

Effect Of Cyclic Meditation On Attention Task

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Abstract

Objective: This study aimed to evaluate the effects of cyclic meditation practices on influence of attention task. **Materials and Methods:** The study was a two group pre-post study. The dependant variables were assessed prior to the intervention programed and at the end of the training program. The study was conducted at an Army Establishment in Delhi Cantonment, 100 subjects were selected out of 50 in experimental and 50 in control yoga group. Ages ranged from 25 to 40 years. The experimental group underwent fifteen days of cyclic meditation training and control group followed as usual routine schedule. The variables measured were six letter cancellation task (SLCT) and digit letter substitution task (DLST). **Results:** Significant pre-post changes were found showing improvement in both SLCT and DLCT task score in cyclic meditation group. **Conclusion:** This suggests that improving attention might help in the personal life.

Key Words: SLCT, DLST, Combat, cognition, military, CM.

Introduction

Studies have found that the level of stress is higher for Army Soldiers than other professional workers and hence soldiers are more prone to serious health issues related to physical and mental or psychological stress (Mather, Stein, & Sareen, 2010). Therefore higher change of distraction at all levels to able to retain their focus is needed for the personal life of military personnel and also during active duty (Jones, Perkins, Cook, & Ong, 2008). Army soldiers face many challenges everyday due to their nature of job and work culture in military settings. These challenges put them into more stressful situations which not only affect their physical and mental health but also wellbeing and welfare of these soldiers. Many young recruits experience

considerable pressure in military life. This is due to many environmental changes and continuous tension (Shin,M.O.,1999). Serious maladjustments to military life can engender many societal problems (Lee, J.H &Cho, Y.O.,1999). Military service begins with basic military training which introduces stressors such as the unfamiliar environment of training centre and the individual's role as a soldier. Studies have shown that individuals with attention deficit have hard time adjusting to military environment, as this with environmental stressors could make an important role in vulnerability of the symptoms of PTSD (Lee, D.Y. et.al.,2012). Army of a country is responsible for guarding the territorial integrity of the nation under harsh climatic conditions. This requires its soldiers to be physically robust and mentally alert under difficult weather and terrain conditions. One of the foremost reasons for stress in soldiers in military is that it is an organizational culture characterized by an unwillingness to display emotions or acknowledge personal weakness (Harms et.al., 2013).

Stress can also affect cognitive functions in humans. Acute stress can impair working memory and attention. A study on soldiers before and after deployment to Afghanistan has revealed that combat stress reduced midbrain activity and integrity and resulted in disrupted sustained attention (Singh, M.K.,2012). The effect of stress in soldiers due to combat training, academic stress, lengthy deployments in difficult terrains (MHAT-5,2008), individual differences, lack of social support from both family and coworkers etc has practical implications in a variety of ways in the real world activities. Cognition, mood , stress hormones and nutritional status altered during simulated captivity in military survival training (Lieberman, H.R.et.al.,2016). Combat stress results in severe and extensive deficits in cognitive performance (Lieberman, H.R.et.al.,2005).

The stress management program (SMET) which is a key practice of Yoga has been found to be suitable in managing the excessive stress, improve mental health (Ganpat & Nagendra, 2011) and emotional stability (Ganpat, Nagendra, & Muralidhar, 2011) and hence enhancing executive efficiency. Further another study on managers of ONGC, a large public sector energy corporation reported significant increase in the scores of cognitive abilities, anxiety scores and in lowering the symptoms of distress in ONGC managers (Singh, Pradhan, & Nagendra, 2013). Earlier studies have reported that troops who went through month long daily practice in mindfulness breathing and focus techniques were better able to discern key information under chaotic circumstances and experienced increase in working memory function. Soldiers were also reported making fewer cognitive errors than those who did not use mindfulness (Richtel,M.,2019). Working memory clouds through overload, decisions become jumbled and reactions more impulsive. Breathing induced focus lets people home in on the task at hand (Jha,A.,et.al.,2018). An evaluation of yoga's impact on the attention has been done here. Generally, Yoga aims to influence a person's attention task. No previous study has evaluated the effect of cyclic meditation on attention task in army soldiers.. Hence this study was undertaken.

