

## COURSE CURRICULUM

### The Principles and Practice of Yoga in Health Care: The Science, Research and Application – 7 hr CME

Life in Yoga Institute is accredited by the ACCME to provide Continuing Medical Education

**June 17, San Antonio, TX**

#### **A. COURSE SUMMARY**

**1. COURSE DESCRIPTION:** The course is intended for physicians and other medical professionals. The intent is to

- describe the fundamental concepts, principles, and philosophy behind the practice of and implementation of mind-body medicine and yoga therapy specifically
- bring awareness of the potential of yoga therapy as a complementary evidence-based medical practice in primary prevention and therapeutic care for chronic diseases;
- describe the research evidence of the psychophysiological impact of yoga;
- describe the research evidence of applications for preventive and therapeutic medicine
- have course participants experience a sample of simple, representative, relevant practices

Yoga for therapeutic purposes in clinical populations has been more recent in the Western World, although its roots are from India. Awareness of this has created an environment where the National Institutes of Health through the National Center for Complementary and Integrative Health has been funding a number of studies related to yoga regimens. The major underlying mechanisms involved in yoga's therapeutic benefit are that yoga provides stress reduction through induction of the psychophysiological relaxation response, enhancement of mindfulness and mind/body awareness, and in general restores physical and mental homeostasis, essentially allowing healing to occur naturally. Continuing research is establishing a higher level of understanding on yoga effects on the central nervous system, the neuroendocrine system, genomic expression and the immune system, and possibly a higher order understanding of the human system.

While yoga is very effective when practiced as preventive medicine for health maintenance, it is also effective as a complementary therapy for managing a wide range of existing diseases/disorders such as back pain, mental disorders, cardiovascular disorders, metabolic disorders, respiratory disorders, etc.

The course includes:

- Presentation, Discussions, Q/A;
- Introduction to, and experience of, simple yoga practices.

This information is designed for healthcare providers to:

- Become aware of the research evidence base supporting yoga therapy’s benefits for physical and mental health;
- Consider lifestyle assessments in patient evaluation based on understanding of yoga;
- Prepare to advance further education in yoga therapy for more active implementation of yoga therapy in practice.

**2. COURSE CONTENT :**

LECTURE & DISCUSSIONS	PRACTICES
<ul style="list-style-type: none"> <li>➤ Principles of Mind Body Medicine</li> <li>➤ Introduction to Yoga and Yoga Therapy: History, Principles, Practice, Prevalence</li> <li>➤ The Science and Psychophysiological Mechanisms of Yoga</li> <li>➤ Review of Clinical Yoga Therapy Research</li> <li>➤ Yoga as Preventive and Lifestyle Medicine</li> </ul>	<ul style="list-style-type: none"> <li>➤ Experiential exposure to simple Asana, Pranayama, Relaxation and Meditation</li> </ul>

**3. FACULTY**

Sat Bir Khalsa PhD, Assistant Professor of Medicine, Harvard Medical School  
 Venkat Srinivasan, M.D.

**4. COURSE ATTENDANCE LOGISTICS**

COURSE DIRECTOR: Dr. Hetal Nayak, Phone: 830-534-9683, Email: devraj\_nayak@yahoo.com

LOCATION: Tri Point Event Center, 3233 North St. Mary’s Street, San Antonio, TX 78212.

Meals: Vegetarian Lunch will be provided.

Parking is free.

**B. DISCLOSURE**

All the faculty/speakers, and the planning committee members have declared:

- That they have no financial relationships with any commercial interests in the past 12 months;
- They will not accept financial remuneration directly from any commercial supporter for this program;
- They will uphold academic standards to insure balance, independence, objectivity and scientific rigor in their roles in this program.

### **C. COURSE DETAILS**

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## 1. COURSE AGENDA AND SCHEDULE

