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Does transcendental meditation helps to improve reaction ability of school children?

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Abstract

A comparison on Reaction Ability is made between the performances of Transcendental Meditation group in three different time span. The treatment was carried over twelve subjects (*Female*) selected randomly from a residential school age ranging 14 – 16 years. The data were recorded over three time span that is; Initial, after six weeks and after twelve weeks. To analyze the data one – Way Repeated Measures ANOVA was applied. Significant decrease in reaction time was observed over Initial to six weeks of treatment period, $p < 0.05$, as well as significant decrease was found in reaction time between Initial to twelve week treatment period, $p < 0.001$. Therefore, Transcendental Meditation has been found very effective to improve the Reaction Ability of the school children.

Keywords: transcendental meditation, reaction ability

Introduction

Transcendental Meditation is effortless technique which works for recharging body & mind and also enriches the state of mind. Though meditation is not a quick reaction with response to any action, but researches in this aspect revealed that regular practice of Transcendental Meditation makes you aware, more comfortable with space – space before you speak, before you act or react, etc. “The proponents state that during the practice of the TM technique the physiological activity of the body decreases and a state of deep relaxation is experienced, yet the mind remains alert. Further the researcher found several physiological parameters at rest during practice; decreases in cardiac output, oxygen consumption (indicating lowered metabolism), and lactic acid concentration in the blood, along with a marked increase in skin resistance” Wallace, R. K & *et al.* (1971) ^[9]. Reaction time is simply the amount of time taken to response a stimulus. It is correlated to the person’s presence of mind & level of alertness. Here, the researcher is interested to know the Reaction Ability of subjects due to the treatment over the period of time.

Materials and Methods

The study evaluated differences among three different time span of Transcendental Meditation, i.e. Initial, After six weeks & after twelve weeks to knowing the behaviour of subjects due to the treatment over the period of time. Twelve subjects with age ranged 14-16 years were randomly selected from residential school of Haryana, India. The subjects received systematic and consistent training in TM and practiced the method twice a day (Six days / week) up to twelve weeks with their prior consent.

Tools

Penny Cup Test was used for measuring Reaction Ability of school children and the scores were recorded in seconds.

Scoring

The test was repeated four times and the total time for each of the four tests was noted. The final score is the total number of seconds required to perform each of the four tests.

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Statistical Analysis

One – Way Repeated Measures ANOVA was applied for comparing the time spans (Initial; after six weeks; after twelve weeks, within subjects) of Reaction Ability.

Results

To know the nature of data for treatment group with different time spans, descriptive statistics have been applied and presented in Table 1.

Table 1: Descriptive Statistics

Transcendental Meditation	Mean	Std. Deviation	N
Initial	15.58	.996	12
After Six Weeks	14.58	1.240	12
After Twelve Week	12.75	.754	12

Table 1 indicates that, the average Reaction Time observed after twelve weeks of treatment shows maximum improvement with a mean value of 12.75, which is also been depicted with the help of graph in Figure.1.

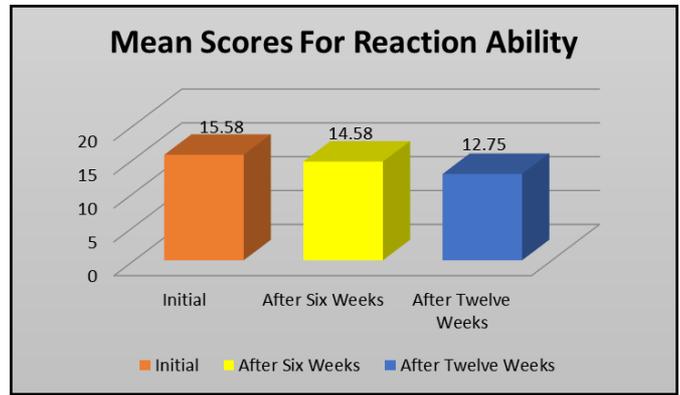


Fig 1: Graphical presentation of Mean scores for Reaction Ability

After knowing the nature of the data, the Mauchly’s Test was used to know the Sphericity of the data and the same is presented in Table 2.

Table 2: Mauchly's Test of Sphericity^a

Measure: Reaction Ability							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	.899	1.060	2	.589	.909	1.000	.500

a. Design: Intercept. Within Subjects Design: Time Bold number indicates that the effect is not significant at 5% level.

