CHAPTER IV

RESULTS AND DISCUSSIONS

4.1 OVERVIEW

This chapter deals with the analysis of data collected from the samples under study. The purpose of the study was to study the effect of specific nutritional supplementation, desupplementation, and resupplementation on anemic profile status among college women. To achieve the purpose of the study, the investigator conducted a sample survey to assess the symptoms of the anemic. Based on the survey, the investigator selected 15 anemic women students as subjects. To confirm the anemic status selected college women were tested for their hemoglobin levels and the college women who were having less than 12 gm/dl hemoglobin were considered as the anemic for this study, as the normal adult women required is 12 – 16 gm/dl hemoglobin. Random group design was followed in this study. The selected anemic college women (N=15) were provided with specific nutritional supplementation for eight weeks. After the completion of 8 weeks nutritional supplementation, they were stopped the nutritional supplementation for 8 weeks and this phase was considered as desupplementation phase. After the completion of desupplementation period of 8 weeks the subjects were started providing with nutritional supplementation and this phase of 8 weeks was considered as

resupplementation phase. Prior to the experimental treatments, all the subjects were measured of their anemic profile status and determined their (1) Iron (2) Total Iron Binding Capacity (3) Ferritin (4) Folic Acid (5) B12 (6) Hemoglobin and (7) Red Blood Cell, the data obtained were considered as initial scores of the anemic profile status. Data were obtained at the end of nutritional supplementation phase (completion of 8 weeks of nutritional supplementation), end of desupplementation (completion of 16 weeks), and end of resupplementation phase (completion of 24 weeks). The obtained data was subjected to statistical analysis using Repeated measures ANOVA.

4.2 TEST OF SIGNIFICANCE

As Clarke and Clarke (1971) says, “these data must be analysed in ways appropriate to the research design. Such analysis can only be appropriate to the research design and be accomplished through the application of pertinent statistics”.

This is the vital portion of thesis achieving the conclusion by examining the hypotheses. The procedure of testing the hypotheses was either by accepting the hypotheses or rejecting the same in accordance with the results obtained in relation to the level of confidence.

The test was usually called the test of significance since we test whether the differences due to treatment scores were significant or not. In this study, if the obtained F-value were greater than the table value, the null hypotheses were rejected to the effect that there existed significant difference among the means of the treatments compared and if the obtained values were lesser than the required values, then the null hypotheses were accepted to the effect that there existed no significant differences among the means of interventions under study.

4.2.1 LEVEL OF SIGNIFICANCE

The subjects were compared on the effect of specific nutritional supplementation, desupplementation and resupplementation on anemic profile status among college women. The selected criterion variables were, Iron, Total Iron Binding Capacity, Ferritin, Folic Acid, B12, Hemoglobin and Red Blood Cell The repeated measures analysis of variance (Repeated ANOVA) was used to find out the significant difference if any, among the interventions on selected criterion variables separately. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

4.3.1 RESULTS ON IRON

The descriptive statistics on anemia profile Iron due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table III. The nutritional supplementation and resupplementation were done under the supervision of dieticians.

Table III

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Iron (mg/dl)

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	29.53	5.18
2	After Supplementation (ANS)	59.27	11.91
3	After Desupplementation (ADS)	51.73	11.35
4	After Resupplementation (ARS)	62.27	11.91

As shown in Table III, the initial Iron mean score (IS) of the college women was 29.53, after 8 weeks nutritional supplementation (ANS) mean score of Iron was 59.27, the scores obtained after 8 weeks desupplementation (ADS) mean was 51.73, the scores obtained after 8 weeks resupplementation (ARS) mean was 62.27. The statistical significance of the differences in means due to nutritional supplementation, desupplementation and resupplimentation

was tested through repeated measures of ANOVA and the results are presented in Table IV.

Table IV

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Iron (mg/dl)of College Women

Source	Sum of Squares	Df	Mean Squares	F
Subjects	4532.60	14		
Trials	9844.07	3	3281.36	6.47*
Residual	21304.07	42	507.24	
Total	15992.60	59		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 6.47 is greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Iron due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table V

Table V

Multiple Comparisons Showing Pairs of Means Scores of Iron under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
29.53	59.27			29.73*	23.66
29.53		51.73		22.20	23.66
29.53			62.27	32.73*	23.66
	59.27	51.73		7.53	23.66
	59.27		62.27	3.00	23.66
		51.73	62.27	10.53	23.66

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table V shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 23.66.

