## Can You Give Rest to Your Stress?

We all know that stress is a highly decorated silent killer with an assortment of related illnesses in its arsenal. Proneness to anxiety is the trigger that sets off all stress-related diseases like hypertension, diabetes, depression etc.



## As we go along life's journey, we take many responsibilities and often pay the price with stress

We are living in one of the most exciting phase of our existence with so much that is within reach, connected and convenient. And we are gathering pace for more with everything around us spinning at a much steeper pace – work hours, pressures, family, friends, expectations etc. With the mind always running frantically in this exciting world, somewhere it also pays the price and more often than not, it is the stress.

We obviously would not want to be flattening out the pace, but is there a way to manage the illeffect called stress? And even before that, how do we scientifically measure it and then how can we see it going down?

#### How can stress be measured?

Have you ever noticed how you begin to sweat in certain stressful conditions? Well, Galvanic Skin Response (GSR) is the measurement of the autonomic activation of sweat glands in the skin. The sweating on hands and feet is triggered by emotional stimulation of both kinds i.e. positive or negative. The changes in skin sweat gland conduction also known as electrodermal activity (EDA) are measured through electrodes.

A group of scientists (Stéphanie Khalfa et al.) from Department of Psychology, University of Montreal, Canada studied changes in GSR level when music of four types of emotional arousals were applied. They found GSR signals during stimulating emotions, fear and happiness were found to be greater than as compared to the relaxing emotions, sadness and peacefulness. GSR signal is lowered when person is relaxed with unfamiliar relaxing music compared to unfamiliar arousal music indicating GSR is serving as measurement of the arousal and relaxation with specific type of music.

So GSR can be taken as a data point to measure the stress effects on body, and the efficacy of the medium being used to de-stress.

## Hypothesis

Yagya is an Indian Vedic ritual composed of various rhythmic chanting of mantras along with the mantras infused oblations in the designated sacrificial fire altar. Since Vedic times, it is widely and traditionally performed for various purposes including peace, happiness and mental and physical well-being. Hence, the experimental study was attempted to explore the GSR pattern during Yagya ritual, and observe any marked effects, if any.

## What was the experiment?

A Sample of 12 volunteer students of age group 17 to 24 were selected to participate in a study. The volunteers who had no past experience of regular participation in Yagya were selected. All 12 volunteers used to perform Yagya daily in the evening but recording was taken one at a time. Throughout Yagya, one participant was asked to sit still, not participating in the activity at all. The Yagya was performed for a total of 12 times.

The participants were made to wear GSR electrodes on the index and middle fingers as per the manufacturer protocol. GSR biofeedback machine electrodes were applied to the participant's left hand. GSR signal pattern for emotional changes were measured through biofeedback machine

Recording of the Yagya-ritual including all mantras were done methodically. GSR biofeedback machine was connected with the laptop; time per second of GSR was matched with the time per second of mantra recording, and then event of Yagya ritual were pointed out at GSR pattern exported on the graph.

All this to measure if there was any actual pattern in GSR data that could be observed with yagya.

# What were the findings?

Yagya ritual was divided into 28 sections. Each section had different sets of mantras for defined purpose and the GSR outcomes for all these sections were recorded. The graphs were plotted against the yagya ritual and it was observed that GSR started to decrease in the later-half indicating that when the fire sacrifice started, emotional arousal GSR values were relaxed. It was observed that GSR signal significantly reduced after fire ignition.

A point that was observed was that GSR signal reduced significantly after Gayatri Mantra fire oblations! No change was read post the ignition. Changes were recorded ONLY after the recitations started.



Dunn's multiple comparisons test		Adjusted P Value
M1-M3 vs. M4-M8	ns	0.0974
M9-M10 vs. M4-M8	ns	>0.9999
M11-M12 vs. M4-M8	ns	>0.9999
M13-M15 vs. M4-M8	ns	>0.9999
M16 vs. M4-M8	**	0.0028
M17 vs. M4-M8	***	0.0005
M18-M20 vs. M4-M8	***	0.0005
M21- vs. M4-M8	**	0.0089
M22-M23 vs. M4-M8	**	0.0071
M24-M29 vs. M4-M8	****	< 0.0001

#### Role of the study with respect to stress levels experienced

The present study indicates the importance of steps of Yagya ritual and its association in GSR signal reduction. Observation indicated the rite of Gayatri Mantra fire oblations may be a crucial step in the Yagya ritual.

Gayatri mantra is very powerful Vedic mantra described in Rig Veda mandala 3.62.10. It is a prayer for Universal good, showing reverence to the formless Brahman, here referred as Savita. The mantra is "Om bhur buvah svah, tat savitur varenyam, bhargo devasya dimahi, dhiyo yonah prachodayat" - Rig Veda 3/62/10. Meaning of this mantra is "O, the brahman, the divine vital energy, destroyer of worldly sorrows, blissful, greatest being, luminous, destroyer of our sins, symbol of divinity, supreme soul, may we imbibe your qualities in our self, please guide us towards the path of divinity".

In summary, it can be stated that the rite of Yagya along with Gayatri Mantra helps achieve a state of relaxation and shows a significant positive effect on our emotional state, and more such experiments in future will further strengthen this hypothesis.

To read the full paper along with details, graphs, data and references, please click here

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