

The view presented here is in the capacity of a yoga practitioner and researcher with more than a decade of experience in the area of yoga therapy on one-to-one basis, which is the unique strength of the *Krishnamacharya* tradition of yoga, the sheet anchor of *Krishnamacharya Yoga Mandiram Chennai* a place where I teach yoga.

Today, a lot of research studies focus on mind-body medicine. Science acknowledges the interactive inter-relationship between mind and body. Though modern research in yoga has accepted the power of yoga as influencing both the body as well as the mind, very minimal studies have focused on evaluating the psychological parameters while physiological parameters are evaluated much in detail (Arpita, 1990; Berger, 1992; Miller 1995; DeBerry, 1992). Psychological impact on physiological changes is concomitant and inter-related, but a thorough evaluation is yet to be demonstrated. The physiologists have overlooked the psychological components and psychologists or others studying psychological effects have disregarded the physical impact. Research in yoga has thus become piece meal with some groups focusing on body, some others emphasizing on specific personality factors and very few trying to see the impact of yoga on social factors. This specialization has become so reductionistic that

people have started believing *asana* is for body, *pranayama* is for prana and *meditation* is for mind, etc. This compartmentalization in research activity has also compartmentalized yoga. The variety of yoga schools and styles that are mushrooming in different parts of the world stand proof to this myopic approach in yoga.

According to *Patanjali*, the focus of yoga is the "Mind". In fact, yoga is defined as a state of mind: "*Yogah citta vrtti nirodhah*" (*YS 1.2*). Mind and its activities and the enormous possibilities of the mind, which is functioning at different levels is the subject matter of Patanjali's Yoga Sutra. Asana, pranayama and meditation are offered as some of the tools, which in fact, form only a small part of the whole spectrum of yoga tools to reach a state of mind.

The "*Pancha Maya*" model presented in our *Upanishads* by ancient Indian scientists beautifully demonstrates the inter-relationship between different levels of existence. The *Annamaya* (physical body), *Pranamaya* (energy body), *Manomaya* (Mental processes), *Vignanamaya* (special intellect, what we call discriminative power) and *Anandamaya* (emotional level) are closely interconnected and influence each other in such a way that a perfect harmony between these levels reflects good health and well being of an individual.

This means, no tool in yoga can be understood in isolation, as affecting one particular level or the other. If yoga is understood or evaluated that way, it would tantamount to undermining the holistic and comprehensive nature of this ancient system.

Current Research Methods in Yoga

Control vs. Experimental group designs or Randomized Control trials or Double blind studies ignore the core aspects of the process of an intervention but emphasizes on outcomes only. With more and more emphasis on quantification of effect or outcome, which are statistically significant, the researchers are at loss to understand the processes, which really influence the outcomes. The mechanism-oriented studies also emphasis on single

outcome and refuse to acknowledge individual uniqueness. Yoga being a process-oriented training, outcomes may vary. Thus, the methodology that suits clinical or other psychological investigations are not appropriate for yoga (Latha, 2003). To emphasise this point further, I would like to present some of the empirical evidences obtained through Qualitative methodology.

The focus of scientific research in yoga should ideally incorporate study of psychological influences of practices without which it would remain skewed and superficial. Drawing empirical evidences from the studies conducted, it is evident that the emotional states are more amenable to yoga training and we see quicker responses in terms of reduced Anxiety, anger and enhanced sense of well-being (Shrimaty, 2002; Priyadharshini, 2001; Malathi, Shah & Patil 2000; Wood, 1993), but the deeper changes at cognitive levels, (thinking processes) is not uniform in all those receiving yoga training. In my studies I have observed those who responded better at the physical level, they were not able to show any change at the deeper level of experiences like optimism or sense of purpose and satisfaction with life (Latha, 2003). These psychological attitudes refer to spiritual orientation and almost border on to the core spiritual dimension of a person (Empirical evidence), which takes much deeper analysis scientifically. Individual difference in response to treatment is another gray area that is hardly being addressed. The qualitative analysis of the interviews conducted on practitioners of yoga revealed the health enhancing effects of daily practice on alertness, stamina, energy, freedom from cough, cold, enthusiasm *etc.*

An evaluation of experience of a sample of 22 yoga practitioners who underwent one-month intensive meditative practices reported various experiences during the practice. Interviews analyzed, using CDC TEXT software, themes such as relaxation, calmness, discomfort and distractions during the processes of meditation. Almost all the participants expressed their belief that a stepwise progression into meditation by preparing

the body and mind was most effective. Their experience also indicated that one cannot enter into meditation straight away. It takes time to reduce the internal noise and distractions. In these meditative practices many strategies were applied to enhance the focus, sustain the focus and also stay with it. These sessions were held daily for 20 days. The participants were all from outside India and had an exposure to other techniques of yoga but not meditation. This study conducted in 2004, throws insight into individual differences in responses to a process of training and also their facilitation for certain types of training.