Materials and Methods

Subjects comprised 100 army soldiers volunteers (male and female, aged 25-40 years) attending fifteen days, cyclic meditation training program at an Army Establishment in Delhi Cantt, Inclusion criteria: Male army soldiers who can read and understand English well and willing to give their consent to participate in the program. Exclusion criteria: Male army soldiers who were not proficient in English language. Design: Subjects were assessed in two groups before and after the fifteen days of training program

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Intervention: CYCLIC MEDITATION (CM)

Throughout the Cyclic Meditation practice, subjects should keep their eyes closed and follow the instructions from a pre-recorded audio CD that was played during the session. The instructions

emphasized carrying out the practice slowly with awareness and relaxation. The practice begins by repeating a verse (40 secs) from the yoga text, the Mandukya Upanishad (Chinmayanand, 1984); followed by isometric contraction of the muscles of the body ending with supine rest (1 min); slowly coming up from the left side and standing at ease (called Tadasana) and balancing the weight on both feet, called Centring (2 mins); then the first actual posture, bending to the right Ardhakatichakrasana, 1 min 20 secs); a gap of 1 min 10 secs in Tadasana with instructions about relaxation and awareness; bending to the left (Ardhakatichakrasana, 1 min 20 secs); a gap as before (1 min 10 secs); forward bending (Padahasthasana, 1 min 20 secs); another gap (1 min 10 secs); backward bending (Ardhachakrasana, 1 min 20 secs); and slowly coming down in the supine posture with instructions to relax different parts of the body in sequence (10 mins). The postures are practiced slowly, with awareness of all the sensations that are felt. The total duration of the practice is 22:30 mins (Telles, Reddy and Nagendra, 2000). The control group followed as usual routine schedule.

Assessments

The Six Letter cancellation task (SLCT): This consisted of a test worksheet which specified the six target letters to be cancelled and had a 'working section' which consisted of letters of the alphabet arranged randomly in 22 rows and 14 columns. The participants were asked to cancel as many of the six target letters as possible in the specified time, i.e., 1 min, 30 sec. They were told to choose from two possible strategies, i.e., (i) doing all six letters at a time or (ii) to selective any one target letter out of the six. They were also told that they could follow a horizontal, vertical, or a random path, according to their choice (Natu & Agarwal, 1997). The total number of cancellations and wrong cancellations were scored and the net scores were calculated by deducting wrong cancellations from the total cancellations attempted.

The Digit Letter Substitution task (DLST): It consisted of a worksheet, which has 8 rows and 12 columns and randomly arranged digits in rows and columns. The students were asked to substitute as many target digits as possible in the specified time of 90 seconds. The letter substitution may be undertaken in a horizontal, vertical, or randomized manner by selecting a particular digit. The total number of substitutions and wrong substitutions are scored. The net score was obtained by deducting wrong substitutions from the total substitutions attempted. (Natu & Agarwal, 1997).

Data analysis was carried out using SPSS-10. The paired t test was used to differentiate the changes.

Result: The effect of cyclic meditation showed significant improvement in SLCT score and DLST score whereas in control group found significant increase in wrong score which is negative performance score in both SLCT and DLST tasks. Performance after training program shown in Table 1.

Table 1: Changes in SLCT and DLST score								
	Experimental Group (n=50)				Control Group(n=50)			
	Mean	SD	% change	P vales	Mean	SD	% change	P vales
SLCT Before	40.68	11.580	24.730	<0.001	38.64	10.052	0.207	0.919
SLCT After	50.74	8.144			38.72	11.969		
SLCW Before	4.24	3.261	70.283	<0.001	3.36	2.841	34.524	0.002
SLCW After	1.26	1.306			4.52	3.454		
SLCN Before	36.44	9.444	35.675	<0.001	35.26	8.053	1.702	0.136
SLCN After	49.44	7.643			34.66	8.441		
DLST Before	50.82	17.223	1.928	0.245	50.82	17.223	1.928	0.245
DLST After	49.84	16.483			49.84	16.483		
DLSW Before	2.90	2.476	45.517	<0.001	2.90	2.476	45.517	<0.001
DLSW After	4.22	2.902			4.22	2.902		
DLSN Before	47.90	15.933	4.760	0.001	47.90	15.933	4.760	0.001
DLSN After	45.62	14.976			45.62	14.976		

Discussion

This study evaluated psychomotor performance (DLST and SLCT), in 78 managers of ONGC in a pre-post study design. The results were found significant increase in the scores of SLCT and DLST net score and significant reduction in the scores of anxiety and symptoms of distress. This

suggests that enhancement of cognitive ability, following a short duration of SMET program (Singh, 2014). The result of the present study is in alignment with the previous findings.

There have been several prior scientific investigations shown that improvement in performance in an attention task after practice of pranayama, meditation, yoga (Sarang & Telles, 2007; Kumar & Telles, 2009). Therefore, improved attention can be inferred and also might have contributed to the increase in the substitution-task performance after cyclic meditation practices.

Conclusion

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