

Updated Cutting Edge Scientific Researches for a holistic perspective

A text book of

Physiology

for Life



Ufa World

Dr. J. Satish Kumar, MD

Dedicated to the Supreme Consciousness that has ushered in the
Age of Enlightenment



A compendium of Life Style for
Perfect Health
on a Physiological Basis

Unique features of this book

Ancient wisdom and modern scientific research
Principles of Physiology applied for a healthy life style
Explanatory reasoning of Physiological laws based on theory of Evolution

Consciousness. Evolution. Behaviour. Life Style

About the Author Dr. J. Satish Kumar

With a clear vision to innovate for easing life and an integrated track record of working for the betterment of World Health and Consciousness through holistic principles in management and medical research, Dr. J. Satish Kumar is blessed with certain World Transforming Discoveries that are in the threshold of making revolutionary changes in the way we deal with health, disease and world peace.



He has been recently (November 2007) conferred with an award for “Enlightened Leadership” by the leading university, the Maharishi University of Management in USA and the Netherlands. He is currently focused in discovering the unifying principles that are the structuring dynamics of cosmos, which includes the Human Physiology with particular reference to Neurosciences and Quantum Physics.

He is serving as Medical Sciences Professor, Department of Physiology at the Gulf Medical College in United Arab Emirates. He has completed his MD in Physiology in Annamalai University, Chidambaram, the Land of the Cosmic Dance, India, which is known as the seat of Consciousness in Ancient Indian Sciences. His graduation of the MBBS program was from Madras University, India. He has over 14 years experience in the medical and management fields with particular reference to path breaking researches in neurosciences, including Yoga.

He is also currently the National Director for UAE chapter of the Global Country of World Peace, which is a scientific body to bring peace and invincibility to all the nations through the technology of consciousness. He has presented his World Transforming Discoveries to some of the world’s leading scientists and leaders who have highly appreciated his work. He has been the key speaker in the European Assembly of Leaders of invincibility and also has presented the discoveries in the Global Administrators Conference, held in the Netherlands. He is also in the select group of innovators for peace-Innovivors, in the recently held World Summit for Innovation and Entrepreneurship-Dubai 2008.

The application of knowledge from disparate disciplines such as genetics, life sciences and quantum physics to management, innovation and entrepreneurship is a logical extension of his understanding of the human mind and consciousness. In recognition of his organizing skills he has been chosen to be an Academy Fellow of the International Entrepreneurship Academy which is part of the prestigious Jonkoping’s University in Sweden.

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Introduction

Welcome onboard to an exploration of your **self**.

This book is intended to introduce the student of life, medicine and life sciences to basic concepts in physiology through a radically innovative approach, which is the call of the changing times.

The evolutionary intelligence shaping the structural arrangement of molecules, organ systems, human physiology & Universe, when taken into consideration, helps us in understanding not only the functional organization but also aids in understanding the true significance of diseases & healing permanently.

The Rationale for a New Approach

Developments in medicine have always been preceded and based on developments in physics. E.g. the understanding (misunderstanding) of the role of microbes in health & disease was possible only because of the invention of light microscopes. With the invention of Electron microscopy we came to know of viruses. All these changed our perception of the world and the way we approached diseases. Hence, it is but logical that we update the approach to the study of physiology based on the recent developments in physics – (i.e.) the Quantum Physics level.

Hold on, don't let your imaginations run wild for don't ever think that it is all getting complicated any bit. Quantum physics and its principles are as easy as your modern user friendly touch screen computers. Yes, just go on to enjoy reading this book, as each page of true knowledge only eases the remaining part.

Besides the integration of the latest researches, the presentation and approach to studying physiology has been made simpler, methodical and logical. It has been totally revamped for provoking enthusiasm and interest to explore further levels of functioning as one proceeds.

The Process of easing study

If every one who wishes to operate a computer had to first go through a course to understand the designing of microchips, would we find these many users? It is understandable that it's quiet enough if we study the details later, after having learnt to use the computer for our daily tasks. As we enjoy using the computer, we can if necessary delve deeper to understand the finer mechanics of its functioning. This is the approach we have followed in this book.

