Chapter IV

ANALYSIS OF THE DATA AND INTERPRETATIONS OF THE STUDY

The purpose of the study was to find out the effect of selected yogic pre and postnatal stimulation practices on perception of speech, sound, behaviour and development among the infants. To achieve this purpose of the study, forty five healthy pregnant women with the gestation period between 32 and 42 weeks in the area of Chidambaram, Cuddalore District, Tamilnadu, India were randomly selected. The age of the mother were ranged from 20 to 35 years. They were divided in to three equal groups of fifteen women each namely pranayama practices group, auditory stimulation practices group and control group. The pranayama practices group underwent Nadi suddhi pranayama and Naada Anusandhaana pranayama twice a day for seven days a week upto delivery. For auditory simulation practices group, the music and guided imagery realxation have been used. The music was presented over a 12.5-cm speaker positioned 20 cm above the mother's abdomen as prenatal stimulation for two sessions per day for seven days a week upto their delivery. And Group III acted as control group in which they did not undergo any special training programme rather than their routine work.

After delivery, the infants of the selected healthy pregnant women were selected as subjects and they were assigned with the same group as their mother belongs to. The pranayama practices and auditory stimulation practices were selected as independent variables. The following perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual

Recognition memory and Tactile Perception were selected as dependent variables. And they were tested by using habituation–dishabituation paradigm introduced by Fantz (1958).

The data were collected on Auditory Perception, Visual Recognition memory and Tactile Perception with the selected infants at the end of 4^{th}, 5^{th} and 6^{th} month. The data on Intermodal Perception of the selected infants was collected at the end of 10^{th}, 11^{th} and 12^{th} month. Since, the intermodal perception could be measured only at this period.

The data collected from the three groups at the end of 4^{th} month and at the end of 6^{th} month on Auditory Perception, Visual Recognition memory, Tactile Perception and at the end of 10^{th} month and at the end of 12^{th} month on Intermodal Perception were statistically examined for significant effect of the training programme, if any, applying the analysis of covariance (ANCOVA). Since three groups were involved whenever the obtained "F" ratio was found to be significant for adjusted post mean, the Scheffe's test followed as a post hoc test to determine which of the paired means difference was significant. In all the cases, .05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Further, the collected data on auditory perception, visual recognition memory and tactile perception with the selected infants at the end of 4^{th}, 5^{th} and 6^{th} month and the data on intermodal perception at the end of 10^{th}, 11^{th} and 12^{th} month were subjected into a statistical treatment by using 3 x 3 factorial ANOVA with last factor repeated measures to find out the significant differences between rows (groups) and columns (periods). According to Jerry R. Thomas and Jack K. Nelson, whenever the main purpose is usually lies in the interaction, it is sufficient to discuss

the interaction effect only, unless some special circumstances exists, interest in testing the main effects is usually limited. Hence, whenever, the obtained "F" ratio for interaction effect was found to be significant, the simple effect test was used as a follow up test. Since, three groups and three different stages of testing periods were compared, whenever the obtained "F" ratio value in the simple effect was significant the Scheffe'S test was applied as post hoc test to determine the paired mean differences, if any. In all the cases, .05 level of confidence was used to test the level of significance.

4.1 ANALYSIS OF THE DATA

The influence of independent variables on each criterion variables were analysed and presented below.

4.1.1 Intermodal Perception

The analysis of covariance on intermodal perception of the 10^{th} month (pre test) and 12^{th} month (post test) scores of pranayama practices group, auditory stimulation group and control group have been analyzed and presented in Table III.

TABLE III

ANALYSIS OF COVARIANCE OF THE DATA ON INTREMODAL PERCEPTION OF PRE AND POST TEST SCORES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION AND CONTROL GROUPS

(Scores in seconds)

Test	Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	17.47	17.60	17.67	Between	4.04	2	2.02	0.756
S.D.	7.745	3.906	5.052	Within	1122.93	42	26.736	
Post Test								
Mean	23.67	27.60	17.80	Between	364.31	2	182.16	7.056*
S.D.	7.789	3.460	4.843	Within	1084.267	42	25.816	
Adjusted Post Test								
Mean	24.13	27.77	17.77	Between	406.65	2	203.33	71.72*
				Within	116.25	41	2.835	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table III shows that the pre-test (10th Month) mean values on intermodal perception of pranayama practices, auditory stimulation practices and control groups are 17.47, 17.60 and 17.67 respectively. The obtained 'F' ratio of 0.0756 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on intermodal perception. The post-test (12th Month) mean values on intermodal perception of pranayama practices, auditory stimulation practices and control groups are 23.67, 27.60 and 17.80 respectively. The obtained 'F' ratio of 7.056 for post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on intermodal perception.

The adjusted post-test means on intermodal perception of pranayama practices, auditory stimulation practices and control groups are 24.13, 27.77 and 17.77 respectively. The obtained 'F' ratio of 71.72 for adjusted post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on intermodal perception.

The results of the study indicated that there was a significant difference between the adjusted post-test means of pranayama practices, auditory stimulation practices and control groups on intermodal perception.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table III - A.

TABLE III - A

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON INTERMODAL PERCEPTION

(Scores in seconds)

Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Mean Differences	Confidence Interval Value
24.13	27.77	-	3.64*	1.56
24.13	-	17.77	6.36 *	1.56
-	27.77	17.77	10.00*	1.56

* Significant at .05 level of confidence.

The table III-A shows that the mean difference values between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and

control group on intermodal perception 3.64, 6.36 and 10.00 which were greater than the required confidence interval value 1.56 for significance at .05 level of confidence.

The results of this study showed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on intermodal perception.

The pre test, post test and the adjusted post-test mean values of pranayama practices, auditory stimulation practices and control groups on intermodal perception were graphically represented in figure I.

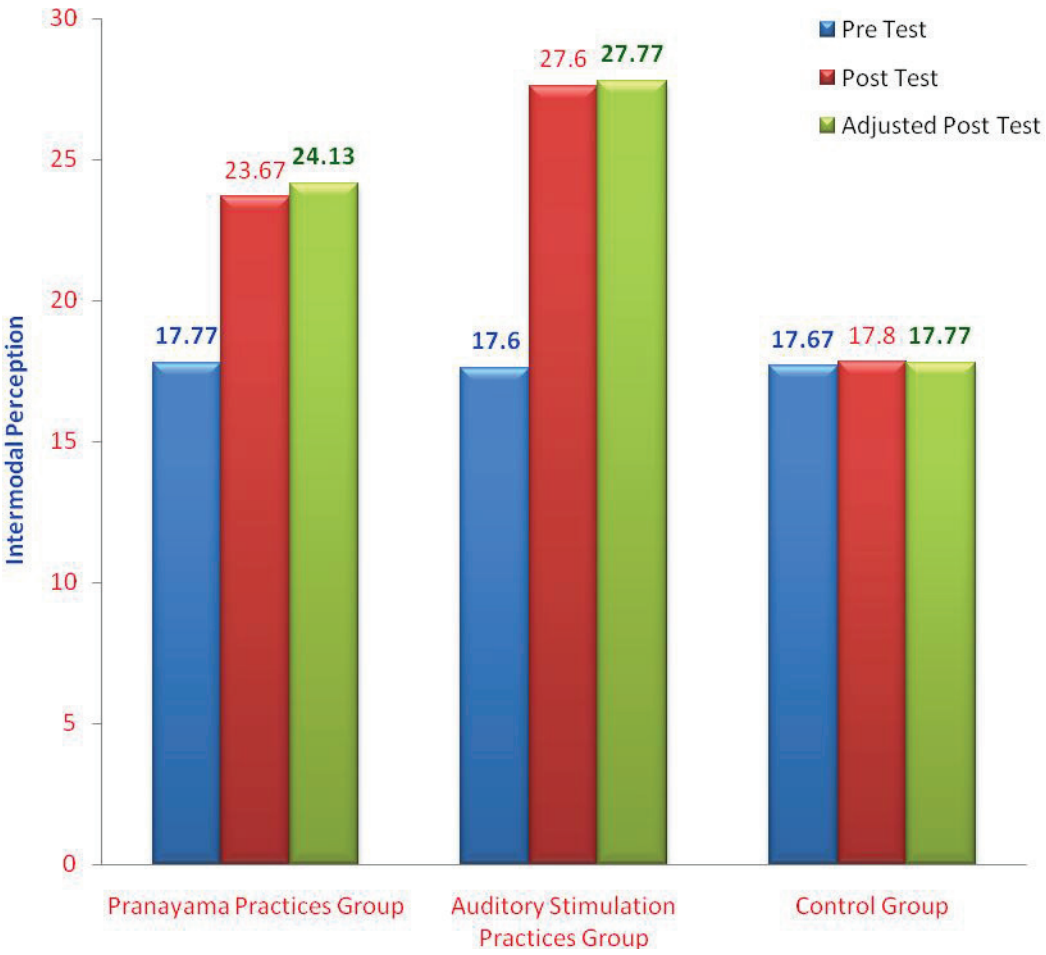

FIGURE I: THE PRE TEST, POST TEST AND ADJUSTED POST-TEST MEAN VALUES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON INTERMODAL PERCEPTION

The mean and standard deviation values on intermodal perception of pranayama practices group, auditory stimulation practices group and control group at three different stages of periods have been analysed and presented in Table III-B.