Timing	Activity	Presenter
8:00 to 8:20 am	Registration	
8:20 to 8:30 am	Intro to Course and requirements for CME	<u>Hetal Nayak</u>
8:30 to 9:30 am 1.00 hr	Lecture: <b>Mind Body Medicine: Introduction, Concepts, Principles, Philosophy, and Relevance in Modern Healthcare</b>	<u>Venkat Srinivasan</u>
9:40 to 10:40 am 1.00 hr	Lecture: <b>Yoga and Yoga Therapy: Introduction, History, Principles, Philosophy, Prevalence, and Clinical Application</b>	<u>Sat Bir Khalsa</u>
10:45 am to 12:00 pm 1.25 hr	Lecture: <b>The Science and Psychophysiological Mechanisms Underlying Yoga Practice and the Rationale as a Therapeutic Intervention</b>	<u>Sat Bir Khalsa</u>
12:00 to 1:15 pm	Lunch	
1:15 to 2:30 pm 1.25 hr	Lecture: <b>Review of the Clinical Research Trial Evidence Base for Yoga Therapy for Medical Conditions</b>	<u>Sat Bir Khalsa</u>
2:45 to 4:00 pm 1.25 hr	Lecture: <b>Review of the Research Evidence Base for Yoga as Preventive and Lifestyle Medicine</b>	<u>Sat Bir Khalsa</u>
4:15 to 5:30 pm 1.25 hr	Yoga Practice: <b>A Simple Experiential Yoga Session Covering the Basics of Asana, Pranayama, Relaxation and Meditation</b>	<u>Sat Bir Khalsa</u>
5:30 to 6:00 pm	Completing CME formalities	

## 2. FACULTY PROFILES

**Sat Bir Singh Khalsa, Ph.D.**, Assistant Professor of Medicine at Harvard Medical School

Dr. Khalsa received his doctorate in human physiology and neuroscience at the University of Toronto and has conducted research in neuroscience, biological rhythms, sleep and sleep disorders since 1978. Since 2001 he has been fully engaged in basic and clinical research on the effectiveness of yoga and meditation practices in improving physical and psychological health. He has also been personally involved in the practice of a yoga lifestyle since 1973 and is a certified instructor in Kundalini Yoga as taught by Yogi Bhajan. He is currently the Director of Research for the Kundalini Research Institute, Research Director of the Kripalu Center for Yoga and Health and an Assistant Professor of Medicine at Harvard Medical School in the Department of Medicine at Brigham and Women's Hospital in Boston.

He has conducted clinical research trials evaluating a yoga treatment for insomnia funded by the National Center for Complementary and Integrative Health of the National Institutes of Health. This research was targeted at examining not only the efficacy of yoga for the treatment of chronic insomnia, but also the neuroendocrine and neuropsychological mechanisms underlying the effectiveness of yoga practices in this population. He has also been involved in yoga research for addiction, back pain, performance anxiety, chronic stress, and generalized anxiety disorder. He has also evaluated the efficacy of yoga in treating post-traumatic stress disorder in military veterans (in association with researchers at the Trauma Center of Boston University). He has completed research projects for evaluation of a yoga program within the academic curriculum of public schools to determine the benefits to students in mental health characteristics such as perceived stress, resilience, emotion regulation and anxiety.

Dr. Khalsa has established relationships with fellow yoga researchers both in the U.S. as well as in Europe and in India. In India he routinely attends and presents at international yoga research conferences and in the U.S. he is actively working with the International Association of Yoga Therapists (IAYT) to promote research on yoga therapy, conducting the annual Symposium on Yoga research and serving as editor of the International Journal of Yoga Therapy. He regularly presents internationally on yoga therapy research at both conferences and CME courses.

While he is well published in yoga, the book “Principles and Practice of Yoga in Healthcare” is worth special mention. While he served as the chief editor and author, it is perhaps the first comprehensive book in yoga therapy and is a text for this course.

### **Venkat Srinivasan, MD**

Dr. Srinivasan is a board-certified internist with nearly two decades of clinical experience, currently practicing in San Antonio, Texas. He is a graduate fellow of the Arizona Center for Integrative Medicine, Tucson, Arizona and Visiting Professor of Mind-Body Medicine in the Department of Physiology at Sri Ramachandra University, Chennai, India. Dr. Srinivasan believes in integrating the principles of mind-body medicine in clinical practice and speaks on this topic at various physician forums. He also conducts

workshops for the public on stress management. He is the author of the book Principles of Mind-Body Medicine.

### 3. SUMMARY OF EACH SESSION

(References may be included with each session or in the separate fourth section or having general references in the fourth section and specific references noted along with summary of each session.)