Dwelling upon "uniqueness" of the individual is impossible without incurring the wrath of many of our "scientific colleagues" who are 'oriented' towards abstracting and measuring the outcomes in terms of Quantity.

Yoga is an experience, where the outcomes do not solely depend on the techniques, postures, but also on the relationship between different component within and outside the person. The quality and quantity of relationship one has between the body, breath, mind, teacher, environment and all other factors, has an impact not only on mind and body but also on the larger circle in which person exists.

A survey on a sample of practitioners (N = 216) of Yoga was conducted and their experiences with Yoga practice were recorded for a set of open-ended questions. The content analysis of the responses (Qualitative software) generated rich information on the subjective experiences of yoga practice such as feeling of calmness, energy, clarity, sense of peace, expansiveness, specific physical benefits etc. These descriptions are honest experiences, but are not quantifiable through any available questionnaires. Such types of responses were absent in the reports given by short-term yoga practitioners. Lastly, the psychological impact of yoga is maximally facilitated by not only the training aspect, but also the nature and personality of the practitioner, qualities of the teacher

(the vital catalyst in healing process) and intelligent application of the tools.

Tools for Quantification of Yoga Experience

The issue of quantification is again a problem. Today, science has advanced so much that we are even talking in terms of quantifying "Prana"! But the sensitivity of measurement tools is another major issue. Tools used are not all encompassing, not sensitive enough to observe or record several factors.

Most tools are based on western psychometric principles. The reliability coefficient or its validity is in terms of 50% to 80%. Though they are good by themselves and useful to a certain extent, they are considered as important indicators of well-being, or health. There are many experiences related to the practice of yoga, which are not purely biomedical or psychological, but may address the deeper experience which cannot be measured or quantified through questionnaires or instruments. For example, how can we measure faith, *asthiratvam*, and *citta viskepam, santo'sam...*? These are the concepts relevant and leverages that transform the mind and cannot be measured. This is what I experienced when I was conducting a Yoga training and evaluating the psychological parameters using standardized questionnaires. There was a complete dichotomy between the objective measures and the subjective experience of the participants as elicited through interviews. The responses were so non-normative; it was not possible to quantify objectively the effect of yoga. But its impact in daily life of practitioners lives demonstrated the wide range of possibilities beyond body, mind in terms of quality of interpersonal relation.

Some of the assessment tools are oriented for clinical groups with a high loading on pathology (depression, anger, Anxiety or stress factors). The tendency of people to project themselves in a better frame can never be removed in the assessment or a tendency to be oversensitive or reactive is also there.

Tools need to be developed that are sensitive enough to measure the impact of yoga training. These need to be developed based on the experience of yoga practitioners, *e.g.*, awareness levels, confidence, motivation, expectancies, attitude towards life/self/teacher and all the subtle changes that may occur in the state of mind when one is practicing and after practice. I believe, quality measurements based on diary monitoring, sharing, and dialogues are best suited to evaluate outcome of yoga training. Sometimes, the questionnaires are too generic like feeling calm, contented, *etc.*, which are highly loaded on bias factor. Preferably using open-ended questions, specific to the individual can provide valuable information.

The slant towards qualitative research is inevitable because individual responses are as many as the variables involved. Sometimes responses may remain latent/dormant, some responses that may be expected may never surface, while certain outcomes reveal themselves in the most unexpected manner. Factors like faith, motivation, relationship with the teacher, *etc.*, continue to gain prominence. Mapping all this complexity and weaving them into the matrix of human experience continues to throw up new challenges in research.

This is what Dr. Robin Monro comments on "methodology of Science and Yoga,

"... While modern scientists have looked "outward" for measurable observations for the basis of their knowledge, yogis have looked "inward" to their own bodies and minds. There is nothing unscientific about it. There is no reason from a scientific point of view why such internal information should not be utilized as an observational basis for scientific knowledge."

