTS OF MAIN STUDY



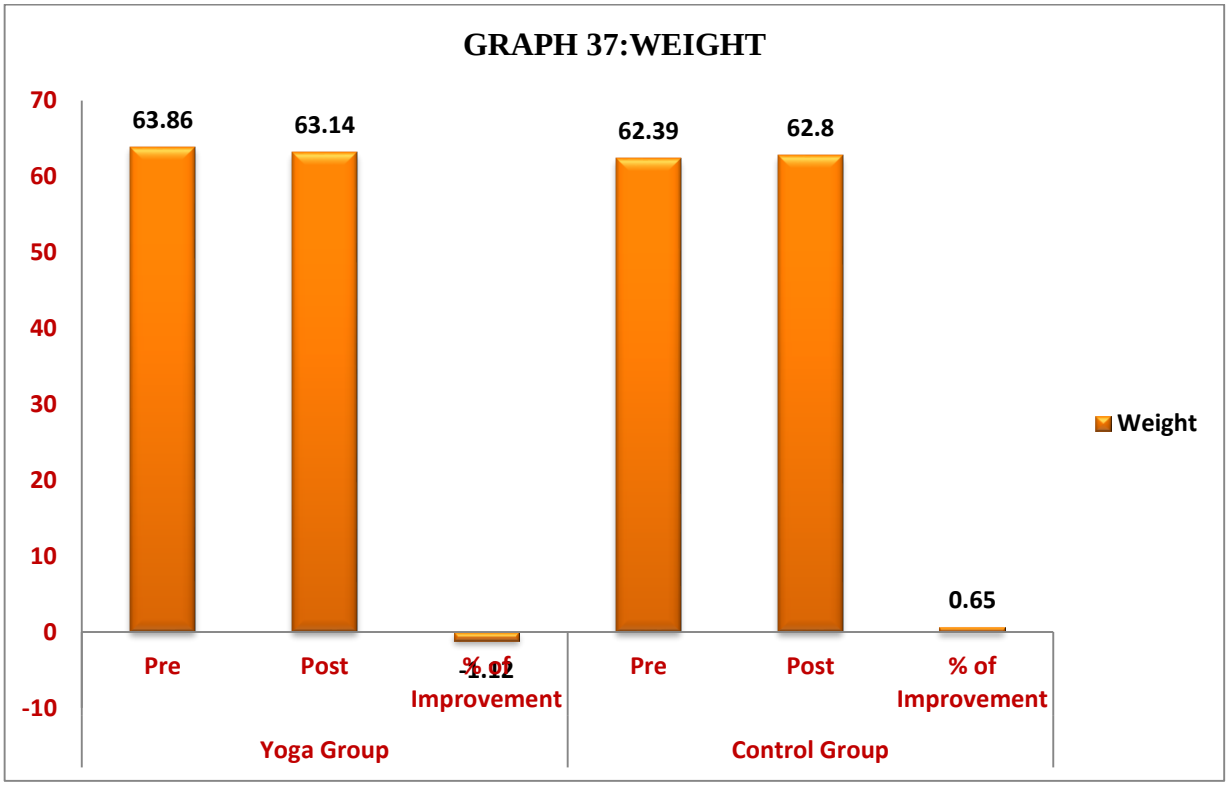
GRAPH-35: RESULTS OF MAIN STUDY

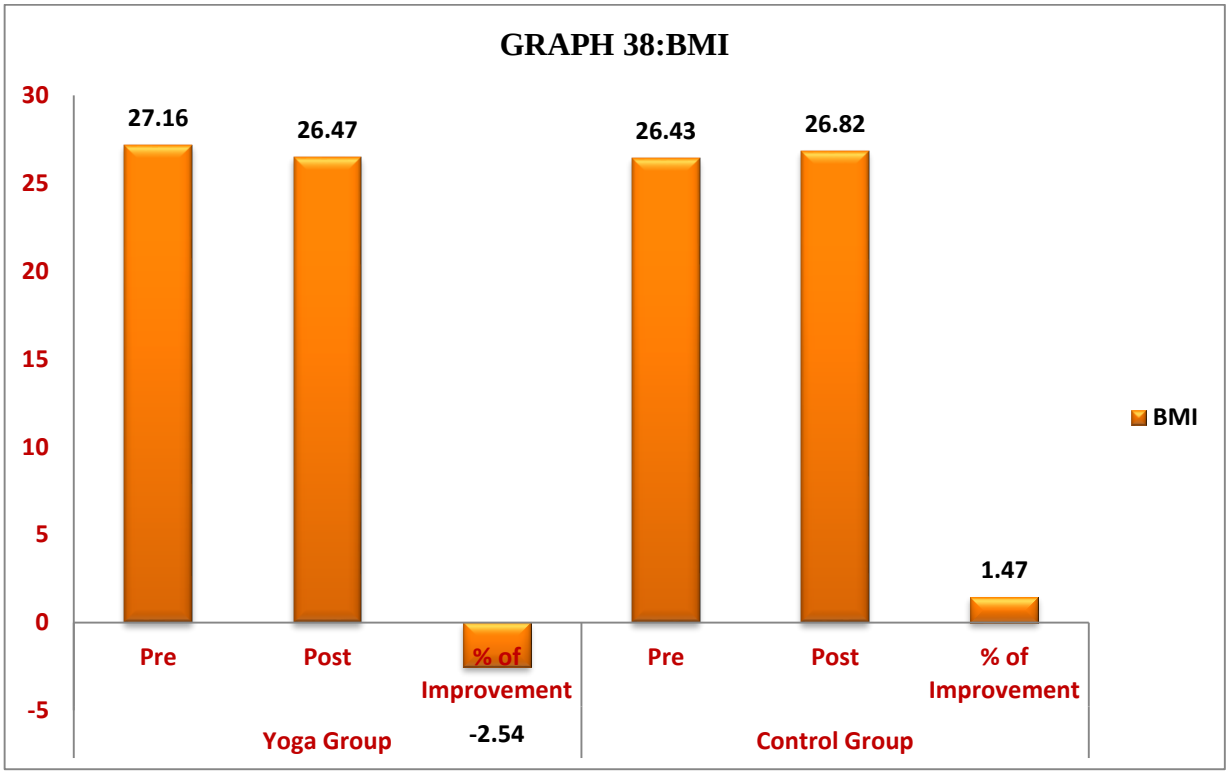


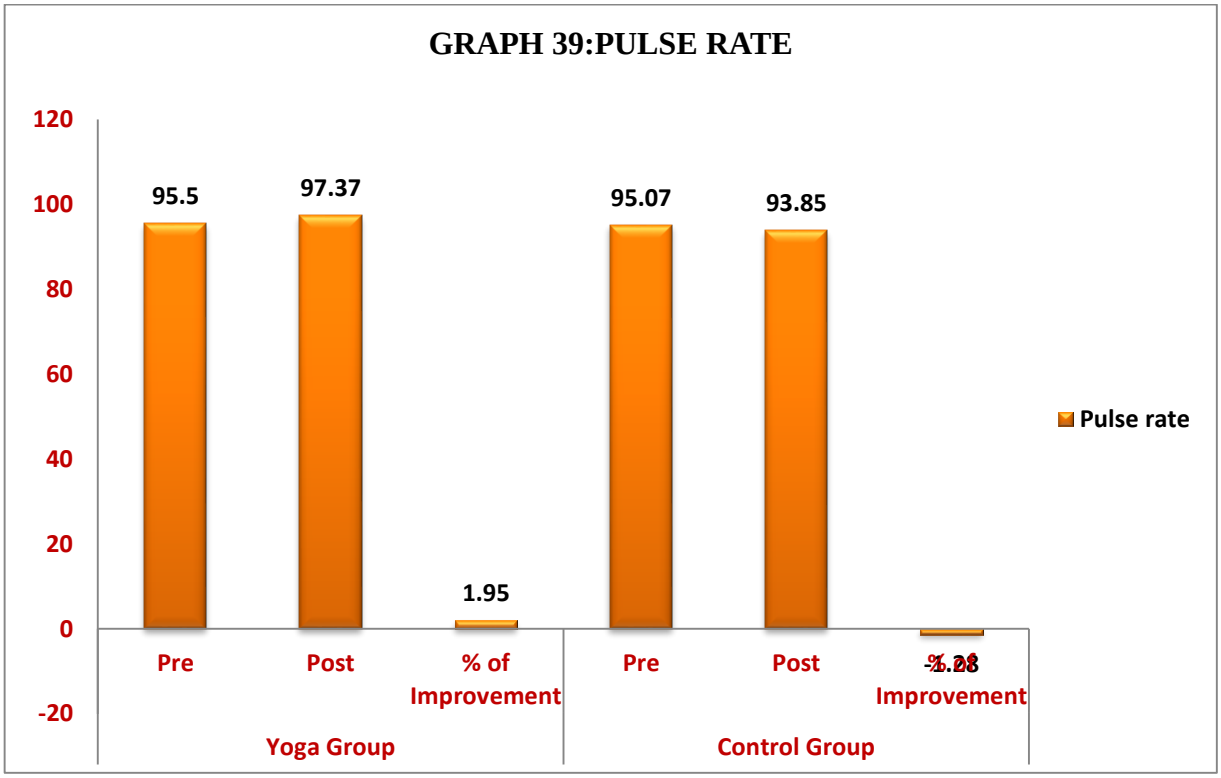
GRAPH-36:RESULTS OF MAIN STUDY

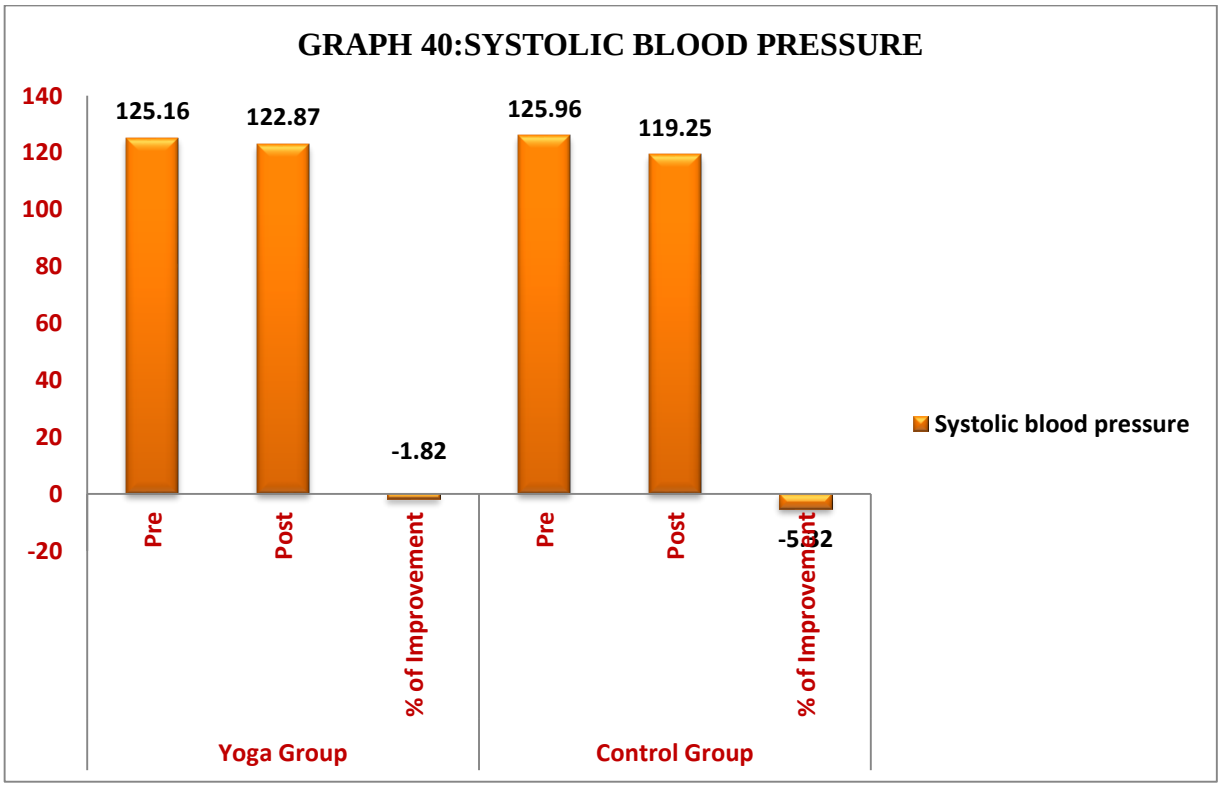


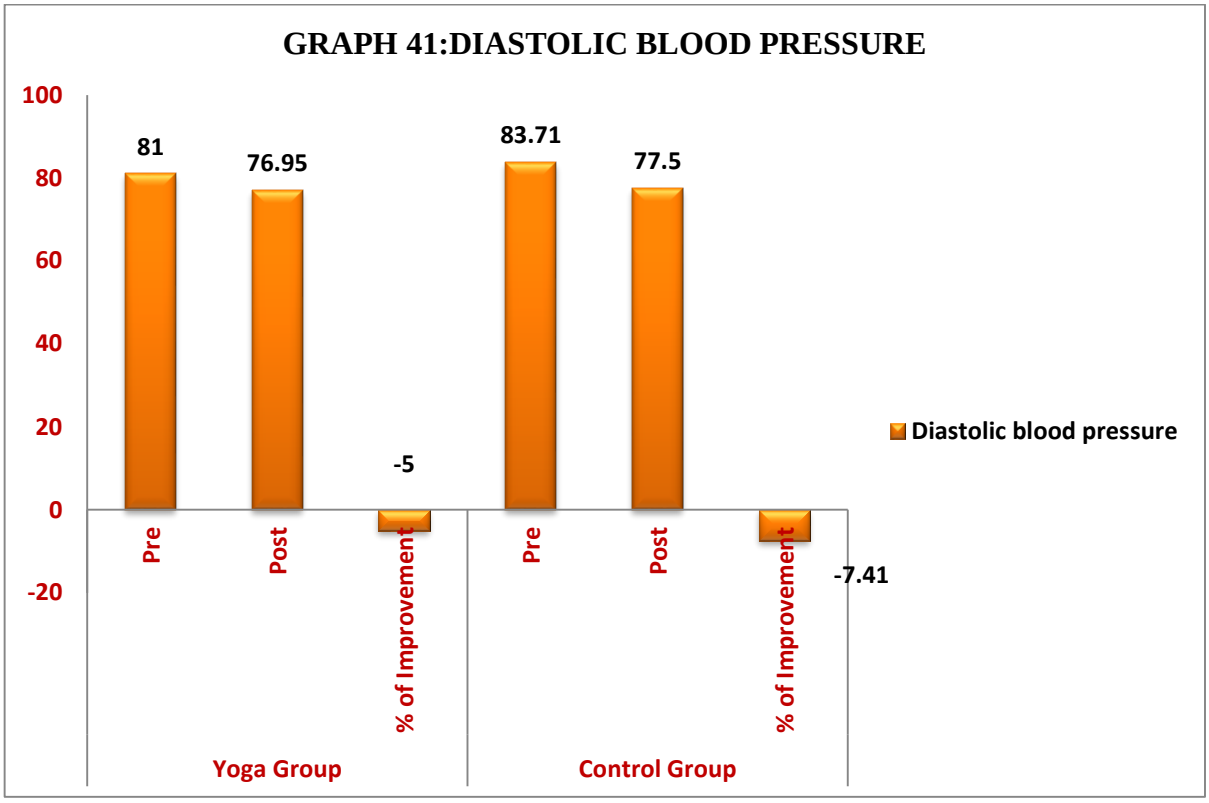
RESULTS OF BETWEEN GROUP ANALYSIS PER VARIABLE

