# CHAPTER – 1.0

## INTRODUCTION

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1.0 INTRODUCTION

1.1 HEALTH

Health and its care have become a global concern. The fast pace of life, sedentary lifestyle, and immoderation in diet, activities, recreation and sleep are the factors responsible for stressful living and ultimately manifest in diseases (Bijlani et al., 2005; Sivananda, 2008a; Smaldone, Honig, & Byrne, 2007; Waxman, 2005). These are obesity, diabetes mellitus, heart diseases, hyperlipidaemia, respiratory infections and cancer (Segasothy & Phillips, 1999; Sharma & Majumdar, 2009) that affects daily work and quality of life of individuals (Van Nieuwenhuizen, Buffart, Brug, René Leemans, & Verdonck-de Leeuw, 2015). Thus, there is a need for changes in lifestyle in most populations to prevent ill health and promote good health. Since energy is the foundation of electrophysiological and biochemical processes, it is necessary to measure and correlate the energy through available technology known as electro photonic imaging technique (EPI).

1.2 YOGA

Yoga, an ancient Indian lifestyle-related discipline has been scientifically proven and shown to improve physical, mental, and emotional wellbeing (Buffart et al., 2012; Gard, Noggle, Park, Vago, & Wilson, 2014) through all its components which include Kriyās (cleansing techniques), Āsana (yogic postures), Prāṇāyāma (breathing practices), meditation and diet. These techniques correct energy imbalances, and restores energy homeostasis in humans (Lynton, Kligler, & Shiflett, 2007). This energy is known as Prāṇa (Srinivasan, 2014) and is considered
to be the vital energy that regulates all cellular processes and keeps a person healthy. Also, per Ayurvedic texts, Prāṇa (Traditional Chinese Medicine counterpart, Qi) is believed to be responsible for health of every cell in the body (Sancier & Hu, 1991). Availability of cellular electrons is closely related to the health of cells in the body (Szent-Gyorgyi, 1978). Prāṇa, the fundamental fabric of subtle energy on the one side, and electrons, the fundamental aspect of matter on the other side, we conceptually related both of them and expect that both will converge closely. Through this, we derive our operational definitions of various abstract constructs. The conceptual relationship between Prāṇa and electrons seems to be quite evident, however, more empirical evidence is needed to support the conceptual idea. We operationally define Prāṇa as the intensity of electro photonic emission patterns as obtained in a form of EPI-gram. Homeostasis of Prāṇa is operationally defined as uniformity of electro photonic emission patterns in a form of EPI-gram as obtained by EPI instrument. Electron availability is operationally defined as the intensity of electro photonic patterns obtained from EPI-grams.

Further, when the homeostasis level of Prāṇa is lost, it leads to pain and somatic diseases as postulated in yoga (Srinivasan, 2013, 2014). All the animate beings require steady conditions inside for their survival, such as internal temperature, body pH, metabolic rate and energy expenditure versus energy consumption; similarly, energy (Prāṇa) homeostasis is required for healthy functioning of all systems within the body.
The health and disease concept of yoga enables us to better understand the root cause of diseases and disorders (Vyādhi) which are believed to emerge from the disrupted mind (leading to Ādhi) and beyond. The disturbed mind leads to stress and further creates imbalances in Prāṇa and later, these imbalances in Prāṇa manifest as a disease or disorder at the physical level (Nagarathna & Nagendra, 2009), especially in those systems and organs which have either deficient or disturbed Prāṇa. This understanding of disease manifestation suggests that if this hindrance in Prāṇa energy could be prevented or corrected, then we could probably succeed in preventing diseases and also reverse the progress of manifested diseases.

Earlier research on short-term lifestyle modification and stress management education program based on Yoga has shown remarkable improvement in subjective well-being scores of the subjects (Sharma, Gupta, & Bijlani, 2008). This could therefore make a considerable contribution to early prevention as well as management of lifestyle diseases. The present evidence convinced us to attempt research on “yoga based lifestyle-related program in healthy subjects to prevent ill health and promote health” observing the energy trend, improvement in energy patterns and reproducible results.

### 1.3 CYCLIC MEDITATION

Cyclic meditation (CM) is a yoga based relaxation method. The foundation for CM is from Māṇḍūkya Upaniṣat (An, Kulkarni, Nagarathna, & Nagendra, 2010). The
verse emphasizes that the human mind is either in agitation or in drowsy states; with this in focus, the CM concept was developed. CM practice is to stimulate the mind when it is drowsy and to pacify the mind in case of agitation and to maintain the settled mind in perfect equilibrium (Lokeswarananda, 2005). These two cyclical phases of the mind can be altered at one’s own will. Studies have found that the asana phase of the CM is associated with sympathetic activation, whereas relaxation phase is associated with parasympathetic activation (Sarang & Telles, 2006). Many of the meditation practices yield a relaxation response, whereas the moving meditation practice that combines a practice of Āsana (yoga postures) and guided relaxation known as CM has been found more effective in reducing physiological arousal in comparison with supine rest (SR) (Sarang & Telles, 2006; Subramanya & Telles, 2009a). The effect of CM has been studied using various tools, both objectively and subjectively. The documented findings show that CM reduces occupational stress, autonomic arousal, anxiety, oxygen consumption, P300 peak latency, improves memory, attention, sleep and quality of life (Subramanya & Telles, 2009a). CM is an efficient relaxation technique that provides immediate effect and may be carried out on the spot for achieving a quick relaxation response.