Initial Score Vs After Nutritional Supplementation Score

Initial Score Vs After Resupplementation Score

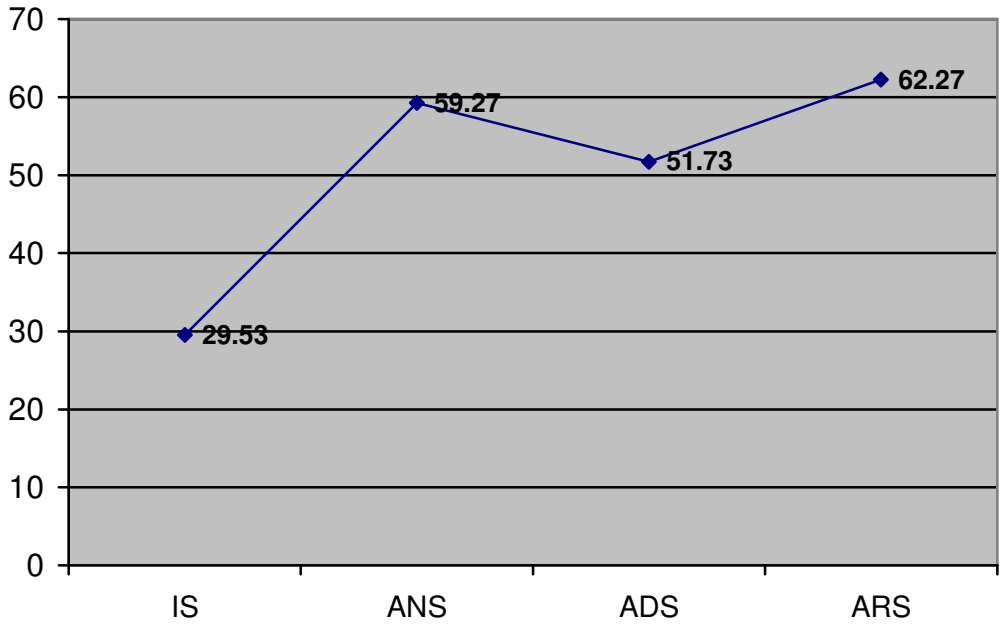
Table V shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 23.66.

Initial Score Vs After Desupplementation Score
After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Nutritional Supplementation Scores Vs After Resupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure I.

Figure I

Showing Line Graph on Mean Scores of Iron under Different Phases of Supplementation among College Women



IS: Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.3.2 RESULTS ON TOTAL IRON BINDING CAPACITY

The descriptive statistics on anemia profile Total Iron Binding Capacity due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table VI. The nutritional supplementation and resupplementation were done under the supervision of dieticians.

Table VI

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Total Iron Binding Capacity

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	125.27	8.75
2	After Supplementation (ANS)	222.47	62.71
3	After Desupplementation (ADS)	205.00	65.70
4	After Resupplementation (ARS)	162.27	11.91

As shown in Table VI, the initial Total Iron Binding Capacity mean score (IS) of the college women was 125.27, after 8 weeks nutritional supplementation (ANS) mean score of Total Iron Binding Capacity was 222.47, the scores obtained after 8 weeks desupplementation (ADS) mean was 205.00, the scores obtained after 8 weeks resupplementation (ARS) mean was 162.27. The statistical significance of the differences in means due to

nutritional supplementation, desupplementation and resupplimentation was tested through repeated measures of ANOVA and the results are presented in Table VII.

Table VII

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Total Iron Binding Capacity of College Women

Source	Sum of Squares	df	Mean Squares	F
Subjects	60075.00	14.00		
Trials	85985.65	3.00	28661.88	5.22*
Residual	230427.90	42.00	5486.38	
Total	204517.25	59.00		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 5.22 was greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Total Iron Binding Capacity due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table VIII

Table VIII

Multiple Comparisons Showing Pairs of Means Scores of Total Iron Binding Capacity under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
125.27	222.47			97.20*	77.83
125.27		205.00		79.73*	77.83
125.27			162.27	37.00	77.83
	222.47	205.00		17.47	77.83
	222.47		162.27	60.20	77.83
		205.00	162.27	42.73	77.83

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table VIII shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 77.83.

Initial Scores Vs After Supplementaion Scores

Initial Scores Vs After Desupplementation Scores

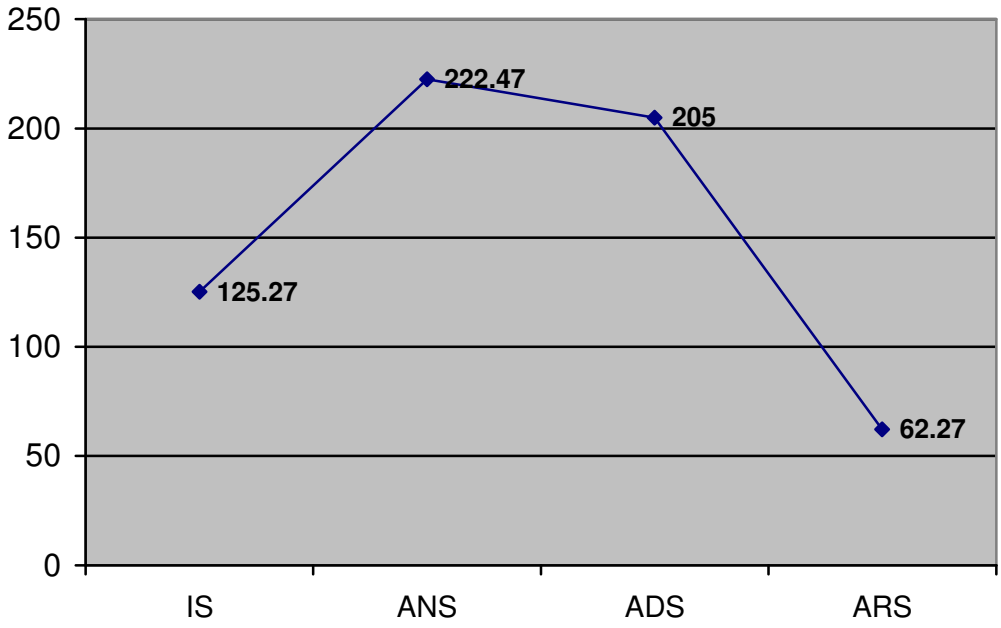
Table VIII shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 77.83.