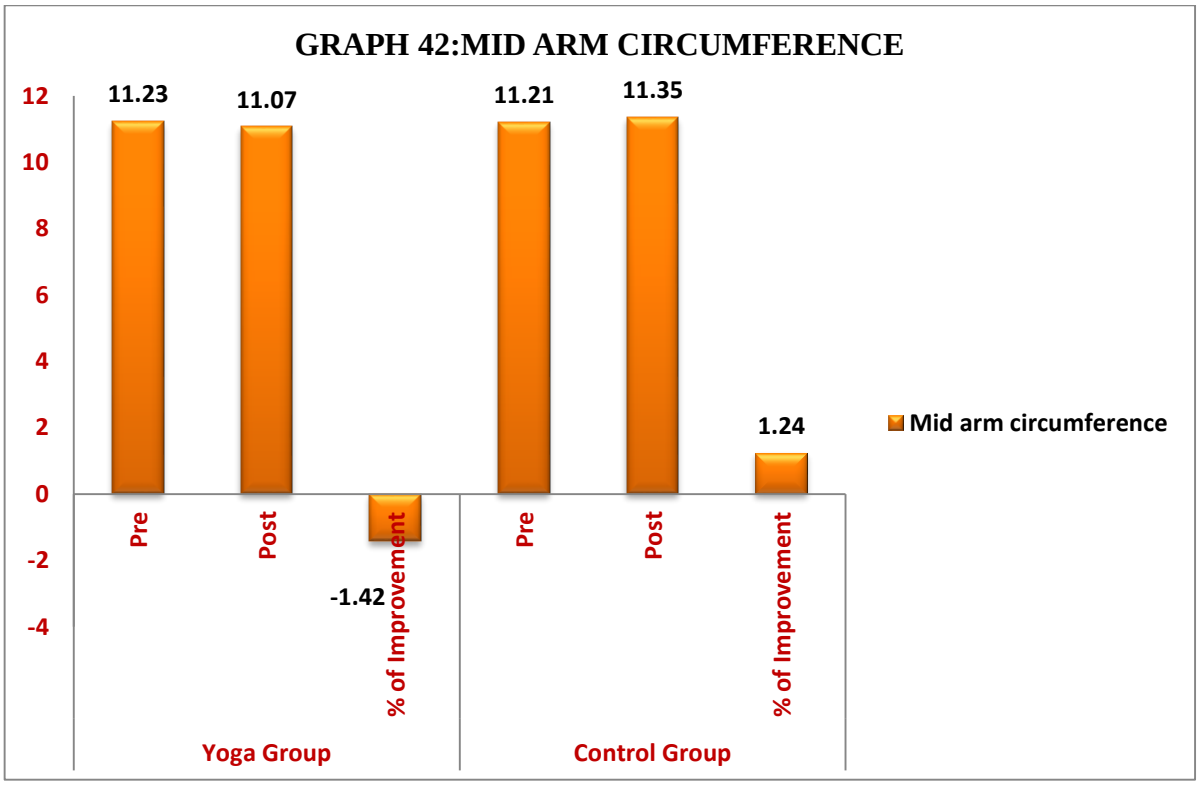


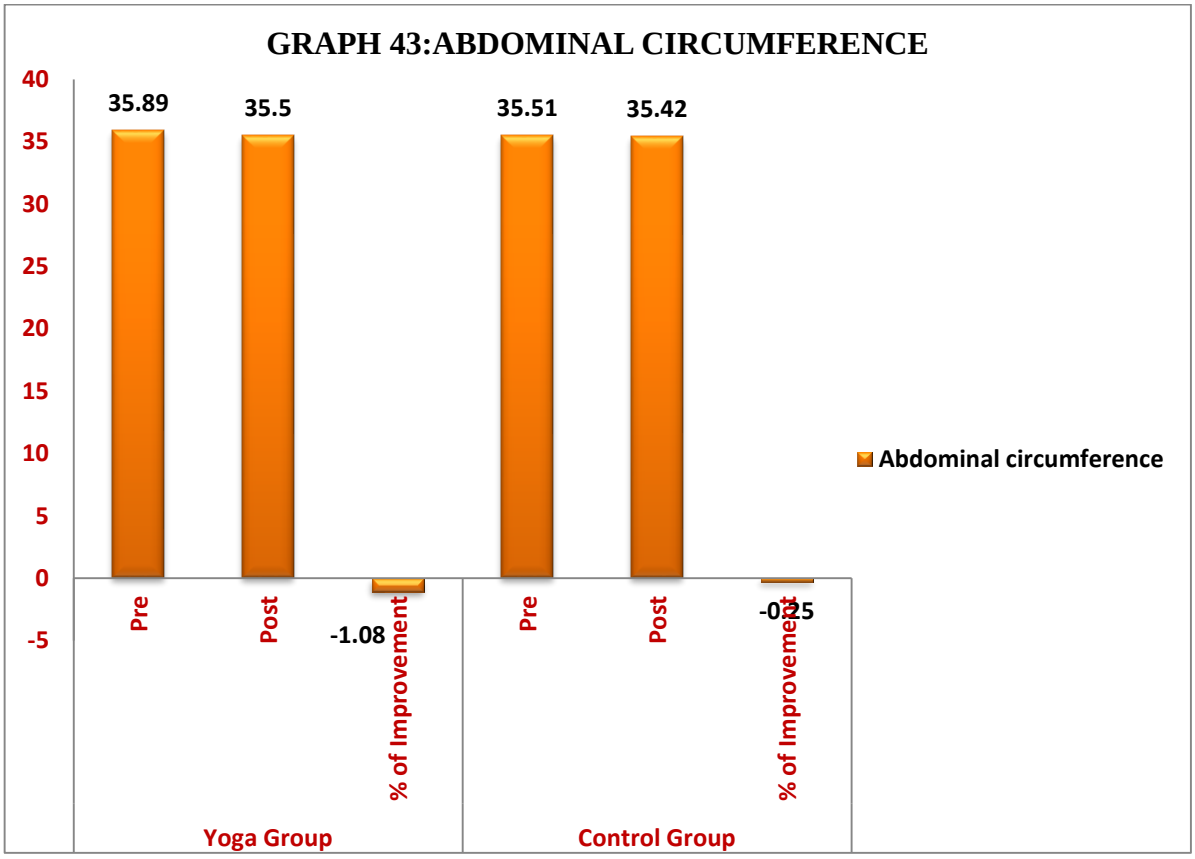


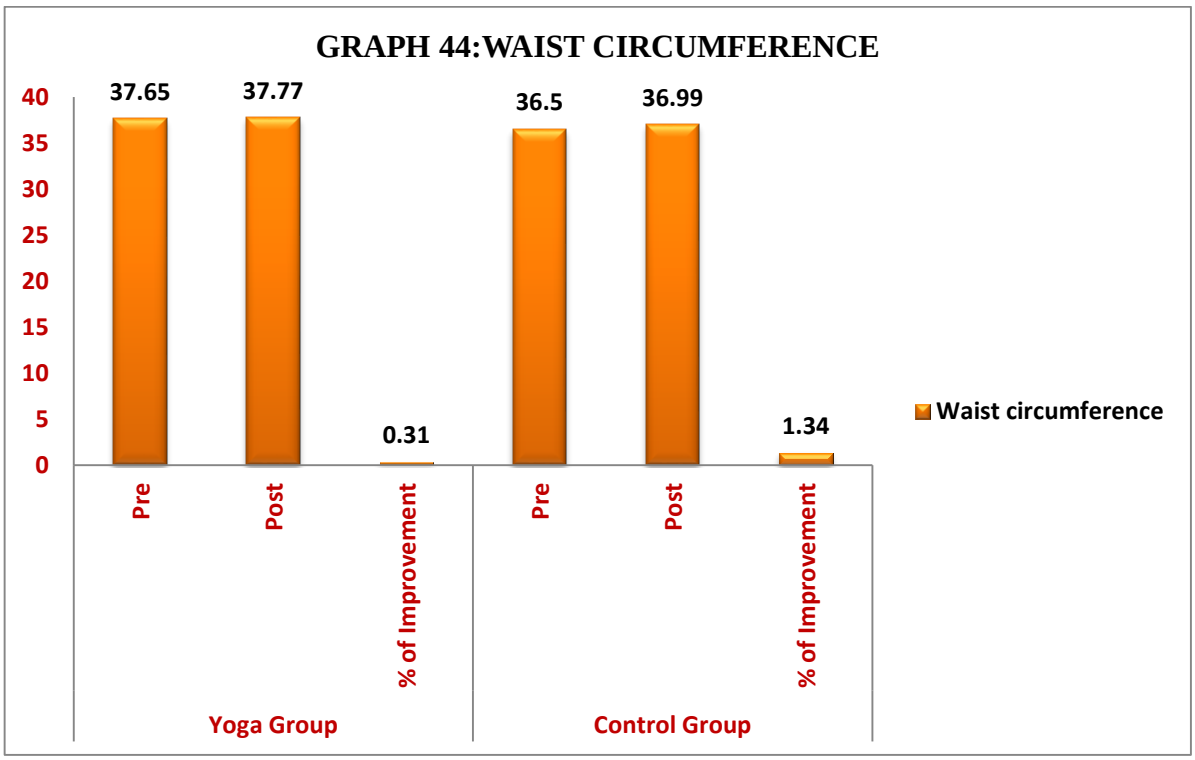

GRAPH 39:PULSE RATE
120
100
80
60
40
20
0
-20
95.5
97.37
1.95
95.07
93.85
Pre
Post
% of Improvement
Pre
Post
Improvement
Yoga Group
Control Group
Pulse rate

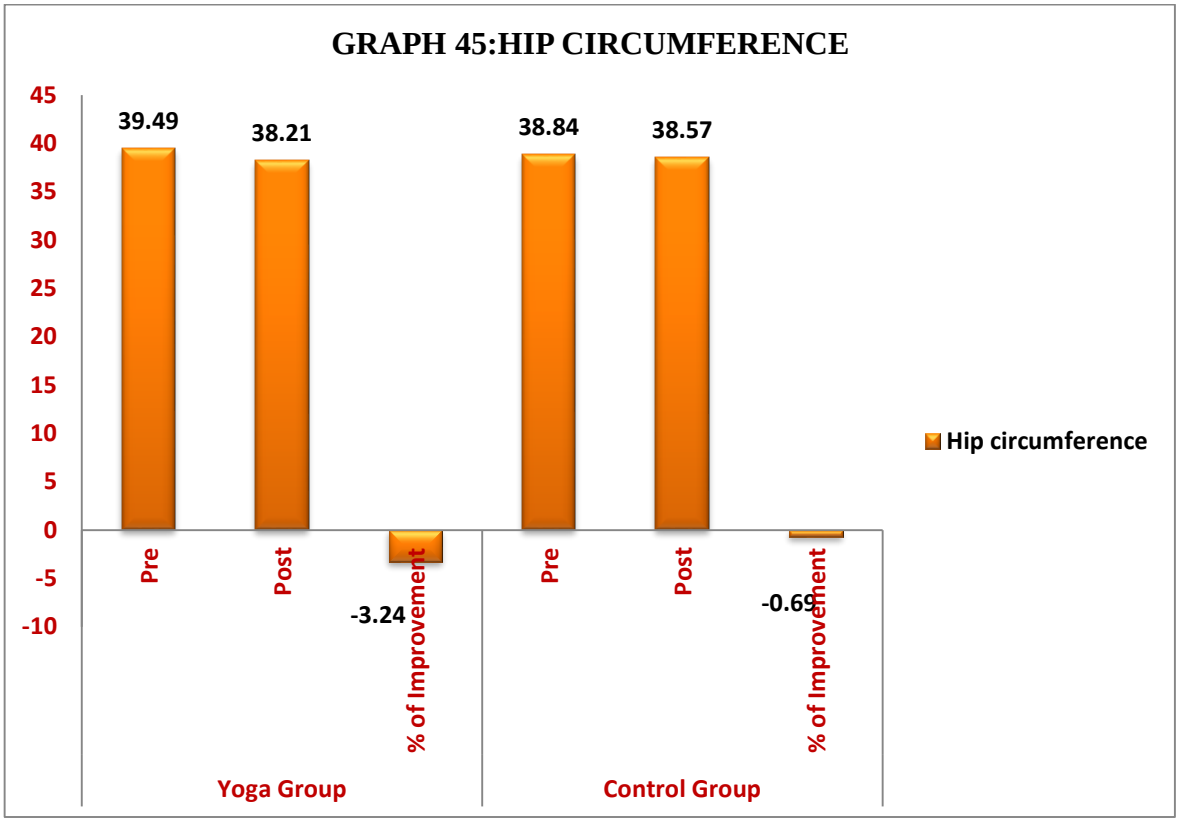

GRAPH 40:SYSTOLIC BLOOD PRESSURE
140
120
100
80
60
40
20
0
-20
125.16
122.87
-1.82
125.96
119.25
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Systolic blood pressure

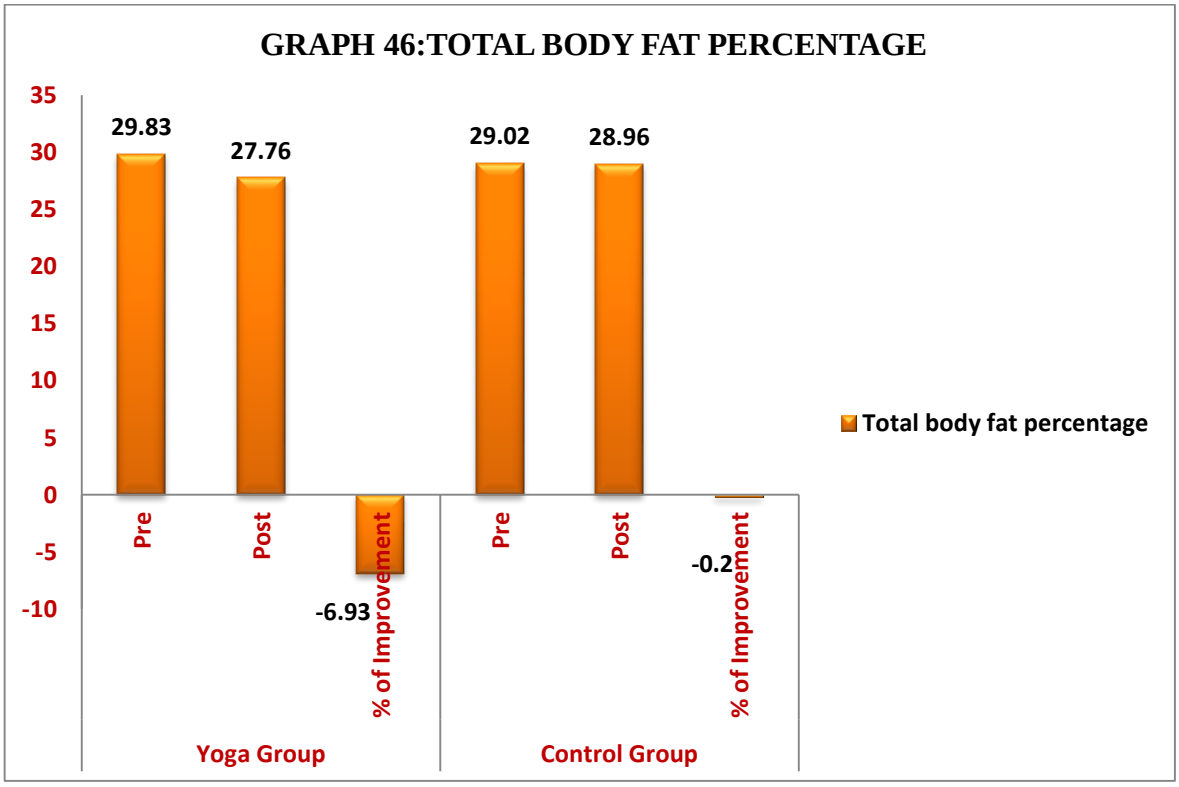

GRAPH 41:DIASTOLIC BLOOD PRESSURE
100
80
60
40
20
0
-20
81
76.95
-5
83.71
77.5
-7.41
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Diastolic blood pressure

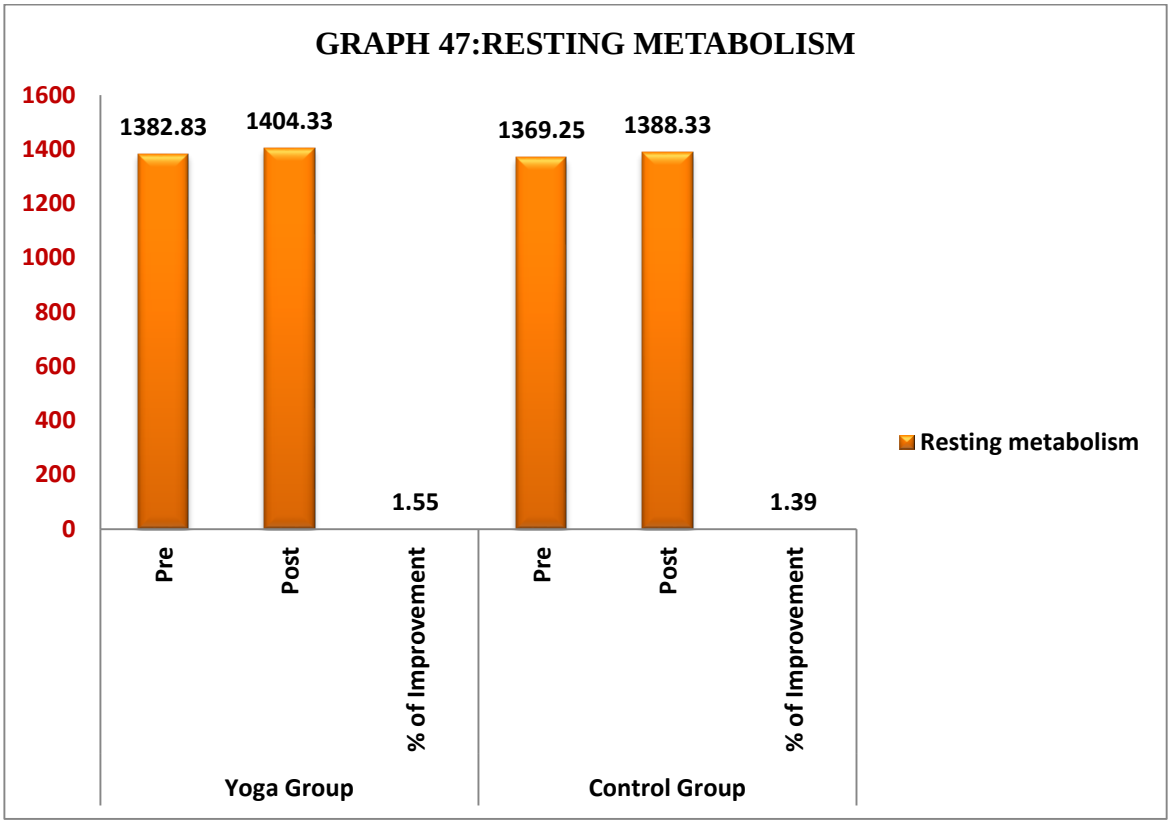

GRAPH 42:MID ARM CIRCUMFERENCE
12
10
8
6
4
2
0
-2
-4
11.23
11.07
-1.42
11.21
11.35
1.24
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Mid arm circumference

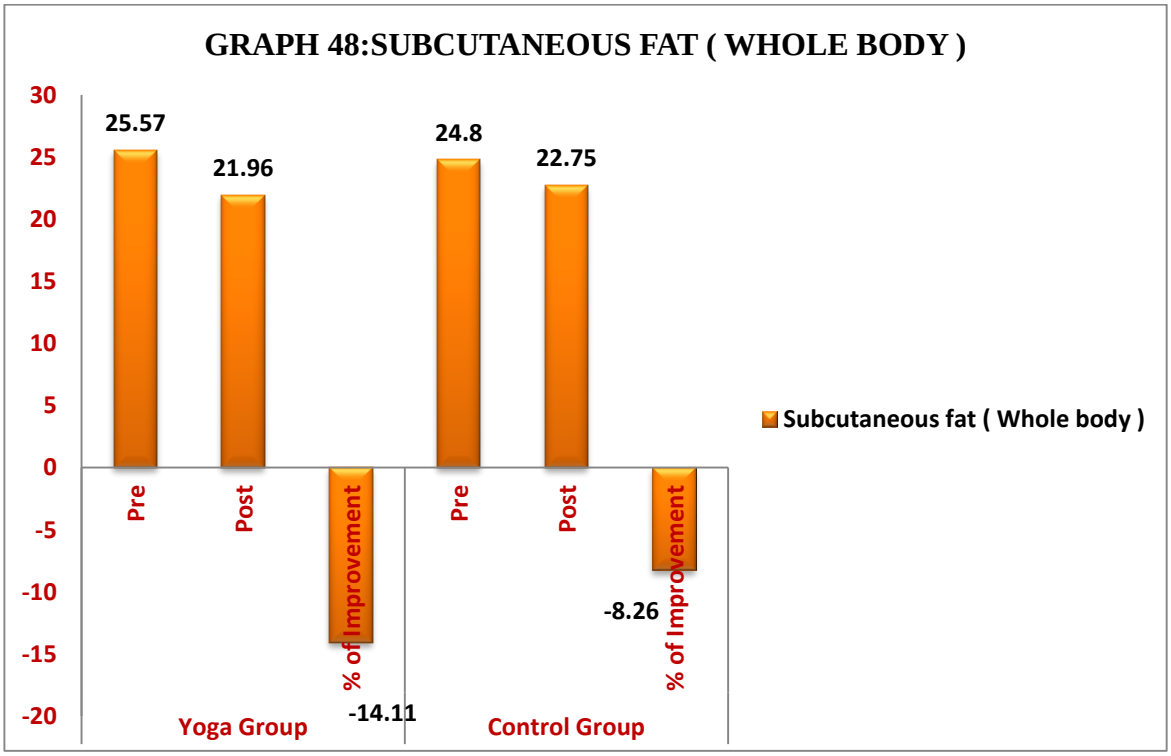

GRAPH 43:ABDOMINAL CIRCUMFERENCE
40
35
30
25
20
15
10
5
0
-5
35.89
35.5
-1.08
35.51
35.42
-0.25
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Abdominal circumference

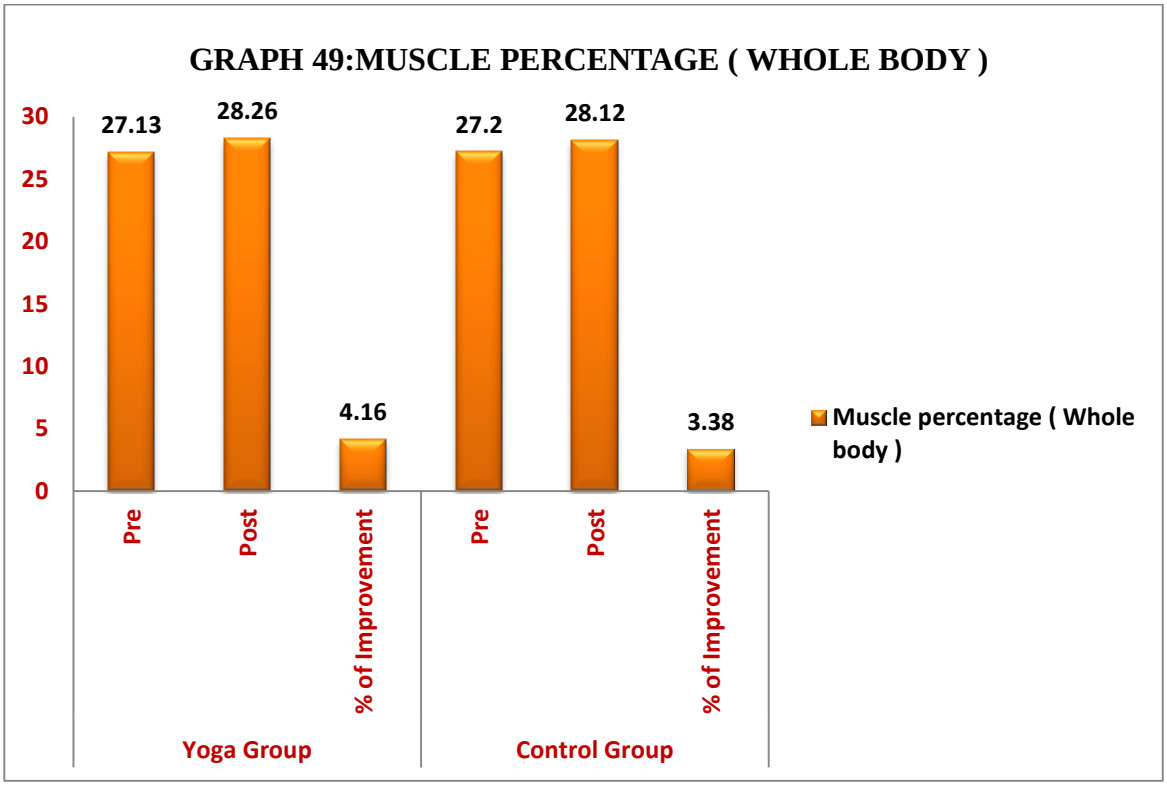

GRAPH 44:WAIST CIRCUMFERENCE
40
35
30
25
20
15
10
5
0
37.65
37.77
0.31
36.5
36.99
1.34
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Waist circumference

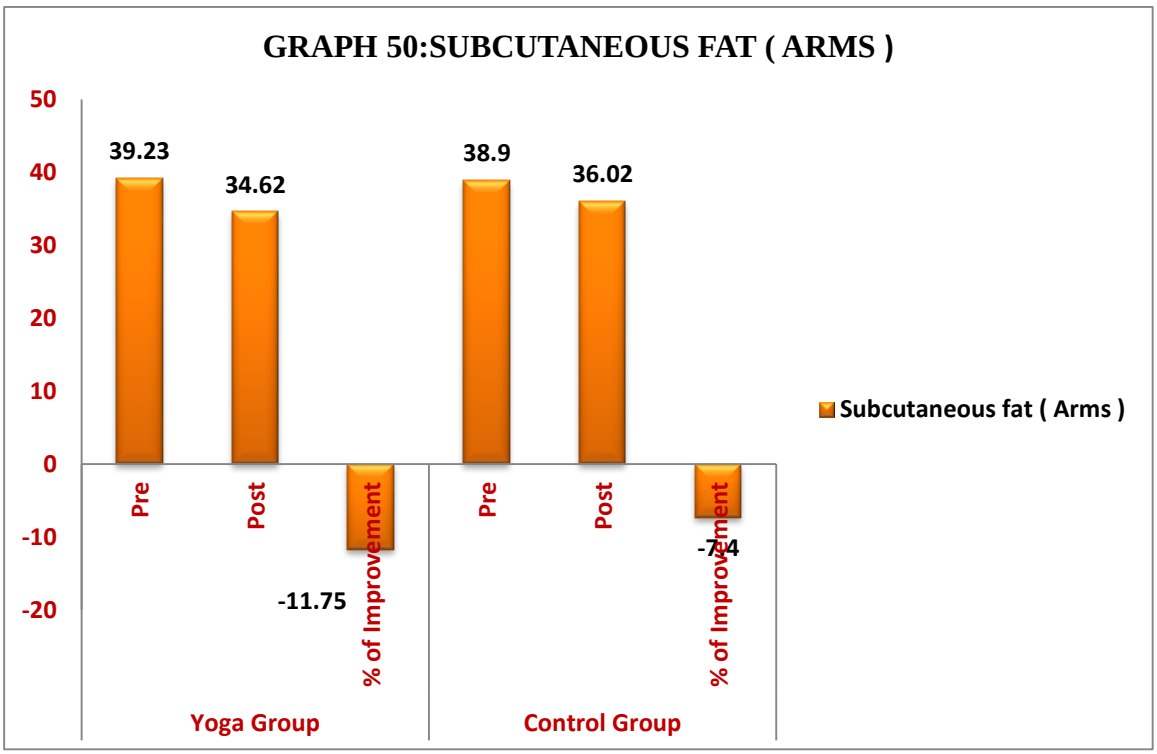

GRAPH 45:HIP CIRCUMFERENCE
45
40
35
30
25
20
15
10
5
0
-5
-10
39.49
38.21
-3.24
38.84
38.57
-0.69
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Hip circumference

