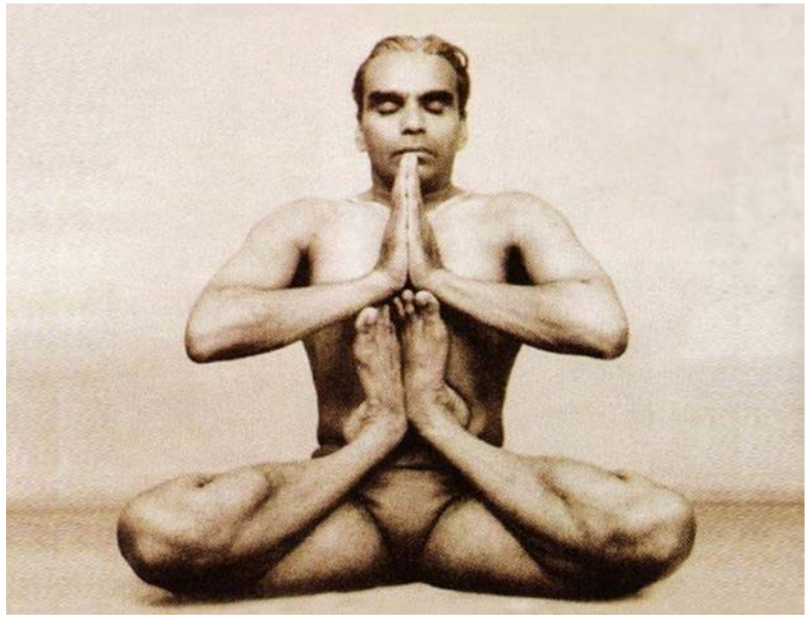
MIND-BODY MEDICINE:
The Heart of Ancient Healing, the Frontier of Modern Healthcare

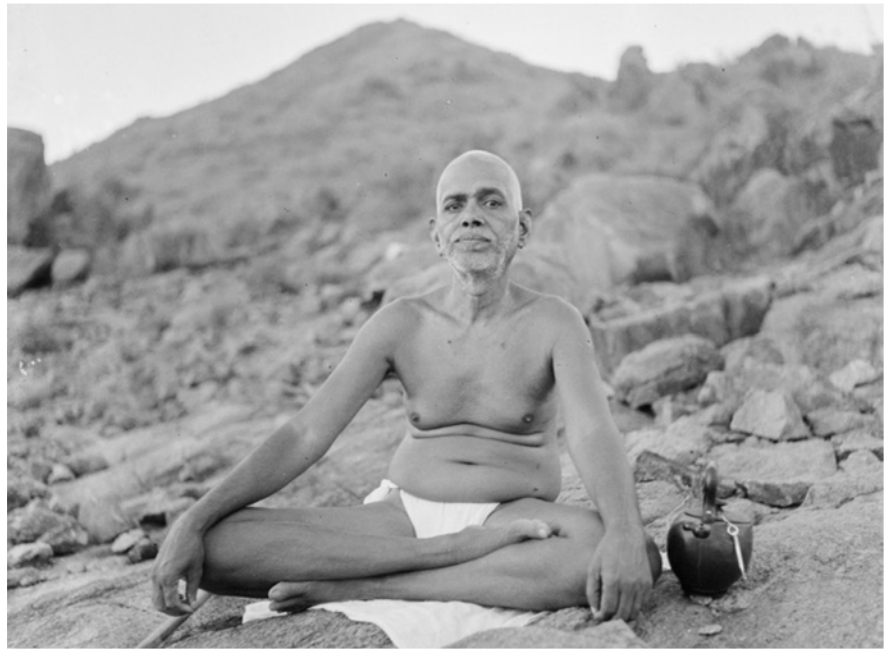
The Center for
Mind-Body
Medicine

“All true wisdom is only to be learned far from the dwellings of men, out in the great solitudes; and is only to be obtained through suffering. Privation and suffering are the only things that can open the mind of man to those things which are hidden from others” – Shaman Igugarjuk



