

Gayatri Mudra –A Scientific Study

Lavina¹, Parveen Kalra², Neelam Rup Prakash³

¹Centre of Excellence in Industrial and Product Design, Punjab Engineering College (Deemed to Be University),

²Department of Production & Industrial Engineering, Punjab Engineering College (Deemed to be University),

³Department of Production & Industrial Engineering, Punjab Engineering College (Deemed to be University),

Abstract— From ancient times mantras and mudras together have been used to enhance health. Gayatri mantra and mudras from time immemorial have maintained their supremacy and unique position among all mantras. In this study, efforts have been made to evaluate the effect of mudras. For this evaluation, the four parameters i.e., Emotional Pressure, Energy, L/R Symmetry, Organ Balance were measured using GDV. The study was conducted on 2 groups for four weeks. One group performed gayatri mantra with mudras named as mudra group while other only practiced gayatri mantra named as non-mudra group. The data obtained from GDV was analyzed using two-sample t-test. The results shows that of all the four parameters taken for measurement, emotional pressure and energy results have shown a significant improvement in values of these parameters for mudra group than for non-mudra group.

Keywords— Gayatri mantra, 32 Gayatri mudras, Gas Discharge Visualization, Emotional Pressure, Energy, L/R Symmetry, Organ Balance, Two-sample t-test

I. INTRODUCTION

Hand Mudras have three main places of traditional usage in India. The first and most commonly known in the West, is in yoga practice, to channel higher energies into the body and mind. The second place for mudras is in ritual, in which various gestures relate to different deities or their powers. Most Hindu and Buddhist rituals employ mudras as an integral part of their practice, along with special mantras and offerings. Such rituals can be part of yoga practice as well, particularly in devotional practices. In this way, mudras are not simply a means of personal expression or self-empowerment, but ways of communicating with the deity, often in meditation, and drawing divine grace in our lives. The third is in Indian dance and drama, in which mudras reflect various types of meaning and have a symbolic value, particularly for projecting certain attitudes and emotions, or representing various powers or deities. Mudras are part of an artistic language of poetry, gesture, and dance and aid in a deeper self-expression and creative enfoldments. The Sanskrit word “Mudra” is translated as “seal” or “closure” or “gesture.” A mudra is a gesture that may involve the whole body or be a simple hand position. Based on the principles of Ayurveda, mudras are thought to have healing properties and to have an effect on the energy flow of the body. Some Yoga Mudras come natural to us, simply by touching our hands to our fingers it can affect our attitude and our perception and the inherent energetic power can heal the body. Mudras used in combination with mantra stimulate the different parts of the body through the vibration created by chanting. Relating directly to the nerves, mudras create a subtle connection with the instinctual patterns in the brain influencing the unconscious reflexes in these areas. The internal energy is in turn balanced and redirected effecting change in the sensory organs, glands veins and tendons. This adds a whole new dimension to the yoga experience. Along with this, Mantras vests magical powers since the right form of words, the right tone and right delivery by themselves would confer the desired effect. These sacred vibrations can support Spiritual Engineering of our Inner Being.

II. METHODOLOGY

A. Selection of participants

Five participants were selected for the experiment. Participants were categorized in two groups each containing 5 participants. None of the subject was on any strong drug or medications

B. Experimentation

In the zero week periods, pronunciation, tone of mantra and hand gestures of mudras 32 gayatri mudras were taught to the participants. The Gayatri Mantra has twenty-four syllables and there are twenty-four Gayatri Mudras that correspond to the mantra, plus eight additional mudras that are practiced at the conclusion of chanting and meditation.

Twenty-Four Pre-Meditation Mudras are: Sumukha, Samputa, Vitita, Vistara, Dvimukha, Trimukha, Chaturmukha, Panchamukha, Shanmukha, Adhomukha, Vyapak Anjali, Shakata, Yampasha, Granthita, Chonmukha Mukha, Pralamba, Mushtika, Matsya, Kurma, Varaha, Simhakranta, Mahakranta, Mudgara, Pallava.

Eight Post-Meditation Mudras are: Surabhi, Purna Jnana, Vairagya, Yoni, Shankha, Padma, Linga, Nirvana.

