

AUDIO-VISUAL REACTION TIME IN SHORT TERM PRANAYAMA TRAINING

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ABSTRACT

The practice of yoga and pranayama is a gift of our Indian culture. Only recently we have begun to understand the vast potentials and health benefits of it. In order to find out the scientific explanations of Pranayama, the study was undertaken. The efficacy of short term Pranayama on Audio-visual reaction time (AVRT) was assessed in the present study. The study included 25 healthy volunteers of either gender between age group 30-50 years. The subjects were given daily Pranayama practice for continuous one month. Audio-visual reaction time was determined at the beginning and at the end of the session. The study showed significant change in the Audio-visual reaction time. It showed a decrease in Audio-visual reaction time which indicates increase in alertness. The study concluded that Pranayama can augment the higher functions of central nervous system.

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INTRODUCTION

Yoga is an ancient science established in India that provides multiple health benefits to the people. Yoga is philosophy and discipline applied to development of mind, body and spirit. (1)

Commonly practiced yogic methods are Pranayama/ breathing exercises, different asanas and Dhyana/ meditation that are mixed in varying proportions. Each of these can also be practiced alone. The present study was undertaken to assess the effects of Pranayama alone on Audio-visual reaction time.

Pranayama involves the use of abdominal, upper and lower thoracic muscles in a rhythmic and co-ordinated manner. (2) The idea of breathing exercise is to accumulate Prana the source of energy known to maintain the body function.

Definition of Pranayama in Yogasutras of Patanjali is regulation of incoming and outgoing breath with retention which follows after securing steadiness of posture. (3) Breath control techniques are said to affect the higher functions of CNS like perception, planning, learning and memory. The study of reaction time spans more than a century and provides an indirect index of the processing capability of the central nervous system and also a simple means of determining sensorimotor performance. (4)(5) So, the present study was undertaken to see the effect of Pranayama on VRT and ART

MATERIAL AND METHOD: The present study was conducted on 25 healthy volunteers of either gender between age 30-40 years. The subjects having Diabetes, Hypertension or any other CNS complications were excluded. The subjects doing any other physical exercises were also excluded. They were given Pranayama training by a qualified yoga teacher. Practice sessions were held for 45 minutes daily during the morning hours for complete 6 weeks. The VRT and ART was recorded before and after Pranayama training. The AVRT was

recorded by Digital response analyser RPS -26 machine. The subjects were familiarized with the method. Practice was taken from each subject. 3 reading were taken and mean of these were taken as final result.

STATISTICAL ANALYSIS: The values obtained before and after Pranayama training were analysed using paired t test. P value of less than 0.05 was taken as significant values.

OBSERVATION: The following results were observed in the present study

Table 1 : Visual Reaction Time (seconds)

	mean	S.D.	P value	
Pre pranayama	0.94	0.3958	0.0372	significant
Post pranayama	0.74	0.3406		

Table 2 : Auditory Reaction Time (seconds)

	mean	S.D.	P value	
Pre pranayama	1.037	0.3904	0.0491	significant
Post pranayama	0.861	0.3445		

The mean VRT before the Pranayama training was 0.94 sec. The mean VRT after 6 weeks Pranayama training was 0.74 sec. The decrease seen in VRT was statistically significant. The mean ART before the Pranayama training was 1.037sec and was 0.86 sec after Pranayama training. The decrease in ART was also statistically significant.

DISCUSSION: Pranayama is an art and has technique to make the respiratory organs to move and expand intentionally, rhythmically and intensively. It consists of long sustained subtle flow of inhalation (puraka), exhalation (rechaka) and retention of breath(kumbhaka). Puraka stimulates the system, rechaka throws out vitiated air and toxins; kumbhaka distributes energy throughout the body. The disciplined

breathing helps the mind to concentrate and enables one to attain health.(6)

In our study, a decrease in reaction time was observed after 6 weeks Pranayama exercise. It indicates improved sensori-motor performance and could be due to an enhanced processing ability of the CNS. These effects could be due to greater improved concentration power. Pranayama trains the mind to concentrate on an inner/outer object, channelizes the thoughts in an attempt to get beyond mental distractions. It increases alertness alongwith relaxation. Alertness decreases the reaction time of the brain. So, it is seen in our study that Pranayama resulted in a decrease in

reaction time. Greater cortical arousal and faster rate of information processing is seen in people practicing Pranayama. This is known to have better concentration and less distractibility.(7)(8)

CONCLUSION: Our study showed a stastically significant change in reaction time. Practice of Pranayama has vast potential and health benefits. We concluded in our study that Pranayama can improve the sensorimotor performance of central nervous system.

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