Bellur Krishnamachar Sundararaja Iyengar

Sri Ramana Maharshi



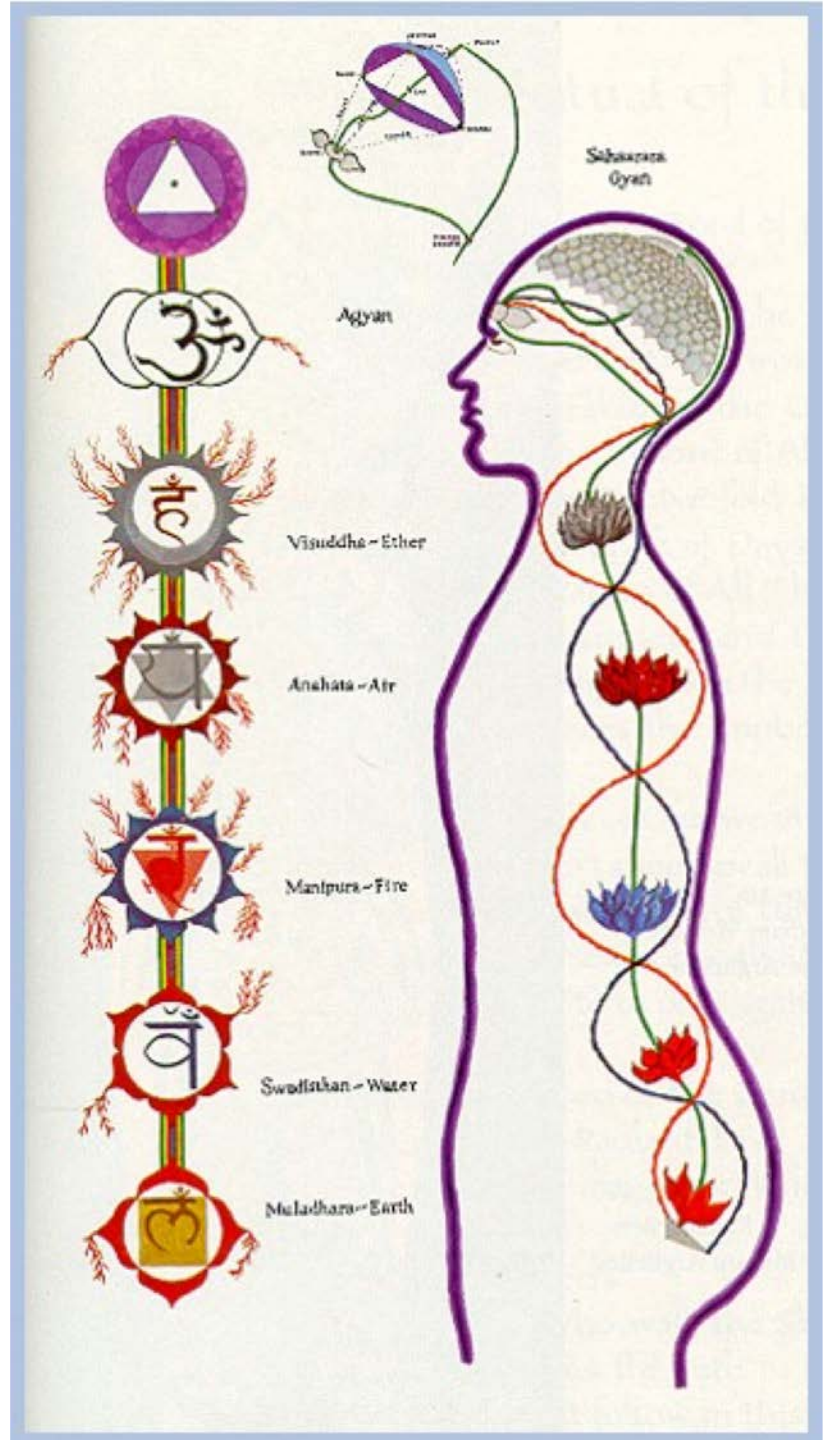
Sri-Ramakrishna

Maharishi Mahesh

Classical Healing Systems