C. Data collection using using GDV

EPI images of the subjects were taken at least 2 hours after the consumption of large quantity of food, without alcohol or strong medicines. Some medicine will have an effect on the nature of the energy. It was advised to empty the bladder and bowels before image capturing begin. Subjects were asked not to fingers wash or wipe the hands. Hands can be washed 15 minutes before the experiment only if they are very dirty. Before taking EPI images, subjects were asked to relax for 15 minutes. Psychologically and physically conditions were provided to the individuals under study. Measurements were taken in same room with constant temperature, humidity and gas composition. Subject's fingers were scanned weekly and data was recorded.

D. GDV Scan

EPI device was calibrated before the start of the experiment. Calibration must be performed if unusual results are obtained. Before each measurement, the optic lens of the EPI device was wiped clean. If unusual EPI-grams are obtained, repeat the measurement of the patient and be sure that the results are precise. When the stat of individual is monitored by periodically taking the EPI-grams, the measurements were being taken at the same time of the day, in the same room with constant optimum temperature.

E. Scan result report analysis

Each subject was scanned five times using GDV. Subjects 1, 2, 3, 4, 5 belonged to the group who practiced 32 gayatri mudras along with chanting of mantra and subjects 6, 7, 8, 9, 10 belonged to the group who chanted gayatri mantra only.

F. Two sample t-test using Minitab

Two sample t-test was used to compare the two groups.

III. EXPERIMENTAL RESULT

GDV is designed for analysis of the functional state of the human body and calculate various parameters of human body for their comparison with reference parameter of a practically healthy person formed according to database. In this study the focus has been given to calculate the four parameters i.e., emotional pressure, energy, L/R symmetry, organ balance

A. Effect of mantra and mudra on emotional pressure

TABLE I
 RESULTS OBTAINED FROM MINITAB FOR THE PARAMETER EMOTIONAL PRESSURE

Week No.	Variance	Mean		Standard Deviation		Difference	95% ci for difference	P-Value
		Mudra	Non-Mudra	Mudra	Non-Mudra			
0	2.05	3.51	4.88	0.132	1.43	-1.368	-2.851 , 0.115	0.066
1	0.598	3.922	3.920	0.760	0.676	0.002	-1.047 , 1.051	0.997
2	2.53	3.248	5.06	0.148	1.59	-1.814	-3.460 , 0.168	0.035
3	0.544	3.100	4.386	0.479	0.738	-1.286	-2.193 , -0.379	0.022
4	1.57	3.258	4.84	0.264	1.25	-1.580	-2.900 , -0.260	0.025

In the start of the experiment i.e., in week 0 it is seen that p value is more than the significance level of 0.05. In that case null hypothesis is accepted. The two sample t-test indicates that there is no significant difference in two groups. Similarly, for week 1 the p-value is more than the threshold value of 0.05 therefore null hypotheses is accepted and there is no significant difference between two groups.

For week 2, the two groups are not considered different because 95% ci for difference has a range of -3.460, 0.168 which contains null value.

For week 3, the two sample t-test result indicates that the difference between the sample mean is 1.286 and p-value is less than 0.05 that means mudra group and non-mudras group are unequal. The estimate of the difference is within 95% confidence interval. This confidence interval provides the range of likely values for the difference between two population means. Therefore, one can be 95% confident that the true difference in the means is between the range -2.193, -0.379. And the emotional pressure mean of non-mudra group is 41.4% more than mudra group.

For week 4, the percentage of emotional pressure for non-mudra group is 48.55% more than mudra group.