Initial Score Vs After Resupplementation Score
After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Nutritional Supplementation Scores Vs After Resupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure II.

Figure II

Showing Line Graph on Mean Scores of Total Iron Binding Capacity under Different Phases of Supplementation among College Women



IS: Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.3.3 RESULTS ON FERRITIN

The descriptive statistics on anemia profile Ferritin due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table IX. The nutritional supplementation and resupplementation were done under the supervision of dieticians.

Table IX

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Ferritin

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	10.93	2.22
2	After Supplementation (ANS)	41.33	13.92
3	After Desupplementation (ADS)	33.33	13.92
4	After Resupplementation (ARS)	46.33	13.92

As shown in Table IX, the initial Ferritin mean score (IS) of the college women was 10.93, after 8 weeks nutritional supplementation (ANS) mean score of Ferritin was 41.33, the scores obtained after 8 weeks desupplementation (ADS) mean was 33.33, the scores obtained after 8 weeks resupplementation (ARS) mean was 46.33. The statistical significance of the differences in means due to nutritional supplementation, desupplementation

and resupplimentation was tested through repeated measures of ANOVA and the results are presented in Table X.

Table X

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Ferritin of College Women

Source	Sum of Squares	df	Mean Squares	F
Subjects	5929.23	14		
Trials	11014.05	3	3671.35	6.35*
Residual	24301.80	42	578.61	
Total	19216.98	59		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 6.35 is greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Ferritin due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table XI

Table XI

Multiple Comparisons Showing Pairs of Means Scores of Ferritin under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
10.93	41.33			30.40*	25.27
10.93		33.33		22.40	25.27
10.93			46.33	35.40*	25.27
	41.33	33.33		8.00	25.27
	41.33		46.33	5.00	25.27
		33.33	46.33	13.00	25.27

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table XI shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 25.27.

Initial Score Vs After Nutritional Supplementation Score

Initial Score Vs After Resupplementation Score

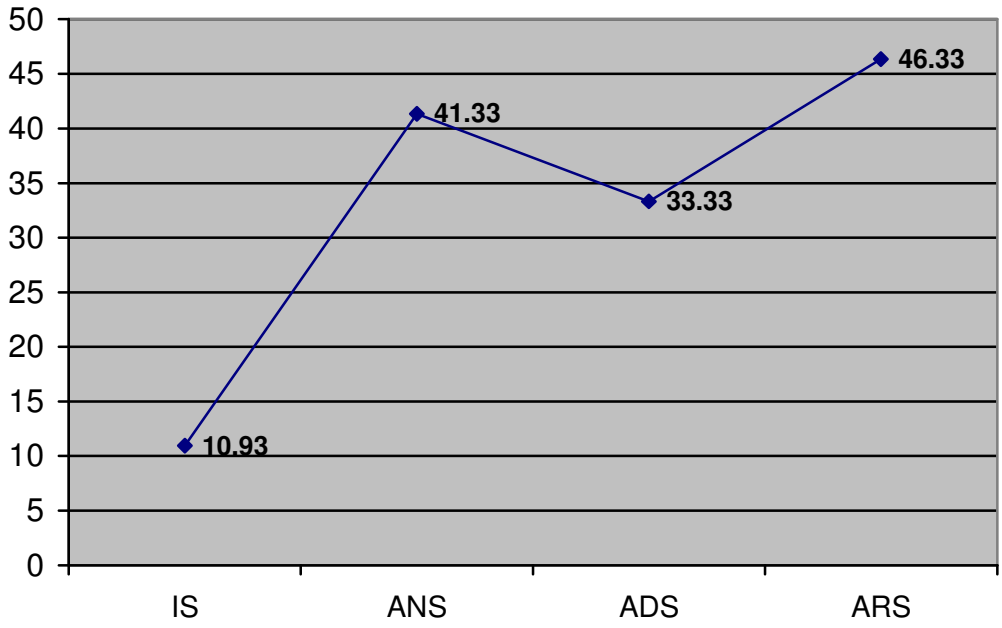
Table XI shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 25.27.

Initial Score Vs After Desupplementation Score
After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Nutritional Supplementation Scores Vs After Resupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure III.

Figure III

Showing Line Graph on Mean Scores of Ferritin under Different Phases of Supplementation among College Women



IS: Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.3.1 RESULTS ON FOLIC ACID

The descriptive statistics on anemia profile Folic Acid due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table XII. The nutritional supplementation and resupplementation were done under the supervision of dieticians.