#### Lecture: Mind Body Medicine: Introduction, Concepts, Principles, Philosophy, and Relevance in Modern Healthcare

- The acute care model in modern conventional medicine
- The biopsychosocial model, integrative medicine and salutogenesis
- Stress: introduction, definition, pathophysiology, contribution to disease and etiology
- Chronic stress and burnout in the public and in healthcare providers
- The relaxation response
- Psychoneuroimmunology, the gut-brain axis, the placebo response
- Exercise and mood disorders, sleep, resilience
- Attitudes, social relationships and spirituality as contributors to health and wellness

#### Lecture: Yoga and Yoga Therapy: Introduction, History, Principles, Philosophy, Prevalence, and Clinical Application

##### Yoga

- definition of traditional yoga as a multicomponent practice, exercise/posture, pranayama, relaxation, meditation, lifestyle, etc.
- purpose of yoga practices, benefits on psychophysiology and behavior, expected changes experienced by beginners
- approach to traditional yoga practice, noncompetitiveness, appropriate effort and dedication, modifying exercises to avoid excessive effort and injury, personal responsibility, importance of regularity of practice
- Indus Valley Civilization, Vedas, Upanishads, Patanjali's Yoga Sutras
- Krishnamacharya, Swami Sivananda, Swami Kuvalyananda, Sri Aurobindo
- arrival of yoga in the 1960's-70's in the west by specific teachers
- hatha yoga styles – generic hatha yoga, Iyengar, Kripalu, Sivananda, Vinyasa, Ashtanga, Viniyoga, Bikram, Power, Hot, Restorative, etc.
- relative popularity, differences between styles
- diversification of yoga offerings (e.g. prenatal, kids yoga, chair yoga, yogalates, yogaerobics, etc.)
- statistics on yoga practice, Yoga Alliance/Yoga Journal survey
- evidence of yoga in the culture, popularity and image of yoga by the public
- International Day of Yoga, U.N. resolution, celebration internationally
- future of yoga in society, in education and healthcare

##### Yoga Therapy

- history of yoga therapy, first appearance in India in the 1920's, contrast with goals of yoga
- appearance and growth in India, work of Kuvalyananda, book "Yogic Therapy"
- appearance and history of yoga therapy in the west, current popularity
- International Association of Yoga Therapists, mission, conferences, accreditation of individuals and schools, International Journal of Yoga Therapy, Yoga Therapy Today
- basic theoretical principles in yoga therapy, role of balance in the mind/body, mind/body connection, "detoxification" and cleansing, stress and mind/body awareness, subtle energy mechanisms (prana, kundalini, chakras, subtle bodies, etc.)
- therapeutic approach in yoga therapy, individual application, mind-body connection, integrative approach, tailored yoga practices for the individual patient, targeted yoga practices specific to the disorder and the patient
- growing movement of additional incorporation of Ayurveda principles and practices in yoga therapy
- yoga therapy within the fields of mind/body and integrative medicine
- virtue of yoga therapy within modern medicine, preventive aspects, growing epidemic of noncommunicable, preventable lifestyle disease

#### Yoga Practice: A Simple Experiential Yoga Session Covering the Basics of Asana, Pranayama, Relaxation and Meditation

- a group practice session of a simple beginner's class in Kundalini Yoga
- includes basic yoga instruction principles
- includes postures, physical exercises, breathing techniques, deep relaxation and meditation practices
- includes practice of specific breathing meditations for specific conditions

#### Lecture: The Science and Psychophysiological Mechanisms Underlying Yoga Practice and the Rationale as a Therapeutic Intervention

##### History of Psychophysiological Research on Yoga

##### Psychophysiology of Yogic Physical Exercises

- review of key physical characteristics of asanas – stretching, flexibility, isometric, movement, balance, inversion, deep relaxation exercises
- research evidence for the efficacy of conventional physical and aerobic exercise in cardiorespiratory fitness and psychology
- research evidence for efficacy of yoga on physical characteristics
- hypotheses of mechanism of action of asanas
- theory of stretching influence on the fascia and connective tissue syncytium
- polyvagal hypothesis of afferent vagal information affecting psychology
- hypothesis that body posture generates psychological changes, e.g. power poses, forced laughter

##### Psychophysiology of Yogic Breathing Practices

- research evidence on the effects on the efficiency of slow yogic breathing on gas exchange, O<sub>2</sub> and CO<sub>2</sub>
- misconceptions of increased oxygen with yogic breathing

- research evidence on applied use under high altitude conditions
- research evidence on the effect of slow yogic breathing on the respiratory chemoreflex response
- research evidence on the effect of slow yogic breathing on the baroreceptor reflex, autonomic function, and heart rate variability
- research evidence on the efficacy of slow yogic breathing in modifying psychological state (stress, mood, emotion) and cognitive performance