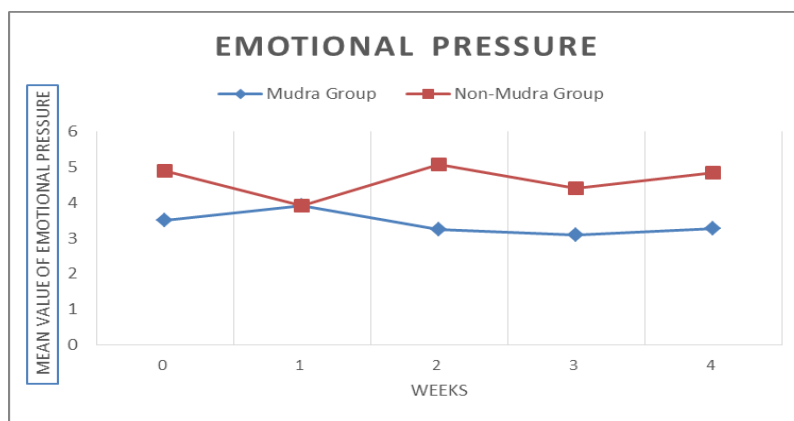


Fig. 1 Trend of Emotional Pressure during the period of 4 weeks for mudra and non-mudra group

With the commencement of the experiment it was observed that mean value of emotional pressure for mudra group was found to be less than non-mudra group. Whereas in week 1 the values are found to be equal i.e., there was slight increase in mean value of emotional pressure for mudra group and decrease was seen for non-mudra group. However the trend shows the decrease in mean value of emotional pressure for mudra group in proceeding weeks.

B. Effect of Mantra and Mudra on Energy

TABLE III
 RESULTS OBTAINED FROM MINITAB FOR ENERGY PARAMETER

Week No.	Variance	Mean		STANDARD DEVIATION		Difference	95% ci for difference	P-Value
		Mudra	Non-Mudra	Mudra	Non-Mudra			
0	159	52.81	47.9	6.98	12.6	4.88	-10.88 , 20.65	0.477
1	38.6	47.47	50.05	6.72	4.79	-2.58	-10.88 , 5.71	0.486
2	82	53.61	40.87	9.05	6.61	12.74	0.88 , 24.60	0.039
3	46.5	45.41	46.73	6.82	6.26	-1.33	-11.12 , 8.46	0.758
4	131	51.1	47.00	11.4	10.7	4.05	-12.50 , 20.59	0.581

Only for week 2, the two sample t-test result indicates that the difference between the sample mean is 12.74 and p-value is less than 0.05, that means mudra group and non-mudras group are unequal. The estimate of the difference is within 95% confidence interval. This confidence interval provides the range of likely values for the difference between two population means. Therefore, one can be 95% confident that the true difference in the means is between the range 0.88, 24.60. And the energy mean of mudra group is 31.172% more than non-mudra group. For all other weeks value of p is more than 0.05 which implies the difference between the mean of two groups is insignificant.

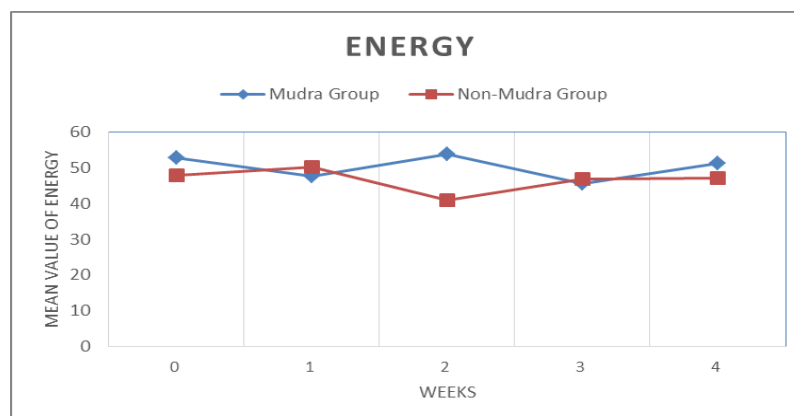


Fig. 2 Trend of Energy during the period of 4 weeks for mudra and non-mudra group

In the start of the experiment slight difference in energy was observed for mudra and non-mudra group followed by slight decrease in energy for mudra group and increase was observed for non-mudra group. However in the following week tremendous increase was found for mudra group and declination was observed in non-mudra group. In week 3, minimal difference in energy was found in two groups. In the last week increase in mean value of energy was found to be more for mudra group than for non-mudra group.