Table XII

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Folic Acid

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	2.97	0.34
2	After Supplementation (ANS)	4.08	0.54
3	After Desupplementation (ADS)	3.92	0.61
4	After Resupplementation (ARS)	4.28	0.48

As shown in Table XII, the initial Folic Acid mean score (IS) of the college women was 2.97, after 8 weeks nutritional supplementation (ANS) mean score of Folic Acid was 4.08, the scores obtained after 8 weeks desupplementation (ADS) mean was 3.92, the scores obtained after 8 weeks resupplementation (ARS) mean was 4.28. The statistical significance of the differences in means due to nutritional supplementation, desupplementation

and resupplimentation was tested through repeated measures of ANOVA and the results are presented in Table XIII.

Table XIII

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Folic Acid of College Women

Source	Sum of Squares	df	Mean Squares	F
Subjects	8.61	14		5.91*
Trials	15.22	3	5.07	
Residual	36.09	42	0.86	
Total	29.47	59		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 5.91 is greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Folic Acid due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table XIV

Table XIV

Multiple Comparisons Showing Pairs of Means Scores of Folic Acid under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
2.97	4.08			1.11*	0.97
2.97		3.92		0.95	0.97
2.97			4.28	1.31*	0.97
	4.08	3.92		0.17	0.97
	4.08		4.28	0.20	0.97
		3.92	4.28	0.36	0.97

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table XIV shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 0.97.

Initial Score Vs After Nutritional Supplementation Score

Initial Score Vs After Resupplementation Score

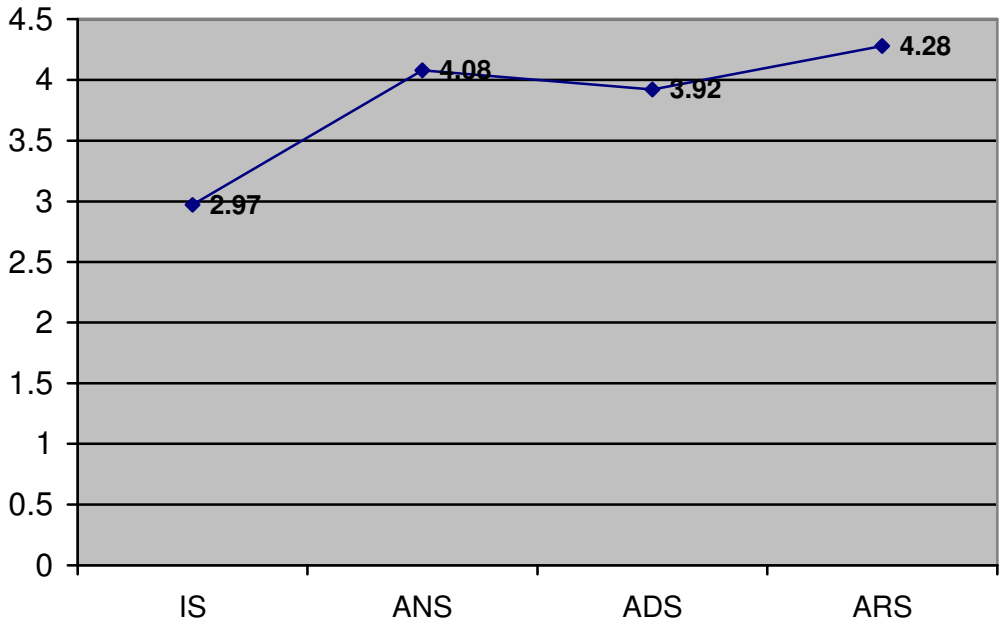
Table XIV shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 0.97.

Initial Score Vs After Desupplementation Score
After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Nutritional Supplementation Scores Vs After Resupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure IV.

Figure IV

Showing Line Graph on Mean Scores of Folic Acid under Different Phases of Supplementation among College Women



IS**:** Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.3.5 RESULTS ON VITAMIN B12

The descriptive statistics on anemia profile Vitamin B12 due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table XV. The nutritional supplementation and resupplementation were done under the supervision of dieticians..

Table XV

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Vitamin B12

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	140.20	18.44
2	After Supplementation (ANS)	254.47	62.71
3	After Desupplementation (ADS)	230.00	65.70
4	After Resupplementation (ARS)	263.47	62.71

As shown in Table XV, the initial Vitamin B12 mean score (IS) of the college women was 140.20, after 8 weeks nutritional supplementation (ANS) mean score of Vitamin B12 was 254.47, the scores obtained after 8 weeks desupplementation (ADS) mean was 230.00, the scores obtained after 8 weeks resupplementation (ARS) mean was 263.47. The statistical significance of the differences in means due to nutritional

supplementation, desupplementation and resupplimentation was tested through repeated measures of ANOVA and the results are presented in Table XVI.

