

### **5.2.9 Preparation of subjects for study**

The purpose and procedure of measurements were explained in detail to all the subjects together. The subjects were given instruction on nyasa by their Acharya who is a familiar figure and he explained how to carry out nyasa - Karanyasa and Anganyasa. Informed consent was taken from each subject as per standard practice. The subjects practiced nyasa before reciting Gayatrimantra japa for two days.

Method of relaxation was standardized for one minute, about the same time taken for nyasa practice. Before actual measurement, each subject was briefed regarding the steps and the procedure. Any questions / doubts were clarified by an expert who assisted the researcher, in subject's own language in addition to English.

## **5.3 VARIABLES STUDIED**

Anganyasa and Karanyasa were studied together.

## **5.4 INTERVENTIONS**

While the focus is on the effect of nyasa on mantrajapa, two interventions, viz., nyasa followed by Gayatri mantrajapa and relaxation followed by Gayatri mantrajapa are the two interventions employed in this study. Cross over from one to the other intervention for the same subject is done to compare the effect.

## **5.5 DATA EXTRACTION**

Data on three parameters, viz., Integral Entropy, Integraol Area and spatial fractality are extracted from EPI grams generated by the device.

## **5.6 DATA ANALYSIS**

Data is analysed qualitatively and limited quantitative analysis is done with charts and graphs.

## **6.0 RESULTS**

### **6.1 Integral Entropy**

The concept of entropy discovered first for application in thermodynamics has encompassed many other areas - statistical mechanics, quantum mechanics, information theory and cosmology to name a few. It is found equally applicable to biological systems. In current research, the instrument captures and records a measure called 'Integral entropy'. It is a measure of disorder in the system -here relates to disorder in the subtle energy in the subject. If it decreases from one measurement to another, it signals positive change. Contrariwise, entropy increase denotes negative change.

### 6.1.1 Results

Table 12 shows the results of Integral Entropy for both conditions.

**TABLE 12: ENTROPY UNDER EXPERIMENTAL AND CONTROL CONDITIONS**

ENTROPY	GROUP A	GROUP B	TOTAL	PERCENTAGE
Decreases in N/G and R/G	1	3	4	13
Decreases in N/G & increases in R/G	4	5	9	31
Increases in N/G and R/G	4	2	6	21
Increases in N/G & decreases in R/G	6	4	10	35
Total	15	14	29	100

(Legend: N/G: Nyasa followed by Gayatri; R/G: Relaxation followed by Gayatri)

### 6.1.2 Inference

Both relaxation and nyasa followed by Gayatri produce change in entropy in either direction when compared with baseline measurement, even if to a small degree. Both decrease entropy in 4 out of 29 subjects. Both increase entropy in 6 out of 29 subjects. Thus neither nyasa nor relaxation has a marked effect on decrease in entropy. In the rest of 19 subjects, decrease in entropy takes place both in nyasa and relaxation.

In summary, practice of nyasa does not appear to have significant effect on reduction of entropy compared to relaxation on Gayatri mantra recitation. Null hypothesis is proved. A positive outcome of the study is that entropy decrease can and does take place when Gayatri mantra japa is recited preceded by nyasa or relaxation. For some individuals nyasa may augment the entropy reduction and for some others relaxation could augment the entropy reduction. It is possible both nyasa and relaxation prepares the individual for the effect of the mantra. The readings are taken only after each practice, namely, relaxation followed by Gayatri, and nyasa followed by Gayatri. Thus it is seen the study design does not necessarily focus on only relaxation or only Gayatri. The total effect is a cumulative sum of R+G and N+G. It is also possible that Gayatri is the main contributor for reduced entropy since the participants are well versed in Gayatri japa. The novelty of R or N could actually be an entropy enhancer since the participants are new to both and could have some hesitation and doubt in carrying out the new procedure.

## **6.2 Integral area**

When high voltage electricity is passed through the fingers (for a very short time) electrons will be ejected from finger tips. Depending on the quantity of electrons ejected and their energy level, the integral area of the image varies in size. Higher the area, better is the health of the systems/organs corresponding to the particular finger. This parameter has the following features.

- Level of adaptation of organism to inner (psycho-physiological) and external (stress, food, ecology) influences.
- Character of metabolism.
- Adequacy of functional reserves.

### 6.2.1 Results

Table 13 shows the results of Integral Area under the two conditions.

**TABLE 13: INTEGRAL AREA UNDER EXPERIMENTAL AND CONTROL CONDITIONS**

<b>INTEGRAL AREA</b>	<b>GROUP A</b>	<b>GROUP B</b>	<b>TOTAL</b>	<b>PER CENT</b>
Decreases in N/G and R/G	0	2	2	7
Decreases in N/G & increases in R/G	5	6	11	38
Increases in N/G & R/G	6	1	7	24
Increases in N/G & decreases in R/G	4	5	9	31
Total	15	14	29	100

(Legend: N/G: Nyasa followed by Gayatri; R/G: Relaxation followed by Gayatri)

### 6.2.2 Inference

Both relaxation and nyasa affect integral area in either direction when compared with base measurement although to a small degree. Both increase integral area in 7 out of 29 subjects. Both decrease integral area in 2 out of 29 subjects. Thus neither nyasa nor relaxation has a marked effect on increase of integral area. In the rest of 20 subjects, both nyasa and relaxation increase the integral area.