TABLE III- B

THE MEAN AND STANDARD DEVIATION VALUES ON INTERMODAL PERCEPTION AT THE END OF 10th MONTH, 11th MONTH AND 12th MONTH SCORES OF PRANAYAMA PRACTICES, AUIDTORY STIMULATION PRACTICES AND CONTROL GROUPS

Groups		At the end of 10th Month	At the end of 11th Month	At the end of 12th Month
Pranayama Practices Group	Mean	17.77	21.27	23.67
	S.D	7.745	7.750	7.789
Auditory Stimulation Practices Group	Mean	17.60	23.93	27.60
	S.D	3.906	3.453	3.460
Control Group	Mean	17.67	17.73	17.80
	S.D	5.052	4.964	4.843

The Table III-B shows that the mean values of 10th month scores on intermodal perception for pranayama practices, auditory stimulation practices and control groups are 17.47, 21.27 and 23.67 respectively. The mean values of 11th month scores on intermodal perception for pranayama practices, auditory stimulation practices and control groups are 17.60, 23.93 and 27.60 respectively. And the mean values of 12th month scores on intermodal perception for pranayama practices, auditory stimulation practices and control groups are 17.67, 17.73 and 17.80 respectively.

The two way analysis of variance values on intermodal perception of all three groups at three different stages of periods have been presented in Table III-C.

TABLE III-C

THE TWO WAY ANALYSIS OF VARIANCE ON INTERMODAL PERCEPTION OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS AT THREE DIFFERENT STAGES OF PERIODS

Source of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Between				
A factor (groups)	639.748	2	319.874	3.293*
Error	4079.911	42	97.141	
Within				
B factor (periods)	680.726	2	340.363	989.671*
AB factor (interaction)	380.385	4	95.096	276.511*
Error	28.889	84	0.344	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 42, 2 and 84 & 4 and 84 were 3.222, 3.106 and 2.482 respectively.

Table III-C shows that the obtained 'F' ratio value 3.293 for row (groups) on intermodal perception which is greater than the required table value 3.222 for significance with df 2 and 42. It further shows that the obtained 'F' ratio value 989.671 for column (periods) on intermodal perception which is greater than the required table value 3.106 for significance with df 2 and 84. It also shows that the obtained 'F' ratio value 276.511 for interaction effect (groups × periods) on

intermodal perception which is also greater than the required table value 2.482 for significance with df 4 and 82.

The results of the study indicated that there was a significant difference among rows (groups) and among columns (different stages of testing periods) on intermodal perception.

According to Jerry R. Thomas and Jack K. Nelson, if the main purpose is usually in the interaction, it is sufficient to discuss interaction effect only, unless some special circumstances exists interest in testing the main effects is usually limited. Thus, normally it makes little sense to evaluate main effects when the interaction is significant. Since, the purpose of the study was to find out the effects of yogic pre and post natal stimulation on perception of speech, sound, behaviour and developmental variables among infants and the main purpose lies in the interaction, the main effect were not discussed. The interaction effect was only discussed for all the criterion variables.

The results of the study indicated that there was a significant difference in the interaction effect [between rows (groups) and columns (periods)] on intermodal perception. Since, the interaction effect was significant, the simple test was applied as follow up test and they are presented in table III-D.

TABLE III-D

THE SIMPLE EFFECT VALUES OF ALL THREE GROUPS (ROWS) AT THREE DIFFERENT STAGES OF TESTING PERIODS (COLUMNS) ON INTERMODAL PERCEPTION

Sources of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Groups and At the end of 10th Month	0.156	2	0.078	0227
Groups and At the end of 11th Month	145.089	2	72.545	210.885*
Groups and At the end of 12th Month	364.822	2	182.411	530.265*
Periods and Pranayama practices Group	146.600	2	73.300	213.081*
Periods and Auditory stimulation practices Group	151.667	2	75.834	220.446*
Tests and Control Group	0.067	2	0.034	0.097
Error	28.889	84	0.344	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 84 was 3.106 respectively).

The table III-D shows that the obtained "F" ratio values 210.885 and 530.265 for groups and at the end of 11th Month, groups and at the end of 12th Month respectively on intermodal perception which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence. And also the obtained "F" ratio value 213.081 and 220.446 respectively for periods and pranayama practices group and periods and auditory stimulation practices group on intermodal perception which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

The table III-D also shows that the obtained "F" ratio values 0.227 and 0.097 groups and at the end of 10^{th} Month and periods and the control group respectively on intermodal perception which are less than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

Hence, the results of the study showed that there was a significant difference between groups and at the end of 11^{th} Month, groups and at the end of 12^{th} Month, periods and pranayama practices group and periods and auditory stimulation practices group on intermodal perception. And no significant difference was found between groups and at the end of 10^{th} Month and periods and the control group on intermodal perception.

Since, three groups and three different stages of testing periods were compared, whenever the obtained "F" ratio value in the simple effect was significant, the Scheffe'S test was applied as post hoc test to find out the paired mean difference, if any and it was presented in Table III-E, III-F, III-G and III-H.

TABLE III-E

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON INTERMODAL PERCEPTION

(11th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
21.27	23.93	-	2.66*	0.541
21.27	-	17.73	3.54*	0.541
-	23.93	17.73	6.20*	0.541

* Significant at .05 level of confidence.

The table III-E shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 2.66, 3.54 and 6.20 respectively on intermodal perception at end of 11th month which are greater than the confidence interval value 0.541 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on intermodal perception at end of 11th month.

TABLE III-F

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON INTERMODAL PERCEPTION

(12th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
23.67	27.60	-	3.93*	0.541
23.67	-	17.80	5.87*	0.541
-	27.60	17.80	9.80*	0.541

* Significant at .05 level of confidence.

The table III-F shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 3.93, 5.87 and 9.80 respectively on intermodal perception at end of 12th month which are greater than the confidence interval value 0.541 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on intermodal perception at end of 12th month.

TABLE III-G

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON INTERMODAL PERCEPTION

(Pranayama Group)

At the end of 10th Month	At the end of 11th Month	At the end of 12th Month	Mean difference	Confidence interval
17.47	21.27	-	3.80*	0.541
17.47	-	23.67	6.20*	0.541
-	21.27	23.67	2.40*	0.541

* Significant at .05 level of confidence.

The table III-G shows that the mean difference between at the end of 10^{th} month score and at the end of 11^{th} month score, at the end of 10^{th} month score and at the end of 12^{th} month score and at the end of 11^{th} month score and at the end of 12^{th} month score 3.80, 6.20 and 2.40 respectively on intermodal perception for pranayama practices group which are greater than the confidence interval value 0.541 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 10^{th} month score and at the end of 11^{th} month score, at the end of 10^{th} month score and at the end of 12^{th} month score and at the end of 11^{th} month score and at the end of 12^{th} month score on intermodal perception for pranayama practices group.

