



## Effect of Yoga on Memory of Higher Secondary School Students

### KEYWORDS

Yoga, Short term Memory.

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### ABSTRACT

Memory is an ability to recall past events or previously learnt information or skills. Memory refers to the processes that allow us to record, store and later retrieve experiences and information. The power of memory is the major factors in learning. Improvement in memory has been reported in several yogic studies. The main objective of the study was to assess the effect of yoga on Memory. The study started with 80 adolescent student's randomly. Two groups form on the basis of equivalent of IQ .Randomly one group select Experimental group and other is control group. Experimental group and control group were given pre-test to assess their short term memory. A yoga treatment consisting of yoga asanas, pranayama, meditation, surya namaskar and a value orientation programme was administered on experimental group for 15 days. The experimental and control groups were post-tested for their performance on memory tests. The results show that the students, who practiced yoga, exhibited better short term memory.

### INTRODUCTION

Memory is the ability to recall the past experience. Both learning and memory are closely related and both are to be considered together. Learning is beginning of all stages in Memory process of perceiving, restore, retrieval, rehearsal and output are the stages needed for the strong memory. Memory is the capacity to retain acquired information. Memory of verbal and visual material is an important domain of explicit memory.

Yoga, which is a way of life, is characterized by balance, health, harmony and bliss. Yoga is becoming popular in different parts of the world. For the restless mind, it gives solace. For the sick, it is a boon. Some use it for developing memory, intelligence and creativity. With its multiple advantages, it is becoming a part of education. The practice of yoga creates harmony in the physical, mental, psychological and spiritual aspects of the human personality. The science of yoga is a powerful stream of knowledge, which enables the practitioners to achieve radiant physical health, serene mind, and continuous spiritual uplift and creates the ability for harmonious social living. Yoga breathing through a particular nostril increased spatial memory scores. Parmar Ruta (2006) found that yoga has positive effect on memory and achievement of primary school students. Kauts Amit and Sharma Neelam (2012) revealed a positive influence of yoga on concentration and memory in relation to stress. Study by Nagendra, H. R., and Bhat, R. (2009) has reported positive effect of Effect of yogic education system on memory.

The present study examines whether there is an effect of yoga on short term memory of adolescent students in relation to Intelligence or not.

### OBJECTIVES OF THE STUDY

The objectives of this study were as under.

- (1) To study the effect of Yoga on the short term memory (STM) of higher secondary school students.
- (2) To study the effect of Yoga on the short term memory (STM) of higher secondary school students in relation to In-

telligence.

### HYPOTHESIS OF THE STUDY

The following Major hypothesis were formulated for the present study.

1. There will no significant difference between mean score of pre test and post test short term memory of experimental group students.
2. There will no significant difference between mean score of pre test and post test short term memory of control group students.
3. There will no significant difference between mean score of short term memory of experimental group students and control group students.
4. There will no significant difference between mean score of short term memory of high IQ and low IQ of experimental group students.

### DELIMITATIONS OF THE STUDY

The delimitations of the current study were as follows.

1. The study was delimited to Gujarati medium School students only.
2. The study was delimited to Anand District's Higher Secondary School students.
3. The study was delimited to the 11<sup>th</sup> standard commerce students studying during 2013-14 academic year only.
4. The study was delimited to independent variable yoga (pranayama, meditation, surya namaskar) , dependent variable short term memory and moderate variable intelligence.

### POPULATION AND SAMPLE SELECTION

The Students who were studying in Commerce Stream of Higher Secondary School of Anand District (Gujarat) in the year of 2013-14 were the population of present study. The

researcher makes a sampling frame for Higher Secondary schools students. Then researcher used random sampling technique for selection of students.

**METHOD OF THE STUDY**

To observe the effect of Yoga exercises on short term memory (STM) of the students, this entire study was depended on Experimental Method. Among this Experimental Method, a "complete experimental simple equivalent group pre test-post test experiment design" was applied for data assortments.

**RESEARCH TOOLS**

**The study was based on two tools –**

Dr.K.G.Desai's verbal-non verbal group intelligence test : It was readymade and standardized by Dr.K.G.Desai for the students belongs to the 11<sup>th</sup> and 12<sup>th</sup> standard Arts, Commerce and Science stream. There are 88 statements in the test. The reliability of the test is 0.88 by split-half method and validity is 0.78 by correlation.

Short Term Memory test: This test contain the words, numbers, pictures, verbal and non-verbal questions, objectives and short term memory based activities prepared by Dr.K.S.Likhiya. The test contain 50 different type item out of six factor. The test having nine sections. The Reliability of the test is 0.92by test re-test method and validity is 0.86 by factor validity mehod.

**DATA COLLECTION AND EXPERIMENT PROCEDURE**

**Formation of Equal Group:**

The study was conducted in D.N.high school of Anand (Gujarat). Dr.K. G. Desai verbal- nonverbal group intelligence test was administered on 80 students of 11<sup>th</sup> standard commerce with ages ranging from 15 to 16 years. Researcher formulate null hypothesis for form an equivalent groups.

**TABLE 1**

**Table of Hypothesis testing**

H <sub>0</sub>	Hypothesis	t-value	df	Sig-nificant level (p-value)	H <sub>0</sub> is Rejected or Accepted
H <sub>0</sub>	There will be no significant difference between mean score of IQ of group-I students and group-II students.	0.026	78	0.980 (two -tailed)	Accepted

On the basis of their intelligence scores arranged in ascending order, students above IQ-110 were identified as high intelligent and students below IQ-90 were identified as low intelligent students. Out of these students, 50% of them were kept in experimental group and another 50% in control group.

