

## EFFECT OF GUIDED RELAXATION TECHNIQUE ON MEMORY SCALE

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Article Received on 20/10/2015

Article Revised on 11/11/2015

Article Accepted on 02/12/2015

### ABSTRACT

The purpose of present study was to compare the memory scores after Guided Relaxation Techniques. 30 participants for this study were divided into *Shavasana* group (n=15) and Control group (n=15) with age range from 18 to 30 years. All individuals were assessed for total memory score (includes verbal, spatial & associate memory) by Wechsler memory scale. The intervention was for 30 days. The intervention consists in the form of guided relaxation techniques (*Shavasana*) taught by a trained yoga instructor. The session was for one hour for 6 days in a week. All relaxation techniques were given in supine pose. *Shavasana* groups showed the significant changes in memory scores after the 30 days of relaxation technique as compared to Control group. Statistical analysis showed significant difference in *Shavasana* ( $p < 0.03$ ) group. This study revealed that guided relaxation techniques can bring deeper relaxation at physical level and which, in turn, can bring about deeper relaxation at mental level. Verbal, Spatial & Associate memory can be improved after the guided relaxation technique.

**KEYWORD:** Shavasana, Guided Relaxation, Memory.

### INTRODUCTION

All yoga texts deal with techniques of yoga practices used to bring about transformation of individuals to gain mastery over the mind and ultimately reach perfection and merge into pure consciousness. Highly advance individuals or those practitioners of mahavrata (big vows) can induce wonderful effects in the surroundings. As per Patanjali yoga sutra "*Ahimsa-pratisthayamtatsannidhauvairatyagah*" (Tamimi IK, 2001). These practices done in group could create similar effects as festivals bringing calmness, happiness and bliss to the participants but also create an atmosphere of love, harmony, peace values in the surroundings. The effect of group meditation (TM) is shown to reduce the crime rates in a society (Johan S, Haglin, Maxwell V, et al, 1999). Similarly studies on group effect of relaxation techniques of yoga as also other types of meditations are emerging.

Yoga is the science to systematically develop our capacities on all fronts including such super normal powers. But it is also understood that a disturbed mind going through mental trauma is unlikely to invoke such power. Therefore a balanced state of mind is a must to recognize such power. And it has been proved that various relaxation techniques such as Savasana, Yoganidra etc. help in calming down the mind (Rebika, Nagendra HR, Nagarathna R, 2005 & Thakur G.S, Nagendra H R, Nagarathna R, 2009 & 2010). Relaxation by these techniques at the body level reduce the

breathing rate, harmonise the prāṇamayakośa and thereby calms down the mind. Thus the consciousness fields at both Prāṇamaya and Manomaya levels are influenced.

Savasana is the corpse pose. It reduces fatigue and enables the mind and body to relax (Mukatibodhananda, 2001). A randomized control trial was conducted on 25 patients of essential hypertension using Savasana therapy (Sunder, Agrawal, Singh et al, 1984). Savasana therapy was continued for six months. There was significant reduction in both mean systolic and diastolic blood pressure and antihypertensive drugs score in yoga group. In 65 % of patients of yoga, blood pressure was controlled with Savasana alone without any drug. In another study the efficacy of meditation and Savasana in promoting self-actualization and changes in self reported. Stress was studied among 62 college students (Janowiak & Hackman, 1994).

In another study Savasana was found effective in coping with stress manifestations (Bera, Gore & Oak, 1998). The recovery from induced psychological stress in Savasana and two other postures (resting in chair & resting supine) was compared. 31 males and 6 females (age 21-30yrs) were allowed to rest in one of the above postures immediately after completing the scheduled treadmill running. The recovery was assessed in terms of heart rate and blood pressure. Heart rate and blood pressure were measured before and every two minutes

after the treadmill running till they returned to the initial level. These results revealed that the effect of stress was reversed in a significantly shorter time in Savasana, compared to resting in a chair and a supine posture.