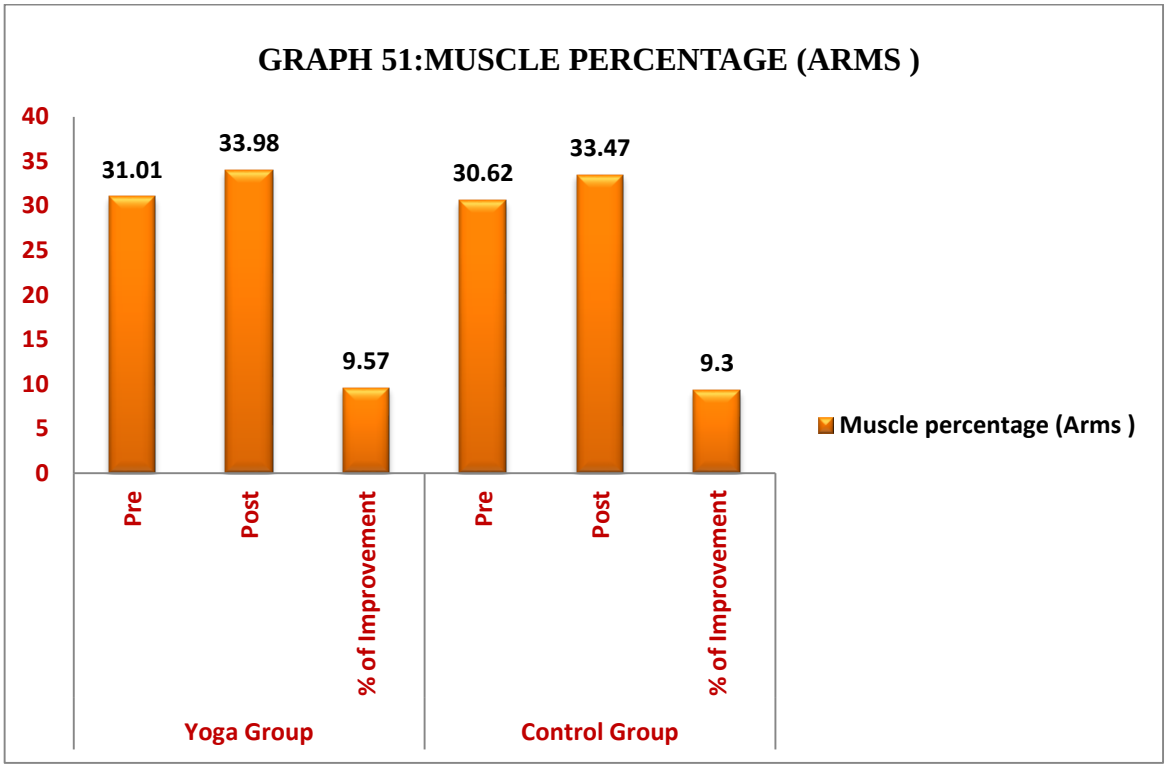

GRAPH 46:TOTAL BODY FAT PERCENTAGE
35
30
25
20
15
10
5
0
-5
-10
29.83
27.76
-6.93
29.02
28.96
-0.2
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Total body fat percentage

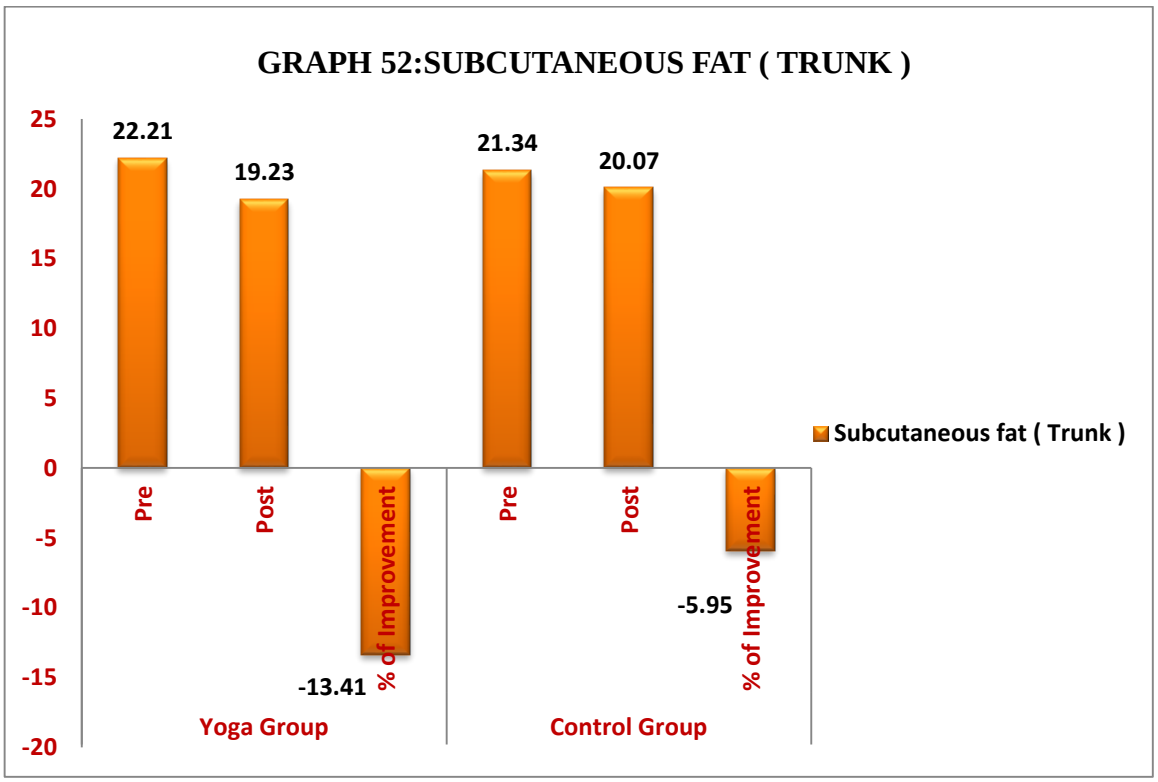

GRAPH 47:RESTING METABOLISM
1600
1400
1200
1000
800
600
400
200
0
1382.83
1404.33
1.55
1369.25
1388.33
1.39
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Resting metabolism

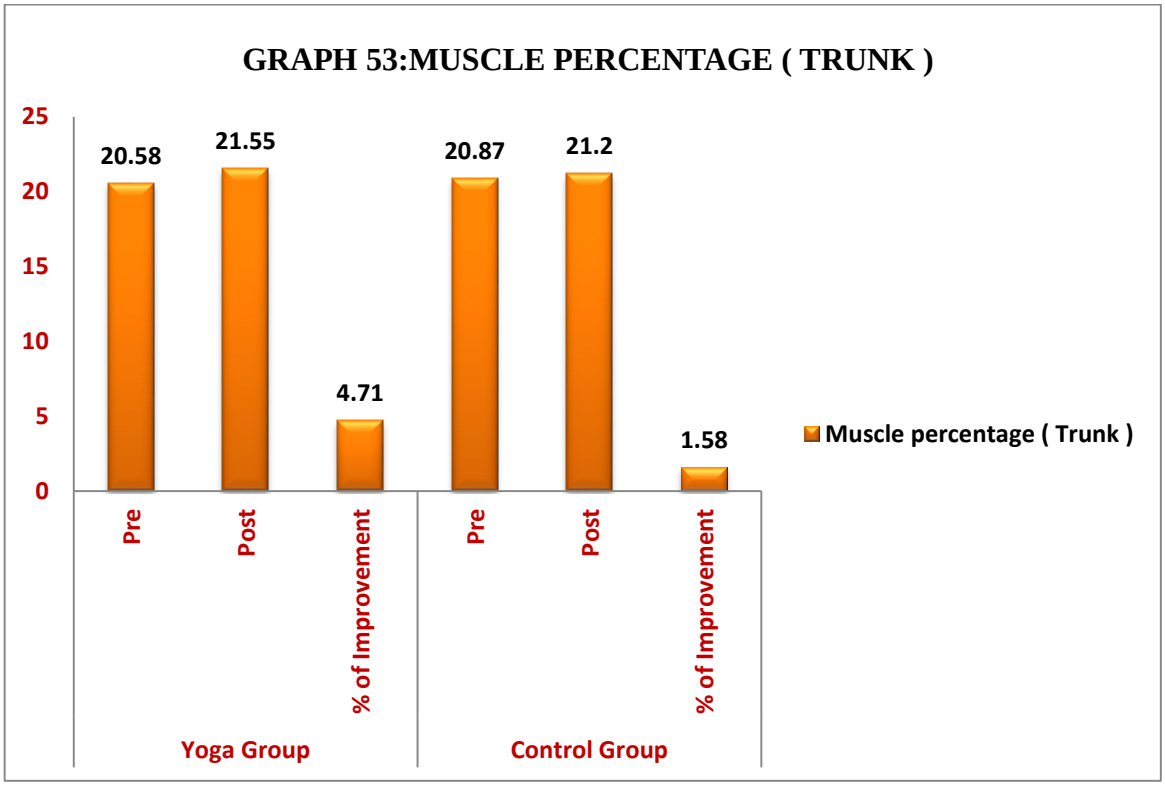

GRAPH 48:SUBCUTANEOUS FAT (WHOLE BODY)
30
25
20
15
10
5
0
-5
-10
-15
-20
25.57
21.96
-14.11
24.8
22.75
-8.26
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Subcutaneous fat (Whole body)

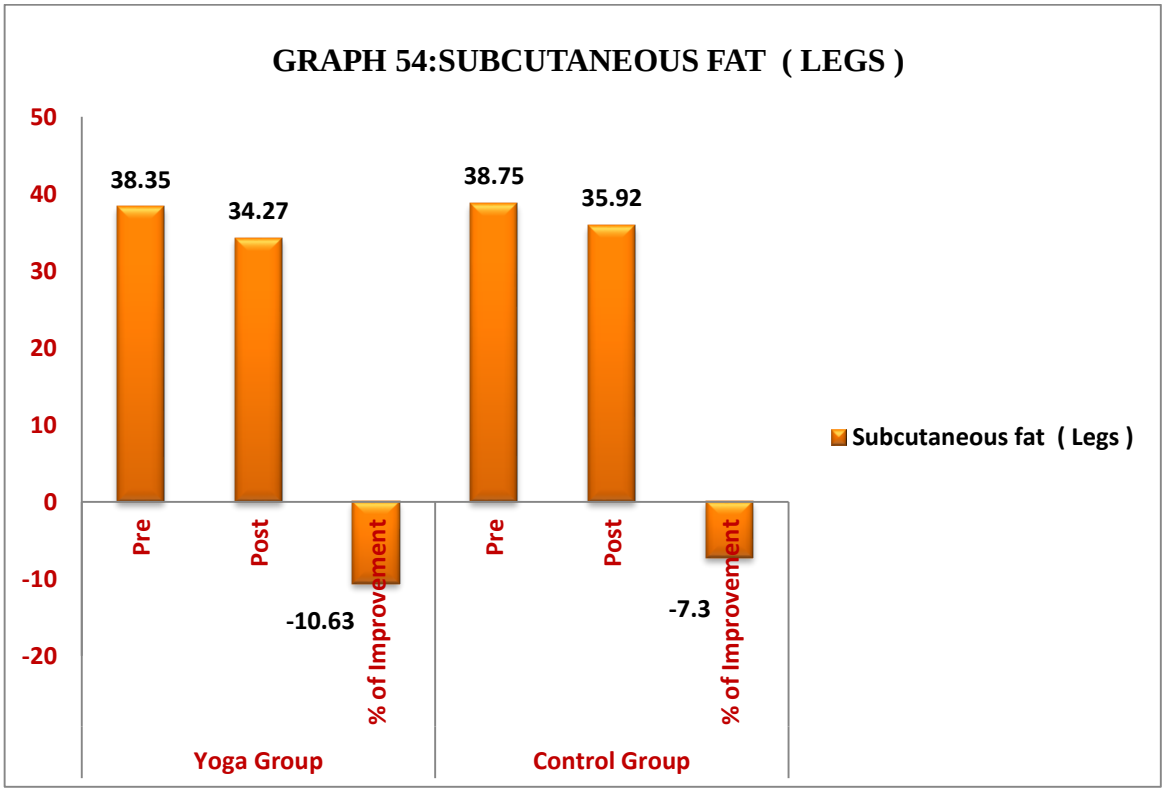

GRAPH 49:MUSCLE PERCENTAGE (WHOLE BODY)
30
25
20
15
10
5
0
27.13
28.26
4.16
27.2
28.12
3.38
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Muscle percentage (Whole body)

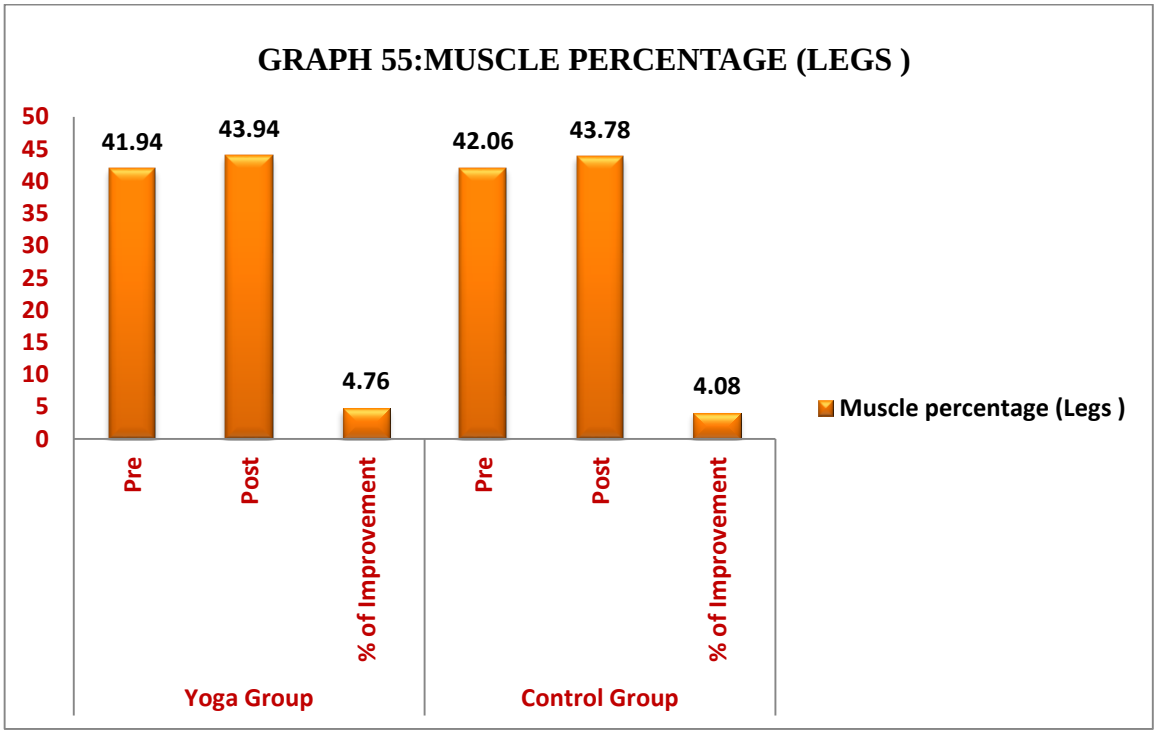

GRAPH 50:SUBCUTANEOUS FAT (ARMS)
50
40
30
20
10
0
-10
-20
39.23
34.62
-11.75
38.9
36.02
-7.14
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Subcutaneous fat (Arms)

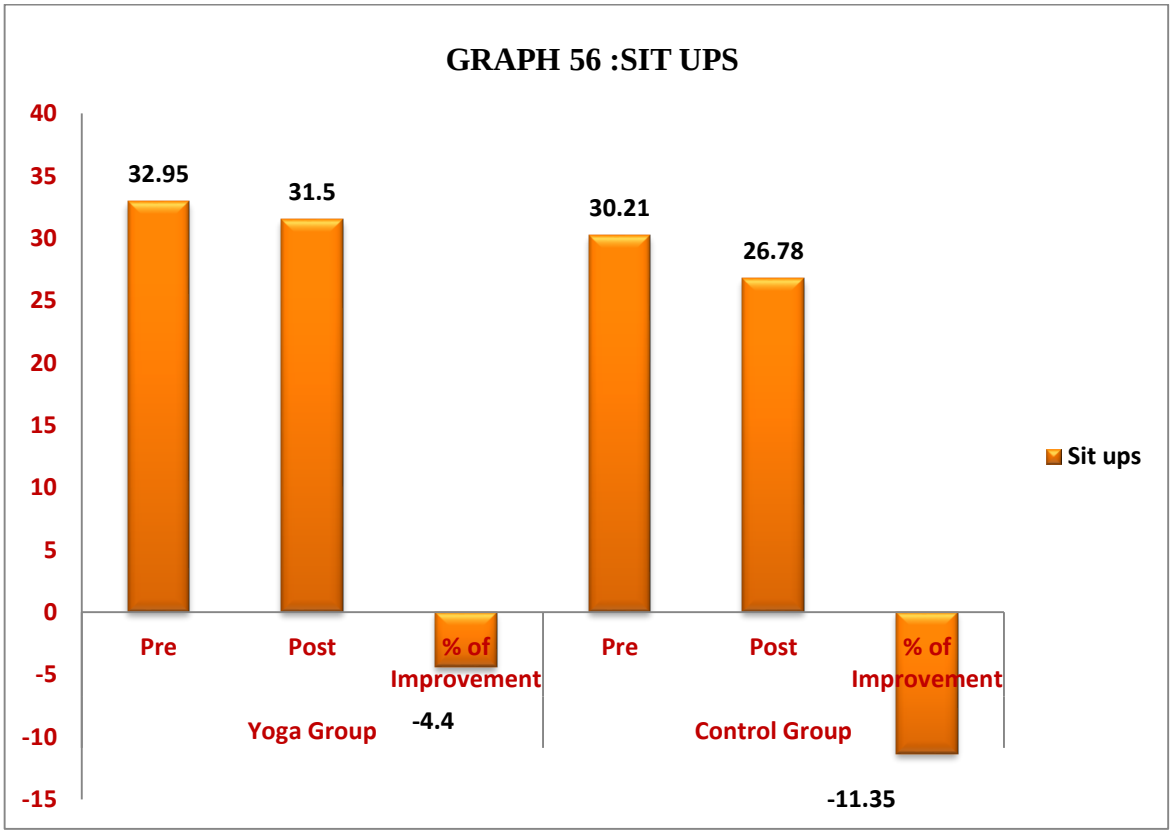

GRAPH 51:MUSCLE PERCENTAGE (ARMS)
40
35
30
25
20
15
10
5
0
31.01
33.98
9.57
30.62
33.47
9.3
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Muscle percentage (Arms)


GRAPH 52:SUBCUTANEOUS FAT (TRUNK)
25
20
15
10
5
0
-5
-10
-15
-20
22.21
19.23
-13.41
21.34
20.07
-5.95
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Subcutaneous fat (Trunk)


GRAPH 53:MUSCLE PERCENTAGE (TRUNK)
25
20
15
10
5
0
20.58
21.55
4.71
20.87
21.2
1.58
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Muscle percentage (Trunk)


GRAPH 54:SUBCUTANEOUS FAT (LEGS)
50
40
30
20
10
0
-10
-20
38.35
34.27
-10.63
38.75
35.92
-7.3
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Subcutaneous fat (Legs)


GRAPH 55:MUSCLE PERCENTAGE (LEGS)
50
45
40
35
30
25
20
15
10
5
0
41.94
43.94
4.76
42.06
43.78
4.08
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Muscle percentage (Legs)


GRAPH 56 :SIT UPS
40
35
30
25
20
15
10
5
0
-5
-10
-15
32.95
31.5
-4.4
30.21
26.78
-11.35
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Sit ups

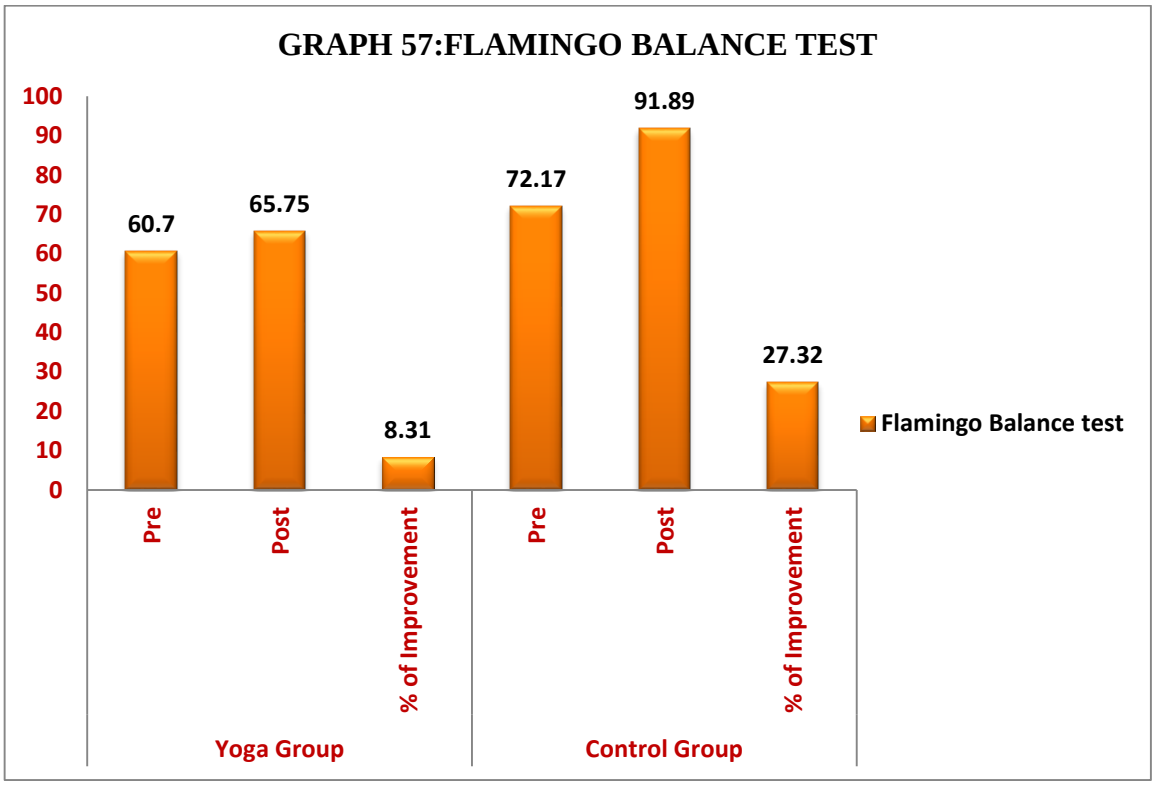

GRAPH 57:FLAMINGO BALANCE TEST
100
90
80
70
60
50
40
30
20
10
0
60.7
65.75
8.31
72.17
91.89
27.32
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
Flamingo Balance test

TABLE 19

SHOWS RESULTS OF WITHIN GROUP ANALYSIS OF YOGA GROUP (*n*= 25).