TABLE III-H

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON INTERMODAL PERCEPTION

(Auditory Stimulation Practices Group)

At the end of 10th Month	At the end of 11th Month	At the end of 12th Month	Mean difference	Confidence interval
17.60	23.93	-	6.33*	0.541
17.60	-	27.60	10.00*	0.541
-	23.93	27.60	3.67*	0.541

* Significant at .05 level of confidence.

The table III-H shows that the mean difference between at the end of 10^{th} month score and at the end of 11^{th} month score, at the end of 10^{th} month score and at the end of 12^{th} month score and at the end of 11^{th} month score and at the end of 12^{th} month score 6.33, 10.00 and 3.67 respectively on intermodal perception for auditory stimulation practices group which are greater than the confidence interval value 0.541 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 10^{th} month score and at the end of 11^{th} month score, at the end of 10^{th} month score and at the end of 12^{th} month score and at the end of 11^{th} month score and at the end of 12^{th} month score on intermodal perception for auditory stimulation practices group.

The mean values at the end of 10^{th} Month, 11^{th} month and 12^{th} month for pranayama practices, auditory stimulation practices and control groups on intermodal perception are graphically represented in figure II.

FIGURE II: THE MEAN VALUES AT THE END OF 10TH MONTH, 11TH MONTH AND 12TH MONTH FOR PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON INTERMODAL PERCEPTION

4.1.2 Auditory Perception

The analysis of covariance on auditory perception of the 4th month (pre test) and 6th month (post test) scores of pranayama practices group, auditory stimulation group and control group have been analyzed and presented in Table IV.

TABLE IV

ANALYSIS OF COVARIANCE OF THE DATA ON AUDITORY PERCEPTION OF PRE AND POST TEST SCORES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION AND CONTROL GROUPS

(Scores in seconds)

Test	Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	12.13	12.40	12.33	Between	0.40	2	0.20	0.058
S.D.	1.50	0.88	1.62	Within	144.40	42	3.44	
Post Test								
Mean	10.47	9.53	12.40	Between	76.84	2	38.42	18.122*
S.D.	1.31	0.88	1.54	Within	89.067	42	2.120	
Adjusted Post Test								
Mean	10.60	9.44	12.36	Between	70.775	2	35.388	34.694*
				Within	41.82	41	1.02	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table IV shows that the pre-test (4th Month) mean values on auditory perception of pranayama practices, auditory stimulation practices and control groups are 12.13, 12.40 and 12.33 respectively. The obtained 'F' ratio of 0.058 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on auditory perception. The post-test (6th Month) mean values

on auditory perception of pranayama practices, auditory stimulation practices and control groups are 10.47, 9.53 and 12.40 respectively. The obtained 'F' ratio of 18.122 for post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on auditory perception.

The adjusted post-test means on auditory perception of pranayama practices, auditory stimulation practices and control groups are 10.60, 9.44 and 12.36 respectively. The obtained 'F' ratio of 34.694 for adjusted post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on auditory perception.

The results of the study indicated that there was a significant difference between the adjusted post-test means of pranayama practices, auditory stimulation practices and control groups on auditory perception.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table IV - A.

TABLE IV - A

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON AUDITORY PERCEPTION

(Scores in seconds)

Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Mean Differences	Confidence Interval Value
10.60	9.44	-	1.16*	0.54
10.60	-	12.36	1.77*	0.54

-	9.44	12.36	2.92*	0.54

* Significant at .05 level of confidence.

The table IV-A shows that the mean difference values between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on auditory perception 1.16, 1.77 and 2.92 which were greater than the required confidence interval value 0.54 for significance at .05 level of confidence.

The results of this study showed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on auditory perception.

The pre test, post test and the adjusted post-test mean values of pranayama practices, auditory stimulation practices and control groups on auditory perception were graphically represented in figure III.

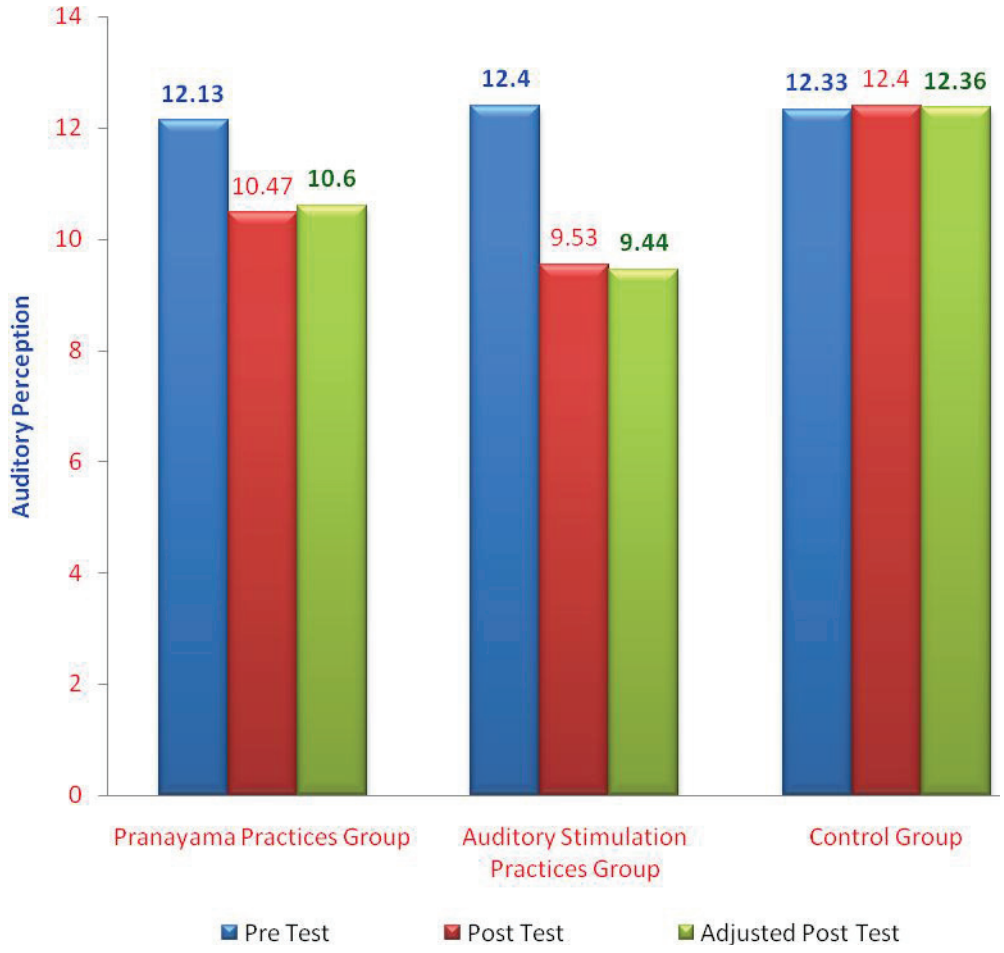

FIGURE III: THE PRE TEST, POST TEST AND ADJUSTED POST-TEST MEAN VALUES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON AUDITORY PERCEPTION

The mean and standard deviation values on auditory perception of pranayama practices group, auditory stimulation practices group and control group at three different stages of periods have been analysed and presented in Table IV-B.

TABLE IV- B

THE MEAN AND STANDARD DEVIATION VALUES ON AUDITORY PERCEPTION AT THE END OF 4th MONTH, 5th MONTH AND 6th MONTH SCORES OF PRANAYAMA PRACTICES, AUIDTORY STIMULATION PRACTICES AND CONTROL GROUPS

Groups		At the end of 4th Month	At the end of 5th Month	At the end of 6th Month
Pranayama Practices Group	Mean	12.13	11.18	10.47
	S.D	1.50	1.196	1.31
Auditory Stimulation Practices Group	Mean	12.40	10.69	9.53
	S.D	0.88	1.21	0.88
Control Group	Mean	12.33	12.37	12.40
	S.D	1.62	1.71	1.54

The Table IV-B shows that the mean values of 4th month scores on auditory perception for pranayama practices, auditory stimulation practices and control groups are 12.13, 12.40 and 12.33 respectively. The mean values of 5th month scores on auditory perception for pranayama practices, auditory stimulation practices and control groups are 11.18, 10.69 and 12.37 respectively. And the mean values of 6th month scores on auditory perception for pranayama practices, auditory stimulation practices and control groups are 10.47, 9.53 and 12.40 respectively.