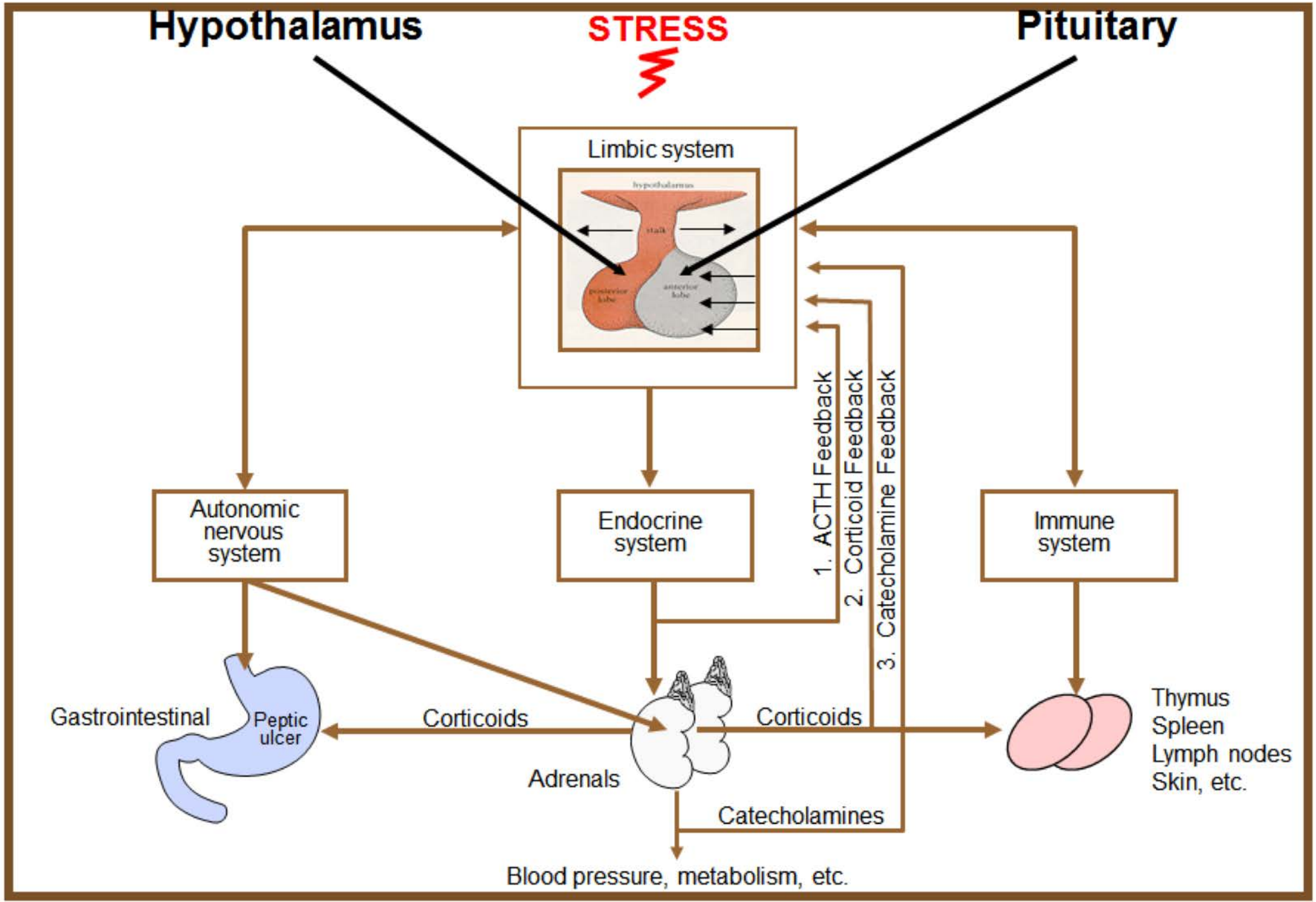
The Center for Mind-Body Medicine

This bronze figure showing acupuncture points is a reproduction of one cast in 1443 A.D., during the Ming Dynasty.

