

## Bridging the mind-body divide

There is an on-going discussion on the role of body and its connection to the mind in health and disease. In Mind-body Medicine, it is taken for granted that these two independent entities act on each other either to bestow trouble or to bring homeostasis to the person who owns both. Further, body is now being replaced with brain, since it seems obvious that after all, brain is the ultimate controller of the events taking place in the body. However, the question remains: Where does the body meet the mind? Is there a specific location or is it just a hypothesis that there is a Brain-Mind nexus in stress deregulation as well as in self-regulation back to normalcy?

There is an eloquent proposal to integrate the top-down and bottom-up models of Mind-body Therapeutics (MBT) so that further focused research is implemented to postulate possible mechanisms in this complex area.<sup>[1]</sup> Since stress related morbidity has become a major concern in the medical therapeutics and research worldwide, it is imperative we understand the mechanism and try to integrate MBT into main stream medicine. There are some models available even if they are not completely worked out for clinical acceptance. Thus, there are models that espouse decreased sympathetic tone and/or increased parasympathetic activity, proper integration of neuronal and visceral systems, and electromagnetic regulation. Even in electromagnetic regulation, there are several theories each applicable to a specific area of MBT. There is no single theory, model or mechanism that could be applied for all effects seen in MBT. It seems that each model is useful in some way; however, an overarching theory and mechanism should be developed for integrating MBT into Allopathic Medicine.


Initial search in biochemical and electrophysiological correlates of stress and Mind-body effects were productive. Molecules that mediate specific emotions were identified.<sup>[2]</sup> Similarly, many MBTs could be assessed through Electroencephalogram (EEG), functional Magnetic Resonance Imaging (fMRI) and through neurophenomenological approaches.<sup>[3,4]</sup> The last approach combines neural responses

with experiential categories of mental activities. This combined approach seems to provide a relation between transitory changes in mental processes for correlation with neural processes. This could be a very useful combination especially in MBT wherein mental processes are important since the experiences are central for evaluating success of a technique.

Heart Rate Variability and study of electromagnetic components of MBT have also been suggested. In a revised view of cellular communication, the cells need not be in proximity for transfer of information.<sup>[5]</sup> An electromagnetic signal sent by a cell could be received by a receiver cell resulting in such processes as apoptosis (regression) and cell proliferation. This signal could also be sent from an external source to achieve these ends. It is postulated that “What we may glean from all of this is that in addition to being a protective shield, the cell wall is emerging as a powerful amplifier for electromagnetic and possibly other subtle energy therapies. The resultant cascade of signals can stimulate or suppress numerous intracellular activities” (5, p. 300). Given these observations and speculations, it seems that a field and coupling mechanism that is global is required.

Electromagnetic pollution, on the contrary, could disrupt the MBT effects through inappropriate modulation of therapy. Since, at any given time, a large numbers of cells are sharing variety of signals simultaneously, some signals could disrupt information to other cells or organ systems. However, based on present information, it is possible to speculate that electromagnetic communication could be an important aspect of body-mind communication. Long range electromagnetic communications are also implicated in acupuncture activity. Thus it is possible that every cell is involved in generating a field that is responsible for the overall health of an organism. Now the question shifts to how the mind modulates the electromagnetic fields and further, the role of bioelectromagnetism of the brain in this interaction is not clear.

Let us look briefly into the model of Mind-body provided in classical Yoga. In the Yogic model, the human is represented as having five interpenetrating sheaths or fields that are related to body, *prana*, *manas* (mind), knowledge, and bliss. The material body is supported through the food we eat, the water we drink, and the gross air we breathe. The pranic field consists of subtle energy of *prana* that is postulated to provide energy to the subtle body. The *manas* field performs the functions of memory

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<p><b>DOI:</b> 10.4103/0973-6131.113389</p>	

consolidation and retrieval, and other brain mediated functions. The next two fields of knowledge and bliss are of interest to those who are practicing intense tapas or concentrated practices.

As seen in the above model, pranic field strides body and *manas* (mind) and connects them in an eternal embrace, as it were. This pranic field pervades the entire body so that its contact with body is through every cell in the body. Further, *manas*-working through pranic field-could influence the cells through modulating the pranic field at any location in the body by mere thinking. When *prana* is inadequate, pain and other somatic problems arise; when *prana* leaves a site, death of the cells occur in that area. When *prana* leaves the entire body, we say the person is dead. There are other related symptoms for declaring a person dead, but we shall not discuss them here. Thus, pranic field is essential in maintaining health, cellular communications, and in correcting overall energy imbalances in the body.

Recent work with an acupuncture meridian device supports the above statements.<sup>[6]</sup> It is seen that after practice of yoga, the variations in chi are less and chi energy is seen to be more evenly distributed in the meridians. Since there is a correspondence between chi and *prana*, it may be said that pranic field is also similarly regulated and balanced in the practitioners. The authors state: "Health or wholeness of system functioning requires balance, and this requires sensitive regulation. The more sensitive the regulation, the more accurately balance can be maintained, i.e., in some sense, the more robust the healthy state. From this perspective, optimal regulation will correspond to a state of optimal health" (6, p. 64).

When mental processes are initiated (as it is during most of our life), pranic field is changed to provide a dynamic cellular response. Through the act of proper breathing,

we are able to increase the availability of prana to the brain and body. Connection between *prana* and *manas* is further implicated in many pranayama practices. When the pranic field is stabilized, *manas* become steady moving from thought-filled to a thoughtless state. Given these observations and the role of pranic field in health and disease, it is appropriate to consider the yogic model that *prana* is the bridging link between mind and body. With some instruments undergoing tests, it may be possible to measure the pranic field and hence the health status of an individual as well as the efficacy of Mind-body therapies in clinical use.

TM Srinivasan

Dean, Division of Yoga and Physical Sciences,  
Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA),  
Eknath Bhavan, 19 Gavipuram Circle,  
Bangalore - 560 019, Karnataka, India  
E-mail: editor@ijoy.org.in

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**How to cite this article:** Srinivasan TM. Bridging the mind-body divide. *Int J Yoga* 2013;6:85-6.

**Source of Support:** Nil, **Conflict of Interest:** None declared