Table XVI

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Vitamin B12 of College Women

Source	Sum of Squares	df	Mean Squares	F
Subjects	129042.43	14		6.03*
Trials	142932.07	3	47644.02	
Residual	332113.57	42	7907.47	
Total	318223.93	59		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 6.03 is greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Vitamin B12 due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table XVII

Table XVII

Multiple Comparisons Showing Pairs of Means Scores of Vitamin B12 under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
140.20	254.47			114.27*	93.43
140.20		230.00		89.80	93.43
140.20			263.47	123.27*	93.43
	254.47	230.00		24.47	93.43
	254.47		263.47	9.00	93.43
		230.00	263.47	33.47	93.43

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table XVII shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 93.43.

Initial Score Vs After Nutritional Supplementation Score

Initial Score Vs After Resupplementation Score

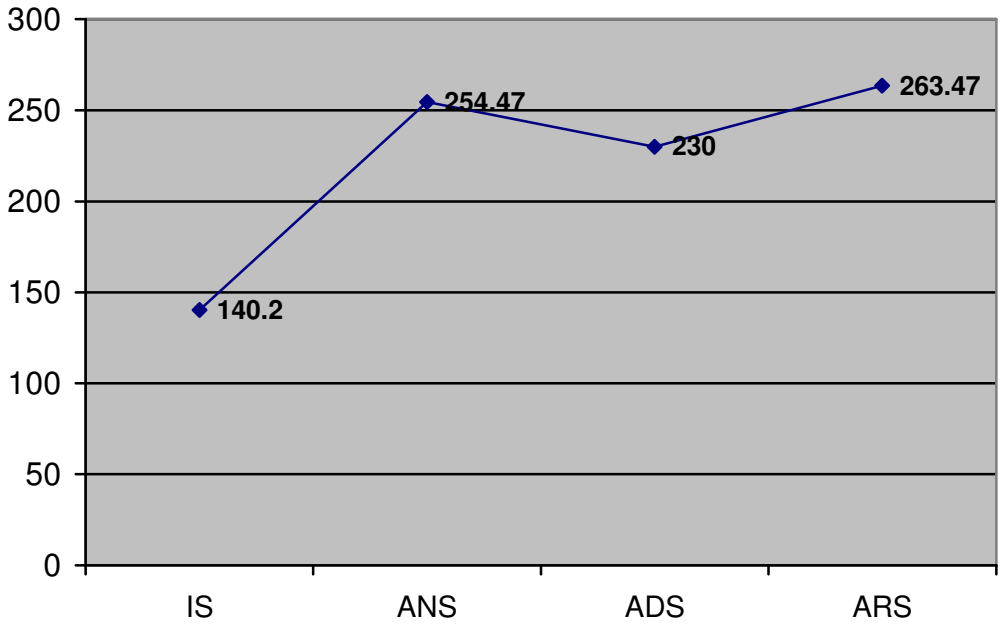
Table XVII shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 93.43.

Initial Score Vs After Desupplementation Score
After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Nutritional Supplementation Scores Vs After Resupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure V.

Figure V

Showing Line Graph on Mean Scores of Vitamin B12 under Different Phases of Supplementation among College Women



IS**:** Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.3.6 RESULTS ON HEMOGLOBIN

The descriptive statistics on anemia profile Hemoglobin due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table XVIII. The nutritional supplementation and resupplementation were done under the supervision of dieticians.

Table XVIII

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Hemoglobin

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	9.19	0.87
2	After Supplementation (ANS)	16.55	0.38
3	After Desupplementation (ADS)	14.79	0.64
4	After Resupplementation (ARS)	16.74	0.35

As shown in Table XVIII, the initial Hemoglobin mean score (IS) of the college women was 919, after 8 weeks nutritional supplementation (ANS) mean score of Hemoglobin was 16.55, the scores obtained after 8 weeks desupplementation (ADS) mean was 14.79, the scores obtained after 8 weeks resupplementation (ARS) mean was 16.74. The statistical significance of the differences in means due to nutritional supplementation, desupplementation

and resupplimentation was tested through repeated measures of ANOVA and the results are presented in Table XIX.

Table XIX

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Hemoglobin of College Women

Source	Sum of Squares	df	Mean Squares	F
Subjects	6.73	14		6.07*
Trials	42.67	3	14.22	
Residual	98.49	42	2.35	
Total	62.55	59		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 6.07 is greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Hemoglobin due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table XX

Table XX

Multiple Comparisons Showing Pairs of Means Scores of Hemoglobin under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
9.19	16.55			1.36	1.61
15.19		14.79		0.41	1.61
15.19			16.74	1.55	1.61
	16.55	14.79		1.77*	1.61
	16.55		16.74	0.19	1.61
		14.79	16.74	1.95*	1.61

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table XX shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 1.61.