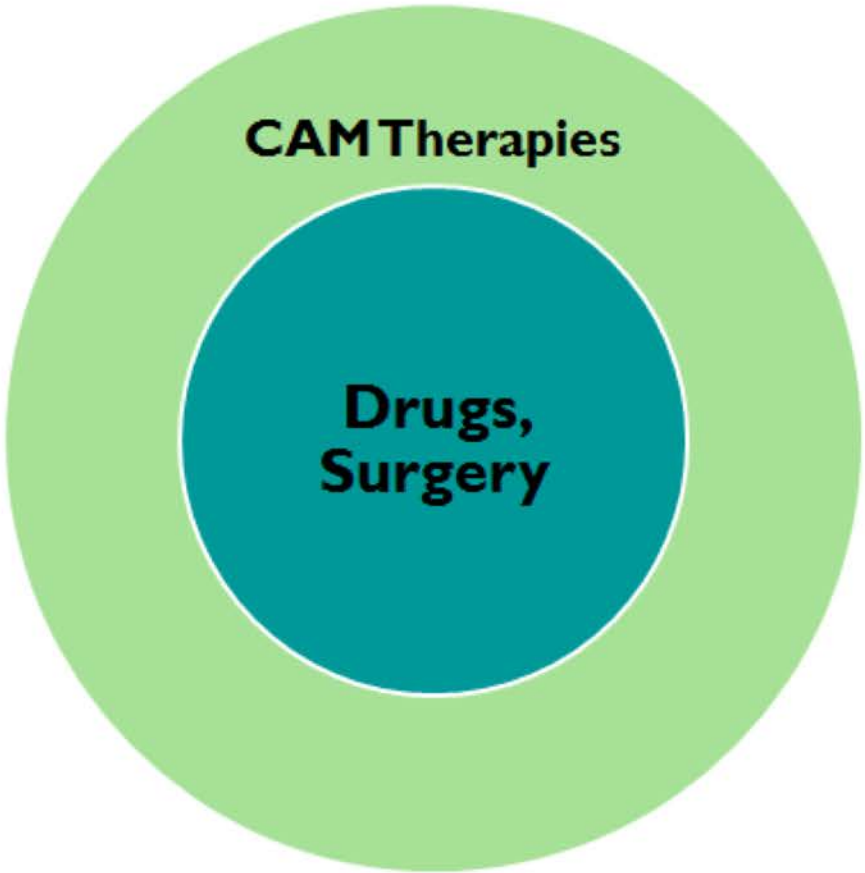

Sahasrara
Gyan
Agyan
Visuddha - Ether
Anahata - Air
Manipura - Fire
Swadishan - Water
Muladhara - Earth