We are going to explore the immediately useful interesting body organ systems, the broad principles governing their integrated functioning and the practical implications of adopting a healthy or unhealthy life style to the organ system under study. Later we attempt to understand the cellular and molecular details of the various systems. This book fits in with the recent recommendations for an integrated basic science module for the students of medicine.

To a large extent presenting facts have improved dramatically in all fields except in teaching sciences pertaining to the self, which includes the body, mind & soul. It is a common experience that when the approach in presenting and teaching a subject is naïve, it becomes increasingly difficult to hold the student's attention in classes. Here a straight forward, simplistic approach has been used to make the student feel the joy and immediately sense the benefits of studying physiology in their day to day life. This text book also looks from the perspective of theory of evolution and devolution.

Nomenclature based on Function

The student of physiology is impeded in his path to understanding true concepts due to terminologies that are not related to the function. This burdens the students as they have to remember names that are disconnected to the concepts under study and with no specific clue as to the function of the concerned organ system.

Hence an attempt has been made to give appropriate names that can facilitate learning and retention of concepts.

Purpose of studying physiology

Physio means nature. Studying nature is physiology. The ultimate expression of nature is human physiology. To study the laws that regulate this wonderful expression of nature is all about physiology. As any study gives the knowledge and hence the power to use the studied object, physiology-the study of natural laws governing human body and mind gives us the power to create love, happiness and enlightenment.

Moreover this book frees mankind and modern medicine from the clutches of the old Darwinian theories of evolution, which has been found to be of little scientific relevance to humans.

Possibilities of the Immaculate Human Physiology

All the individuals born on planet Earth possess the total potential of Natural Law, ready to be unfolded. However, the human physiology, in particular the human nervous system does not complete its development at birth. A large percentage of interneuronal connections, cell differentiation, and neuronal commitment unfold after birth. These, to a great extent, are influenced by experience.

The genetic differences and the exposure to different experiences due to interaction with one's environment in life (learning), lead to predominant individual characteristics. Learning is a form of memory. Physiologically, memory and learning involve the preferential activation or deactivation of certain cellular components, molecules or electromagnetic factors in our brain that lead to short or long term changes in the connectivity or excitability of our neurons. Learning takes place in the physiology at the level of interneuronal connections-the gaps.

For a paradigm breakthrough in the frontier of neuroscience, it is necessary to glimpse at the great discoveries of modern science – the Quantum physics. According to recent observations, there exist in reality two very different types of reality:

- i. The reality of classical physics
- ii. The reality of Quantum physics

In classical physics, we assume that particles and events are concrete, localized, and predictable. Moreover, they can be observed and measured in space and time, and our observation does not change the object that we are observing.

In Quantum physics, the picture is totally fascinating. The particles and events are abstract, non-localized, and are, in fact, described in terms of probabilities. Importantly, the Quantum world is not independent of the observer, but rather, very dependent upon the act of observation.

Thus, there are two separate realities – the manifest classical world and the manifest Quantum world. This fact of modern physics, when applied to modern neuroscience brings the following understanding of two realities in biological systems:

1. The first reality of manifest nervous system, with its electrical and biochemical activities that are localized and measurable.

2. The second reality is consciousness, which is abstract and non-localized in its nature. It is also beyond the power of measurement.

The recent unification between consciousness and unified field theory is of utmost relevance, for it is clear that the human nervous system stands as the interface between consciousness and the physical realities of nature. It is the nervous system, which by its different modes of operation, is able to support and express different states or rather degrees of consciousness. We are aware of different states of normal consciousness that we experience every day. They include: wakefulness, sleep, dream state.

Higher states of consciousness

The present psychological understanding of different states of consciousness is focused on the study of waking, dreaming, and sleep states. Towards the waking spectrum, extensive research has been carried out on acute states of activation such as stress and exercise. But at the other end of the spectrum, concerning physiological states of decreased activation in which mental and physical activity is minimal, yet, unlike sleep or drowsiness the quality of awareness or consciousness is preserved or attuned to greater levels.