**Collection of Pre-test-values:**

After equal group distribution, the researcher applied pre-test for short term memory and collected the initial level score of pre-test.

**Implementation of yoga:**

Researcher has applied yoga on Experimental group. A yoga treatment [yogasana like padmasan, gaumukhasan, parvatasan, Paschimottanasana, mandukasan, kurmasan, savasan, matsyasan, uttanpadasan, pavanmuktasan, va-

jasan, sasakasan, makarasan, dhanurasan, shalabhasan, vakrasan, ustrasan, tadasan, dhruvasantrikonasan), pranayama, meditation, surya namaskar] was shared daily for an hour in the morning with the experimental group for 15 days through the guidance and suggestions of Yoga experts. Short term memory test was administered on both the groups as a post-test.

**TESTING OF HYPOTHESIS**

Here data was in interval scale because difference between short term memories of 28-27 equal to 1 and also difference between short term memories of 36-35 equal to 1 so here interval is same between two scores. Also researcher do normality test by Shapiro-wilk test and levene's test for equal variance assumed than after use parametric t-test for hypothesis testing.

**TABLE 1**

**Table of Hypothesis testing**

H <sub>0</sub>	Hypothesis	t-value	df	Sig-nificant level (p-value)	H <sub>0</sub> is Rejected or Accepted
H <sub>0</sub> 1	There will no significant difference between mean score of pre test and post test short term memory of experimental group students.	17.75	39	0.00 (two -tailed)	Rejected
H <sub>0</sub> 2	There will no significant difference between mean score of pre test and post test short term memory of control group students.	1.85	39	0.071 (two -tailed)	Accepted
H <sub>0</sub> 3	There will no significant difference between mean score of short term memory of experimental group students and control group students.	4.37	78	0.00 (two -tailed)	Rejected
H <sub>0</sub> 4	There will no significant difference between mean score of short term memory of high IQ and low IQ of experimental group students.	2.52	18	0.021 (two -tailed)	Rejected

**STATISTICAL ANALYSIS**

t-test was employed on the scores of short term memory, where in intelligence is a classificatory variable and studied at two levels, i.e. students with high intelligence quotient and students with low intelligence quotient. Yoga has been taken as a treatment variable, was given to the experimental group.

**RESULTS**

1. There was a significance difference (t=17.75) between mean score of pre test short term memory of experimental group students (M=32.67) and post test short term memory of experimental group students (M=38.25) which is significant at 0.00 p-value (two -

tailed). So here mean of post test short term memory of experimental group students is greater than pre test short term memory of experimental group students.

2. There was no significant difference ( $t=1.85$ ) between mean score of pre test short term memory of control group students ( $M=31.92$ ) and post test short term memory of control group students ( $M=32.15$ ) which is not significant at 0.071 p-value (two - tailed). So here mean of pre test short term memory of control group students and post test short term memory of control group students was equal.
3. There was a significance difference ( $t=4.37$ ) between mean score of short term memory experimental group students ( $M=38.25$ ) and short term memory of control group students ( $M=32.15$ ) which is significant at 0.00 p-value (two - tailed). So here mean of short term memory experimental group students is greater than short term memory of control group students.
4. There was a significance difference ( $t=2.52$ ) between mean score of short term memory of high IQ of experimental group students ( $M=42.30$ ) and short term memory of low IQ of experimental group students ( $M=35.90$ ) which is significant at 0.021 p-value (two - tailed). So here mean of short term memory of high IQ of experimental group students is greater than short term memory of low IQ of experimental group students.

#### FINDINGS

Those students, who were exposed to yoga treatment exhibited better memory than those who were not exposed to yoga treatment. Students with high intelligence performed better than the students with low intelligence. So the intelligence is more affect on relation between yoga and memory. Results indicates that students of experimental group and control group differ on the scores of short term memory so there is interaction between yoga treatment and Intelligence on the scores of Short term memory.

#### DISCUSSION

It is evident from the results that the students who were exposed to yoga exhibited enhanced Short Term Memory. The results were in tune with the earlier findings as Parmar Ruta (2006) found that yoga has positive effect on memory and achievement of primary school students. Kauts Amit and Sharma Neelam (2012) found that students who experienced yoga treatment exhibited better short term memory than the ones who were not given yoga treatment in relation to stress. Study by Nagendra, H. R., and Bhat, R. (2009) has reported positive effect of Effect of yogic education system on memory. Other researchers also found that yoga and meditation improved memory. The findings of the present study also revealed that yoga has positive effect on short term memory of students. It may be concluded from the findings of the study that after yoga treatment, the Short Term Memory improves which may positively affect performance of the students. It is also observed that short term memory scores tend to be more in case of high intelligent students as compared to low intelligent students, which may lead to the conclusion that there is interaction between yoga treatment and Intelligence on the scores of Short term memory. It is suggested that yoga module should become a regular feature of the school curriculum.

#### CONCLUSION

It is evident from the results that the students who were exposed to yoga exhibited enhanced Short term memory. Students with high intelligence performed better than the students with low intelligence so there is interaction between yoga treatment and intelligence on the scores of Short term memory.

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