East Comes West: The Greens

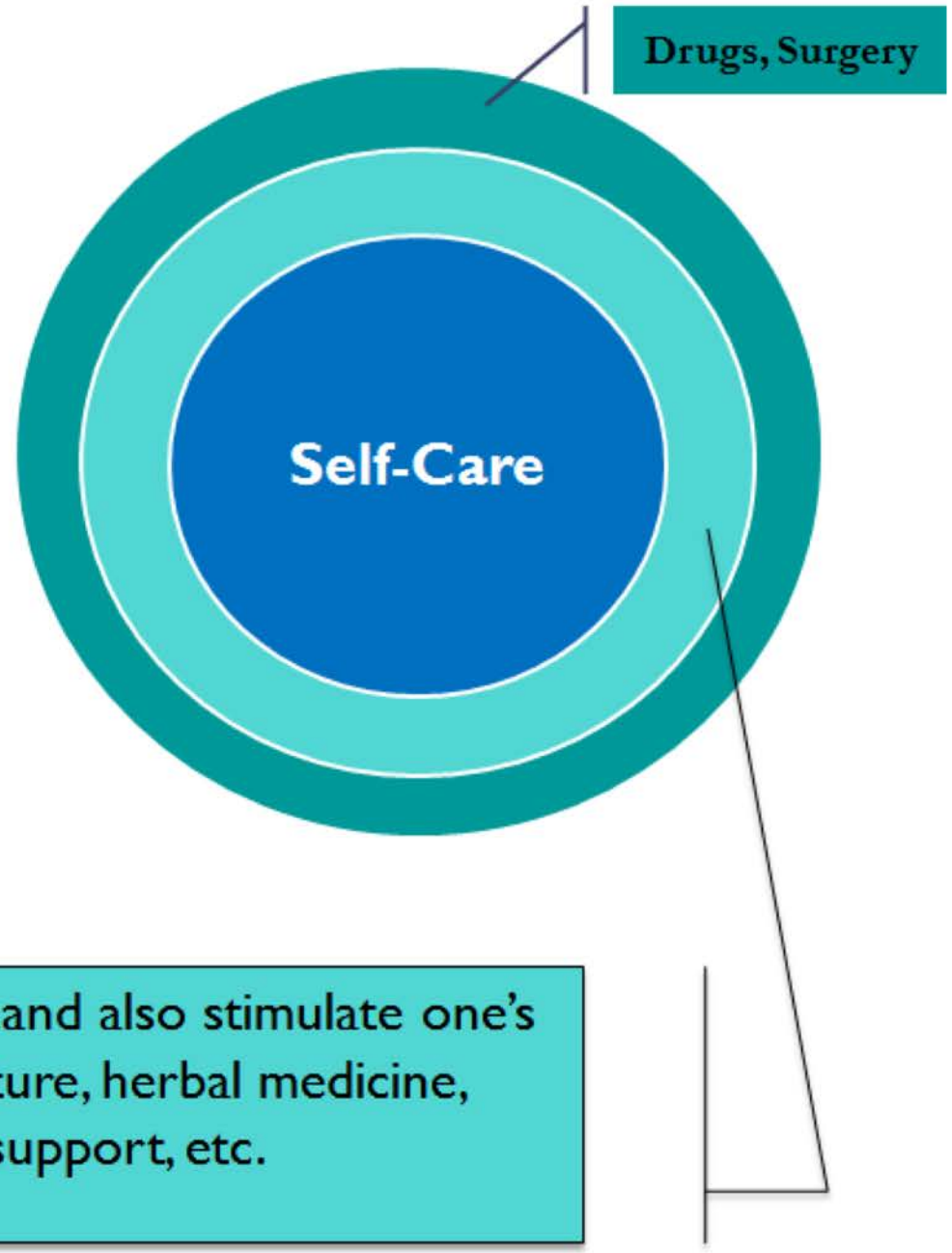
The Green’s with Swami Rama; 1970s


Hypothalamus
STRESS
Pituitary
Limbic system
hypothalamus
stalk
posterior lobe
anterior lobe
Autonomic nervous system
Endocrine system
Immune system
1. ACTH Feedback
2. Corticoid Feedback
3. Catecholamine Feedback
Gastrointestinal
Peptic ulcer
Corticoids
Corticoids
Adrenals
Thymus
Spleen
Lymph nodes
Skin, etc.
Catecholamines
Blood pressure, metabolism, etc.

Current Biomedical Model



New Medicine



Therapies that require a professional and also stimulate one's capacity for self-hearing, e.g. acupuncture, herbal medicine, musculoskeletal manipulation, group support, etc.

Meditation:
Relaxed Moment to Moment Awareness

The Center for
Mind-Body
Medicine

Three Kinds of Meditation

Concentrative
Awareness
Expressive

Meditation and Psoriasis

- 37 patients with psoriasis undergoing ultraviolet phototherapy (UVB) or photochemotherapy (PUVA) randomly assigned to treatment or control
- **Treatment**: mindfulness meditation-based stress reduction intervention guided by audiotaped instructions during UVB or PUVA
- **Control:** light treatments without taped instructions
- **Measurements:** (1) direct inspection by unblinded clinic nurses; (2) direct inspection by blinded physicians, (3) blinded physician evaluation of photographs of psoriasis lesions
- Four sequential indicators of skin status monitored: First Response Point, Turning Point, Halfway Point, and Clearing Point
- **Results**: subjects in treatment group reached Halfway Point (p=0.13) and the Clearing Point (p=.033) significantly more rapidly than those in control, for both UVB and PUVA light treatments

Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, A., Scharf, M.J., Cropley, T.G., Hosmer, D., & Bernhard, J.D. (1988). Influence of a mindfulness meditation-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and Photochemotherapy (PUVA). *Psychosomatic Medicine. 60*. 625-632.