The yoga based relaxation technique has also shown to reduce psychological signs of arousal (Vampati&Telles, 2002). The 35 male volunteers whose age ranges from 22-46 yrs were studied in two sessions of yoga based guided relaxation and supine rest. Assessment of autonomic variables were made for 15 subjects, before, during and after the practices, whereas, oxygen consumption and breath volume were recorded for 25 subjects before and after both types of relaxation. A significant decrease in oxygen consumption and increased in breath volume were recorded after guided relaxation. Another study has been shown that in 10 normal adults RR interval variations, deep breathing, and heart rate, blood pressure and rate pressure product response to a cold pressure test were measured before and immediately after Savasana (Madammohan, Udupa, Bhavanai, et al, 2002). Savasana produced a significant increase in deep breathing deference and an appreciable but statistically insignificant increase in RR interval variations suggesting an enhanced parasympathetic activity.

Recently the effect of a yoga based relaxation technique on psychological variables in exam going students was studied (Malathi&Damodaran, 1999). The study was conducted on 50 medical students during routine activities and prior to their examination. Anxiety status showed a significant reduction after yoga relaxation practice. Number of studies has shown that yoga controls psychosocial stress (Birdee *et al.*, 2009), anger, depression (Berger and Owen, 1992), stress (West *et al.*, 2004), and anxiety (Bijlani, 2003). Furthermore, research literature indicates that regular practice of pranayama improves autonomic functions by increasing vagal tone (Bhargava *et al.*, 1988; Telles *et al.*, 1994). Additionally, it is evident that physical activity is related to reduction in sympathetic activity (Comelissen and Fagard, 2005). Further, it is evident that breathing through particular nostril enhances spatial and verbal memory performance in school students (Naveen *et al.*, 1997; Joshi and Telles 2008). In fact, yoga has great potentiality in promoting and maintaining the physical as well as mental health. However, there is scarcity of literature exploring efficacy of relaxation techniques on memory performance in adolescents. Therefore, this study was conducted with a view to assess the effect of guided relaxation technique on memory performance.

## METHOD

### Subjects

Thirty students aged 18-30 years were randomly selected for this study. The signed informed consent was obtained from all the participants. These 30 subjects were divided into two groups of 15 subjects in each. The participants who are on any kind of medication and physically unfit

were excluded from the study. The inclusion criteria were all healthy participants.

### Design

This is true experimental design with two parallel groups. After the baseline assessment for the selected variables, participants were randomly assigned into two groups using standard methods of masking and randomization. The experimental group received a guided relaxation technique (Shavasana) for 30 days except Sunday for 2 hours in a day (one hour morning and one hour evening) while control group were receiving a self-guided relaxation. Data were collected 1<sup>st</sup> day and last day of the intervention.

### Intervention

The following guided relaxation technique developed by Swami Vivekananda Yoga Anusandhana Samsthana (Nagendra H.R, Nagarathna R, 2001), which can bring deeper relaxation at physical level and which, in turn, can bring about deeper relaxation at mental level, has been chosen as an intervention in this study. Deep Relaxation Technique emphasizes on part-by-part relaxation of the whole body. It works at all levels, i.e., physical, mental, emotional, intellectual, and spiritual levels. In this relaxation technique one relaxes the body part-by-part by directing the attention of the mind on different parts of the body, starting from the toes and ending with the head. A feeling of relaxation is propagated. The subjects were taking the practicing intervention two times per day. The steps of Shavasana are as follows

**Phase I:** Bring your awareness to the tip of the toes, gently move your toes and relax. Sensitize the soles of your feet; loosen the ankle joints; relax the calf muscles; gently pull up the knee caps release and relax; relax your thigh muscles, buttock muscles; loosen the hip joints, relax the pelvic region and the waist region. Totally relax your lower part of the body. **R..e..l..a..x** .. Chant A-kára and feel the vibration in your lower parts of the body.