The two way analysis of variance values on auditory perception of all three groups at three different stages of periods have been presented in Table IV-C.

TABLE IV-C

THE TWO WAY ANALYSIS OF VARIANCE ON AUDITORY PERCEPTION OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS AT THREE DIFFERENT STAGES OF PERIODS

Source of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Between				
A factor (groups)	56.173	2	28.087	3.319*
Error	355.380	42	8.461	
Within				
B factor (periods)	51.631	2	25.815	183.548*
AB factor (interaction)	36.531	4	9.133	64.934*
Error	11.814	84	0.141	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 42, 2 and 84 & 4 and 84 were 3.222, 3.106 and 2.482 respectively.

Table IV-C shows that the obtained 'F' ratio value 3.319 for row (groups) on auditory perception which is greater than the required table value 3.222 for significance with df 2 and 42. It further shows that the obtained 'F' ratio value 183.548 for column (periods) on auditory perception which is greater than the required table value 3.106 for significance with df 2 and 84. It also shows that the obtained 'F' ratio value 64.934 for interaction effect (groups × periods) on auditory

perception which is also greater than the required table value 2.482 for significance with df 4 and 84.

The results of the study indicated that there was a significant difference among rows (groups) and among columns (different stages of testing periods) on auditory perception.

The results of the study indicated that there was a significant difference in the interaction effect [between rows (groups) and columns (periods)] on auditory perception. Since, the interaction effect was significant, the simple test was applied as follow up test and they are presented in table IV-D.

TABLE IV-D

THE SIMPLE EFFECT VALUES OF ALL THREE GROUPS (ROWS) AT THREE DIFFERENT STAGES OF TESTING PERIODS (COLUMNS) ON AUDITORY PERCEPTION

Sources of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Groups and At the end of 4th Month	0.140	2	0.070	0.496
Groups and At the end of 5th Month	14.494	2	7.247	51.397*
Groups and At the end of 6th Month	31.718	2	15.859	112.475*
Periods and Pranayama practices Group	12.020	2	6.010	42.624*
Periods and Auditory stimulation practices Group	31.963	2	15.982	113.344*
Tests and Control Group	0.097	2	0.049	0.345
Error	11.814	84	0.141	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 84 was 3.106 respectively).

The table IV-D shows that the obtained "F" ratio values 51.397 and 112.475 for groups and at the end of 5th Month, groups and at the end of 6th Month respectively on auditory perception which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence. And also the obtained "F" ratio value 42.624 and 113.344 respectively for periods and pranayama practices group and periods and auditory stimulation practices group on auditory perception which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

The table IV-D also shows that the obtained "F" ratio values 0.496 and 0.345 groups and at the end of 4th Month and periods and the control group respectively on auditory perception which are less than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

Hence, the results of the study showed that there was a significant difference between groups and at the end of 5th Month, groups and at the end of 6th Month, periods and pranayama practices group and periods and auditory stimulation practices group on auditory perception. And no significant difference was found between groups and at the end of 4th Month and periods and the control group on auditory perception.

Since, three groups and three different stages of testing periods were compared, whenever the obtained "F" ratio value in the simple effect was significant, the Scheffe'S test was applied as post hoc test to find out the paired mean difference, if any and it was presented in Table IV-E, IV -F, IV -G and IV -H.

TABLE IV-E

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON AUDITORY PERCEPTION

(5th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
11.18	10.69	-	0.49*	0.346
11.18	-	12.37	1.19*	0.346
-	10.69	12.37	1.68*	0.346

* Significant at .05 level of confidence.

The table IV-E shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 0.49, 1.19 and 1.68 respectively on auditory perception at end of 5th month which are greater than the confidence interval value 0.346 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on auditory perception at end of 5th month.

TABLE IV-F

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON AUDITORY PERCEPTION

(6th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
10.47	9.43	-	1.04*	0.346
10.47	-	12.40	1.93*	0.346
-	9.43	12.40	2.97*	0.346

* Significant at .05 level of confidence.

The table IV-F shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 1.04, 1.93 and 2.97 respectively on auditory perception at end of 6th month which are greater than the confidence interval value 0.346 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on auditory perception at end of 6th month.

TABLE IV-G

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON AUDITORY PERCEPTION

(Pranayama Group)

At the end of 4th Month	At the end of 5th Month	At the end of 6th Month	Mean difference	Confidence interval
12.13	11.18	-	0.95*	0.346
12.13	-	10.47	1.66*	0.346
-	11.18	10.47	0.71*	0.346

* Significant at .05 level of confidence.

The table IV-G shows that the mean difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score 0.95, 1.66 and 0.71 respectively on auditory perception for pranayama practices group which are greater than the confidence interval value 0.346 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on auditory perception for pranayama practices group.

TABLE IV-H

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON AUDITORY PERCEPTION

(Auditory Stimulation Practices Group)

At the end of 4th Month	At the end of 5th Month	At the end of 6th Month	Mean difference	Confidence interval
12.40	10.69	-	1.71*	0.346
12.40	-	9.53	2.87*	0.346
-	10.69	9.53	1.16*	0.346

* Significant at .05 level of confidence.

The table IV-H shows that the mean difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on auditory perception for auditory stimulation practices group 1.71, 2.87 and 1.16 which are greater than the confidence interval value 0.346 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on auditory perception for auditory stimulation practices group.

The mean values at the end of 4th Month, 5th month and 6th month for pranayama practices, auditory stimulation practices and control groups on auditory perception are graphically represented in figure IV.

FIGURE IV: THE MEAN VALUES AT THE END OF 4TH MONTH, 5TH MONTH AND 6TH MONTH FOR PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON AUDITORY PERCEPTION

4.1.3 Visual Recognition Memory

The analysis of covariance on visual recognition memory of the 4th month (pre test) and 6th month (post test) scores of pranayama practices group, auditory stimulation group and control group have been analyzed and presented in Table V.

TABLE V

ANALYSIS OF COVARIANCE OF THE DATA ON VISUAL RECOGNITION MEMORY OF PRE AND POST TEST SCORES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION AND CONTROL GROUPS

(Scores in seconds)

Test	Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	32.13	32.07	31.80	Between	0.933	2	0.4665	0.0155
S.D.	2.031	6.006	7.073	Within	1263.067	42	30.07	
Post Test								
Mean	40.40	37.07	31.60	Between	592.177	2	296.089	11.62*
S.D.	2.063	5.612	6.379	Within	1070.13	42	25.479	
Adjusted Post Test								
Mean	40.28	37.01	31.78	Between	551.017	2	275.508	241.89*
				Within	46.737	41	1.139	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table V shows that the pre-test (4th Month) mean values on visual recognition memory of pranayama practices, auditory stimulation practices and control groups are 32.13, 32.07 and 31.80 respectively. The obtained 'F' ratio of 0.0155 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required

for significance at .05 level of confidence on visual recognition memory. The post-test (6^{th} Month) mean values on visual recognition memory of pranayama practices, auditory stimulation practices and control groups are 40.40, 37.07 and 31.60 respectively. The obtained 'F' ratio of 11.62 for post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on visual recognition memory.

The adjusted post-test means on visual recognition memory of pranayama practices, auditory stimulation practices and control groups are 40.28, 37.01 and 31.78 respectively. The obtained 'F' ratio of 241.89 for adjusted post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on visual recognition memory.

The results of the study indicated that there was a significant difference between the adjusted post-test means of pranayama practices, auditory stimulation practices and control groups on visual recognition memory.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table V - A.

TABLE V - A

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON VISUAL RECOGNITION MEMORY

(Scores in seconds)

Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Mean Differences	Confidence Interval Value
40.28	37.01	-	3.27*	0.99
40.28	-	31.78	8.50*	0.99
-	37.01	31.78	5.23*	0.99

* Significant at .05 level of confidence.

The table V-A shows that the mean difference values between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on visual recognition memory 3.27, 8.50 and 5.23 which were greater than the required confidence interval value 0.99 for significance at .05 level of confidence.

The results of this study showed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on visual recognition memory.