Alterations in Brain and Immune Function Produced by Mindfulness Meditation

Richard J. Davidson, PhD, Jon Kabat-Zinn, PhD, Jessica Schumacher, MS, Melissa Rosenkranz, BA, Daniel Muller, MD, PhD, Saki F. Santorelli, EdD, Ferris Urbanowski, MA, Anne Harrington, PhD, Katherine Bonus, MA, and John F. Sheridan, PhD

Objective: The underlying changes in biological processes that are associated with reported changes in mental and physical health in response to meditation have not been systematically explored. We performed a randomized, controlled study on the effects on brain and immune function of a well-known and widely used 8-week clinical training program in mindfulness meditation applied in a work environment with healthy employees. **Methods:** We measured brain electrical activity before and immediately after, and then 4 months after an 8-week training program in mindfulness meditation. Twenty-five subjects were tested in the meditation group. A wait-list control group ($N = 16$) was tested at the same points in time as the meditators. At the end of the 8-week period, subjects in both groups were vaccinated with influenza vaccine. **Results:** We report for the first time significant increases in left-sided anterior activation, a pattern previously associated with positive affect, in the meditators compared with the nonmeditators. We also found significant increases in antibody titers to influenza vaccine among subjects in the meditation compared with those in the wait-list control group. Finally, the magnitude of increase in left-sided activation predicted the magnitude of antibody titer rise to the vaccine. **Conclusions:** These findings demonstrate that a short program in mindfulness meditation produces demonstrable effects on brain and immune function. These findings suggest that meditation may change brain and immune function in positive ways and underscore the need for additional research. **Key words:** meditation, mindfulness, EEG, immune function, brain asymmetry, influenza vaccine

HIV = human immunodeficiency virus; **NK** = natural killer cell; **EEG** = electroencephalography; **EOG** = electrooculography; **PANAS** = Positive and Negative Affective Scale; **MBSR** = mindfulness-based stress reduction; **MANOVA** = multivariate analysis of variance.

INTRODUCTION

With the widespread and growing use of meditative practices in hospitals and academic medical centers for outpatients presenting with a range of chronic stress and pain-related disorders and chronic diseases, under the umbrella of what has come to be called mind/body or integrative medicine, the question of possible biological mechanisms by which meditation may affect somatic, cognitive, and affective processes becomes increasingly important. Research on the meditation itself is practiced. Thus, in the current report, we focus not on the period of meditation itself, but rather on the more enduring changes that can be detected in baseline brain function as well as brain activity in response to specific emotional challenges.

We focus on emotion-related brain activity because meditation has been found in numerous studies to reduce anxiety and increase positive affect (4–8). In an extensive corpus of work on the functional neuroanatomical substrates of emotion and affective style, we have established that the frontal regions of the brain exhibit a specialization for certain forms of positive and negative emotion (9, 10). Left-sided activation in several anterior regions is observed during certain forms of positive emotion and in subjects with more dispositional positive affect (10, 11). We therefore hypothesized that because

Alterations in Brain and Immune Function Produced by Mindfulness Meditation

→Researchers measured increases in left-sided anterior activation, a pattern previously associated with positive affect, in the meditators compared with the non-meditators.

→Also found significant increases in antibody titers to influenza vaccine among subjects in the meditation compared with those in the wait-list control group

Davidson RJ, Kabat-Zinn J, Schumacher J, Rosenkranz M, Muller D, Santorelli SF, Urbanowski F, Harrington A, Bonus K, Sheridan JF. Alterations in brain and immune function produced by mindfulness meditation. *Psychosom Med*. 2003 Jul-Aug;65(4):564-70.