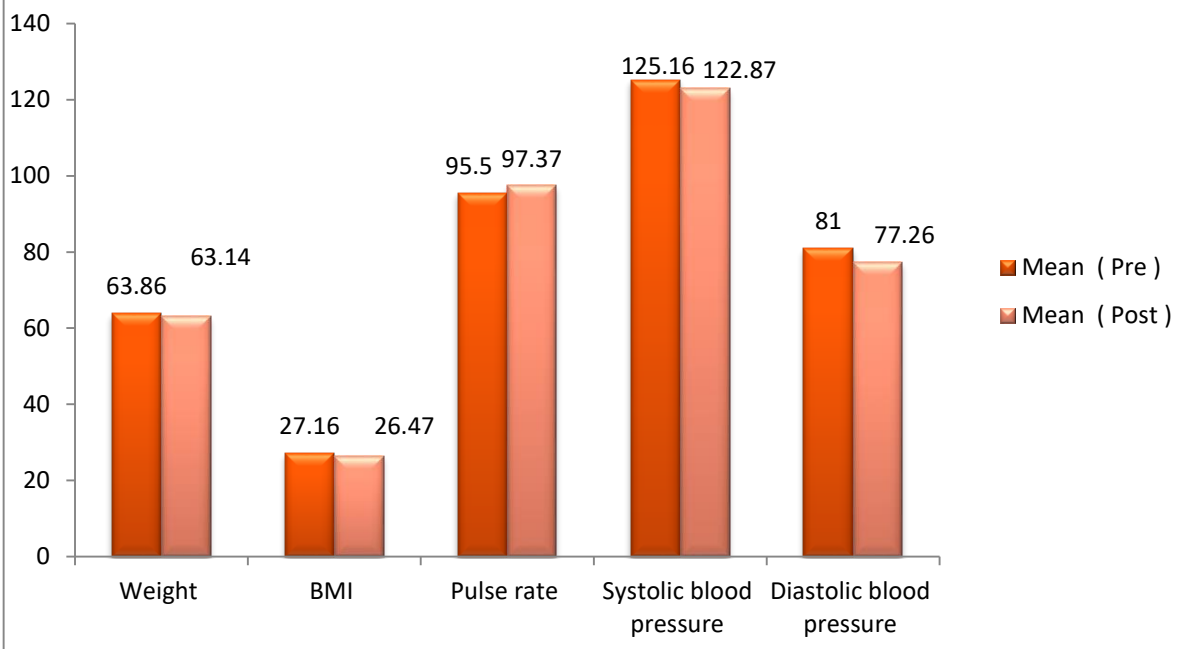
No.	Variable	Mean (Pre)	Mean (Post)	t / z value	p value
1	Weight	63.86 ± 15.52	63.14 ± 15.28	2.359 a	0.018*
2	BMI	27.16 ± 5.04	26.47 ± 4.85	3.344 a	0.001*
3	Pulse rate	95.5 ± 11.7	97.37 ± 14.48	0.529 a	0.597
4	Systolic blood pressure	125.16 ± 11.06	122.87 ±13.42	1.037 a	0.3
5	Diastolic blood pressure	81 ± 6.83	77.26 ± 17.63	1.712 a	0.087
6	Mid arm circumference	11.23 ± 1.03	11.07 ± 0.93	0.716 a	0.474
7	Abdominal circumference	35.89 ± 3.69	35.5 ± 3.77	0.902 b	0.376
8	Waist circumference	37.65 ± 4.48	37.77 ± 4.81	0.602 b	0.553
9	Hip circumference	39.49 ± 4.63	38.21 ± 4.71	3.68 b	0.001*
10	Total body fat percentage	29.83 ± 3.46	27.76 ± 2.72	4.40 b	0.001*
11	Resting metabolism	1382.83±205.34	1404.33 ± 263.73	1.33 a	0.183
12	Subcutaneous fat Whole bod	25.57 ± 5.58	21.96 ± 4.32	2.57 a	0.01∞
13	Muscle per% Whole body)	27.13 ± 3.51	28.26 ± 2.89	1.77 b	0.076
14	Subcutaneous fat (Arms)	39.23 ± 8.58	34.62 ± 6.47	2.315 a	0.021∞
15	Muscle percentage (Arms)	31.01± 6.78	33.98 ± 5.07	2.032 a	0.042∞
16	Subcutaneous fat (Trunk)	22.21 ± 5.35	19.23 ± 3.29	3.085 b	0.005∞
17	Muscle percentage (Trunk)	20.58 ± 2.97	21.55 ± 2.20	2.480 b	0.021∞
18	Subcutaneous fat (Legs)	38.35 ± 8.27	34.27 ± 6.29	2.307 b	0.03∞
19	Muscle percentage (Legs)	41.94 ± 5.21	43.94 ± 4.65	1.359b	0.187
20	Sit ups	32.95 ± 7.02	31.5 ± 9.38	0.582 b	0.566
21	Flamingo Balance test	60.70 ± 37.07	65.75 ± 38.48	1.845 a	0.065

* Significance at 0.01 ∞ Significance at 0.05

a Wilcox test b Paired sample t test

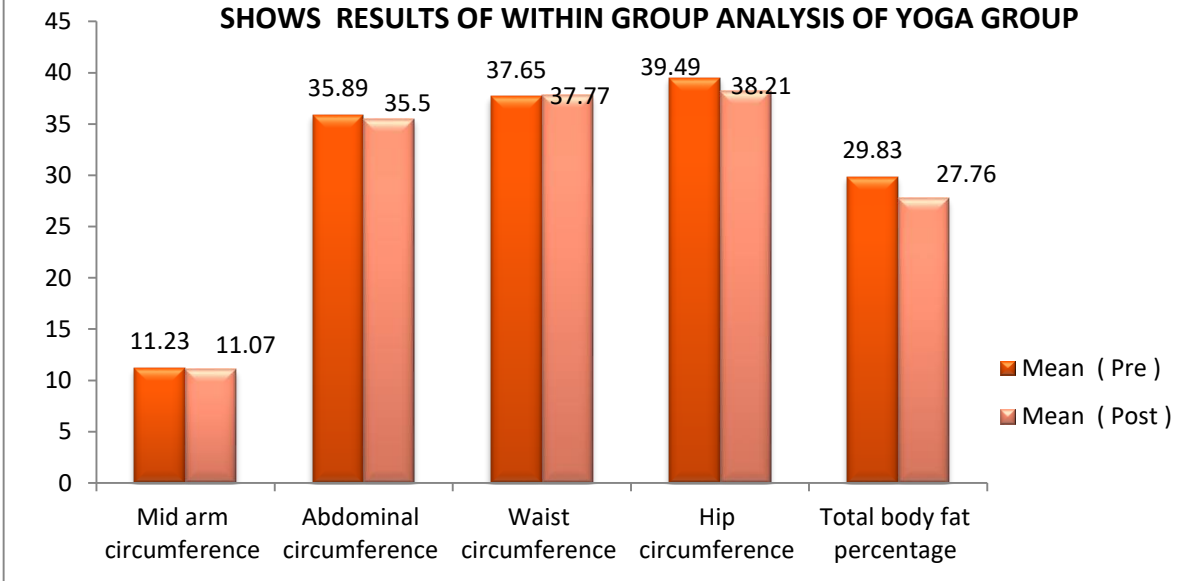
GRAPH- 58: RESULTS OF MAIN STUDY

SHOWS RESULTS OF WITHIN GROUP ANALYSIS OF YOGA GROUP



GRAPH-59: RESULTS OF MAIN STUDY

SHOWS RESULTS OF WITHIN GROUP ANALYSIS OF YOGA GROUP

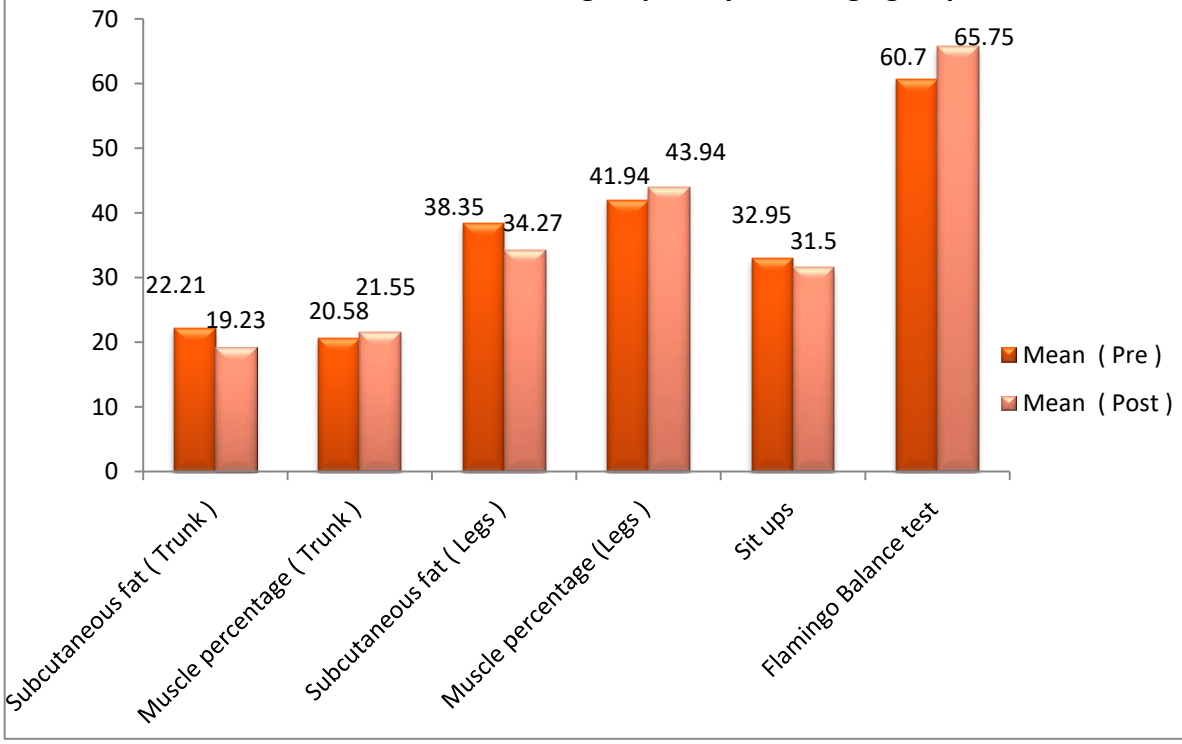


GRAPH 60: RESULTS OF MAIN STUDY

SHOWS RESULTS OF WITHIN GROUP ANALYSIS OF YOGA GROUP

GRAPH 61: RESULTS OF THE MAIN STUDY

Shows Results of within group analysis of Yoga group



Hip circumference (p = 0.001), total body fat percentage (p = 0.001), trunk subcutaneous fat (p = 0.005) and legs subcutaneous fat (p = 0.03) reduced significantly whereas abdominal circumference (p = 0.376) reduced but without significance. Trunk muscle percentage (p = 0.021) increased significantly. Waist circumference (p= 0.553) increased but without significance. Whole body muscle percentage (p = 0.076) and legs muscle percentage (p = 0.187) increased but without significance. Number of sit ups per minute (p = 0.566) is decreased but without significance.

Parameters like weight, BMI, mid arm circumference, pulse rate, systolic blood pressure, diastolic blood pressure, resting metabolism, whole body subcutaneous fat, arm subcutaneous fat, arm muscle percentage and flamingo balance test were not normally distributed. Weight

(p = 0.018), BMI (p = 0.001), whole body subcutaneous fat (p = 0.01), arm subcutaneous fat (p = 0.021) reduced significantly whereas systolic blood pressure (p = 0.30), diastolic blood pressure (p = 0.087) and mid arm circumference (p = 0.474) reduced but without significance. Muscle percentage of arms (p = 0.042) increased significantly whereas pulse rate (p = 0.597), Flamingo balance test (p = 0.065) increased but without significance.

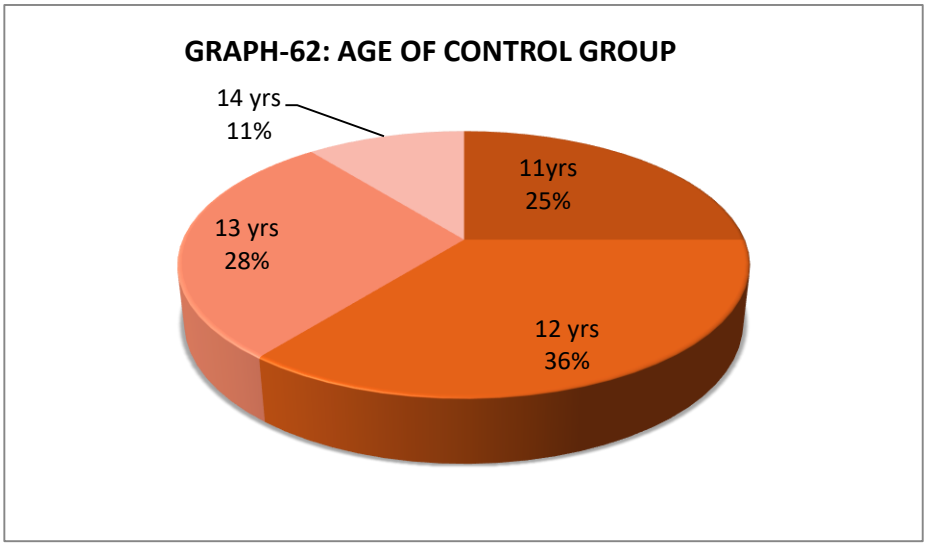
Results of within group analysis of Control group are given in Table. Parameters like abdominal circumference, waist circumference, hip circumference, total body fat percentage, trunk subcutaneous fat, trunk muscle percentage, legs subcutaneous fat, legs muscle percent

age and sit ups per minute were normally distributed. Number of sit ups per minute (p = 0.023) decreased significantly whereas abdominal circumference (p = 0.730), hip circumference (p = 0.226), total body fat percentage (p = 0.876), trunk subcutaneous fat

(p = 0.186) and legs subcutaneous fat (p = 0.162) reduced but without significance. Waist circumference (p = 0.244), trunk muscle percentage (p = 0.427) and legs muscle percentage (p = 0.270) increased but without significance.

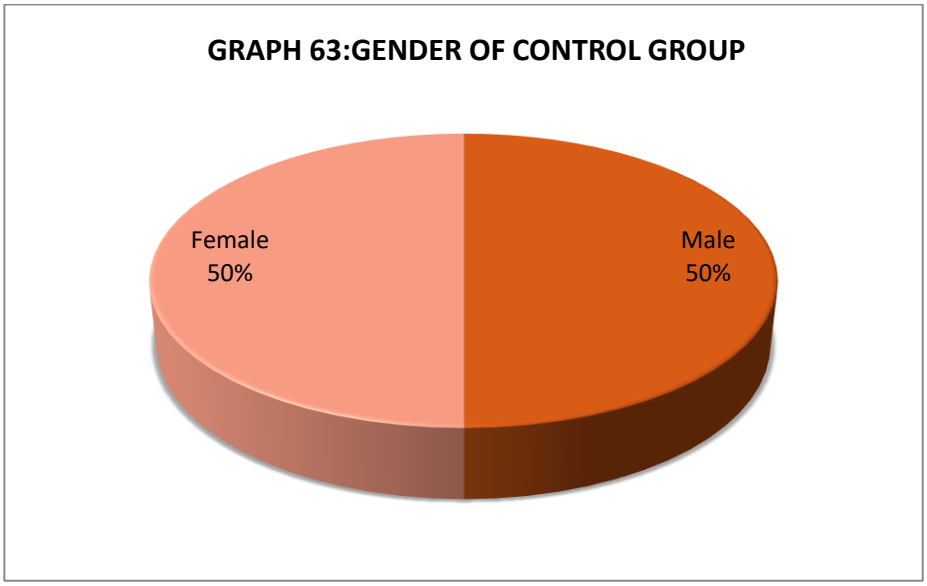
In Control Group, age of participants was as follows:-

Age	No of Participants
11yrs	7
12 yrs	10
13 yrs	8
14 yrs	3



In Control Group, 14 male & 14 female participants were there.

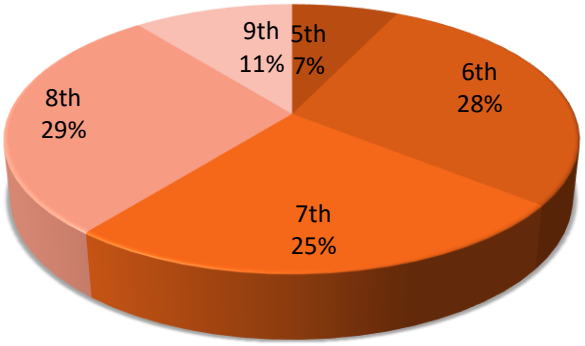
Gender	No of Participants
Male	14
Female	14



In Control Group, no. of participants in each standard was as follows:-

STANDARD	No of Participants
5th	2
6th	8
7th	7
8th	8
9th	3

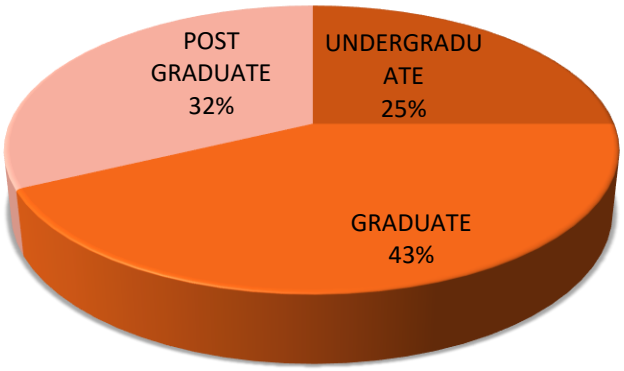
GRAPH 64: STANDARD OF CONTROL GROUP



In Control Group, status of parent education was as follows:-

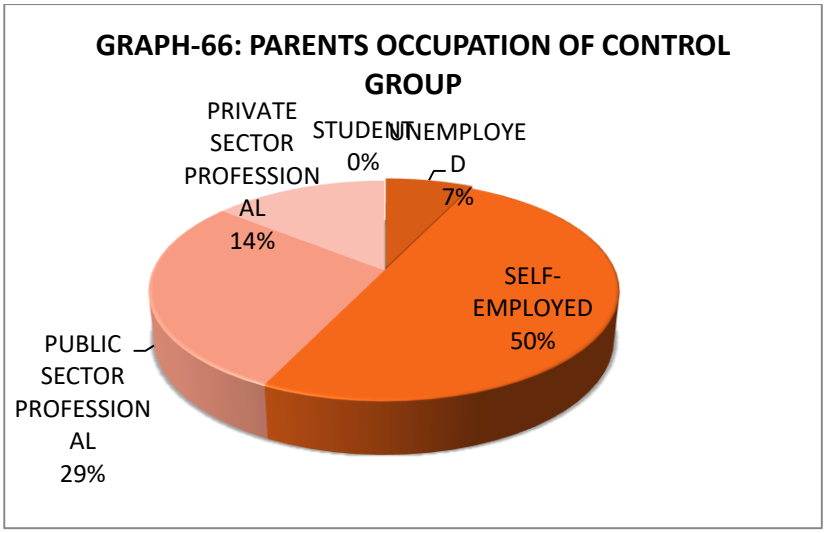
Parent Education	No of Participants
UNDERGRADUATE	7
GRADUATE	12
POST GRADUATE	9