**Phase II:** Gently bring your awareness to the abdominal region and observe the abdominal movement for a while, relax your abdominal muscles and relax the chest muscles. Gently bring your awareness to your lower back, relax your lower back, and loosen all the vertebral joints one by one. Relax the muscles and nerves around the back bones. Relax your middle back, shoulder blades and upper back muscles, totally relax. Shift your awareness to the tip of the fingers, gently move them a little and sensitize. Relax your fingers one by one. Relax your palms, loosen the wrist joints, relax the forearms, loosen the elbow joints, relax the hind arms-triceps, biceps and relax your shoulders. Shift your awareness to your neck, slowly turn your head to the right and left, again bring back to the center. Relax the muscles and nerves of the neck. Relax your middle part of the body, totally relax. **R..e..l..a..x** .. Chant U-kára and feel the vibration in the middle part of your body.

**Phase III:** Gently bring your awareness to your head region. Relax your chin, lower jaw and upper jaw, lower and upper gums, lower and upper teeth and relax your tongue. Relax your palates hard and soft; relax your throat and vocal chords. Gently shift your awareness to your lips, relax your lower and upper lips. Shift your awareness to your nose, observe your nostrils, and feel the warm air touching the walls of the nostrils as you exhale and feel the cool air touching the walls of the nostrils as you inhale. Observe for a few seconds and relax your nostrils. Relax your cheek muscles, feel the heaviness of the cheeks and have a beautiful smile on your cheeks. Relax your eye balls muscles, feel the heaviness of eye balls, relax your eye lids, eye brows and in between the eye brows. Relax your forehead, temple muscles, ears, the sides of the head, back of the head and crown of the head. Relax your head region, totally relax. **R..e..l..a..x...** and chant M-kára feel the vibration in your head region.

**Phase-IV:** Observe your whole body from toes to head and relax, chant an AUM in a single breath. Feel the resonance throughout the body.

**Phase-V:** Slowly come out of the body consciousness and visualize your body lying on the ground completely collapsed.

**Phase-VI:** Imagine the vast beautiful blue sky. The limitless blue sky. Expand your awareness as vast as the blue sky. Merge yourself into the blue sky. You are becoming the blue sky. You are the blue sky. Enjoy the infinite bliss. **E..N..J..O..Y..**the blissful state of silence and all pervasive awareness.

**Phase-VII:** Slowly come back to body consciousness. Inhale deeply.Chant an “AUM-kára”. Feel the resonance throughout the body. The soothing and massaging effect from toes to head.

**Phase-VIII:** Gently move your whole body a little. Feel the lightness, alertness and movement of energy throughout the body. Slowly bring your legs together and

the hands by the side of the body. Turn over to the left or the right side and come up when you are ready.

### Assessment

#### Testing procedure

Memory tasks performance tested by Wechsler memory scale which has been standardized for Indian population. The components of WMS includes (i) digit span forward and ii) digit span backward, and (iii) Paired associate learning (easy and hard), with 10 items each. The digit span forward includes six pairs for the numerical items of easy task and four pairs for the numerical items of hard task. Each correct answer was scored as ‘1’. The sequence of recall of numerical items in digit span backward is in the reverse order unlike in digit span forward. The last test includes paired associate learning verbal task which comprises the presentation of ten pairs of unrelated words in three trials. After the completion of the three trials the investigator provides the first word in each pair and subsequently the subject has to supply the appropriate associating second word. Out of the ten pairs of associate learning items, the six pairs were semantically easier to remember (e.g., Paper-Pen) it is scored as 1 and if no relevant association exists it considered as hard task and is scored as 2. This was based on the conventional scoring for Wechsler memory scale (Wincur G, Weiskrantz L. 1976&Morris J, Kunka JM, Rossini ED 1997).