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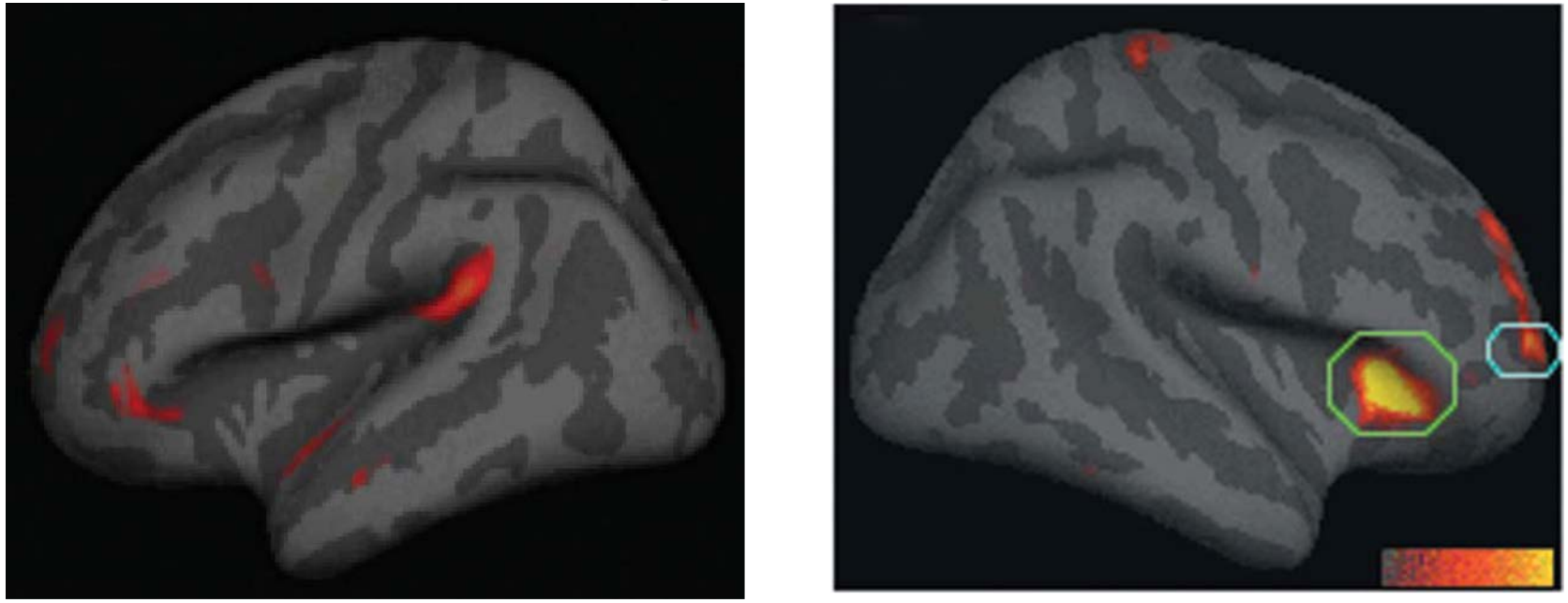
Meditation Changes Our Brain Anatomy



Areas of increased thickness in red: insula,
Brodmann area (BA) 9/10, somatosensory cortex,
auditory cortex.