Most of us are aware of health, wealth and happiness. But many of us will find it hard to explain enlightenment in scientific terms. Scientists have explained it in physiological terms as the state of maximum coherence and integration, where better correlation and coordination between all aspects of self (physiological functioning)-from the level of DNA to the human nervous system and ultimately the cosmos too. The ability to attain the state of enlightenment is innate and structured in the physiology of the human nervous system. Socrates, the epitome of spirituality in the recent western world has the famous dictum "know thyself".

The unique potential of human nervous system

As we observe the scale of biological evolution, we find more evolved species at the top, which displays greater levels of awareness and intelligence. The highest level of a self referral system is seen in the human nervous system. Though there are billions of neurons interconnected, the brain functions as an integrated whole.

Enhancing Brain functioning for studying Physiology

Study Environment Guidelines

1. Face east while studying. Brain functioning has been found to be influenced by the direction one is facing.
2. The façade of your home or the room in which you are studying should face east.
3. There has to be lots of Sunlight especially of the morning sun entering your room.
4. Avoid artificial light and especially CFL or tube lights as it causes fatigue by over stimulation of visual pathway.
5. Attune with natural cycles as regarding sleep and waking.

Sleep Guidelines

1. Getting to bed before 10 pm is ideal
2. Avoid keeping your head in the north.
3. Avoid heavy foods at night
4. Avoid stimulant drinks at night just before sleep and also avoid stimulating your brain directly with Television programs just before going to bed.

Food Guidelines

Eat wholesome, home made, freshly prepared foods.

Vegetarian food is ideal for health and good health is a must for brain function.

Exercise Guidelines

Exercise regularly for zeal in studies.

Daily walking in natural surroundings is the best common minimum exercise.

Pranayam or breath regulation

Yogasanas

Meditation

Special Precautions

Avoid Electro Magnetic Fields and radiation

Usage of mobile phones has been known to affect memory and result in various other health disorders.

Homes should not be situated near mobile phone towers or masts or other high tension power transmitters.

Life Style Guidelines: Avoid information overload by exercising discrimination in sensory inputs. It is prudent to minimize information overload by avoiding news papers and magazines with entertainment value alone.

Physiological Laws

1. Body is mind
2. Physiology is an expression of Consciousness
3. Knowledge is structured in Consciousness
4. Evolutionarily recently formed structures are liable for damage more easily than primitive structures.
5. Evolutionarily recently formed structures that are sophisticated and important are located cephalad.
6. Cephalad centers usually inhibit the lower centers.
7. Laws of nature-refers to all the laws of physics, biology, chemistry etc including the laws that structure life and the individual and social levels and which maintains order in the infinite diversity of the universe.
8. The term 'natural law' refers to the integrated, balanced and holistic functioning of all the laws of nature.
9. Self referral level of intelligence is the level of the unified field.
10. The centres which favour homeostasis and less bodily activity are placed medially and anteriorly.
11. A centre that inhibits another centre is of a more evolved nature.
12. Any stimulus when presented at high frequency is perceived as stress by the mind (hypothalamus). This does not apply at cortical levels
13. The evolutionary force upholds the principle of self dependence.

14. The hormones concerned with situations that has become obsolete due to evolution of higher centers that prevent such situations is produced in lesser quantities.