States 3 and 4 (in the table above) together account for 55% - a good indication of effect of nyasa. State 2 indicates relaxation is effective for 38% of the subjects. State 1 where both nyasa and relaxation are ineffective accounts only for 7% of the subjects.

In summary it can be stated that both nyasa and relaxation affect Integral area positively – however, nyasa's influence is 17% more. We may conclude that in case of Integral area, the null hypothesis could be contradicted. This means that changes observed in Integral area could be due to practice of nyasa.

### 6.3 Spatial fractality

Fractality is a feature characteristic self-repetitive shape of wide ranging objects in nature such as clouds, broccoli and DNA to name a few and denotes repeatability. Increase in fractality signals positive change and decrease signals negative change. This parameter has the following features.

- Response of the system to the influence of regulatory systems.
- Reflects the level of uniformity of information by organs/tissues/cells.

### 6.3.1 Results

Table 14 shows the results of fractality under the two conditions.

**TABLE 14: FRACTALITY UNDER EXPERIMENTAL AND CONTROL CONDITIONS**

<b>FRACTALITY</b>	<b>GROUP A</b>	<b>GROUP B</b>	<b>TOTAL</b>	<b>PERCENTAGE</b>
Decreases in N/G & R/G	3	1	4	18
Decreases in N/G & increases in R/G	4	4	8	36
Increases in N/G & R/G	1	2	3	14
Increases in N/G & decreases in R/G	2	5	7	32
Total	10	12	22	100

(Legend: N/G: Nyasa followed by Gayatri; R/G: Relaxation followed by Gayatri)

### 6.3.2 Inference

Both relaxation and nyasa affect spatial fractality in either direction when compared with base measurement although to a small degree. Both increase fractality in 3 out of 22 subjects. Both decrease fractality in 4 out of 22 subjects. Thus neither nyasa nor relaxation has a marked effect on increase of spatial fractality. In the rest of 15 subjects, both nyasa and relaxation increases fractality. In summary, practice of nyasa does not appear to have significant effect on increase of spatial fractality compared to relaxation on Gayatri mantra recitation. Null hypothesis is proved.

A positive outcome of the study is that fractality increase can and does take place when Gayatri mantra japa is preceded by nyasa or relaxation. For some individuals, nyasa may augment the fractality increase and for some others relaxation will augment the same. It is possible both nyasa and relaxation prepares the individual for the effect of the mantra.

## 7.0 DISCUSSION

Of the three parameters taken for measurement, entropy results are most promising. Entropy is also researched by scientists belonging to various specializations, statistical mechanics, quantum mechanics, thermodynamics, information theory and biology for example. It is remarkable that Erwin Schrödinger (31), a Nobel Laureate in physics wrote a book titled

*What is life*. The book is said to have been a valuable precursor to the birth of molecular biology itself which later led to the discovery of DNA. Readers are particularly referred to Chapter 6 ‘Order, disorder and entropy’. From considerations of entropy for inanimate and animate matter, Jayant Udgaonkar (32) has stated categorically that “nothing can escape the long arm of the second law of thermodynamics”. We are therefore led to conclude that of the three parameters measured, results of Integral entropy deserve critical evaluation, since this may be a precursor to other manifestations in area and fractality. Thus, entropy could be considered as subtlest variable that is affected in any experimental condition.

The control group carried out relaxation practice for one minute followed by recitation of Gayatri mantra twenty times. The experimental group practices nyasa for the same length of time followed by Gayatri recitation for 20 times. It may be noted that between relaxation and nyasa, the former is easier to perform. Nyasa has to be learnt and practiced for some time for the learning to take effect, say a month before it becomes as easy and spontaneous as relaxation. In spite of this condition, nyasa has shown marginally better outcome.

The results are recast as shown below.

<i>Entropy decreases due to nyasa only</i>	<i>13</i>	
<i>Entropy decreases due to relaxation only</i>	<i>10</i>	
<i>Entropy decrease due to nyasa and relaxation</i>		<i>23</i>
<i>Entropy increases due to nyasa and relaxation</i>	<i>06</i>	

The above data shows a small advantage in favor of nyasa. This is encouraging since the results have been recorded in spite of a short time of nyasa practice. With regular practice for a month, the results could be better. We can conclude that nyasa is promising to be a method for decreased disorder resulting in possible better health.

## **8.0 APPRAISAL**

This research on scientific study of the effect of nyasa is elementary. Many parameters considered for measurement in studies on living systems could all be candidates for study on effect of nyasa. However, a judicious choice should be exercised to select the most suitable. Out of the three taken for this study, entropy seems to be most subtle and also promising.

### **8.1 SUMMARY OF THE FINDINGS**