The pre test, post test and the adjusted post-test mean values of pranayama practices, auditory stimulation practices and control groups on visual recognition memory were graphically represented in figure V.

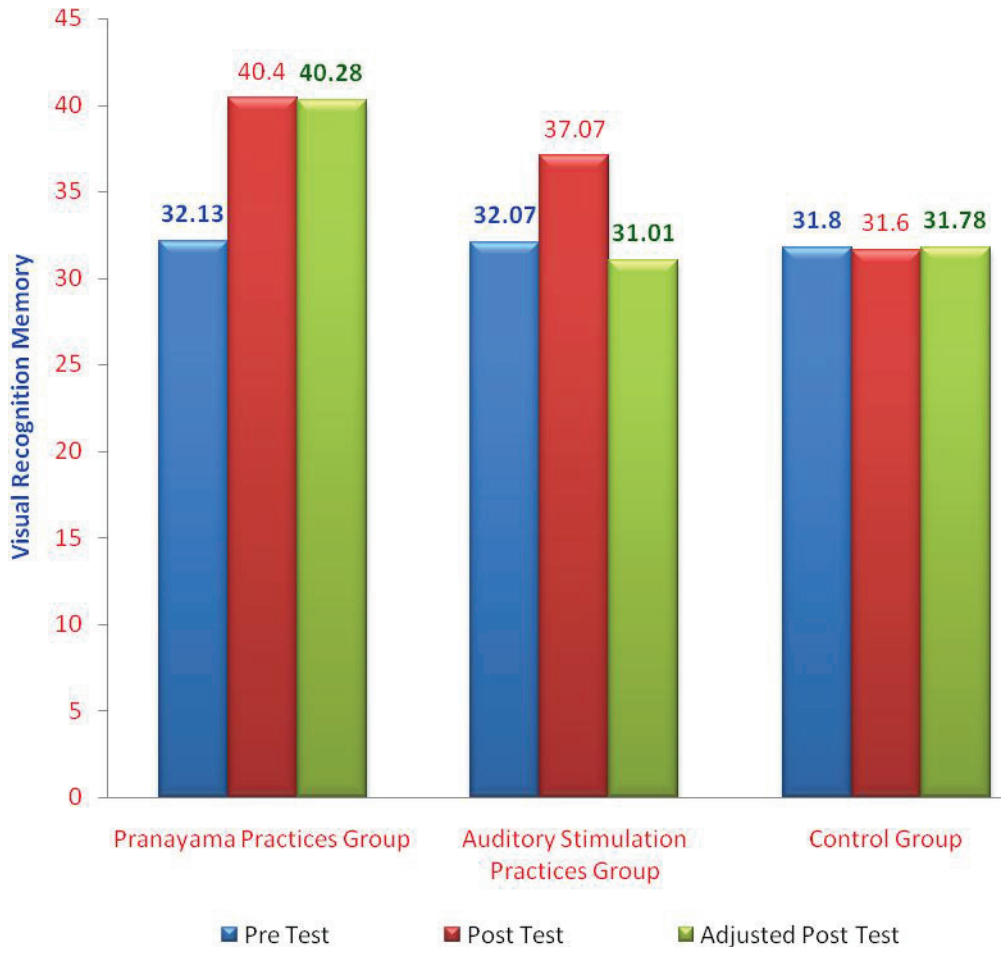

FIGURE V: THE PRE TEST, POST TEST AND ADJUSTED POST-TEST MEAN VALUES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON VISUAL RECOGNITION MEMORY

The mean and standard deviation values on visual recognition memory of pranayama practices group, auditory stimulation practices group and control group at three different stages of periods have been analysed and presented in Table V-B.

TABLE V- B

THE MEAN AND STANDARD DEVIATION VALUES ON VISUAL RECOGNITION MEMORY AT THE END OF 4th MONTH, 5th MONTH AND 6th MONTH SCORES OF PRANAYAMA PRACTICES, AUIDTORY STIMULATION PRACTICES AND CONTROL GROUPS

Groups		At the end of 4th Month	At the end of 5th Month	At the end of 6th Month
Pranayama Practices Group	Mean	32.13	37.20	40.40
	S.D	2.031	2.042	2.063
Auditory Stimulation Practices Group	Mean	32.07	34.73	37.07
	S.D	6.006	5.970	5.612
Control Group	Mean	31.80	31.73	31.60
	S.D	7.073	6.475	6.379

The Table V-B shows that the mean values of 4th month scores on visual recognition memory for pranayama practices, auditory stimulation practices and control groups are 32.13, 32.07 and 31.80 respectively. The mean values of 5th month scores on visual recognition memory for pranayama practices, auditory stimulation practices and control groups are 37.20, 34.73 and 31.73 respectively. And the mean values of 6th month scores on visual recognition memory for pranayama practices, auditory stimulation practices and control groups are 40.40, 37.07 and 31.60 respectively.

The two way analysis of variance values on visual recognition memory of all three groups at three different stages of periods have been presented in Table V-C.

TABLE V-C

THE TWO WAY ANALYSIS OF VARIANCE ON VISUAL RECOGNITION MEMORY OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS AT THREE DIFFERENT STAGES OF PERIODS

Source of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Between				
A factor (groups)	539.748	2	269.874	3.287*
Error	3448.800	42	82.114	
Within				
B factor (periods)	431.126	2	215.563	631.65*
AB factor (interaction)	278.207	4	69.552	203.80*
Error	28.667	84	0.341	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 42, 2 and 84 & 4 and 84 were 3.222, 3.106 and 2.482 respectively.

Table V-C shows that the obtained 'F' ratio value 3.287 for row (groups) on visual recognition memory which is greater than the required table value 3.222 for significance with df 2 and 42. It further shows that the obtained 'F' ratio value 631.65 for column (periods) on visual recognition memory which is greater than the required table value 3.106 for significance with df 2 and 84. It also shows that the obtained 'F' ratio value 203.80 for interaction effect (groups × periods) on visual

recognition memory which is also greater than the required table value 2.482 for significance with df 4 and 84.

The results of the study indicated that there was a significant difference among rows (groups) and among columns (different stages of testing periods) on visual recognition memory.

The results of the study indicated that there was a significant difference in the interaction effect [between rows (groups) and columns (periods)] on visual recognition memory. Since, the interaction effect was significant, the simple test was applied as follow up test and they are presented in table V-D.

TABLE V-D

THE SIMPLE EFFECT VALUES OF ALL THREE GROUPS (ROWS) AT THREE DIFFERENT STAGES OF TESTING PERIODS (COLUMNS) ON VISUAL RECOGNITION MEMORY

Sources of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Groups and At the end of 4th Month	0.467	2	0.234	0.685
Groups and At the end of 5th Month	112.422	2	56.211	164.842*
Groups and At the end of 6th Month	296.089	2	148.045	434.148*
Periods and Pranayama practices Group	93.889	2	46.945	137.667*
Periods and Auditory stimulation practices Group	260.622	2	130.311	382.143*
Tests and Control Group	0.016	2	0.008	0.023
Error	28.667	84	0.341	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 84 was 3.106 respectively).

The table V-D shows that the obtained "F" ratio values 164.842 and 434.148 for groups and at the end of 5th Month, groups and at the end of 6th Month respectively on visual recognition memory which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence. And also the obtained "F" ratio value 137.667 and 382.143 respectively for periods and pranayama practices group and periods and auditory stimulation practices group on visual recognition memory which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

The table V-D also shows that the obtained "F" ratio values 0.685 and 0.023 groups and at the end of 4th Month and periods and the control group respectively on visual recognition memory which are less than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

Hence, the results of the study showed that there was a significant difference between groups and at the end of 5th Month, groups and at the end of 6th Month, periods and pranayama practices group and periods and auditory stimulation practices group on visual recognition memory. And no significant difference was found between groups and at the end of 4th Month and periods and the control group on visual recognition memory.

Since, three groups and three different stages of testing periods were compared, whenever the obtained "F" ratio value in the simple effect was significant, the Scheffe'S test was applied as post hoc test to find out the paired mean difference, if any and it was presented in Table V-E, V-F, V-G and V-H.