The Age of Brain, Enlightenment and Effortlessness

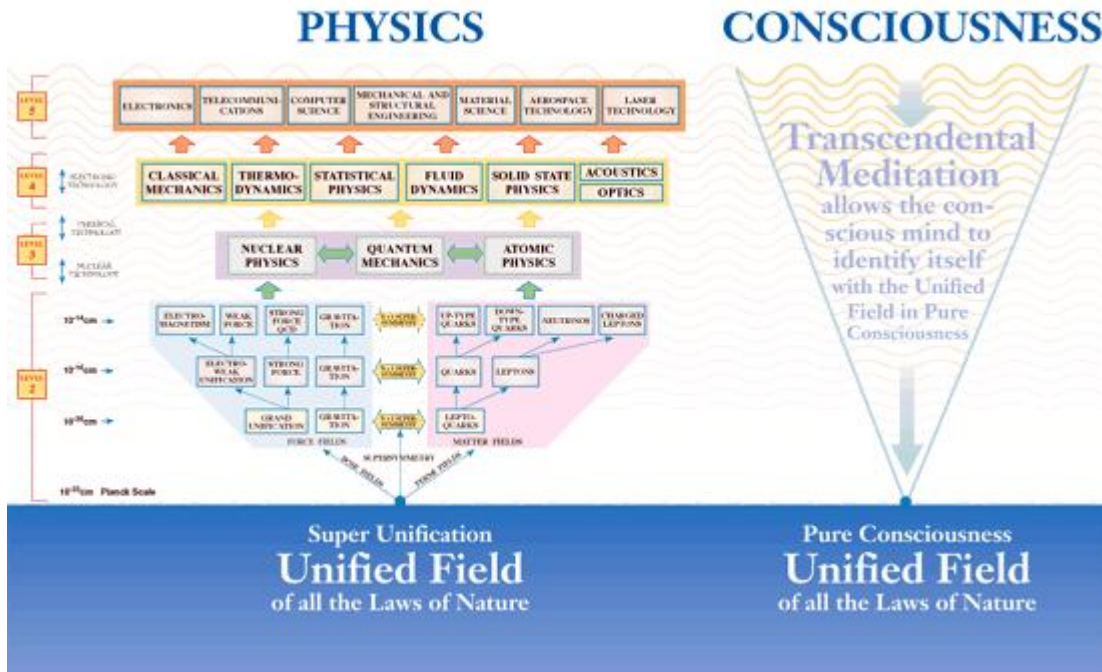
The history of mankind in the last few hundred years has been marked by quantum shifts in human understanding which we call as the scientific revolutions - upheavals that have undoubtedly affected the way in which we view ourselves and our place in the cosmos. Besides the Copernican revolution and the Darwinian revolution now we are in the greatest revolution of all - understanding the human brain and its relation to consciousness. This is already the turning point in the history of the life on planet earth. This one is not about the external world but about us, about the very organ system that conceived those earlier revolutions. The scientific developments of the present age have helped us bridge the two apparently distinct domains - science on the one hand and arts, philosophy, humanities and religions on the other.



Scientific Research on the Transcendental Meditation and TM-Sidhi Program: Collected Papers Volumes 1-6; over 4,000 pages of scientific papers.

SCIENTIFIC FOUNDATION OF CONSCIOUSNESS BASED HOLISTIC MEDICINE

The Unified Field of Consciousness



Theoretical and empirical investigation reveals that the unified field is fundamentally a field of consciousness. The fundamental qualities of the unified field—intelligence, dynamism, and self-awareness (i.e., “self-referral,” the non-Abelian property of self-interaction)—are the defining characteristics of consciousness.

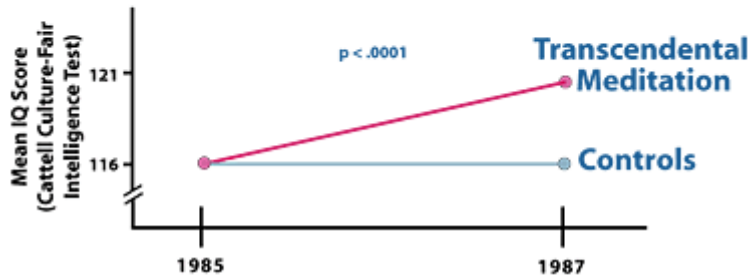
Extensive published research further demonstrates that human consciousness can directly access and experience the unified field in the most expanded state of human awareness, known as “pure consciousness.” This experience of the unified field—pure consciousness—constitutes a fourth major state of human consciousness, physiologically and subjectively distinct from waking, dreaming, and deep sleep. This experience is marked by the onset of global EEG coherence and increased alpha power, indicating maximum orderliness of brain functioning and utilization of the total brain.

This fourth state of consciousness is universally accessible through specific, highly developed technologies of consciousness from the ancient tradition of India. These technologies—the Transcendental Meditation program and advanced TM-Sidhi program are the most widely practiced and extensively researched technologies in the world for the full development of human potential. It is wished that the students of Medicine use this technology so that they rejuvenate and retain all the advanced faculties endowed on them by nature for success in all aspects of life especially for being a hope for the sick and the suffering.