With more advancement in science, rigorous attempts are made to 'fit' yoga into a pure scientific model, and also substantiate such a stance using complex scientific procedures and measurements. But the bottom line is that ultimately human beings have to benefit. Scientists attempting research on yoga

have forgotten, or perhaps wished away this basic purpose. Scientific procedures can help in creating standardized therapeutic modules that can perhaps replace "pills". But if individual differences are not taken into account, especially in an intervention where a person's physical, emotional, spiritual resources are harnessed to facilitate healing, such "yogic pills" may not only be ineffective, they can cause serious harm to the person at all levels. Yoga training is not only to build internal resource, but also utilize and apply the existing resource to enhance the quality of life.

Factors that Mediate Healing/change

Research in yoga intensely focuses on outcome variables, with little or no attention paid to other mediating factors that play a crucial role in compliance. Subjective factors such as individual attitudes and expectancies from therapy are more assumed than measured.

Yoga simply does not work if an individual does not assume responsibility and participate in the healing process. Yoga is self-empowering. Without faith and intense, appropriate effort, it simply does not work. It is not like swallowing a pill! Coming to the qualities of practice:

*Sa tu deerga kala Nairantarya Satkara Adara Asevito Drdabhumih
(Y.S.-I Ch)*

Practice/effort must be appropriate, consistent, for a long time, without interruption, with positive attitude and eagerness. These are very much part of a person's inherent personality.

How does one measure these personality traits or the student factor? According to the Health Belief model, belief in efficacy of treatment is one of the strong factors promoting high level of adherence. Faith (positive attitude) is a strong factor that determines compliance in an intervention. We are dealing with human beings here, and this factor varies in intensity.

As Patanjali states, *Mrdu—Madhya—Adhimatravatat tato Api Visheshaha...* (Y.S. 1.22)

How do we measure this?/How Yoga works? The teacher factor or the trainer factor. There is a need to distinguish between a yoga teacher/instructor and a yoga therapist. Yoga is essentially establishing a positive connection, which is constructive. The teacher is an important mediator in this process. *Yoga Rahasya* (1.30) talks about the qualities of a yoga teacher:

Jnani – one who knows.

Mauni- one who acts based on reflection.

Jitavanan- one who is disciplined, patient and humble, learned and competent.

Experience of a teacher in terms of personal practice and attitude of care and compassion, intelligent application of tools “*yukti*” in a manner oriented to the needs and capacities of the individual (*Tasya Bhumisu Viniyogah YS 3. 6*) are essential qualities of a yoga therapist. The teacher must be a model of inspiration and Patanjali calls them as “*Nirmana citta.*”

Humility to accept if something does not work! How much of importance is given to this aspect in yoga research? Or is it dismissed off as beyond the scope of scientific research? These are the ethical issues for somebody who is involved in authenticating yoga scientifically.

Finally, I would like to quote the statements of my yoga teacher, Shri. T. K. V. Desikachar who has been responsible for improving the quality of life of thousands of people through his wide teachings, he states (1987).

“Yoga is not a technology that can be generalized. It should respect and honor the individual, encourage and facilitate the individual to make use of the resources available to heal himself/herself. Consistent effort on part of the individual and the teacher are also important.”

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Psycho-physiological Responsiveness to Meditation in HIV Positive Patients

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During the last two decades, HIV/AIDS (Human Immune Deficiency virus/Acquired Immuno Deficiency Syndrome) has become a pandemic around the globe. The increasing number of deaths occurring throughout the world due to HIV/AIDS has already reached an alarming state.

AIDS as the name holds means "Acquired Immune Deficiency Syndrome". The term acquired refers to what is caught as opposed to being inherited and Immune Deficiency describes the state in which the body's immune system is depleted, so that it is unable to defend itself against the development of certain conditions, particularly infections. Syndrome refers to group of sign and symptoms of illness, which result from the destruction of the body's defense by HIV.

The HIV is a unique virus which weakens and ultimately destroys the immune system *i.e.*, defense system of the body. As a result, the effected individual becomes vulnerable to many life threatening infections. When we don't have a strong immune system to fight off the germs, our body becomes weaker and weaker gradually.

HIV infected person may continue to live a perfectly normal life without showing any physical symptoms, such a situation is

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