C. Effect of Mantra and Mudra on L/R Symmetry

TABLE IIIII
 RESULTS OBTAINED FROM MINITAB FOR ENERGY PARAMETER

Week No.	Variance	Mean		Standard Deviation		Difference	95% Ci For Difference	P-Value
		Mudra	Non-Mudra	Mudra	Non-Mudra			
0	230	92.33	88.3	6.04	15.4	4.03	-14.74 , 22.80	0.605
1	80.7	94.28	93.57	3.86	8.98	0.71	-10.53 , 11.95	0.877
2	39.7	93.74	93.25	5.64	6.30	0.48	-8.46 , 9.43	0.902
3	38.2	95.48	92.02	3.92	6.18	3.46	-4.54 , 11.47	0.330
4	7.14	95.34	96.53	1.95	2.67	-1.19	-4.69 , 2.31	0.448

For all the weeks, the two sample t-test result indicates that the p-value is more than the threshold value of 0.05. Thus, null hypothesis is accepted. This implies that not much difference is observed between two groups during the entire week of the study.

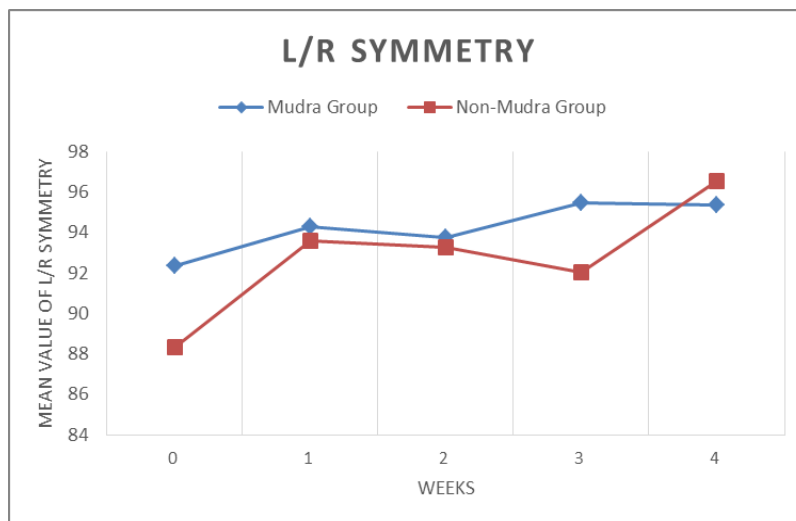


Fig. 3 Trend of L/R Symmetry during the period of 4 weeks for mudra and non-mudra group

Initially increase in mean value of L/R symmetry was observed for both the groups with little declination in week 2 for both groups. In week 3, inclination in mean value was found for mudra group and declination was observed for non-mudra group. In last week non-mudra group showed more increase in mean value than mudra group.

D. Effect of Mantra and Mudra on Organ Balance

TABLE IVV
 RESULTS OBTAINED FROM MINITAB FOR ENERGY PARAMETER

Week No.	Variance	Mean		Standard Deviation		Difference	95% Ci For Difference	P-Value
		Mudra	Non-Mudra	Mudra	Non-Mudra			
0	286	85.24	80.2	5.89	16.9	5.07	- 17.18 ,27.31	0.568
1	165	78.6	89.39	12.9	3.97	-10.78	-27.47 , 5.92	0.148
2	76.9	86.52	81.99	5.59	8.77	4.53	-6.85 , 15.91	0.368
3	59.3	92.44	83.63	4.50	7.70	8.82	-0.94 , 18.58	0.069
4	217	91.17	79.6	5.78	14.7	11.56	-6.61 , 29.79	0.163

For all the weeks, the two sample t-test result indicates that the p-value is more than the threshold value of 0.05. Thus null hypothesis is accepted. This implies that not much difference is observed between two groups during the entire study for organ balance.