Development of Intelligence

Increased IQ in University Students

THROUGH THE TRANSCENDENTAL MEDITATION PROGRAM

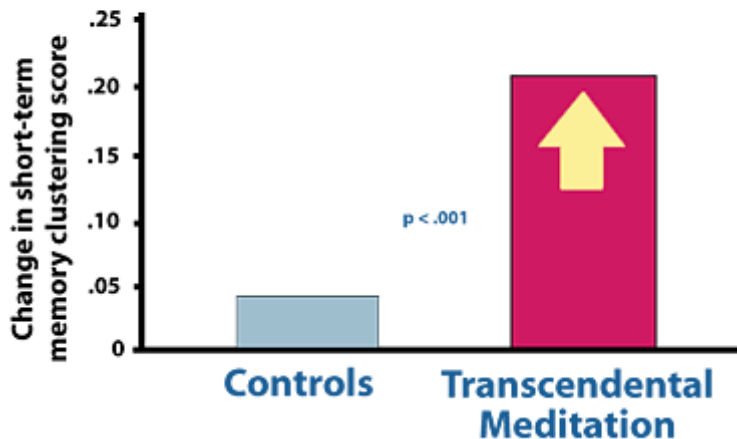


University students who were practicing the Transcendental Meditation and TM-Sidhi programs increased significantly on intelligence in contrast to control students.

Reference: *Personality and Individual Differences* 12: 1105–1116, 1991.

Improved Memory

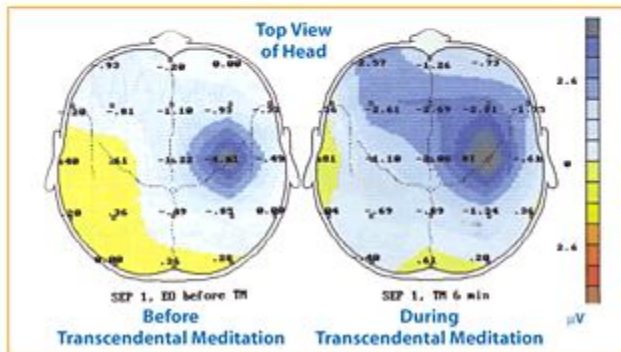
THROUGH THE TRANSCENDENTAL MEDITATION PROGRAM



University students who learned the Transcendental Meditation program showed after 40 days improved clustering in short-term memory, indicating increased organization of the thinking process, in comparison to randomly assigned controls who sat with closed eyes twice daily. **Reference:** *Scientific Research on the Transcendental Meditation Program: Collected Papers, Volume 1*: 385–392, 1977

Increased Use of Hidden Brain Reserves

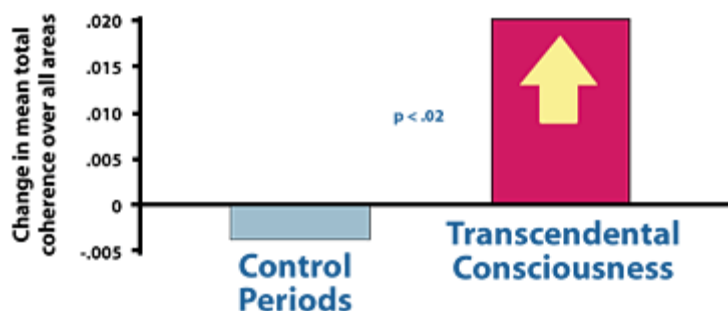
THROUGH THE TRANSCENDENTAL MEDITATION PROGRAM



During the Transcendental Meditation program, early (sensory) components of the brain's response to somatosensory stimuli are more widely distributed across the cortex, indicating greater participation of the whole brain in the response to a stimulus. **Reference:** *Human Physiology* 25: 171–180, 1999

