ABSTRACT

INTRODUCTION

Yoga based techniques are extensively used as a lifestyle strategy for both prevention and management of various ailments across India/world. Energy homeostasis is the key essence of a healthy life. Investigation of the energy homeostasis accomplished through integrated yoga practices is needed.

Electro photonic imaging (EPI) technique is growing as a novel technique of health assessment. It is being utilized in the fields of alternative medicine, conventional medicine, psycho-physiology, psychology and consciousness studies. The existing EPI norms are mostly based on European population. In order to enhance practice and research through EPI in India, there is a need for developing EPI norms for the healthy Indian population.

LITERARY REVIEW

In the literary review, the references of Prāṇa and Prāṇamaya kośa have been drawn to support a theoretical model which explains the dynamic nature of Prāṇa in living beings. This model includes supportive evidence from the experiments conducted in the present study.

In the scientific literature review, four domains of scientific studies were reviewed 1) Various studies conducted to find out EPI patterns in various populations mostly in clinical area, 2) Studies investigating effect of yoga, meditation and some healing
techniques through EPI/GDV, 3) Cyclic Meditation investigations, and 4) Studies through Integrated Yoga Module.

Findings revealed that there is a need to develop EPI norms for healthy Indian population and also a need for an objective instrument to study the effect of yoga based interventions on bio-energy dimensions.

AIM

The aim of the study is to investigate the effect of Integrated Yoga Practices on Healthy volunteers using Electro Photonic Imaging (EPI).

OBJECTIVES

The objectives of this study are four fold: a) to explore the relation between EPI and Prāṇamaya kośa, b) to develop normative data of EPI for healthy Indian population, c) to investigate the effect of Cyclic Meditation on stress and health indices in managers using EPI and, d) to explore the effect of a four week Integrated Yoga Module (IYM) on stress, general health index and disorderliness (in the human energy system) in healthy population, using EPI.

METHODS

Study 1) Prāṇamaya Kośa Study

To carry out the experiments, healthy live leaves in a flower pot and dry dead leaves were chosen. We used four different species of plants for the experiments.
Study 2) Normative Data Study

A total of 1297 volunteers from different parts of India were assessed once, spread over 12 months. Among them, 880 volunteers were reported to be healthy (age Mean±SD, 33.55±10.92), with 584 males (age Mean±SD, 33.54±10.86) and 296 females (age Mean±SD, 33.56±11.00).

Study 3) Cyclic Meditation VS Supine Rest Study

EPI technique was used to assess subjects before and after 35 min of Cyclic Meditation (CM) and equal duration of supine rest (SR) sessions. A total of 66 male managers (CM = 33 and SR = 33), age ranging from 35 to 60 years (mean ± standard deviation 53.97 ±5.96 years), were included in the study.

Study-4) Integrated Yoga Module (IYM)

94 healthy volunteers (male 55 and female 39, age Mean±SD 26.70±8.58) were assessed before and after four weeks of an IYM, utilizing the Electro Photonic Imaging (EPI) technique.

Activation Coefficient (stress level), Integral Area (general health) and Integral Entropy (disorderliness) parameters were analysed in studies 2-4.

DESIGN

Study-1

1. Whole leaf versus cut leaf videos
2. Live leaf versus dead leaf and dead wet leaf videos

**Study-2**

A survey design was adopted for the second project

**Study-3**

Two-group comparative design

**Study-4**

A single arm prospective study

**ASSESSMENT TOOLS**

In the present study, EPI Pro and EPI Compact devices produced by Kirlionics Technologies International, Saint-Petersburg, Russia were used for the assessments.

**DATA EXTRACTION**

EPI/GDV Diagram Software Program was used for data extraction. This provides EPI parameters, viz; Activation Coefficient, Integral Area and Integral Entropy.

**DATA ANALYSIS**

Data analysis was carried out using R statistical package.

**RESULTS**
**Study 1)** Observations showed, the Phantom Leaf Effect (PLE) occurs mostly due to moisture. When measured with various time intervals, the results demonstrated that live leaves have high and dynamic Electro Photonic (EP) emission, wet dead leaves have low and constant EP emission and dry dead leaves have no EP emission.

**Study 2)** As the data were not normally distributed, quartile based statistics was used for setting the norms. The 25th and 75th percentiles were calculated and they were further verified using bootstrap procedure. Uniquely, the results showed a clear difference in integral area parameters under both with-filter (physiological) and without-filter (psycho-physiological) conditions among the Indian and the European population.

**Study 3)** CM produced a highly significant reduction in stress level, whereas this reduction was not found in SR group. There was a significant improvement in health index, (IA values), both left and right sides within the CM group while only IA in right side showed a significant improvement within the SR group. The IE value on the right side decreased significantly within the CM group, whereas IE on the left deteriorated within the SR group. In addition, only IE on left side has shown a significant difference between the groups.

**Study 4)** Decrease in stress, increase in general health and decrease in left entropy parameters were found reproducible in all four experiments. The results also revealed a highly significant reduction in stress levels and highly significant improvement in health indices at the psycho-physiological level.
CONCLUSION

Anticipated phantom leaf effect was not reproduced and mostly it seems to be just a moisture effect. Some of the EPI norms for Indian population were found different from European norms. Both CM and IYM interventions have demonstrated effectiveness in reducing stress level and improvement in health indices.