TABLE V-E

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON VISUAL RECOGNITION MEMORY

(5th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
37.20	34.73	-	2.47*	0.539
37.20	-	31.73	5.47*	0.539
-	34.73	31.73	3.00*	0.539

* Significant at .05 level of confidence.

The table V-E shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 2.47, 5.47 and 3.00 respectively on visual recognition memory at end of 5th month which are greater than the confidence interval value 0.539 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on visual recognition memory at end of 5th month.

TABLE V-F

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON VISUAL RECOGNITION MEMORY

(6th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
40.40	37.06	-	3.34*	0.539
40.40	-	31.60	8.80*	0.539
-	37.06	31.60	5.46*	0.539

* Significant at .05 level of confidence.

The table V-F shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 3.34, 8.80 and 5.46 respectively on visual recognition memory at end of 6th month which are greater than the confidence interval value 0.539 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on visual recognition memory at end of 6th month.

TABLE V-G

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON VISUAL RECOGNITION MEMORY

(Pranayama Group)

At the end of 4th Month	At the end of 5th Month	At the end of 6th Month	Mean difference	Confidence interval
32.13	37.20	-	5.07*	0.539
32.13	-	40.40	8.27*	0.539
-	37.20	40.40	3.20*	0.539

* Significant at .05 level of confidence.

The table V-G shows that the mean difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score 5.07, 8.27 and 3.20 respectively on visual recognition memory for pranayama practices group which are greater than the confidence interval value 0.539 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on visual recognition memory for pranayama practices group.

TABLE V-H

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON VISUAL RECOGNITION MEMORY

(Auditory Stimulation Practices Group)

At the end of 4th Month	At the end of 5th Month	At the end of 6th Month	Mean difference	Confidence interval
32.07	34.73	-	2.66*	0.539
32.07	-	37.06	4.99*	0.539
-	34.73	37.06	2.33*	0.539

* Significant at .05 level of confidence.

The table V-H shows that the mean difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on visual recognition memory for auditory stimulation practices group 2.66, 4.99 and 2.33 which are greater than the confidence interval value 0.539 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on visual recognition memory for auditory stimulation practices group.

The mean values at the end of 4th Month, 5th month and 6th month for pranayama practices, auditory stimulation practices and control groups on visual recognition memory are graphically represented in figure VI.

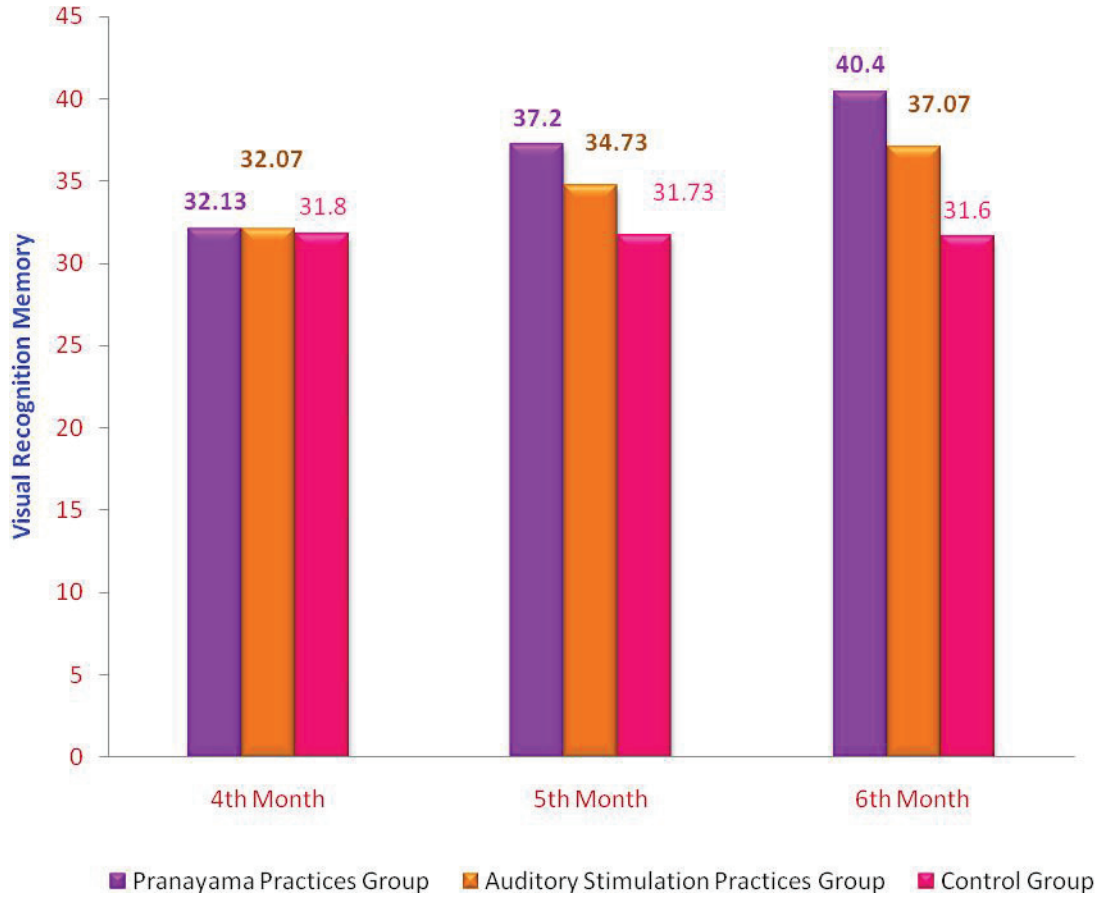

FIGURE VI: THE MEAN VALUES AT THE END OF 4TH MONTH, 5TH MONTH AND 6TH MONTH FOR PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON VISUAL RECOGNITION MEMORY

4.1.4 Tactile Perception

The analysis of covariance on Tactile perception of the 4th month (pre test) and 6th month (post test) scores of pranayama practices group, auditory stimulation group and control group have been analyzed and presented in Table VI.

TABLE VI

ANALYSIS OF COVARIANCE OF THE DATA ON TACTILE PERCEPTION OF PRE AND POST TEST SCORES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION AND CONTROL GROUPS

(Scores in seconds)

Test	Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	17.60	17.67	17.87	Between	0.40	2	0.2889	0.131
S.D.	1.74	1.25	1.26	Within	92.67	42	2.206	
Post Test								
Mean	19.87	19.33	18.00	Between	27.73	2	13.865	8.433*
S.D.	1.63	1.01	0.97	Within	69.067	42	1.644	
Adjusted Post Test								
Mean	19.95	19.37	17.88	Between	34.16	2	17.08	59.51*
				Within	11.769	41	0.287	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.226 respectively).

The table VI shows that the pre-test (4th Month) mean values on tactile perception of pranayama practices, auditory stimulation practices and control groups are 17.60, 17.67 and 17.87 respectively. The obtained 'F' ratio of 0.131 for pre-test scores is less than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on tactile perception. The post-test (6th Month) mean values

on tactile perception of pranayama practices, auditory stimulation practices and control groups are 19.87, 19.33 and 18.00 respectively. The obtained 'F' ratio of 8.433 for post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on tactile perception.

The adjusted post-test means on tactile perception of pranayama practices, auditory stimulation practices and control groups are 19.95, 19.37 and 17.88 respectively. The obtained 'F' ratio of 59.51 for adjusted post-test scores is greater than the table value of 3.222 for df 2 and 42 required for significance at .05 level of confidence on tactile perception.

The results of the study indicated that there was a significant difference between the adjusted post-test means of pranayama practices, auditory stimulation practices and control groups on tactile perception.

Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table VI - A.

TABLE VI - A

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS ON TACTILE PERCEPTION

(Scores in seconds)

Pranayama Practices Group	Auditory Stimulation Practices Group	Control Group	Mean Differences	Confidence Interval Value
19.95	19.37	-	0.59*	0.50
19.95	-	17.88	2.08*	0.50

-	19.37	17.88	1.49*	0.50

* Significant at .05 level of confidence.

The table VI-A shows that the mean difference values between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on tactile perception 0.59, 2.08 and 1.49 which were greater than the required confidence interval value 0.50 for significance at .05 level of confidence.