Increased EEG Coherence During Transcendental Consciousness

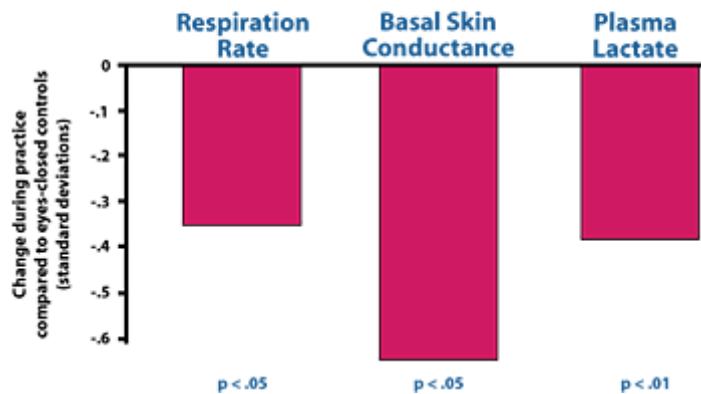
THROUGH THE TRANSCENDENTAL MEDITATION PROGRAM



During the Transcendental Meditation technique individuals often report the subjective experience of Transcendental Consciousness or pure consciousness, the state of least excitation of consciousness. This study found that many experiences of pure consciousness were associated with periods of natural respiratory suspension, and that during these respiratory suspension periods individuals displayed higher mean EEG coherence over all frequencies and brain areas, in contrast to control periods where subjects voluntarily held their breath. **Reference:** *Psychosomatic Medicine* 46: 267–276, 1984.

Physiological Indicators of Deep Rest

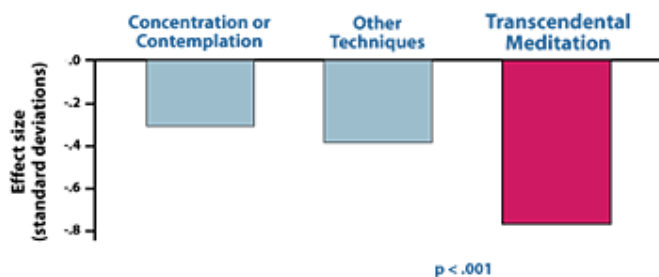
THROUGH THE TRANSCENDENTAL MEDITATION PROGRAM



Meta-analysis is a procedure for drawing definitive conclusions from large bodies of research studies. A meta-analysis of all available physiological research on the Transcendental Meditation program found that the practice of this technique produces a state of deep rest compared to control conditions, as measured by reduced respiration rate, reduced basal skin conductance (increased skin resistance), and reduced plasma lactate. **Reference:** *American Psychologist* 42: 879–881, 1987.

Decreased Anxiety

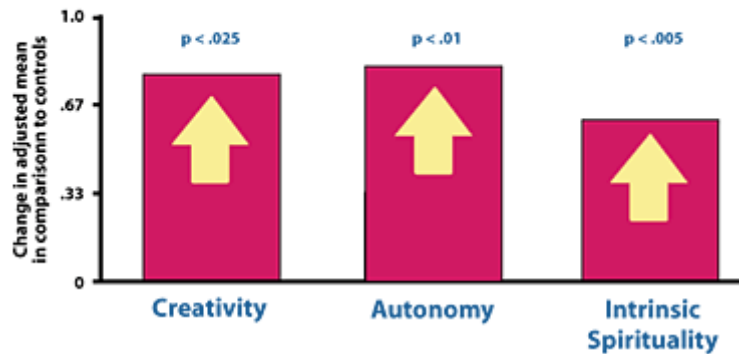
THROUGH THE TRANSCENDENTAL MEDITATION PROGRAM



A statistical meta-analysis of 146 independent study results found that the Transcendental Meditation program is significantly more effective in reducing trait anxiety than concentration or contemplation, or other techniques. **Reference:** *Journal of Clinical Psychology* 45: 957–974, 1989.

Increased Personal Development

THROUGH THE TM-SIDHI PROGRAM, INCLUDING YOGIC FLYING



University students who learned the TM-Sidhi program, in comparison to control students from another university, increased significantly on three measures of personal development and psychological health—increased creativity, increased autonomy, and increased intrinsic spirituality. The TM-Sidhi program participants also improved significantly on an overall measure of well-being and a measure of psychological integration in comparison to the control students. **Reference:** *Modern Science and Vedic Science* 1: 471–487, 1987.