### RESULTS

The Experimental Group showed significant improvement in memory scale in compare to Control group. The pre mean of the Experimental Group was  $83.33 \pm 16.02$  and for the Control group was  $80.73 \pm 13.84$  (Table 1). After 30 days of training the Experimental group had a mean value  $88.93 \pm 10.85$ . The difference between pre and post value was statistically significant ( $p < 0.03$ ) using Paired ‘t’ test. The post means of Control Group was ( $81.93 \pm 12.78$ ) not statistically significant. Experimental Group (Fig. 1) is showing high magnitude of change as compared to Control Group.

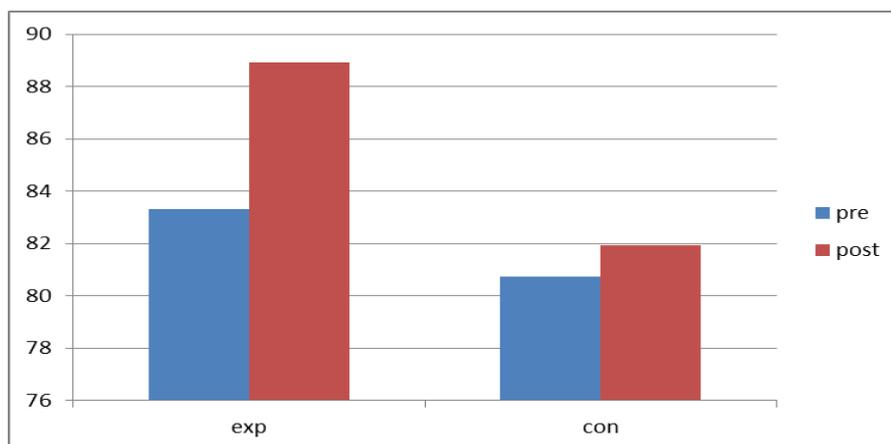


Fig. 1: Comparison between Experimental Group and Control Group

**Table 1: The comparison of Pre and Post Data of Both Group**

Group	MEANS		P value
	Pre	Post	
Experimental Group (n=15)	83.33 ± 16.02	88.93 ± 10.85**	0.03**
Control Group (n=15)	80.73 ± 13.84	81.93 ± 12.78	0.50

\*\*p&lt;0.01

**DISCUSSION**

Today, Yoga has become more popular not only in India, but also among the worldwide nations. Benefits of yoga for all-round development in human have become a challenging concept, which has been claimed by our Indian traditional culture. The present study has been focused on the students with a view to see if guided relaxation technique could be of immense use for them towards improvement in memory. The result of this study showed that thirty days of relaxation technique could improve memory performance of students. Appearance of such result may be due to the fact that associated learning depends upon processing of electrical stimulus through the neural path. If there is a blockage in the neural path, transmission of information is blocked. Guided relaxation training might have removed the blockage in the neural path and therefore enhanced associate learning. Earlier studies also shows that a mindfulness practice, including yoga and meditation, may improve health quality, reduce chronic care visits (Roth & Stanley, 2002), reduce medication usage (Bonadies, 2004; Brownstein & Dembert 1989; Latha & Kaliappan, 1992; Williams *et al.*, 2005), improve general functioning of the central nervous system (Shannahoff-Khalsa, Sramek, Kennel., & Jamieson, 2004), and promote self-care (Herrick & Ainsworth, 2000). The findings of this study are also in line with previous research reports indicating potential benefits of relaxation techniques involved in traditional yoga practices. Finally, increase in memory performance has been achieved through a very simple and inexpensive guided relaxation technique.

**STRENGTH OF THE STUDY**

This study states the practical applicability of yoga modules in modern era where the effect of yoga has been tested without disturbing their daily activities. All previous studies have been done by studying the effect in residential yoga camp where the subject totally out of their daily activities. This study can act as a validating study for the previous investigations.

**CONCLUSION**

Within the limitation of the study it can be concluded that guided relaxation technique can improve memory with attention.

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