GRAPH 65: PARENTS EDUCATION OF CONTROL GROUP



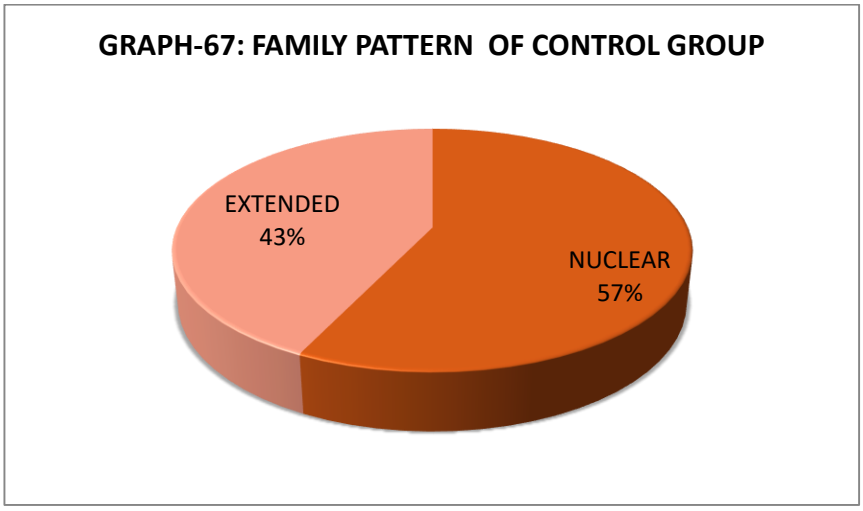
In Control Group, status of parent occupation was as follows:-

OCCUPATION	No of Participants
STUDENT	0
UNEMPLOYED	2
SELF-EMPLOYED	14
PUBLIC SECTOR PROFESSIONAL	8
PRIVATE SECTOR PROFESSIONAL	4



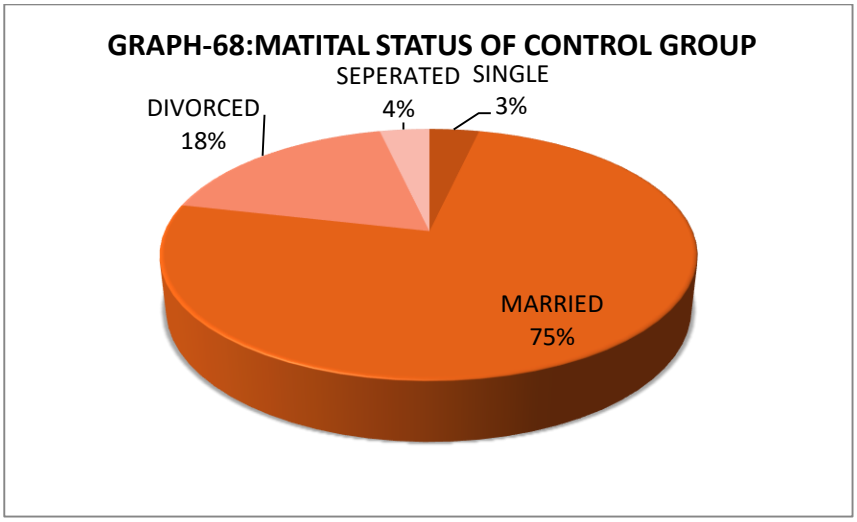
In Control Group, status of family was as follows:-

Family status	No of Participants
NUCLEAR	16
EXTENDED	12



In Control Group, marietal status of parents:

MARITAL STATUS	No of Participants
SINGLE	1
MARRIED	21
DIVORCED	5
SEPERATED	1



In Control Group, family income was as follows:-

FAMILY INCOME/YEAR	No of Participants
INR 1 LAKH TO 5 LAKH - 1	3
INR 5 LAKH TO 10 LAKH - 2	3
INR 10 LAKH TO 15 LAKH - 3	12
INR 15 LAKH AND ABOVE - 4	10

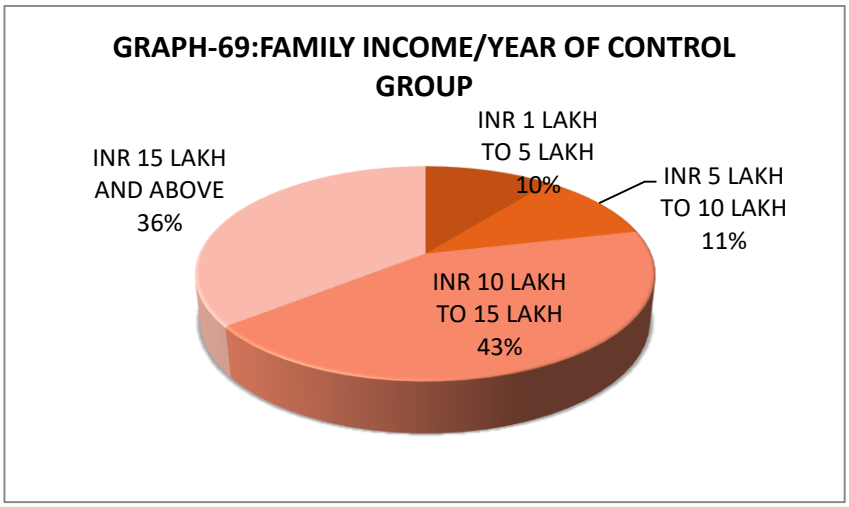
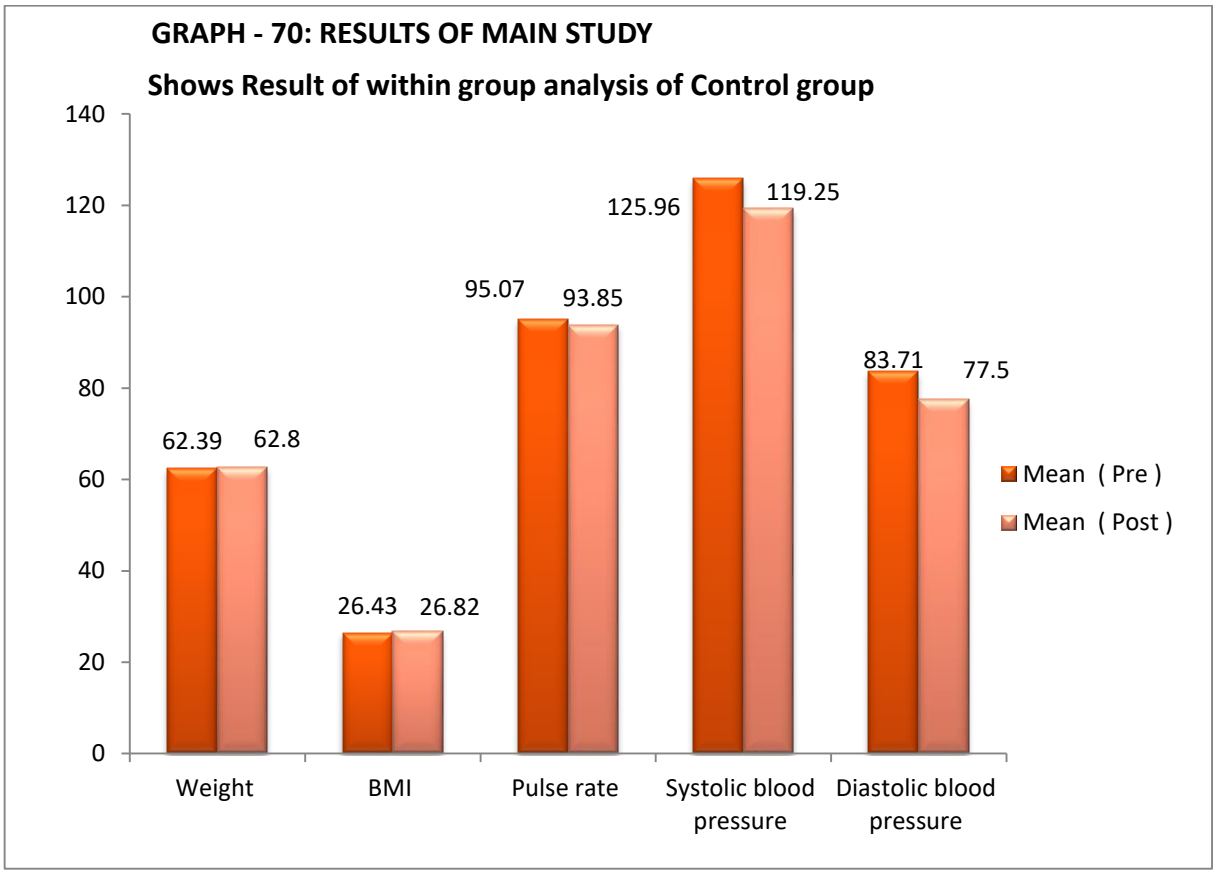


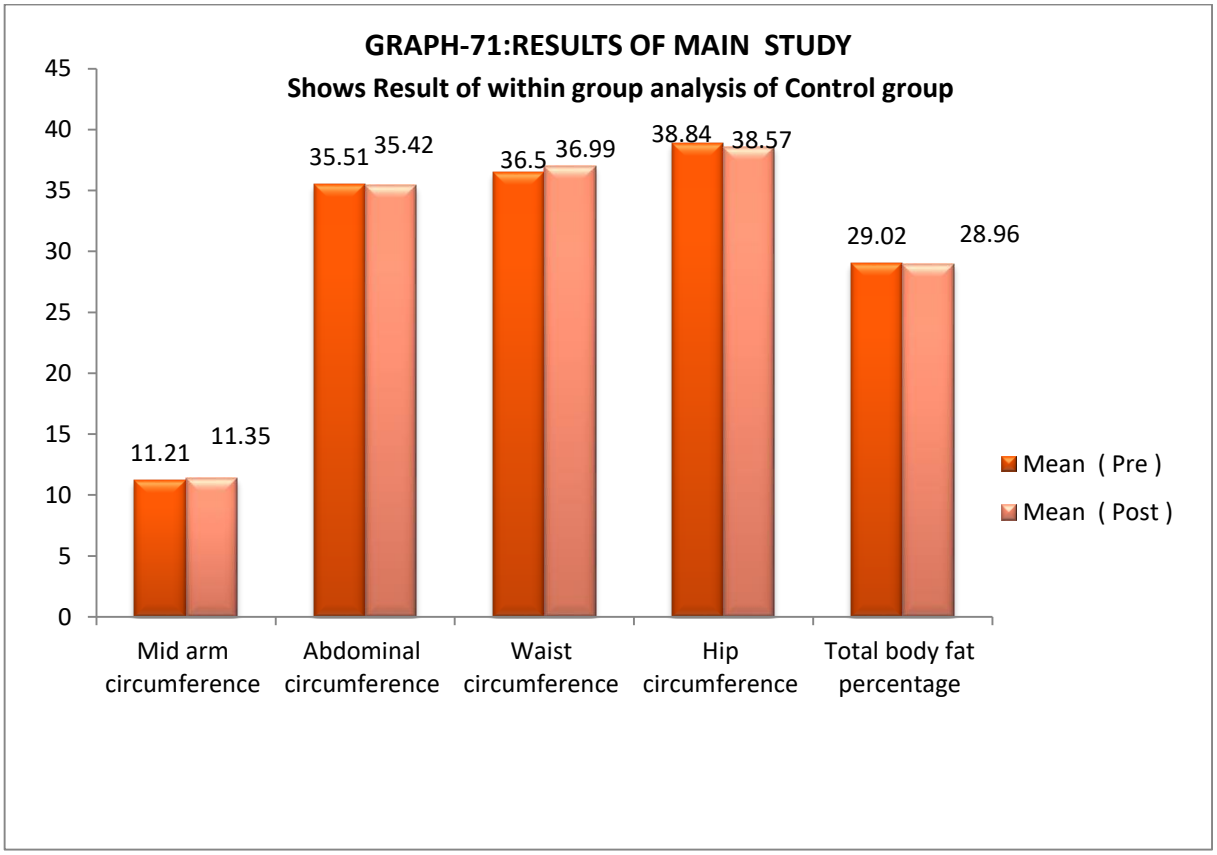
TABLE -20

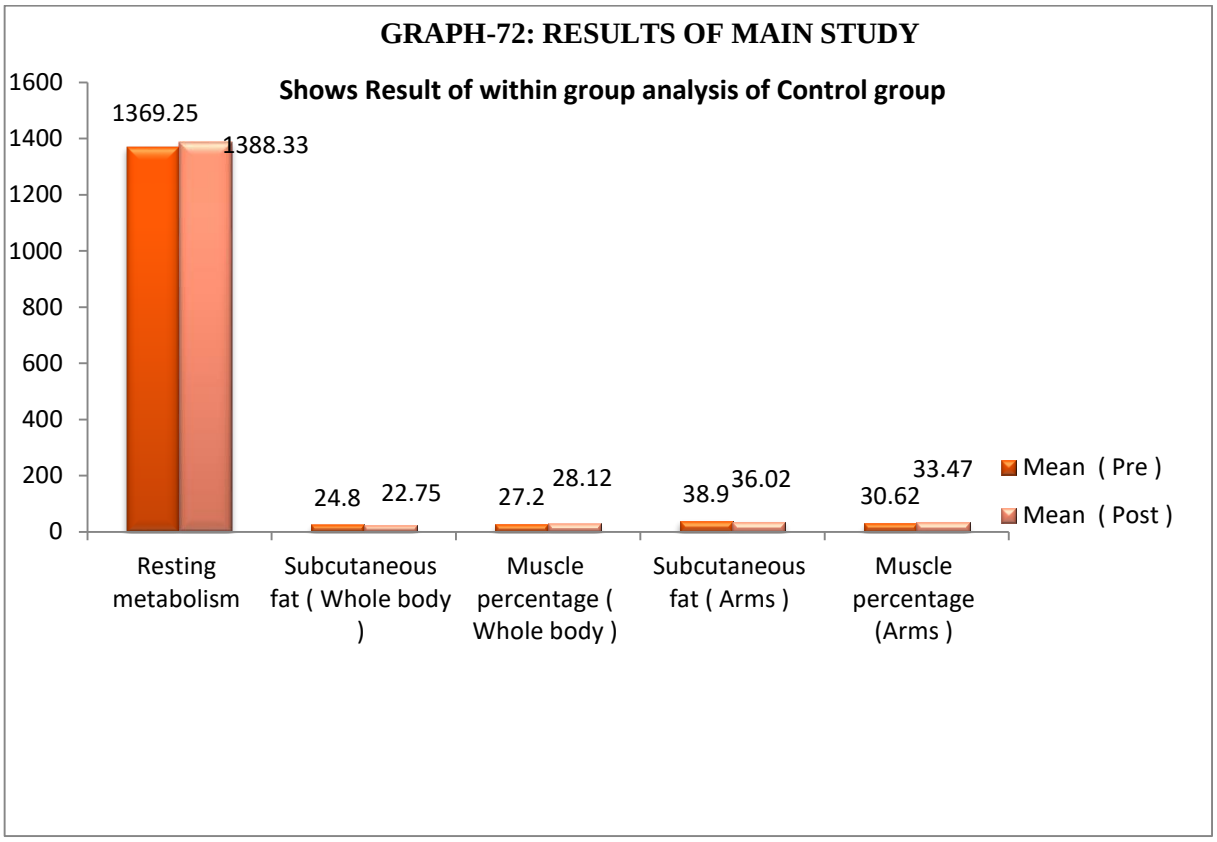
SHOWS RESULTS OF WITHIN GROUP ANALYSIS OF CONTROL GROUP (*n*= 28)

No	Variable	Mean Pre value	Mean Post value	t value	p value
1	Weight	62.39 ± 14.21	62.8 ± 14.73	1.646 a	0.1
2	BMI	26.43 ± 3.53	26.82 ± 3.58	0.108 a	0.914
3	Pulse rate	95.07 ± 12.7 7	93.85 ± 11.31	0.781 a	0.435
4	Systolic blood pressure	125.96 ± 18.54	119.25 ± 13.68	2.596 a	0.009∞
5	Diastolic blood pressure	83.71 ± 9.78	77.5 ± 8.05	2.90 a	0.004∞
6	Mid arm circumference	11.21 ± 1.37	11.35 ± 1.42	1.160 a	0.246
7	Abdominal circumference	35.51 ± 3.27	35.42 ± 3.28	0.348 b	0.73
8	Waist circumference	36.50 ± 3.01	36.99 ± 3.67	1.192b	0.244
9	Hip circumference	38.84 ± 3.71	38.57 ± 3.93	1.240 b	0.226
10	Total body fat percentage	29.02 ± 2.65	28.96 ± 2.17	0.157 b	0.876
11	Resting metabolism	1369.25 ± 218.60	1388.33 ± 238.43	1.287 a	0.198
12	Subcutaneous fat Whole body	24.80 ± 5.11	22.75 ± 4.56	1.150 a	0.25
13	Muscle percentage Whole bod	27.20 ± 3.06	28.12 ± 2.93	1.059 a	0.29
14	Subcutaneous fat (Arms)	38.90 ± 8.16	36.02 ± 7.03	0.997 a	0.319
15	Muscle percentage (Arms)	30.62 ± 7.27	33.47 ± 6.61	1.261 a	0.207
16	Subcutaneous fat (Trunk)	21.34 ± 4.32	20.07 ± 3.52	1.359 b	0.186
17	Muscle percentage (Trunk)	20.87 ± 2.40	21.2 ± 2.08	0.806 b	0.427
18	Subcutaneous fat (Legs)	38.75 ± 8.81	35.92 ± 7.71	1.439 b	0.162
19	Muscle percentage (Legs)	42.06 ± 4.94	43.78 ± 4.95	1.128b	0.27
20	Sit ups	30.21 ± 8.74	26.78 ± 7.36	2.419 b	0.023∞
21	Flamingo Balance test	72.17 ± 56.41	91.89 ± 58.65	1.173 a	0.241

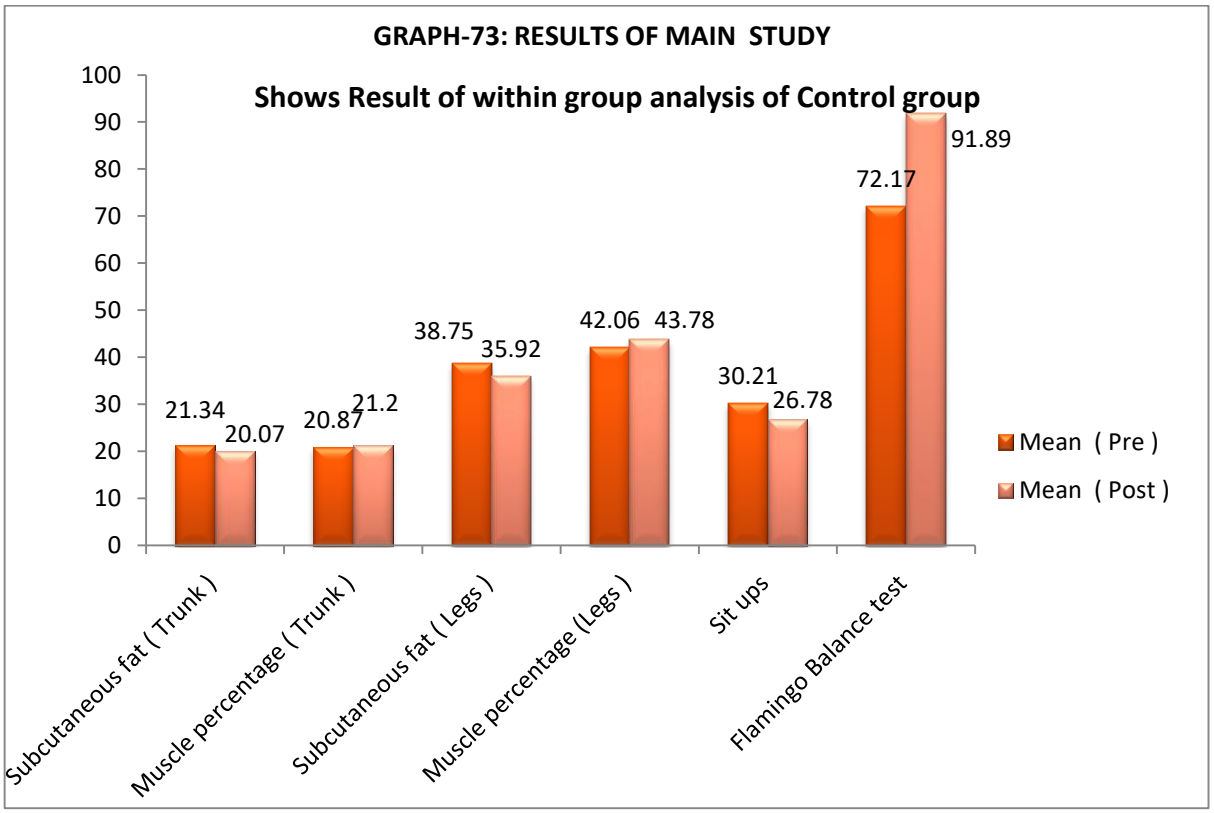
∞ Significance at 0.05
a Wilcoxn Test
b Paired Ssample t test


GRAPH - 70: RESULTS OF MAIN STUDY
Shows Result of within group analysis of Control group
140
120
100
80
60
40
20
0
62.39
62.8
26.43
26.82
95.07
93.85
125.96
119.25
83.71
77.5
Weight
BMI
Pulse rate
Systolic blood pressure
Diastolic blood pressure
Mean (Pre)
Mean (Post)


GRAPH-71:RESULTS OF MAIN STUDY
Shows Result of within group analysis of Control group
45
40
35
30
25
20
15
10
5
0
11.21
11.35
35.51
35.42
36.5
36.99
38.84
38.57
29.02
28.96
Mid arm circumference
Abdominal circumference
Waist circumference
Hip circumference
Total body fat percentage
Mean (Pre)
Mean (Post)



Parameters like weight, BMI, mid arm circumference, pulse rate, systolic blood pressure, diastolic blood pressure, resting metabolism, whole body subcutaneous fat, arm subcutaneous fat, arm muscle percentage and flamingo balance test were not normally distributed. Systolic blood pressure (p = 0.009), diastolic blood pressure (p = 0.004) reduced significantly whereas pulse rate (p = 0.435), whole body subcutaneous fat (p = 0.250), arm subcutaneous fat (p = 0. 319) reduced but without significance. Weight (p = 0.100), BMI (p = 0.914), mid arm circumference (p = 0.246), resting metabolism (p = 0.198), whole body muscle percentage (p = 0.290) and Flamingo balance test (p = 0.241) increased but without significance.