After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

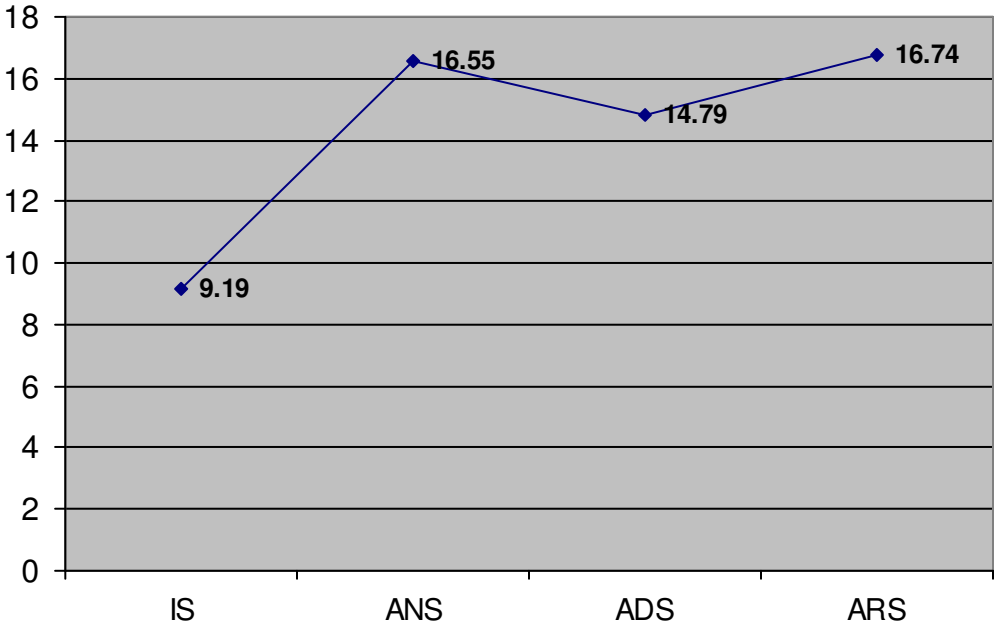
Table XX shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 1.61.

Initial Score Vs After Nutritional Supplementation Score
Initial Score Vs After Desupplementation Score
Initial Score Vs After Resupplementation Score
After Nutritional Supplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure VI.

Figure VI

Showing Line Graph on Mean Scores of Hemoglobin under Different Phases of Supplementation among College Women



IS: Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.3.7 RESULTS ON RED BLOOD CELLS

The descriptive statistics on anemia profile Red Blood Cells due to specific nutritional supplementation, desupplementation and resupplementation on college women. is presented in Table XXI. The nutritional supplementation and resupplementation were done under the supervision of dieticians.

Table XXI

Descriptive Statistics Due to Nutritional Supplementation, Desupplementation and Resupplementation on Red Blood Cells

S.No	Different Phases of Training	Mean	Standard Deviation
1	Initial Scores (IS)	5.15	0.30
2	After Supplementation (ANS)	6.32	0.31
3	After Desupplementation (ADS)	5.69	0.48
4	After Resupplementation (ARS)	6.50	0.39

As shown in Table XXI, the initial Red Blood Cells mean score (IS) of the college women was 5.15, after 8 weeks nutritional supplementation (ANS) mean score of Red Blood Cells was 6.32, the scores obtained after 8 weeks desupplementation (ADS) mean was 5.69, the scores obtained after 8 weeks resupplementation (ARS) mean was 6.50. The statistical significance of the differences in means due to nutritional supplementation, desupplementation

and resupplimentation was tested through repeated measures of ANOVA and the results are presented in Table XXII.

Table XXII

Computation of Repeated Measures ANOVA due to Nutritional Supplementation, Desupplementation and Resupplementation on Red Blood Cells of College Women

Source	Sum of Squares	df	Mean Squares	F
Subjects	2.59	14		6.07*
Trials	17.23	3	5.74	
Residual	39.73	42	0.95	
Total	25.09	59		

Table F value required at 0.05 level 2.76
* Significant

The obtained F value 6.07 is greater than the required table F value of 2.76 to be significant at 0.05 level. Hence, it was proved that there was a significance difference in Red Blood Cells due to nutritional supplementation, desupplementation and resupplementation.

Since significant differences were found, the obtained results were further subjected to post hoc analysis using Scheffe's test and results are presented n Table XXIII

Table XXIII

Multiple Comparisons Showing Pairs of Means Scores of Red Blood Cells under Different Phases of Nutritional Supplementation, Desupplementation and Resupplementation

Mean Scores Under Different Phases				Mean Difference	Reqd C.I
IS	ANS	ADS	ARS		
5.15	6.32			1.17*	1.02
5.15		5.69		0.54	1.02
5.15			6.50	1.35*	1.02
	6.32	5.69		0.63	1.02
	6.32		6.50	0.18	1.02
		5.69	6.50	0.81	1.02

* Significant at 0.05 level

IS: Initial Score; ANS: After Nutritional Supplementation Score; ADS: After desupplementation Score; ARS : After Resupplementation Score

Table XXIII shows the following paired mean comparisons were significant at 0.05 level as the obtained mean differences were greater than the required value of 1.02.