The results of this study showed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on tactile perception.

The pre test, post test and the adjusted post-test mean values of pranayama practices, auditory stimulation practices and control groups on tactile perception were graphically represented in figure VII.

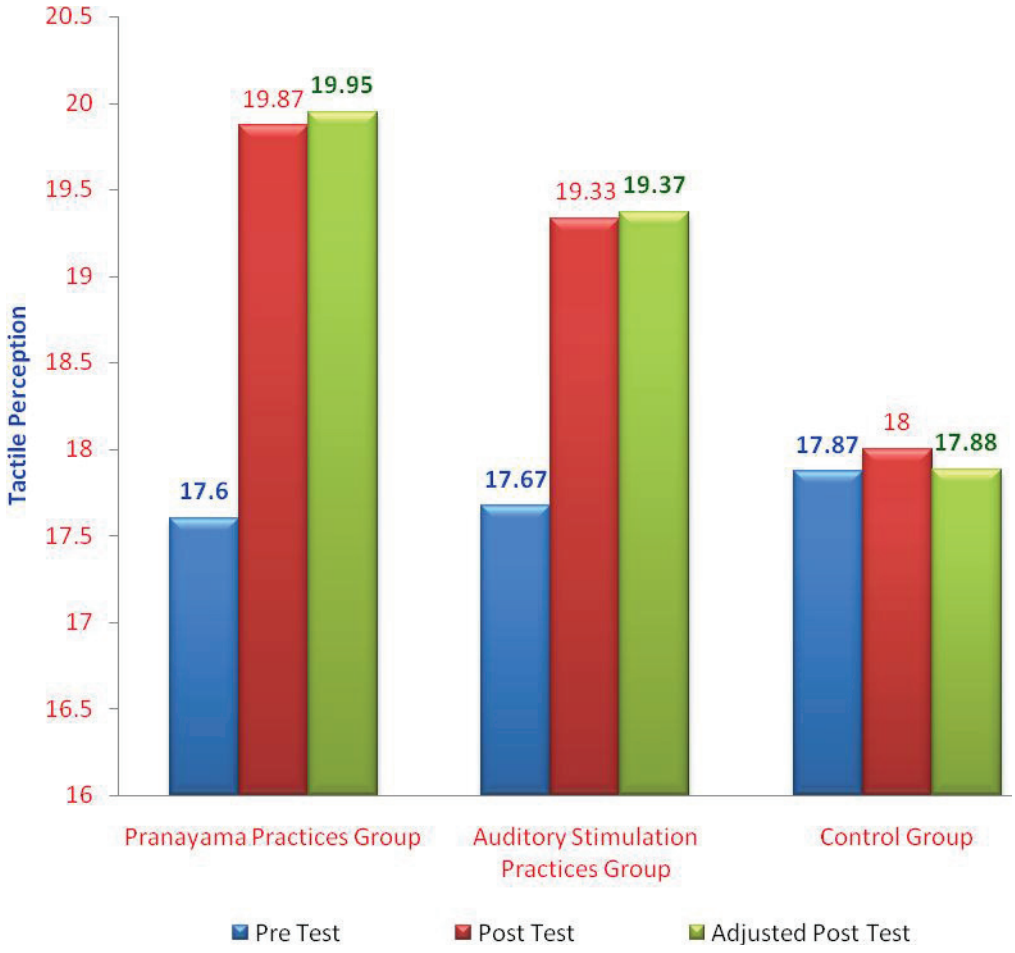

FIGURE VII: THE PRE TEST, POST TEST AND ADJUSTED POST-TEST MEAN VALUES OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON TACTILE PERCEPTION

The mean and standard deviation values on tactile perception of pranayama practices group, auditory stimulation practices group and control group at three different stages of periods have been analysed and presented in Table VI-B.

TABLE VI- B

THE MEAN AND STANDARD DEVIATION VALUES ON TACTILE PERCEPTION AT THE END OF 4th MONTH, 5th MONTH AND 6th MONTH SCORES OF PRANAYAMA PRACTICES, AUIDTORY STIMULATION PRACTICES AND CONTROL GROUPS

Groups		At the end of 4th Month	At the end of 5th Month	At the end of 6th Month
Pranayama Practices Group	Mean	17.60	18.87	19.87
	S.D	1.805	1.685	1.685
Auditory Stimulation Practices Group	Mean	17.67	18.33	19.33
	S.D	1.291	1.047	0.915
Control Group	Mean	17.87	17.93	18.00
	S.D	1.302	1.223	1.000

The Table VI-B shows that the mean values of 4th month scores on tactile perception for pranayama practices, auditory stimulation practices and control groups are 17.60, 17.67 and 17.87 respectively. The mean values of 5th month scores on tactile perception for pranayama practices, auditory stimulation practices and control groups are 18.87, 18.33 and 17.93 respectively. And the mean values of 6th month scores on tactile perception for pranayama practices, auditory stimulation practices and control groups are 19.87, 19.33 and 18.00 respectively.

The two way analysis of variance values on tactile perception of all three groups at three different stages of periods have been presented in Table VI-C.

TABLE VI-C

THE TWO WAY ANALYSIS OF VARIANCE ON TACTILE PERCEPTION OF PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS AT THREE DIFFERENT STAGES OF PERIODS

Source of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Between				
A factor (groups)	36.326	2	18.163	3.398*
Error	224.489	42	5.345	
Within				
B factor (periods)	69.793	2	34.896	303.935*
AB factor (interaction)	31.230	4	7.807	68.00*
Error	9.644	84	0.115	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 42, 2 and 84 & 4 and 84 were 3.222, 3.106 and 2.482 respectively.

Table VI-C shows that the obtained 'F' ratio value 3.398 for row (groups) on tactile perception which is greater than the required table value 3.222 for significance with df 2 and 42. It further shows that the obtained 'F' ratio value 303.935 for column (periods) on tactile perception which is greater than the required table value 3.106 for significance with df 2 and 84. It also shows that the obtained 'F' ratio value 68.00 for interaction effect (groups × periods) on tactile perception which is also greater than the required table value 2.482 for significance with df 4 and 84.

The results of the study indicated that there was a significant difference among rows (groups) and among columns (different stages of testing periods) on tactile perception.

The results of the study indicated that there was a significant difference in the interaction effect [between rows (groups) and columns (periods)] on tactile perception. Since, the interaction effect was significant, the simple test was applied as follow up test and they are presented in table VI-D.

TABLE VI-D

THE SIMPLE EFFECT VALUES OF ALL THREE GROUPS (ROWS) AT THREE DIFFERENT STAGES OF TESTING PERIODS (COLUMNS) ON TACTILE PERCEPTION

Sources of variance	Sum of squares	df	Mean squares	Obtained "F" ratio
Groups and At the end of 4th Month	0.289	2	0.145	0.001
Groups and At the end of 5th Month	7.622	2	3.811	33.139*
Groups and At the end of 6th Month	25.867	2	12.934	112.465*
Periods and Pranayama practices Group	19.356	2	9.678	84.157*
Periods and Auditory stimulation practices Group	31.089	2	15.545	135.170*
Tests and Control Group	0.067	2	0335	2.913
Error	9.644	84	0.115	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 2 and 84 was 3.106 respectively).

The table VI-D shows that the obtained "F" ratio values 33.139 and 112.465 for groups and at the end of 5th Month, groups and at the end of 6th Month respectively on tactile perception which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence. And also the obtained "F" ratio value 84.157 and 135.170 respectively for periods and pranayama practices group and periods and auditory stimulation practices group on tactile perception

which are greater than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

The table VI-D also shows that the obtained "F" ratio values 0.001 and 2.913 groups and at the end of 4th Month and periods and the control group respectively on tactile perception which are less than the required table value 3.106 for significance with df 2 and 84 at .05 level of confidence.

Hence, the results of the study showed that there was a significant difference between groups and at the end of 5th Month, groups and at the end of 6th Month, periods and pranayama practices group and periods and auditory stimulation practices group on tactile perception. And no significant difference was found between groups and at the end of 4th Month and periods and the control group on tactile perception.