Analysis of in between Yoga and control group states that abdominal circumference of Yoga group decreased significantly than that of Control group (p = 0.05). Weight, BMI, mid-arm circumference, hip circumference, total body fat percentage, subcutaneous fat of whole body, arm, trunk and legs has been reduced more in Yoga group than that of Control group but without significance. Number of sit ups, systolic blood pressure and diastolic blood pressure is decreased in control group more than that of Yoga group but without significance. Pulse rate is found to be increased in Yoga group whereas that of control group is reduced but without significance. Waist circumference is increased more in control group than that of Yoga group but without significance. Resting metabolism, muscle percentage of whole body, arm, trunk and legs are increased more in Yoga group than that of Control group but without significance. Flamingo balance test has been increased more in control group than that of Yoga group but without significance.

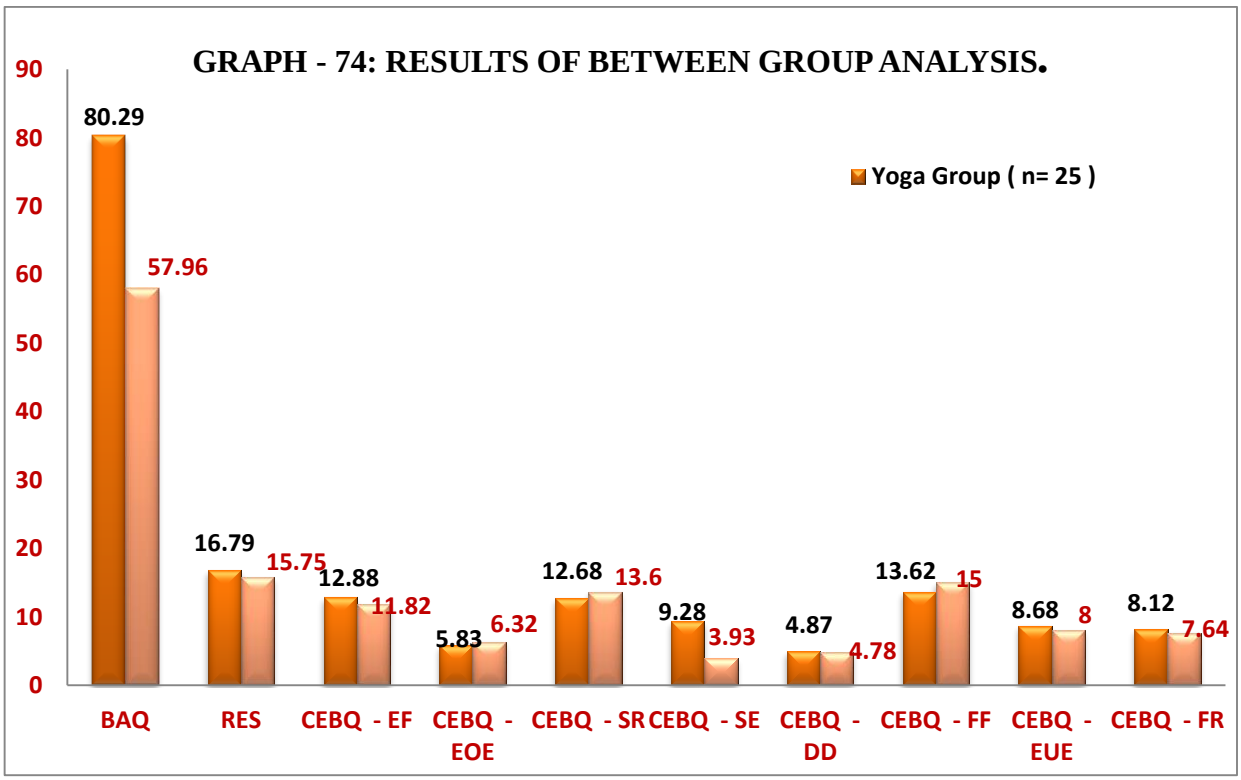
The result of Psychological Parameters is as follows:-

TABLE NO. 21

RESULTS OF BETWEEN GROUP ANALYSIS

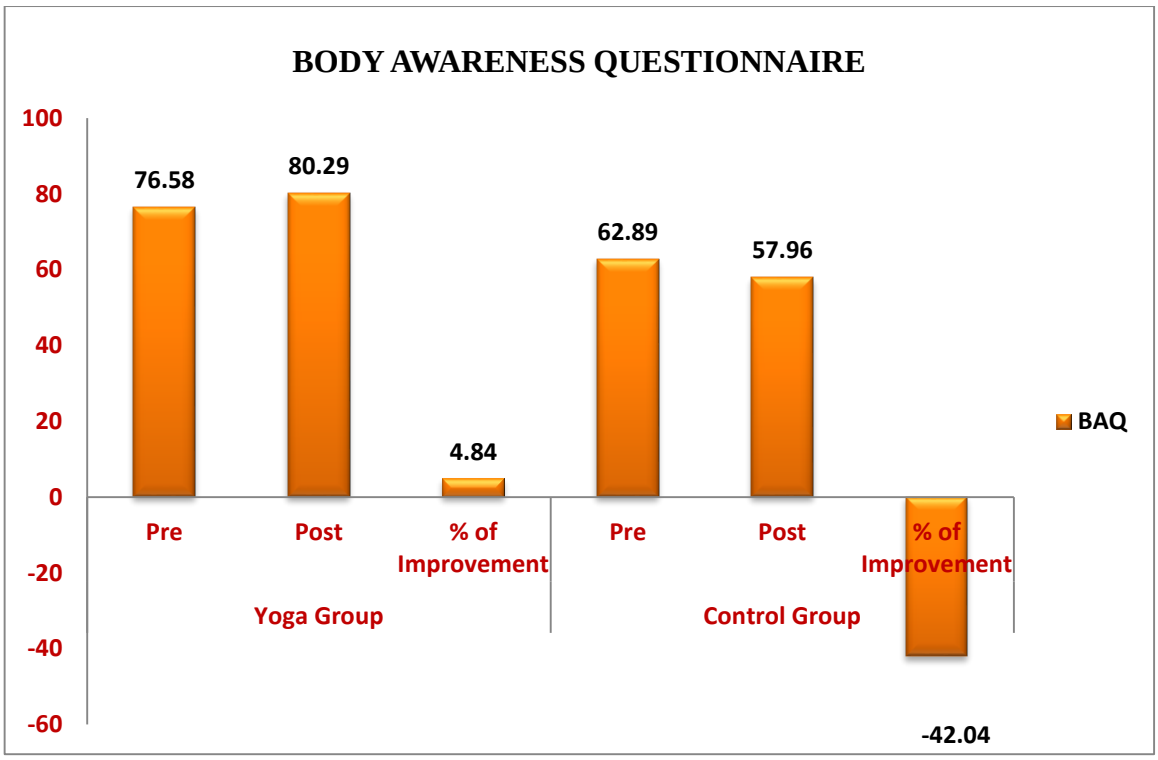
No.	Variables	Yoga Group (n= 25) Pre	Post	% of Difference	Pre	Control Group (n= 28) Post	% of Difference	Z / t value	p value
1	BAQ	76.58 ± 19.37	80.29 ± 16.31	4.84	62.89 ± 19.48	57.96 ± 17.14	-42.04	-1.830 b	0.07
2	RES	16.33 ± 2.83	16.79 ± 2.37	2.81	14.75 ± 3.83	15.75 ± 2.88	-84.25	-1.070 a	0.28
3	CEBQ - EF	14.88 ± 4.15	12.88 ± 3.71	-13.44	13.21 ± 3.21	11.82 ± 3.25	-88.81	0.656 b	0.51
4	CEBQ - EOE	07.36 ± 3.18	05.83 ± 3.14	-20.78	7.82 ± 4.19	6.32 ± 3.74	-93.68	-.779 a	0.43
5	CEBQ - SR	14.28 ± 3.76	12.68 ± 2.98	-11.2	11.82 ± 3.48	13.60 ± 3.96	-86.4	2.817 b	0.007*
6	CEBQ - SE	09.60 ± 4.07	09.28 ± 2.90	-3.33	11.28 ± 10.14	3.93 ± 3.18	-96.07	-0.880 b	0.38
7	CEBQ - DD	05.04 ± 2.44	04.87 ± 2.69	-3.37	6.21 ± 2.91	4.78 ± 2.20	-95.22	-.047 a	0.96
8	CEBQ - FF	14.12 ± 5.21	13.62 ± 5.46	-3,54-	16.64 ± 5.25	15 ± 5.01	-85	-.829 a	0.40
9	CEBQ - EUE	09.32 ± 3.54	8.68 ± 4.31	6.86	10.60 ± 4.39	8 ± 4.18	-92	-.664 a	0.50
10	CEBQ - FR	11.24 ± 5.22	8.12 ± 4.71	27.75	9.78 ± 4.68	7.64 ± 3.34	-92.36	1.037 b	0.3

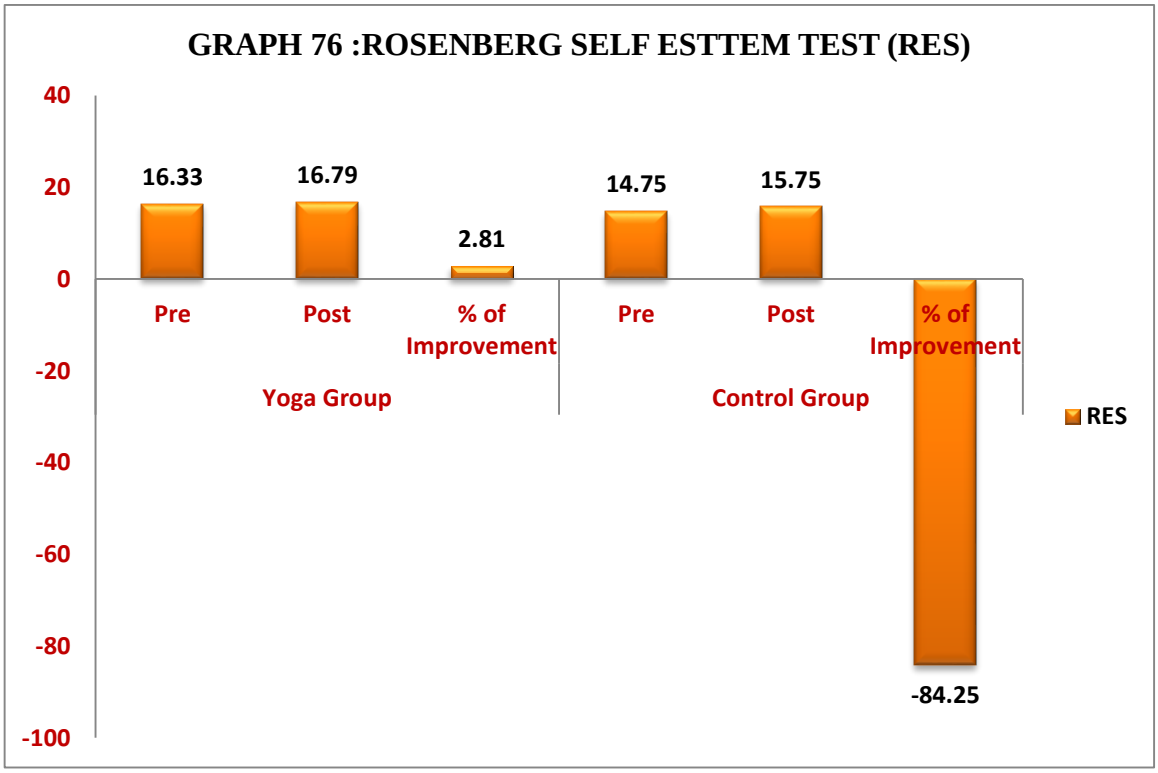
a Mann-Whitney U test.
b Independent samples t-test