In the present study, we have proposed to compare the effect of CM practice with an equal duration of SR (Śavāsana). It is evident that the CM practice reduces autonomic arousal, and the EPI technique measures autonomic functions; however, there is no such study which applies EPI technique to study the effect of CM. Thus,
the current experiment is aimed at investigating the effect of CM on stress and health indices using EPI technique. It may also provide evidence to measure the relaxation response using this procedure.

1.4 ELECTRO PHOTONIC IMAGING (EPI)

Electro Photonic Imaging (EPI) is a novel technique growing in its application in the field of scientific instrumentation to assess health status on the basis of bio-energy. Because of its versatile applications and unique features, a number of research publications applying EPI technique can be found (Pavel, Bundzen, Korotkov, & Unestahl, 2002; Ciesielska, Szadkowska, Masajitis, & Goch, 2010; Drozdovski, Gromova, Korotkov, Shelkov, & Akinnagbe, 2012; Guru Deo, Itagi, Srinivasan, & Kuldeep, 2015; Hacker et al., 2005; Korotkov & Popechitelev, 2002; Korotkov & Korotkin, 2001; Korotkov et al., 2012; Korotkov, Bundzen, Bronnikov, & Lognikova, 2005; Korotkov, Matravers, Orlov, & Williams, 2010; Korotkov, Williams, & Wisneski, 2004; Kostyuk, Cole, Meghanathan, Isokpehi, & Cohly, 2011; Kostyuk, Rajnarayanan, Isokpehi, & Cohly, 2010; Lee, Khong, & Ghista, 2005). It is a quick, non-invasive, simple, painless, inexpensive method of assessment, with high level of reliability (Korotkov et al., 2012, 2010, 2004). Therefore, the application of EPI is increasing worldwide and becoming popular in various fields such as conventional practices, alternative medicine, psychophysiologic practice, psychology, consciousness studies, sports and material testing and it is being utilized in more than 62 countries worldwide. In the field of medicine, EPI had been employed to study diabetes mellitus, cardiovascular
diseases, hypertension, autism, asthma, cancer and many more diseases (Korotkov et al., 2010; Kostyuk et al., 2010; Sharma, Hankey, & Nagendra, 2014).

1.5 EPI TECHNIQUE

Electro photonic imaging (EPI) technique also known as the gas discharge visualization (GDV), based on Kirlian effect has been used as a scientific method to assess stress and health in individuals (Korotkov et al., 2012, 2010). The assessment by EPI is performed through stimulation of electrons at the fingertips by applying a short electric pulse of a high voltage (10 kV), high frequency (HF) (1024 Hz) and low current for less than a millisecond; (Hacker et al., 2005); then a glow occurs around the finger pads. This glow is the consequence of ionization of gaseous molecules in the surrounding air through the discharged electrons from the fingertips and known as electro photonic emission. This glow emission is captured by a charge-coupled device camera that is situated under a dielectric glass plate in EPI system (Korotkov et al., 2004). These images are obtained from all 10 fingertips of both hands, and further they are divided into various sectors corresponding to various organ systems. These image pixels are further processed using image processing software, and various parameters are extracted using algorithms to bring further meaningful information. It is also empirically evaluated that various image sectors have connections with diverse organs and systems in the body (Hacker et al., 2005; Korotkov, 2011a; Korotkov et al., 2012). In addition, these sector correlations of organs in the body are supported by the acupuncture and meridian theory of Sujok (Korotkov, 2002a). Further, a scientific report on a
newly found circulatory system within the body called Bonghan system also adds evidence in favour of these connections with the diverse organs. Bonghan system is a thread-like structure; it is situated superficially, inside the blood or lymph vessels, on the surface of internal organs, and also in the brain ventricles (Soh, 2009). This provides a potential link between the EPI sectors from finger images and the organ systems of the body.

This thesis work presents four different but interlinked projects. The very first one was to test the availability of Prāṇa in live and dead leaves. Second project was undertaken to develop EPI norms for healthy Indian subjects to enable the studies in various areas of conventional medicine, alternative medicine, psychophysiológic practice, psychology and consciousness studies. Third project was designed to measure the effect of cyclic meditation on stress and health indices in managers using EPI technique. And the fourth project was to assess the sustainability of energy levels and improvement in disturbances in energy patterns; and reproducibility of the results was also examined (through 4 batches of recruits) with integrated yoga module as an intervention in healthy Indian people.