It can be seen from Table 2 that the Mauchly’s test was found insignificant because its *p*-value associated with the chi-square statistic is 0.589 which is more than 0.05. Thus, the

assumption of sphericity has not been violated and the significance of *F* has been tested. The results pertaining to the study have been presented in Table 3.

Table 3: F Table for Testing Significance of Within-Subjects Effects

Measure: Reaction Ability							
	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	49.56	2	24.78	59.83	.000	.845
	Greenhouse-Geisser	49.56	1.82	27.27	59.83	.000	.845
	Huynh-Feldt	49.56	2.00	24.78	59.83	.000	.845
	Lower-bound	49.56	1.00	49.56	59.83	.000	.845
Error(Time)	Sphericity Assumed	9.11	22	.41			
	Greenhouse-Geisser	9.11	19.99	.46			
	Huynh-Feldt	9.11	22.00	.41			
	Lower-bound	9.11	11.00	.83			

*Bold number indicates that the effect is significant at 5% level.

Table 3 indicates the overall significant difference in means, the *F* value 59.83 is significant because the *p* value associated with *F* is .001 which is less than 0.01 level of significance. It may therefore be concluded that the Transcendental Meditation had a significant impact on the Reaction Ability of

the school children. To know which time duration was best in improving Reaction Ability, Bonferroni post hoc test have been applied for the pair-wise comparison of means that have been presented in Table 4.

Table 4: Pairwise Comparisons of Marginal Means

Measure: Reaction Ability							
(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b		
					Lower Bound	Upper Bound	
Initial	6 Week	1.000*	.302	.021	.150	1.850	
	12 Week	2.833*	.241	.000	2.154	3.513	
6 Week	Initial	-1.000*	.302	.021	-1.850	-.150	
	12 Week	1.833*	.241	.000	1.154	2.513	
12 Week	Initial	-2.833*	.241	.000	-3.513	-2.154	
	6 Week	-1.833*	.241	.000	-2.513	-1.154	

Based on estimated marginal means, the mean difference is significant at the .05 level. b. Adjustment for multiple comparisons: Bonferroni. Bold number indicates that the effect is significant at 5% level.

Table 4 gives the significance level of differences between the individual time points, significant increase in the reaction

ability between Initial and Six weeks training (*p* = 0.021) and between Initial and Twelve weeks training (*p* = 0.001) had

been observed after the intervention program of Transcendental Meditation. Therefore it is concluded that, the reaction Ability has shown a gradual improvement in respect to different time durations, i.e. after six weeks and after twelve weeks. That has been presented graphically with the help of mean plot (Figure 2).

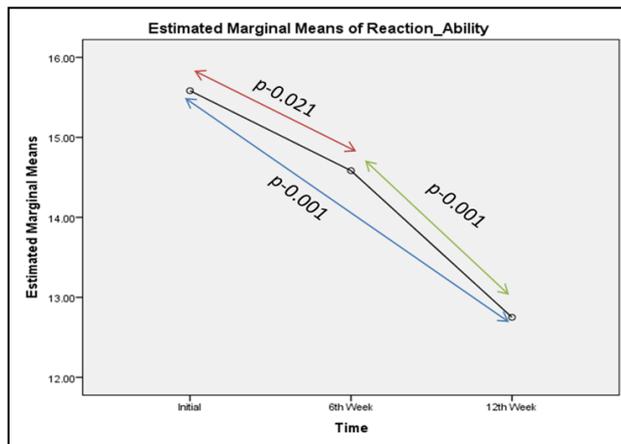


Fig 2: Marginal Mean Plot

Discussion and Findings

The objective of the study was to compare the various time spans after giving the treatment of Transcendental Meditation for enhancing the reaction ability of school children. After applying the One Way Repeated Measure ANOVA on normally distributed data of reaction time, the researcher found that transcendental meditation is effective for enhancing the reaction ability of the school children, although it is also found that gradually increasing the time period of training from six weeks to twelve weeks could also help to make this treatment more effective, which is also supported by Lohot Adidi's study that Practising meditation technique "Dialogue with the body" for a given period of time generates significantly shorter reaction time thereby enhancing the efficiency of the central nervous system to a certain extent (2017), on besides regular practice of the Transcendental Meditation (TM) technique for 15–20 min twice a day for 6 to 12 months would improve cognitive ability (Tim So, Kam *et al.*, 2001) [4].

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