#### Psychophysiology of Meditation

- neurophysiology of focus of attention and engagement of the attention networks vs. default mode network and mind wandering
- inhibitory connections between prefrontal cortex and limbic system
- review of EEG research on meditation, brain wave activation patterns, interhemispheric connectivity, coherence
- review of neuroimaging research on meditation, short and long term effects on brain activity, brain regions
- neuroimaging results on structural changes in the CNS
- review of evidence of behavioral changes in mood, stress, emotion regulation, pain regulation, mindfulness, cognitive performance, sleep, health behaviors
- research evidence for transformative effects and transcendental and flow experiences

#### Summary Logic Model of Psychophysiology of Yoga

- contribution of physical practices, self-regulation, mind-body awareness and transformative experiences

#### Lecture: Review of the Clinical Research Trial Evidence Base for Yoga Therapy for Medical Conditions

- Role of yoga therapy within integrative and mind body medicine relative to modern medicine
- Overview of the research evidence base, history, bibliometric analyses
- Breadth of yoga therapy research internationally, institutions, journals, conferences, funding agencies
- Review of research evidence base for yoga therapy for mental health conditions
- Review of research evidence base for yoga therapy for musculoskeletal conditions
- Review of research evidence base for yoga therapy for cardiorespiratory and metabolic diseases
- Review of research evidence base for yoga therapy for cancer
- Review of research evidence base for yoga therapy for special populations, elderly, children, women's health

#### Lecture: Review of the Research Evidence Base for Yoga as Preventive and Lifestyle Medicine

- Relevance of the logic model of the psychophysiology of yoga to risk factors for preventable noncommunicable lifestyle diseases
- Overview of research evidence of enhanced health in long term yoga practitioners
- Prospective research studies supporting influence of yoga practice on positive lifestyle behavior

- Review of research evidence of yoga in occupational workplace settings on psychological factors and health
- Scientific rationale for implementation of yoga practices in the educational school setting
- Overview of research evidence of studies on yoga in public school settings

## 4. REFERENCES

### A. GENERAL TEXTS & REFERENCES

TEXT 1: "Principles and Practice of Yoga in Healthcare" by Sat Bir Khalsa, Lorenzo Cohen, Timothy McCall and Shirley Telles, Handspring Publication 2016

TEXT 2: "Yoga Therapy and Integrative Medicine: Where Ancient Science Meets Modern Medicine" – March 16, 2015 by Larry Payne Ph.D. (Author), Terra Gold M.A.LAc. (Author), Eden Goldman D.C.

Additional Reference Books:

1. "Yoga as Medicine" by Timothy McCall, M.D.
2. "Meditation as Medicine" by Dharma Singh Khalsa, M.D.
3. "Principles of Mind-Body Medicine" by Venkat Srinivasan, M.D.

Journal References:

The Neural Mechanisms of Meditative Practices: Novel Approaches for Healthy Aging.

Acevedo BP, Pospos S, Lavretsky H.

Curr Behav Neurosci Rep. 2016;3(4):328-339.

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Meditation and Yoga can Modulate Brain Mechanisms that affect Behavior and Anxiety - A Modern Scientific Perspective.

Krishnakumar D, Hamblin MR, Lakshmanan S.

Anc Sci. 2015 Apr;2(1):13-19.

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Wainapel SF, Rand S, Fishman LM, Halstead-Kenny J.

Int J Gen Med. 2015 Dec 7;8:361-72.

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Jeter PE, Slutsky J, Singh N, Khalsa SB.

J Altern Complement Med. 2015 Oct;21(10):586-92.

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Meditative Movement Therapies and Health-Related Quality-of-Life in Adults: A Systematic Review of Meta-Analyses.

Kelley GA, Kelley KS.

PLoS One. 2015 Jun 8;10(6):e0129181.

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Effects of yoga on mental and physical health: a short summary of reviews.

Büssing A, Michalsen A, Khalsa SB, Telles S, Sherman KJ.

Evid Based Complement Alternat Med. 2012;2012:165410.

<http://downloads.hindawi.com/journals/ecam/2012/165410.pdf>

Health Impacts of Yoga and Pranayama: A State-of-the-Art Review.

Sengupta P.

Int J Prev Med. 2012 Jul;3(7):444-58.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3415184/?report=printable>