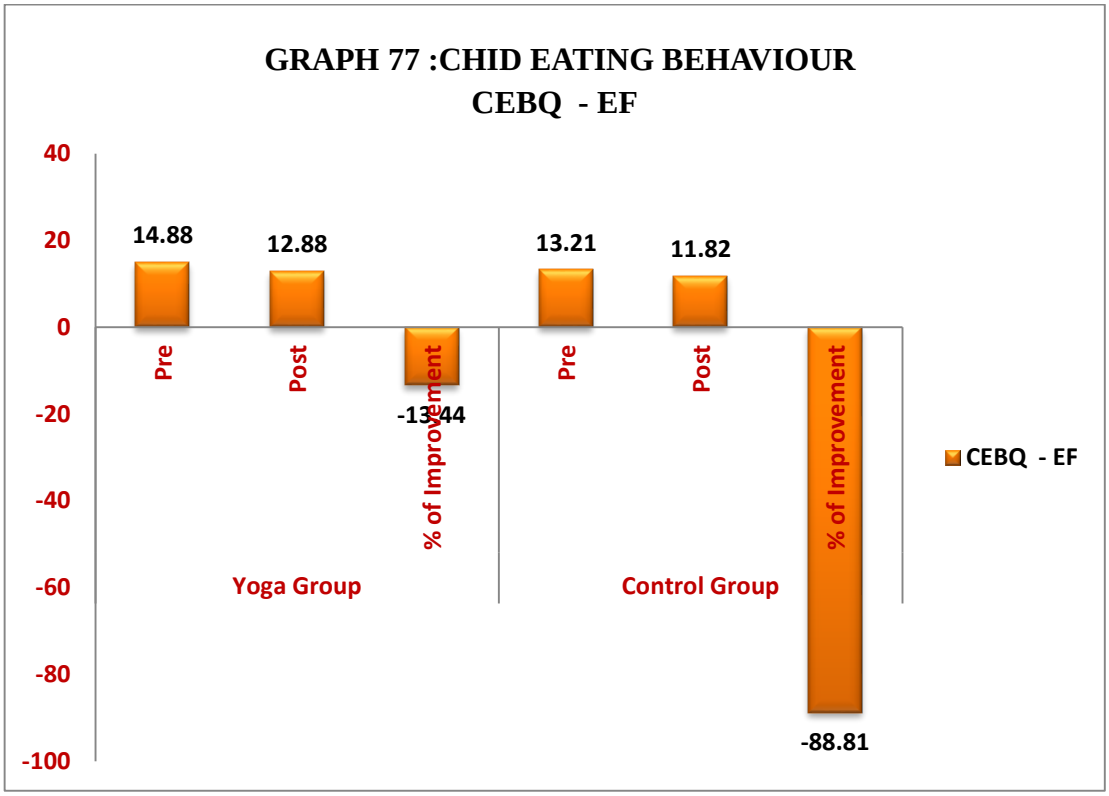


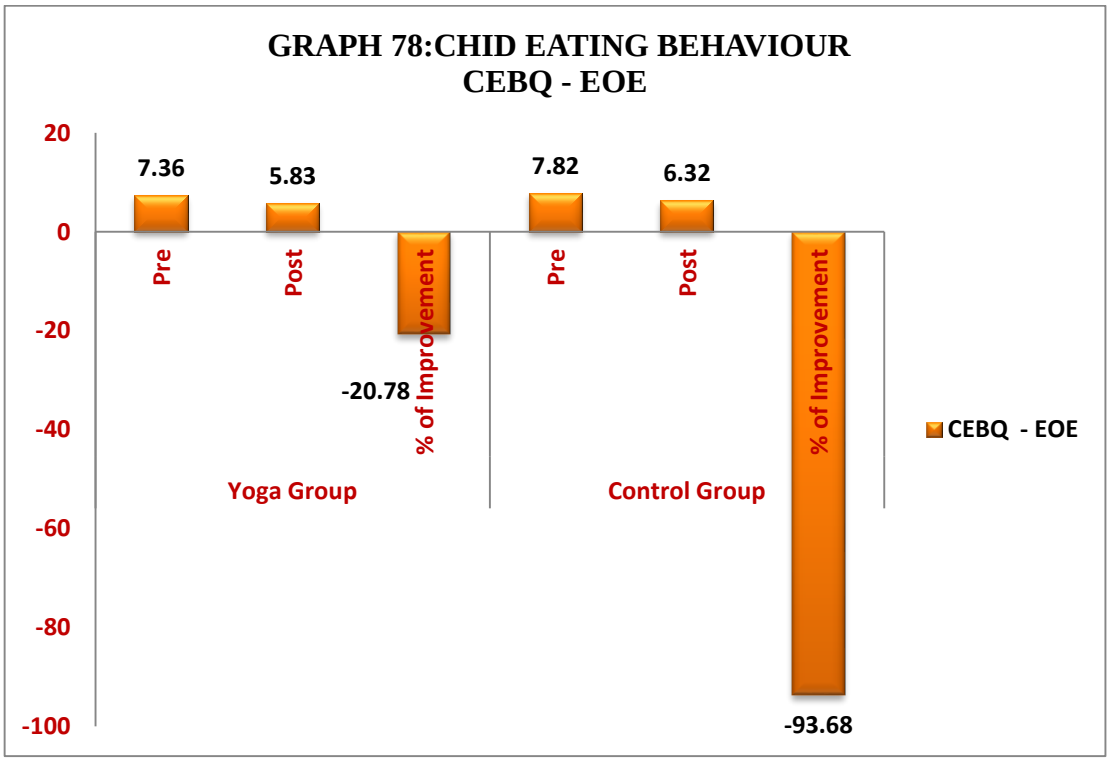
PSYCHOLOGIAL ASSESMENTS

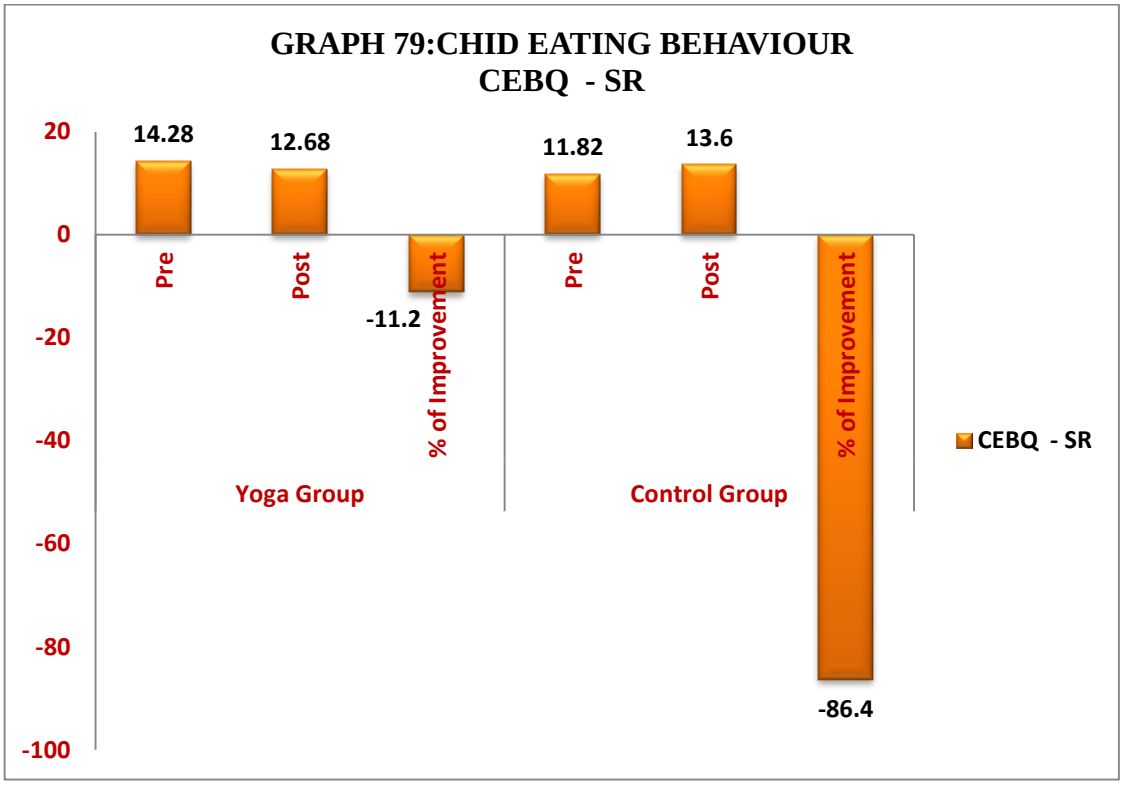
GRAPH 75: RESULT OF IN BETWEEN GROUP ANALYSIS BODY AWARENESS

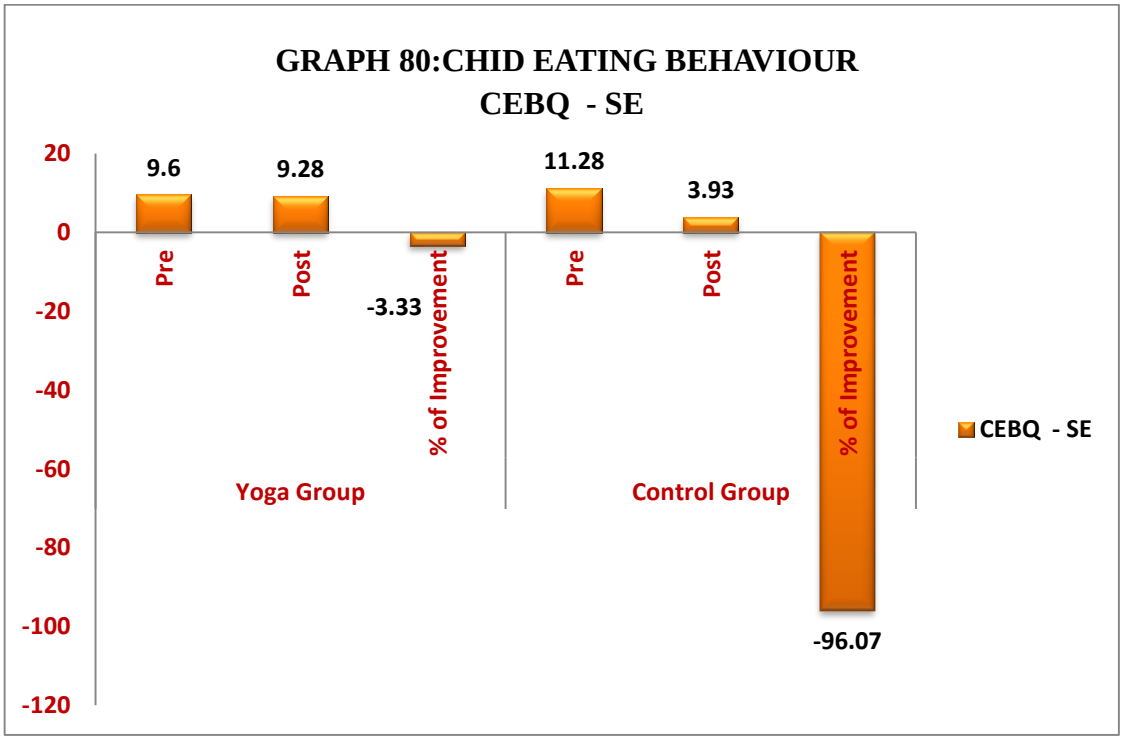


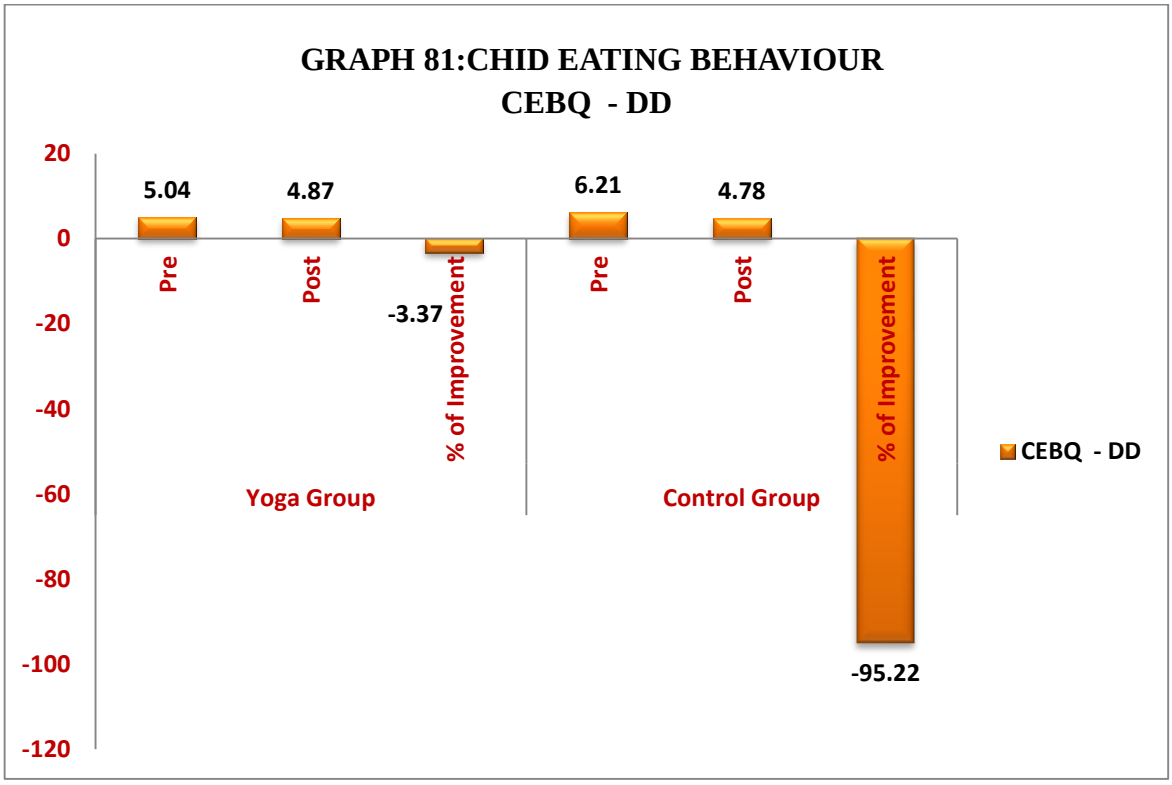


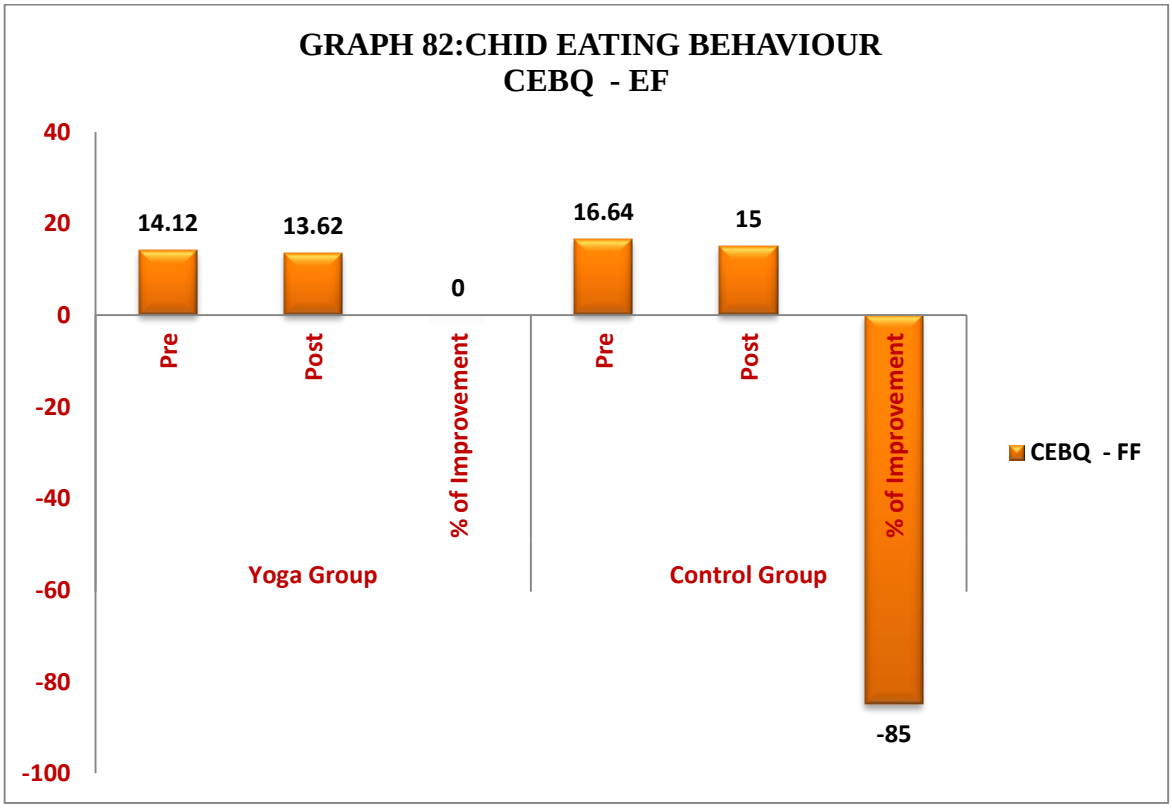

GRAPH 77 :CHID EATING BEHAVIOUR
CEBQ - EF
40
20
0
-20
-40
-60
-80
-100
14.88
12.88
-13.44
13.21
11.82
-88.81
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
CEBQ - EF


GRAPH 78:CHID EATING BEHAVIOUR
CEBQ - EOE
20
0
-20
-40
-60
-80
-100
7.36
5.83
-20.78
7.82
6.32
-93.68
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
CEBQ - EOE

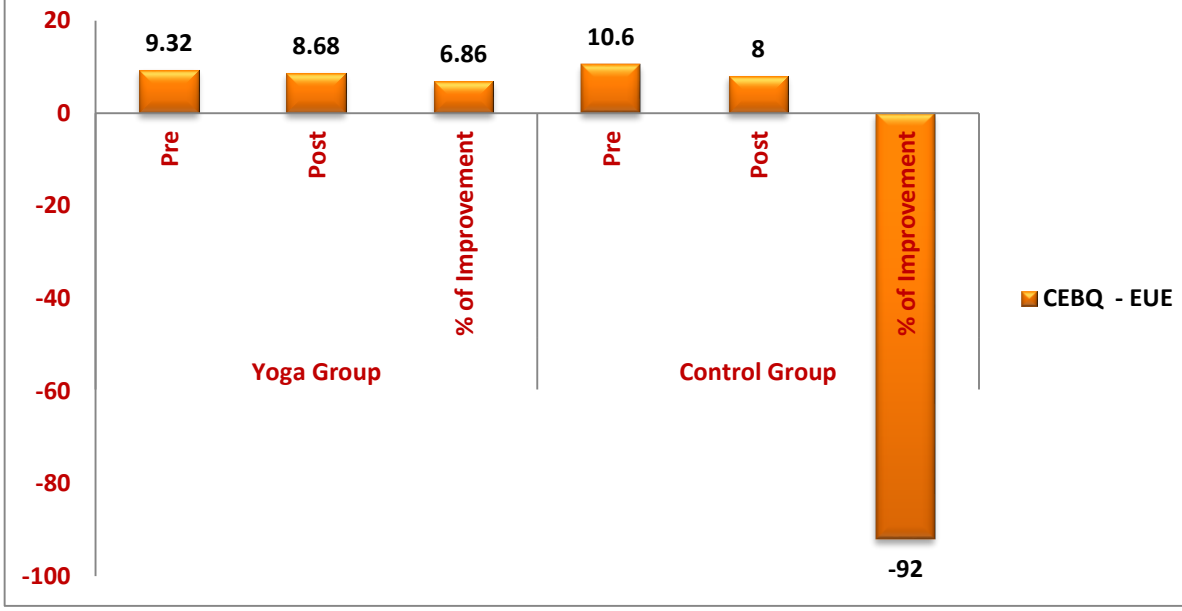

GRAPH 79:CHID EATING BEHAVIOUR
CEBQ - SR
20
0
-20
-40
-60
-80
-100
14.28
12.68
-11.2
11.82
13.6
-86.4
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
CEBQ - SR


GRAPH 80:CHID EATING BEHAVIOUR
CEBQ - SE
20
0
-20
-40
-60
-80
-100
-120
9.6
9.28
-3.33
11.28
3.93
-96.07
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
CEBQ - SE

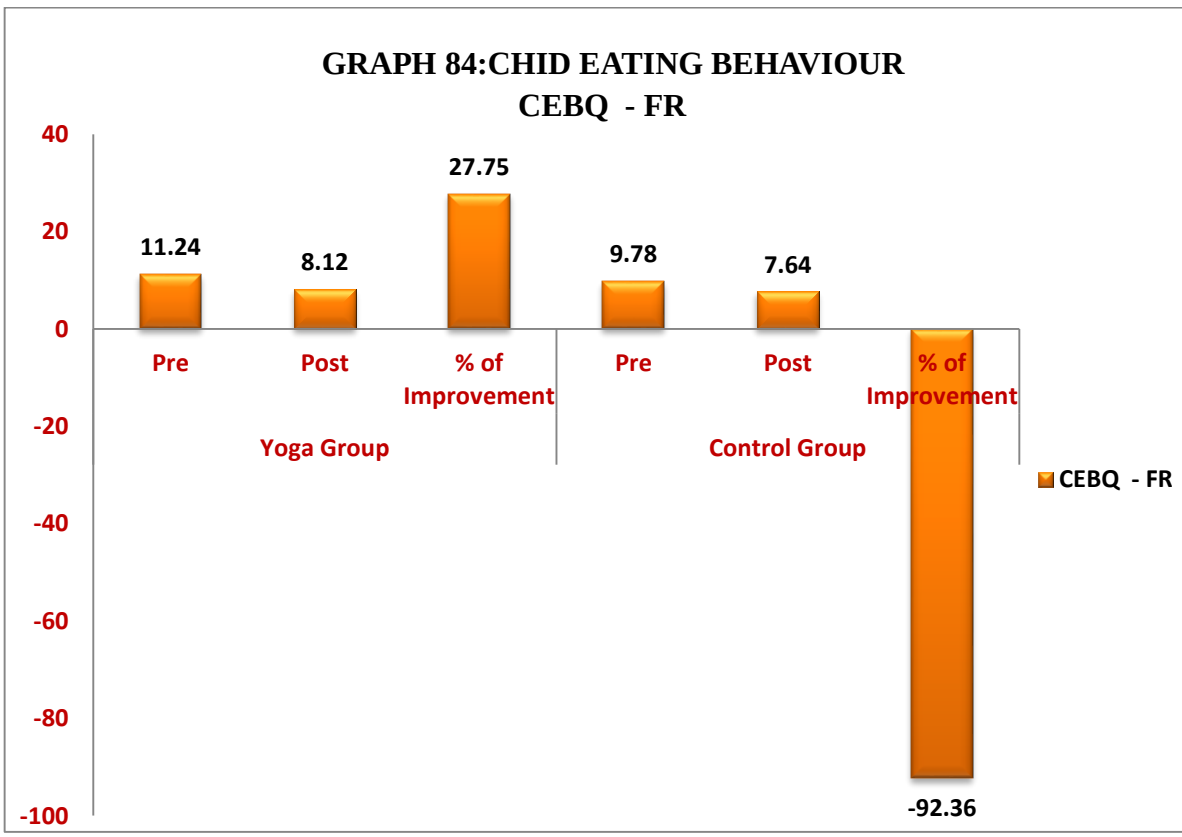

GRAPH 81:CHID EATING BEHAVIOUR
CEBQ - DD
20
0
-20
-40
-60
-80
-100
-120
5.04
4.87
-3.37
6.21
4.78
-95.22
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
CEBQ - DD


GRAPH 82:CHID EATING BEHAVIOUR
CEBQ - EF
40
20
0
-20
-40
-60
-80
-100
14.12
13.62
0
16.64
15
-85
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group
CEBQ - FF

GRAPH 83:CHID EATING BEHAVIOUR
CEBQ - EUE



GRAPH 84:CHID EATING BEHAVIOUR
CEBQ - FR



Analysis of in between Yoga and control group states that BAQ of Yoga group is increased where as that of Control group is increased but without significance (p = 0.07). RES of Yoga group is increased where as that of Control group is also increased but without significance (p = 0.28). CEBQ –EF of Yoga group is decreased where as that of Control group is decreased but without significance (p = 0.51). CEBQ –EOE of Yoga group is decreased where as that of Control group is also decreased but without significance (p = 0.43). CEBQ –SR of Yoga group is decreased where as that of Control group is increased but with significance (p = 0.007). CEBQ –SE of Yoga group is decreased where as that of Control group is also decreased but without significance (p = 0.38). CEBQ –DD of Yoga group is decreased where as that of Control group is also decreased but without significance (p = 0.96). CEBQ –FF of Yoga group is decreased where as that of Control group is also decreased but without significance (p = 0. 40). CEBQ –EUE of Yoga group is decreased where as that of Control group is also decreased but without significance (p = 0. 50). CEBQ –FR of Yoga group is decreased where as that of Control group is also decreased but without significance (p = 0. 30).

The results of Cognitive parameters are as follows:-

TABLE NO.22

RESULTS OF WITHIN GROUP ANALYSIS OF YOGA GROUP (*n*= 25).

No.	Variable	Mean (Pre)	Mean (Post)	t / z value	p value
1	BAQ	76.58 ± 19.37	80.29 ± 16.31	-1.073 b	0.294
2	RES	16.33 ± 2.83	16.79 ± 2.37	-.926 a	0.354
3	CEBQ - EF	14.88 ± 4.15	12.88 ± 3.71	3.176 b	0.004*
4	CEBQ - EOE	07.36 ± 3.18	05.83 ± 3.14	-2.611 a	0.009*
5	CEBQ - SR	14.28 ± 3.76	12.68 ± 2.98	1.789 b	0.086
6	CEBQ - SE	09.60 ± 4.07	09.28 ± 2.90	0.479 b	0.636
7	CEBQ - DD	05.04 ± 2.44	04.87 ± 2.69	-0.461 a	0.645
8	CEBQ - FF	14.12 ± 5.21	13.62 ± 5.46	-0.891 a	0.373
9	CEBQ - EUE	09.32 ± 3.54	8.68 ± 4.31	-0.919 a	0.358
10	CEBQ - FR	11.24 ± 5.22	8.12 ± 4.71	4.058 b	0.001*
a Wilcox test b Paired sample t test * p < 0.05					

Results of within group analysis of Yoga group are given in above Table. Parameters like BAQ (Body Awareness Questionnaire) , CEBQ - EF (Child Eating Behavior Questionnaire - Enjoyment of food) , CEBQ - SR (Satiety responsiveness) , CEBQ - SE (Slowness in eating) , CEBQ - FR (Food responsiveness) – Disinhibition were normally distributed . Parameters like RES (Rosenberg Self-esteem Scale) , CEBQ - EOE (Child Eating Behavior Questionnaire - Emotional over-eating) CEBQ - DD (Desire to drink) , CEBQ - FF (Food fussiness), CEBQ - EUE (Emotional under-eating) .Variables like BAQ (p = 0.29) and RES (p = 0.35) increased but without significance . Variables like CEBQ-EF (p = 0.004), CEBQ-EOE (p = 0.009) and CEBQ-FR (p = 0.001) decreased with significance. Variables like CEBQ-SR (p = 0.08) , CEBQ-SE (p = 0.63) , CEBQ-DD (p = 0.64) , CEBQ-FF (p = 0.37) and CEBQ-EUE (p = 0.35) decreased but without significance .

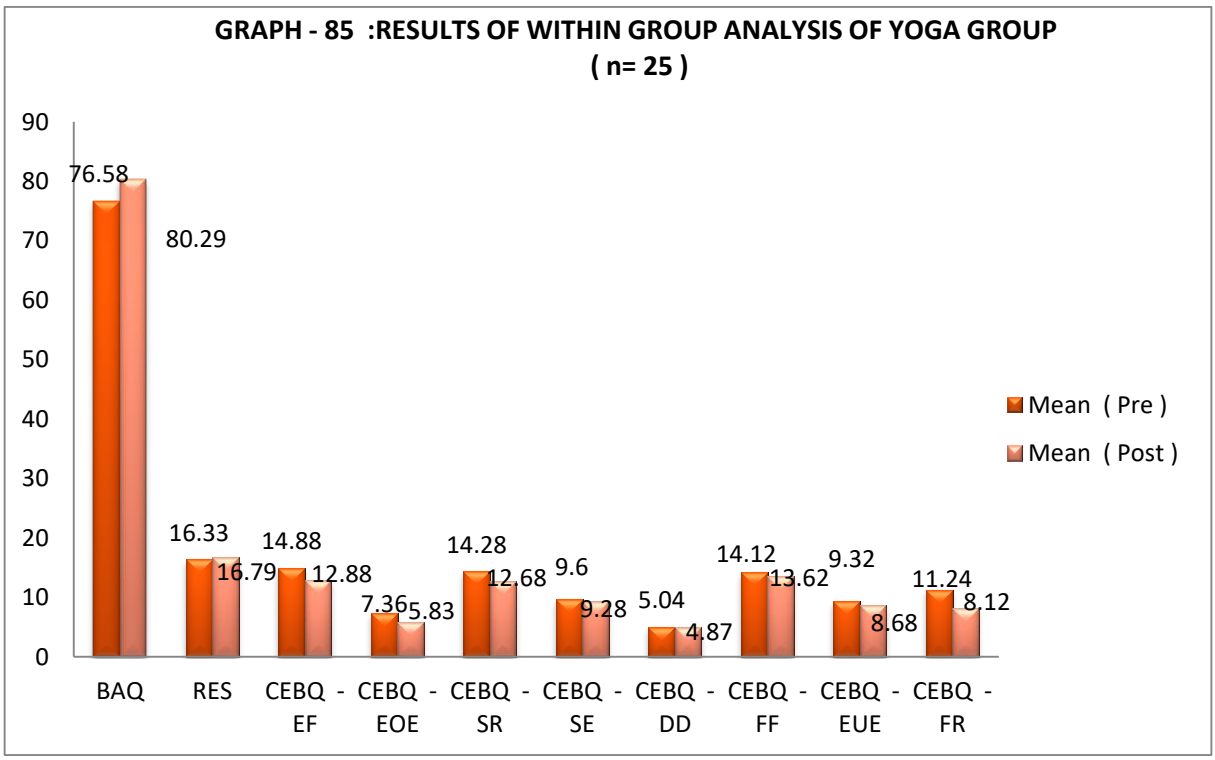
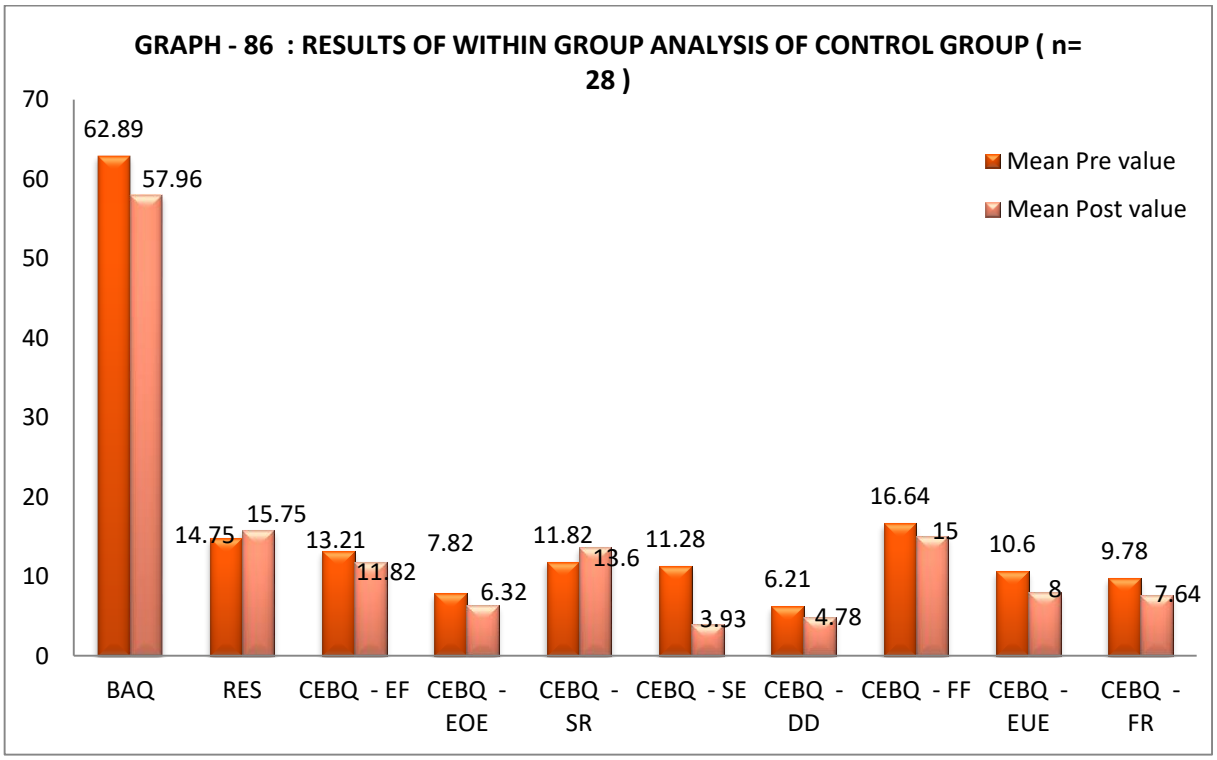