Initial Score Vs After Nutritional Supplementation Score

Initial Score Vs After Resupplementation Score

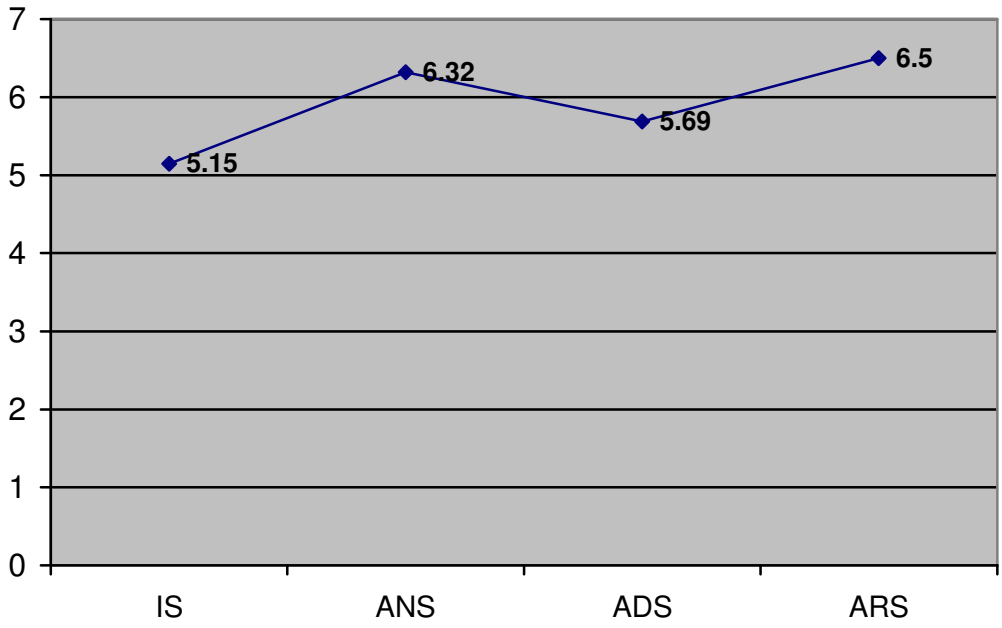
Table XXIII shows the following paired mean comparisons were not significant at 0.05 level as the obtained mean differences were less than the required value of 1.02.

Initial Score Vs After Desupplementation Score
After Nutritional Supplementatijon scores Vs After Desupplementation Scores
After Nutritional Supplementation Scores Vs After Resupplementation Scores
After Desupplementation Scores Vs After Resupplementation Scores

The mean gains under different phases of supplementation are presented through line graph for better understanding of the results of the study in Figure VII.

Figure VII

Showing Line Graph on Mean Scores of Red Blood Cells under Different Phases of Supplementation among College Women



IS: Initial Score
ANS: After Nutritional Supplementation Score
ADS After Desupplementation Score
ARS After Resupplementation Score

4.4 DISCUSSIONS ON FINDINGS

Iron deficiency anemia is the common type of anemia, and is known as sideropenic anemia**.** It is the most common cause of microcytic anemia. Iron deficiency anemia occurs when the dietary intake or absorption of iron is insufficient, and hemoglobin, which contains iron, cannot be formed. Researches have found that nutritional supplements can help one to have the optimum health deserved and minimize the risk of diseases. Tiwari AK,et.al. (2011) found iron supplementation on iron deficient women, Haemoglobin (Hb) levels along with antioxidant enzymes, namely catalase, superoxide dismutase (SOD), glutathione reductase (GSH-Rd), reduced glutathione (GSH) and total antioxidant capacity (TAC) were found significantly increased ($P < 0.01$) in anemic women after treatment. It is suggested that blind iron supplementation should be avoided and shall be provided on need basis. Thus, the existing theoretical foundations, necessitated for further research to which extent the specific nutritional supplementation is required for anemic college women. Hence, in this research, the investigator was interested to find out how far the specific nutritional supplementation, desupplementation and resupplementation influences the anemic status of college women.

During the nutritional supplementation process of 8 weeks, the subjects were provided with lotus stem and boiled egg under the supervision of the

dieticians. After 8 weeks of nutritional supplementation, 8 weeks of desupplementation phase started and after desupplementation phase, the subjects were resupplemented with lotus stem and boiled egg for 8 weeks. Thus, the experimental period lasted for 24 weeks. Scores were obtained on selected criterion variables prior to experiment (initial score), after nutritional phase (after nutritional supplementation score), after desupplementation (after desupplementation score) and after resupplementaion (after resupplementation scores). The obtained data were analysed statistically using repeated ANOVA and Scheffe's post hoc analysis.

The descriptive statistics presented in Table III shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on iron of the college anemic women. The statistical significance was tested through repeated measures ANOVA and the obtained F value 6.47 was greater than the required table value of 2.76 to be significant at 0.05 level (Table IV). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table V proved that the significant differences were due to after nutritional supplementation phase and nutritional resupplementation phase. The results thus proved that the nutritional supplementation and resupplementation phases have significantly improved the

iron status of the anemic college women. And the hypothesis that the nutritional supplementation and resupplementation phases would improve anemic profile iron status of the college women was accepted at 0.05 level.

The descriptive statistics presented in Table VI shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on total iron binding capacity of the college anemic women. The statistical significance was tested through repeated measures ANOVA and the obtained F value 6.26 was greater than the required table value of 2.76 to be significant at 0.05 level (Table VII). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table VIII proved that the significant differences were between after nutritional supplementation score and after resupplementation score and after desupplementation score and after resupplementation score. The results proved that the nutritional desupplementation and resupplementation phases have significantly reduced the total iron binding capacity of the college anemic women. And the hypothesis that the nutritional desupplementation and resupplementation phases would alter anemic profile iron binding capacity of the college women was accepted at 0.05 level. However, the hypothesis that nutritional supplementation would improve iron binding capacity of the anemic

college women was rejected at 0.05 level, as there was no significant change from initial score to after supplementation score of the subjects.