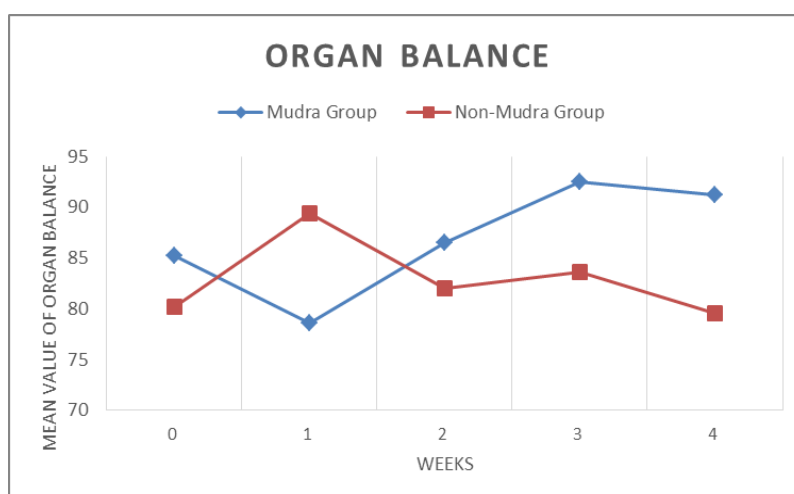


Fig. 4 Trend of Organ Balance during the period of 4 weeks for mudra and non-mudra group

From week 2 onwards, mean value of mudra group was found to be more than non-mudra group. Increase in mean value of organ balance was observed from week 2 to week 3 and slight decrease was observed from week 3 to week 4 for both the groups.

IV. CONCLUSIONS

After concluding this study, the following findings were found to be significant in the context of the research:

1. The effect of emotional pressure was found to decrease more for mudra group than for non-mudra group. The emotional pressure mean of non-mudra group is 41.4% more than mudra group for week 3 and in week 4 percentage mean of emotional pressure for non-mudra was found to be more than mudra by 48.55 percent.
2. There was significant increase in energy for mudra group in week 2 which was 31.172 percent more than non-mudra group. This was followed by slight decrease in energy for mudra group in week 3 which was further increased in week 4. However in week 3 and week 4 there was very slight difference in the mean values of mudra and non-mudra group.
3. For L/R Symmetry p- value is less than threshold value for all the weeks which indicates not much difference is observed between two groups. However, mean value of L/R symmetry for mudra group was higher than non-mudra group for first three weeks.
4. Not much difference was observed in two groups for organ balance.
5. Thus, of all the four parameters taken for measurement emotional pressure and energy results are more promising.

ACKNOWLEDGEMENT

With an utmost sense of gratitude, I wish to convey my sincere thanks to my supervisors Dr. Parveen Kalra, Professor, Department of Production & Industrial Engineering and Dr. Neelam Rup Prakash, Professor, Department of Electronics and Electrical Communications Engineering, Punjab Engineering College (Deemed to be University), Chandigarh, for their motivational and technical guidance, sound advice, excellent supervision and ever availability for help during the entire work.

REFERENCES

- [1] N. Abell, "The index of clinical stress: A brief measure of subjective stress for practice and research", *Social Work Research and Abstracts*, Vol. 27, pp 12-15,1991.
- [2] G.D.Jacobs, 2001, "Clinical application of relaxation response and mind body interventions",*Journal of Altern Complement Medicine*, Vol.7, pp 93-101,2001.
- [3] J. Janowiak , and R. Hackman, "Meditation and college students self-actualization and rated stress", *Journal of Psychological Reports* , Vol.75, pp 1007-1010,1994.
- [4] P. London, and C. Spielberger, "Job stress, hassels and medical risk", *Journal of Health March*, Vol.7 , pp 58-63,1983.
- [5] D. Oman and E. Ernst, "Holy name repetition as a spiritual exercise and therapeutic technique, *Journal of Psychol Christianity*, Vol.22 , pp 5-19, 2003.
- [6] K. Pargament , "The psychology of religion and spirituality? Yes or No", *International Journal of Psychological Relations*, Vol 9, pp 51-57
- [7] L. Pbert , N. Dunbar, & D.A.Cooper, An evaluation of perceived stress scale in two clinical populations, *Journal of Psychopath Beh Assessment*, Vol 5, pp 89-95, 1992.
- [8] D.B. Wolf, and N. Abell, "Examining the effects of meditation techniques on psychosocial functioning", *Res. Soc. Work. Pract*, Vol.13, pp 27-42, 2003