TABLE NO.23

RESULTS OF WITHIN GROUP ANALYSIS OF CONTROL GROUP (*n*= 28)

No.	Variable	Mean Pre value	Mean Post value	t value	p value
1	BAQ	62.89 ± 19.48	57.96 ± 17.14	1.491 b	0.14
2	RES	14.75 ± 3.83	15.75 ± 2.88	-2.046 a	0.04*
3	CEBQ - EF	13.21 ± 3.21	11.82 ± 3.25	2.081 b	0.04*
4	CEBQ - EOE	7.82 ± 4.19	6.32 ± 3.74	-1.710 a	0.08
5	CEBQ - SR	11.82 ± 3.48	13.60 ± 3.96	-2.212 b	0.03*
6	CEBQ - SE	11.28 ± 10.14	3.93 ± 3.18	1.753 b	0.09
7	CEBQ - DD	6.21 ± 2.91	4.78 ± 2.20	-2.500 a	0.01*
8	CEBQ - FF	16.64 ± 5.25	15 ± 5.01	-2.281 a	0.02*
9	CEBQ - EUE	10.60 ± 4.39	8 ± 4.18	-3.712 a	0.01*
10	CEBQ - FR	9.78 ± 4.68	7.64 ± 3.34	3.776 b	0.001*
a Wilcox test b Paired sample t test * p < 0.05					

Results of within group analysis of Control group are given in above Table. Parameters like BAQ (Body Awareness Questionnaire), CEBQ - EF (Child Eating Behavior Questionnaire - Enjoyment of food), CEBQ - SR (Satiety responsiveness) , CEBQ - SE (Slowness in eating), CEBQ - FR (Food responsiveness) . Parameters like RES (Rosenberg Self-esteem Scale), CEBQ - EOE (Child Eating Behavior Questionnaire - Emotional over-eating) , CEBQ - DD (Desire to drink) , CEBQ - FF (Food fussiness) , CEBQ - EUE (Emotional under-eating) .Variables like BAQ (p = 0.14) , CEBQ - EOE (p = 0.08) , CEBQ - SE (p = 0.09) decreased but without significance . Variables like RES (p = 0.04) and CEBQ - SR (p = 0.03) increased with significance. Variables like CEBQ - EF (p = 0.04) , CEBQ - DD (p = 0.01), CEBQ - FF (p = 0.02), CEBQ - EUE (p = 0.01) and CEBQ - FR (p = 0.001) decreased with significance .



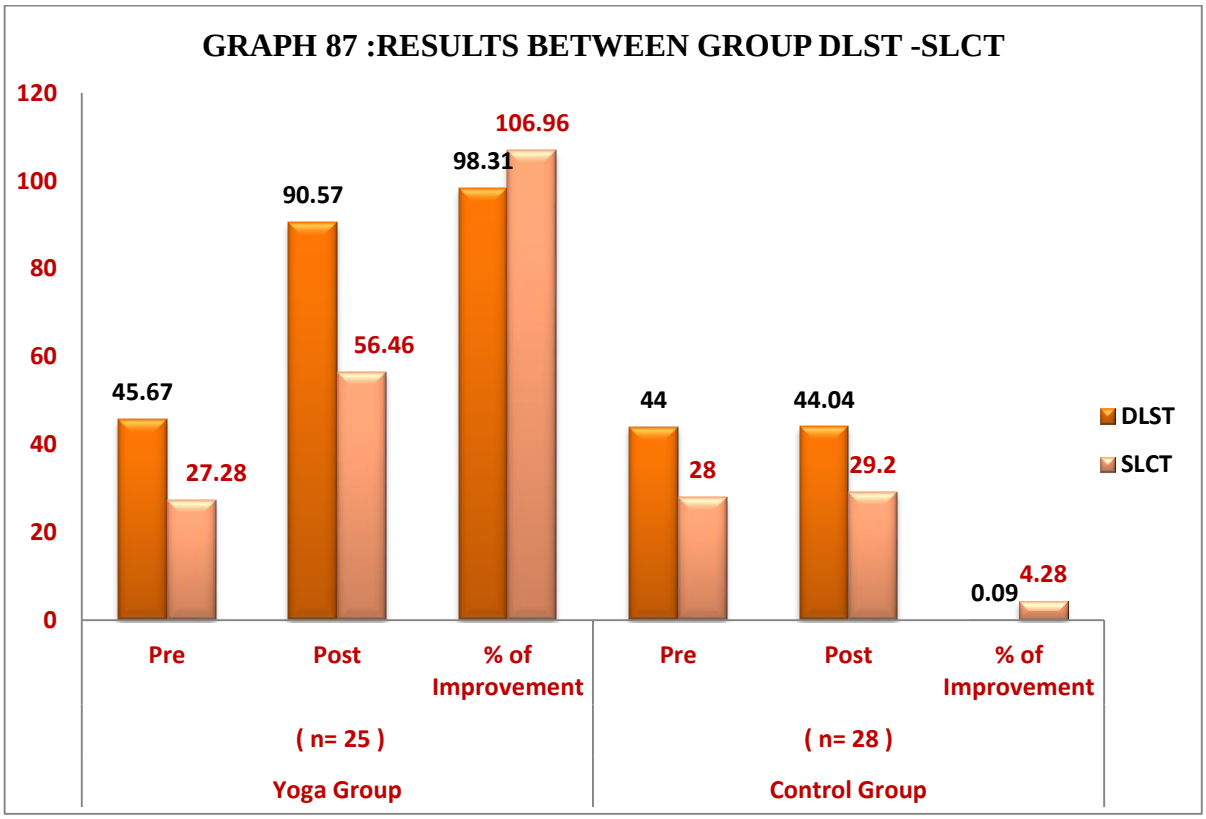
The results of Cognitive parameters are as follows

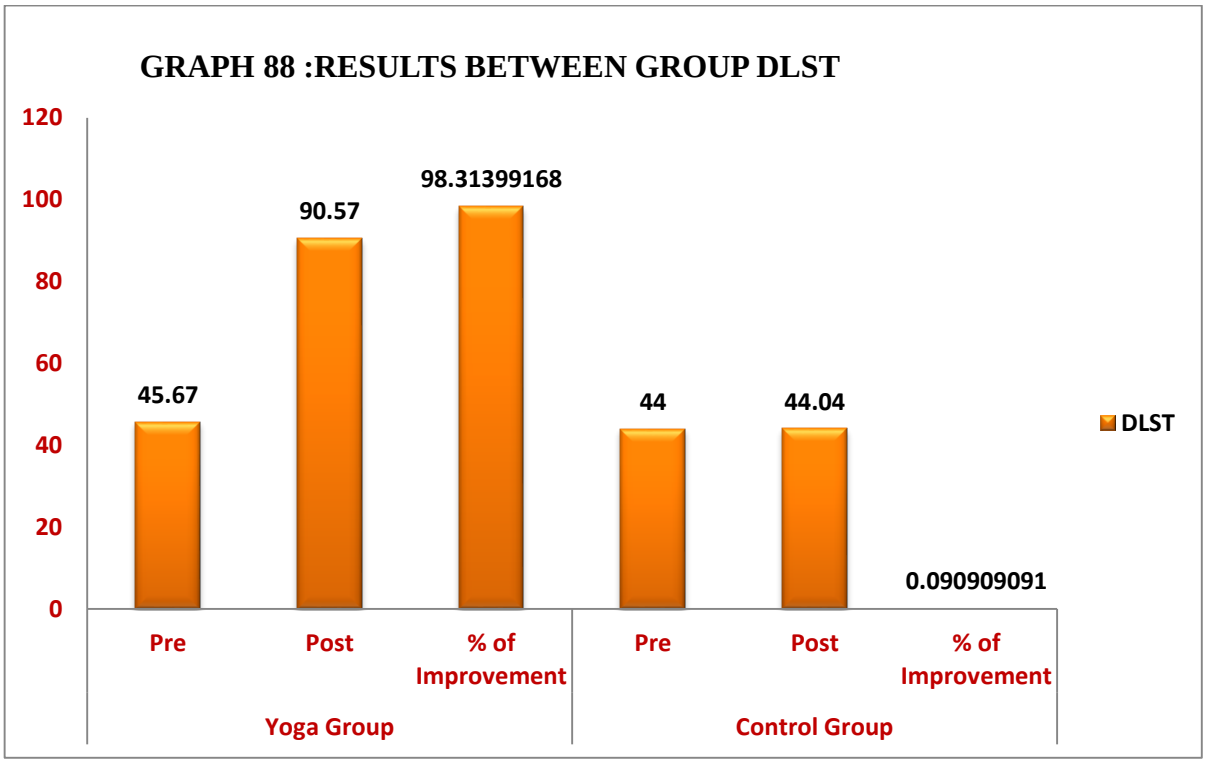
TABLE NO. 24

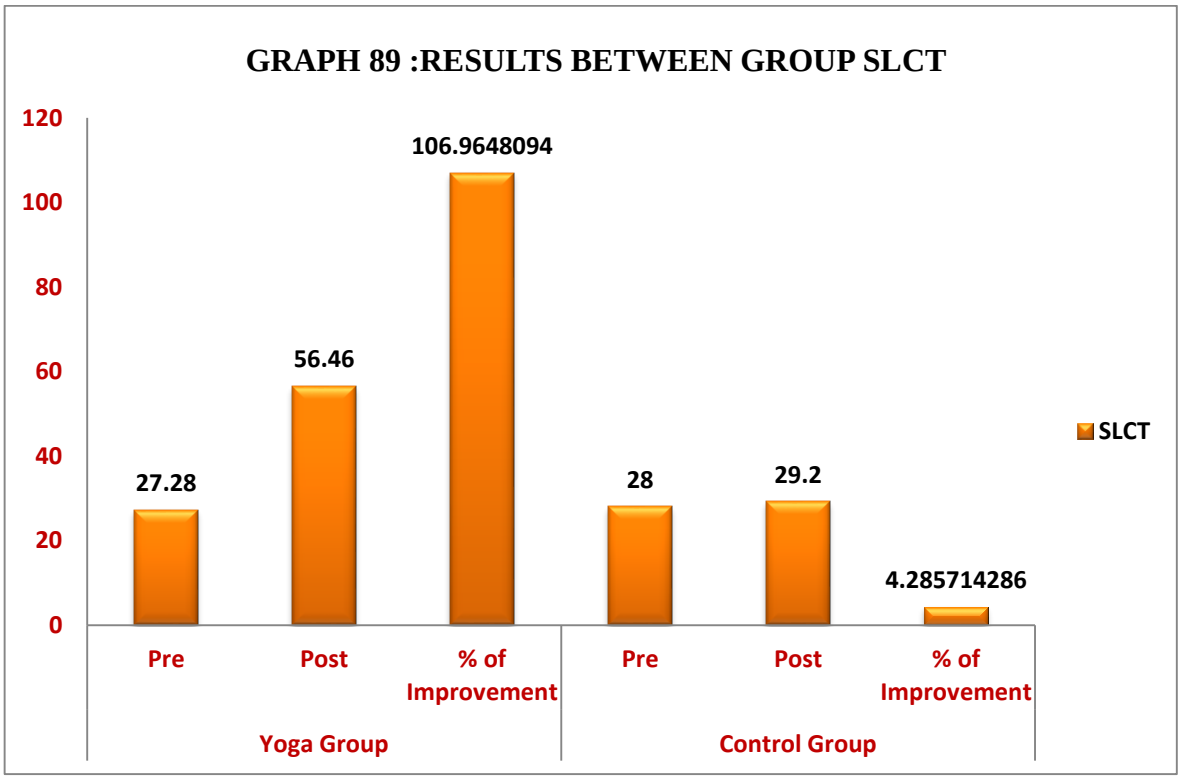
RESULTS OF BETWEEN GROUP ANALYSES.

No.	Variable	Yoga Group (n= 25)		Control Group (n= 28)		t value	p value
		Pre	Post	Pre	Post		
1	DLST	45.67 ± 9.73	90.57 ± 09.37	44 ± 8.95	44.04 ± 8.92	0.517 a	0.6
2	SLCT	27.28 ± 9.37	56.46 ± 9.35	28 ± 12.53	29.20 ± 10.91	9.877 b	<0.001*

a Mann-Whitney U test.
b Independent samples t-test


GRAPH 87 :RESULTS BETWEEN GROUP DLST -SLCT
120
100
80
60
40
20
0
45.67
27.28
90.57
56.46
98.31
106.96
44
28
44.04
29.2
0.09
4.28
DLST
SLCT
Pre
Post
% of Improvement
Pre
Post
% of Improvement
(n= 25)
(n= 28)
Yoga Group
Control Group


GRAPH 88 :RESULTS BETWEEN GROUP DLST
120
100
80
60
40
20
0
45.67
90.57
98.31399168
44
44.04
0.090909091
DLST
Pre
Post
% of Improvement
Pre
Post
% of Improvement
Yoga Group
Control Group

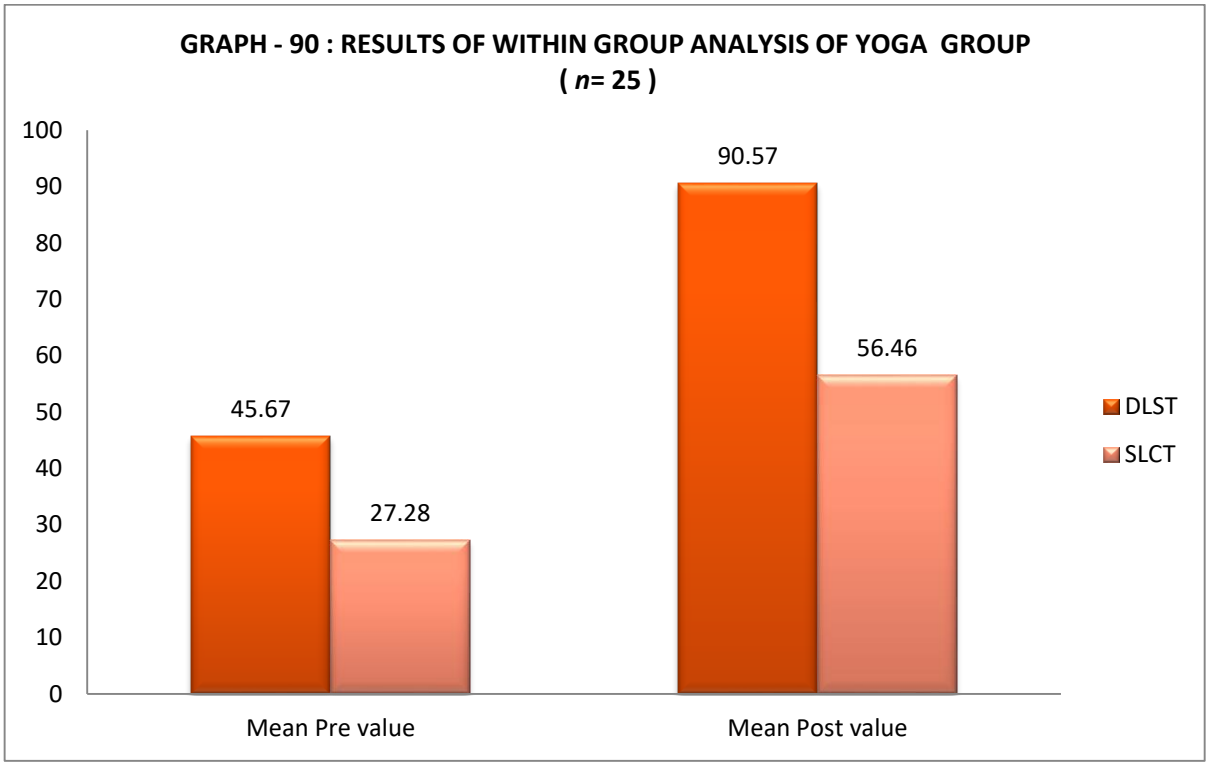


Analysis of in between Yoga and control group states that DLST of Yoga group is increased than that of Control group but without significance (p = 0.60). SLCT of Yoga group is increased than that of Control group with significance (p = 0.00).

TABLE NO. 25

RESULTS OF WITHIN GROUP ANALYSIS OF YOGA GROUP (*n*= 25)

No.	Variable	Mean Pre value	Mean Post value	t value	p value
1	DLST	45.67 ± 9.73	90.57 ± 09.37	-4.542 a	<0.001*
2	SLCT	27.28 ± 9.37	56.46 ± 9.35	-14.227 b	<0.001*
a Wilcox test b Paired sample t test					



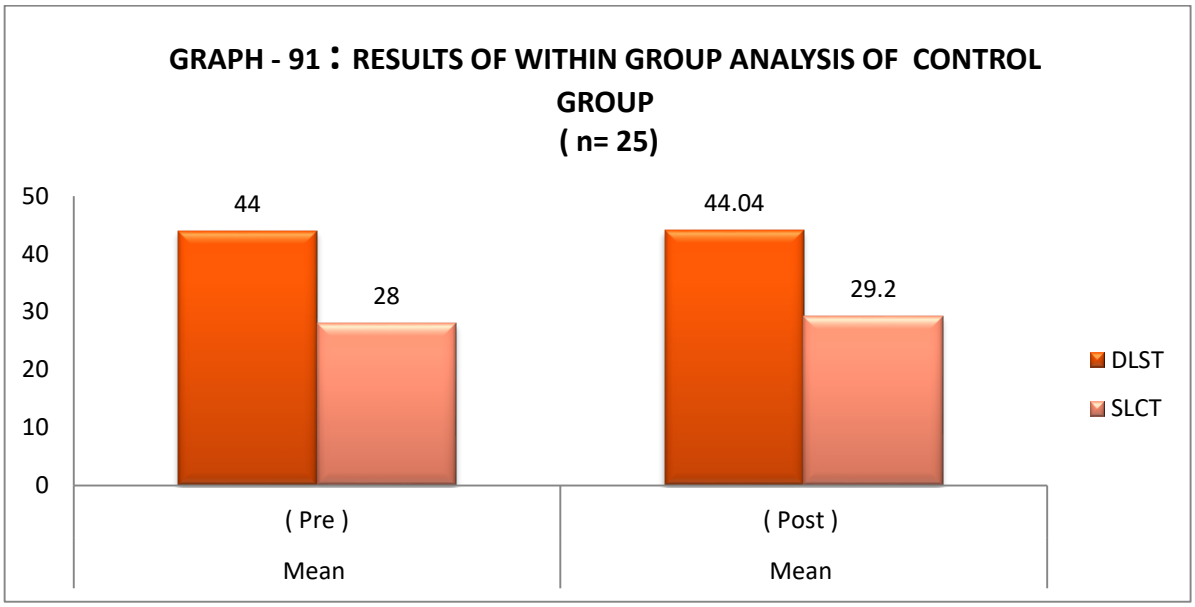
Results of within group analysis of Yoga group are given in above Table. Parameters like SLCT (Six Letter Cancellation Test) were normally distributed which is increased with significance (p = 0 .00). Parameters like DLST (Digit Letter Substitution Test) were not normally distributed which also increased with significance (p = 0.00).

TABLE NO. 26

RESULTS OF WITHIN GROUP ANALYSIS OF CONTROL GROUP (n= 28).

No.	Variable	Mean (Pre)	Mean (Post)	t / z value	p value
1	DLST	44 ± 8.95	44.04 ± 8.92	-.515 a	0.607
2	SLCT	28 ± 12.53	29.20 ± 10.91	.607 b	0 .371

a Wilcox test
b Paired sample t test



Results of within group analysis of Control group are given in above Table. Parameters like SLCT were normally distributed which is increased but without significance (p = 0 .371). Parameters like DLST were not normally distributed which also increased but without significance (p = 0.607).