The descriptive statistics presented in Table IX shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on Ferritin of the college anemic women. The statistical significance was tested through repeated measures ANOVA and the obtained F value 6.35 was greater than the required table value of 2.76 to be significant at 0.05 level (Table X). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table XI proved that the significant differences were between initial score and after nutritional supplementation score and initial score and after resupplementation score. The results presented proved that the nutritional supplementation and resupplementation phases have significantly improved ferritin of the anemic college women. And the hypothesis that the nutritional supplementation and resupplementation phases would improve anemic profile ferritin of the college women was accepted at 0.05 level.

The descriptive statistics presented in Table XII shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on Folic Acid of the college anemic women. The

statistical significance was tested through repeated measures ANOVA and the obtained F value 5.91 was greater than the required table value of 2.76 to be significant at 0.05 level (Table XIII). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table XIV proved that the significant differences were between initial score and after nutritional supplementation score and initial score and after resupplementation score. The results presented proved that the nutritional supplementation and resupplementation phases have significantly improved folic acid of the anemic college women. And the hypothesis that the nutritional supplementation and resupplementation phases would improve anemic profile folic acid of the college women was accepted at 0.05 level.

The descriptive statistics presented in Table XV shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on Vitamin B12 of the college anemic women. The statistical significance was tested through repeated measures ANOVA and the obtained F value 6.03 was greater than the required table value of 2.76 to be significant at 0.05 level (Table XVI). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table XVII proved that the significant differences were between initial score and after nutritional

supplementation score and initial score and after resupplementation score. The results presented proved that the nutritional supplementation and resupplementation phases have significantly improved vitamin B12 of the anemic college women. And the hypothesis that the nutritional supplementation and resupplementation phases would improve anemic profile Vitamin B 12 of the college women was accepted at 0.05 level.

The descriptive statistics presented in Table XVIII shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on hemoglobin of the college anemic women. The statistical significance was tested through repeated measures ANOVA and the obtained F value 6.07 was greater than the required table value of 2.76 to be significant at 0.05 level (Table XIX). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table XX proved that the significant differences were between initial score and after nutritional supplementation score and initial score and after resupplementation score. The results presented proved significant differences between after nutritional score and after desupplementation score; and after desupplementation score and after resupplementation score have significantly improved hemoglobin of the anemic college women. And the hypothesis that the nutritional

supplementation and resupplementation phases would improve anemic profile hemoglobin of the college women was accepted at 0.05 level.

The descriptive statistics presented in Table XXI shows the initial score, after nutritional supplementation, after desupplementation score and after resupplementation score on red blood cells of the college anemic women. The statistical significance was tested through repeated measures ANOVA and the obtained F value 6.07 was greater than the required table value of 2.76 to be significant at 0.05 level (Table XXII). Since significant results were obtained, the results were further subjected to statistical analysis using Scheffe's confidence interval. The results presented in Table XXIII proved that the significant differences were due to specific nutritional supplementation and resupplementation. The results presented proved significant differences between after nutritional supplementation and after resupplementation have significantly improved red blood cells of the anemic college women. And the hypothesis that the nutritional supplementation and resupplementation phases would improve anemic profile red blood cells of the college women was accepted at 0.05 level.

De M, et.al. (2011) found nutritional supplementation to anemic population improved anemic conditions of rural population of north eastern and eastern states of India. Radjen S, et.al. (2011) found daily oral iron

supplementation for two months significantly improved markers of iron status among women volleyball players. Ahmed F, et.al. (2010) found once-weekly multiple micro nutrient (MMN) supplementation was less efficacious than twice-weekly MMN in improving iron, riboflavin, RBC folic acid, and vitamin A levels. Micronutrient supplementation beyond 26 wk was likely important in sustaining improved micronutrient status. These findings highlight the potential usefulness of MMN intervention in this population and have implications for programming Kotecha PV,et.al. (2009) found supervised IFA supplementation (once in a week) showed reduction in anaemia prevalence by 21.5 per cent that is, from 74.7 per cent to 53.2 per cent (P<x0.05). Further improvement in Hb was recorded among 80 per cent girls. Pre- and post-intervention also showed improvement in serum ferritin value. van Reyk DM, et.al. (1999) found resupplementation of media with metals did not fully restore oxidative capacity, indicating that other cell-dependent antioxidant modifications occurred.

The results of this study proved that nutritional supplementation and resupplementation have significantly improved anemic status, assessed through, iron, ferritin, folic acid, vitamin B 12, hemoglobin and red blood cells and the results of this study are in agreement with the findings of De M, et.al. (2011), Radjen S, et.al. (2011), Ahmed F, et.al. (2010), Kotecha PV,et.al. (2009) and van Reyk DM, et.al. (1999).