Since, three groups and three different stages of testing periods were compared, whenever the obtained "F" ratio value in the simple effect was significant, the Scheffe'S test was applied as post hoc test to find out the paired mean difference, if any and it was presented in Table VI-E, VI -F, VI -G and VI -H.

TABLE VI-E

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON TACTILE PERCEPTION

(5th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
18.87	18.33	-	0.54*	0.313
18.87	-	17.93	0.94*	0.313
-	18.33	17.93	0.40*	0.313

* Significant at .05 level of confidence.

The table VI-E shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 0.54, 0.94 and 0.40 respectively on tactile perception at end of 5th month which are greater than the confidence interval value 0.313 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on tactile perception at end of 5th month.

TABLE VI-F

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON TACTILE PERCEPTION

(6th Month)

Pranayama Practices group	Auditory Stimulation Practices group	Control group	Mean difference	Confidence interval
19.87	19.33	-	0.54*	0.313
19.87	-	18.00	1.87*	0.313
-	19.33	18.00	1.33*	0.313

* Significant at .05 level of confidence.

The table VI-F shows that the mean difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group 0.54, 1.87 and 1.33 respectively on tactile perception at end of 6th month which are greater than the confidence interval value 0.313 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on tactile perception at end of 6th month.

TABLE VI-G

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON TACTILE PERCEPTION

(Pranayama Group)

At the end of 4th Month	At the end of 5th Month	At the end of 6th Month	Mean difference	Confidence interval
17.60	18.87	-	1.27*	0.313
17.60	-	19.87	2.27*	0.313
-	18.87	19.87	1.00*	0.313

* Significant at .05 level of confidence.

The table VI-G shows that the mean difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score 1.27, 2.27 and 1.00 respectively on tactile perception for pranayama practices group which are greater than the confidence interval value 0.313 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on tactile perception for pranayama practices group.

TABLE VI-H

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF GROUPS ON TACTILE PERCEPTION

(Auditory Stimulation Practices Group)

At the end of 10th Month	At the end of 11th Month	At the end of 12th Month	Mean difference	Confidence interval
17.67	18.33	-	0.66*	0.313
17.67	-	19.33	1.66*	0.313
-	18.33	19.33	1.00*	0.313

* Significant at .05 level of confidence.

The table VI-H shows that the mean difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on tactile perception for auditory stimulation practices group 0.66, 1.66 and 1.00 which are greater than the confidence interval value 0.313 at .05 level of confidence.

Hence, the results of the study revealed that there was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on tactile perception for auditory stimulation practices group.

The mean values at the end of 4th Month, 5th month and 6th month for pranayama practices, auditory stimulation practices and control groups on tactile perception are graphically represented in figure VIII.

FIGURE VIII: THE MEAN VALUES AT THE END OF 4TH MONTH, 5TH MONTH AND 6TH MONTH FOR PRANAYAMA PRACTICES, AUDITORY STIMULATION PRACTICES AND CONTROL GROUPS ON TACTILE PERCEPTION

4.2 RESULTS OF THE STUDY

Based on the analysis of the data, the following results were drawn,

There was a significant improvement on the performance of selected perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual Recognition memory and Tactile Perception due to pranayama practices and auditory stimulation practices.

There was a significant difference among pranayama practices group, auditory stimulation practices group and control group on selected perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual Recognition memory and Tactile Perception.

There was a significant difference between pranayama practices group and auditory stimulation practices group on selected perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual Recognition memory and Tactile Perception.

Among the experimental groups, pranayama practices group was found better than auditory stimulation practices group on selected perception of speech, sound, behavior and developmental variables namely Auditory Perception, Visual Recognition memory and Tactile Perception. Auditory stimulation practices group was found better than pranayama practices group on intermodal perception.

There was a significant difference among rows (groups) irrespective of their testing periods on selected perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual Recognition memory and Tactile Perception.

There was a significant difference among columns (different stages of testing

periods) irrespective of their groups on selected perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual Recognition memory and Tactile Perception.

There was a significant difference among rows (groups) and among columns (different stages of testing periods) on selected perception of speech, sound, behavior and developmental variables namely Intermodal Perception, Auditory Perception, Visual Recognition memory and Tactile Perception.

There was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on intermodal perception at end of 11^{th} month and at the end of 12^{th} month.

There was a significant difference between pranayama practices group and auditory stimulation practices group, pranayama practices group and control group and auditory stimulation practices group and control group on auditory perception, visual recognition memory and tactile perception at end of 5^{th} month and at the end of 6^{th} month.

There was no significant difference among pranayama practices group, auditory stimulation practices group and control group on intermodal perception at end of 10^{th} month.

There was no significant difference among pranayama practices group, auditory stimulation practices group and control group on auditory perception, visual recognition memory and tactile perception at end of 4^{th} month.

There was a significant difference between at the end of 10^{th} month score and at the end of 11^{th} month score, at the end of 10^{th} month score and at the end of 12^{th}

month score and at the end of 11th month score and at the end of 12th month score on intermodal perception for pranayama practices group.

There was a significant difference between at the end of 10th month score and at the end of 11th month score, at the end of 10th month score and at the end of 12th month score and at the end of 11th month score and at the end of 12th month score on intermodal perception for auditory stimulation practices group.

There was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on auditory perception, visual recognition memory and tactile perception for pranayama practices group.

There was a significant difference between at the end of 4th month score and at the end of 5th month score, at the end of 4th month score and at the end of 6th month score and at the end of 5th month score and at the end of 6th month score on auditory perception, visual recognition memory and tactile perception for auditory stimulation practices group.

4.3 DISCUSSION ON FINDINGS

The results of the present study indicates that both the experimental groups have significantly increased in the Visual Recognition Memory, Auditory perception, Tactile perception and Intermodal perception when compared to the control group. The result of the study is in consonance with **Jan G. Nijhuis ,et,al(2009), Madanmohan, et al., (1992),** and **Alan Slater,et,al(2007),** Pranayama training was used to improve the Visual Recognition Memory.

There are similar studies on auditory training on visual recognition memory,

auditory perception, tactile perception and intermodal perception by many researchers and it has been concluded that auditory training has influenced the above mentioned variables. The result of the study is in consonance with **Lisa M. Oakes,et,al(2013), Graven,et,al(2000), Lisa Skedung,et,al (2013)** and **Wiley, et,al (2003)**.

Further, the improvement Auditory perception, Tactile perception and Intermodal perception are significantly higher for the auditory group when compared to the pranayama group, Visual Recognition Memory is significantly higher for the pranayama group when compared to the auditory group during training periods.

The present study indicates that third trimester of yogic prenatal stimulation practices influence the significant change in prenatal practices that may reflects in the infant also..

4.4. DISCUSSION ON HYPOTHESES

At earlier, the researcher had formulated the following hypothesis,

In the first hypothesis, It was mentioned that the effects of pranayama and auditory training on Infant Visual Recognition memory, Auditory Perception, Tactile Perception and Intermodal Perception will be significantly increase when compared with the control group. The result also reveals significant increase due to the experimental treatment when compared to the control group. Therefore the first hypothesis has been accepted.

In the second hypothesis, it was noted that the auditory training group will be superior to pranayama group on Infant Visual Recognition memory, Auditory Perception, Tactile Perception and Intermodal Perception during the training period.

But Infant Auditory Perception, Tactile Perception and Intermodal Perception was found to better for auditory training group when compared to the pranayama group.But Visual Recognition memory alone is significant for the pranayama group. Therefore the hypothesis has been partially accepted since one of the variable Visual Recognition memory was better for the pranayama training group.

In the third hypothesis, It was mentioned that the training effects of 4th month test to 5th month test will be superior 5th month test to 6th month test during the testing period on Infant Visual Recognition memory, Auditory Perception and Tactile Perception. The results also reveal on 4th month test to 5th month test superior when compared with 5th month test to 6th month test. Therefore the third hypothesis has been accepted.

In the fourth hypothesis, It was noted that the training effects of 10th month test to 11th month test will be superior 10th month test to 11th month test during the testing period on intermodal perception. The results also reveal on 10th month test to 11th month test superior when compared with 5th 10th month test to 11th month test. Therefore the fourth hypothesis has been accepted.