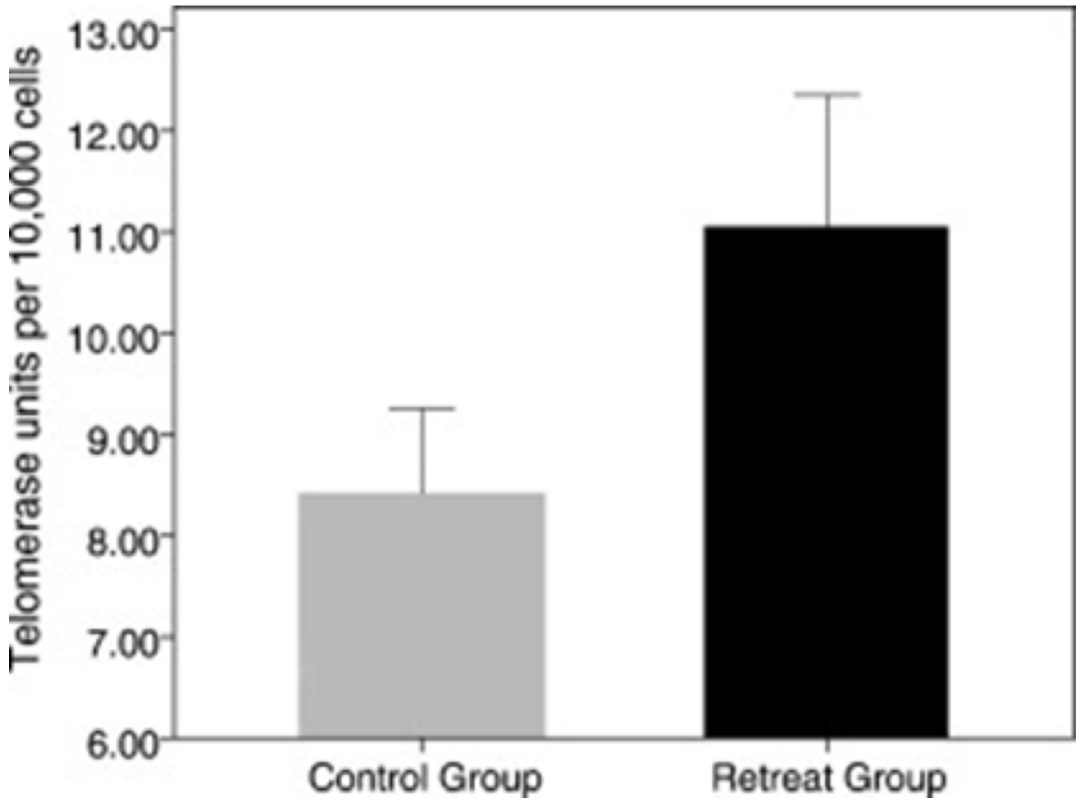
Lazar, S.W., Kerr, C.E., Wasserman, R.H., Gray, J.R., Greve, D.N., Treadway, M.T., McGarvey, M., Quinn, B.T., Dusek, J.A., Benson, H., Rauch, S.L., Moore, C.I., Fischl, B. Meditation experience is associated with increased cortical thickness. *Neuroreport.* 2005 Nov; 16(17): 1893-97

Cortical Thickness

- The brains of typical western meditation practitioners (about 2-6 hours weekly) were compared to those with no experience of meditation
- Brain regions associated with attention, interoception (perception of internal sensation) and sensory processing were thicker in the meditation group
- Among those who meditate cortical thickness increased with years of meditation

Lazar, S.W., Kerr, C.E., Wasserman, R.H., Gray, J.R., Greve, D.N., Treadway, M.T., McGarvey, M., Quinn, B.T., Dusek, J.A., Benson, H., Rauch, S.L., Moore, C.I.,Fischl, B. Meditation experience is associated with increased cortical thickness. *Neuroreport.* 2005 Nov; 16(17): 1893-97

Meditation Effects on Chromosomes



- **Telomeres:** "caps" at the end of our chromosomes

→ *Decreases in length of telomeres associated with many chronic illnesses as well as decreased life span. Greater telomere length may be associated with increased longevity*

- **Telomerase**: an enzyme that builds up the telomeres preserving healthy cell functioning

→ Results of Study

- The retreat group that participated in the intensive meditation training demonstrated a significantly higher rate of telomerase activity
- Perceived control and Neuroticism were variables found to be influencers of psychological stress. Improvement in these areas, due to the meditation intervention, were links to the positive relationship between meditation and telomerase activity

Jacobs, T.L., Epel, E.S. et al. Intensive meditation training, immune cell telomerase activity, and psychological mediators. *Psychoneuroendocrinology*. 2011 Jun; 36(5):664-81. https://doi.org/10.1016/j.psyneuen.2010.09.010

The Epigenetics of Trauma

In a 2014 study, Yehuda observed the effect of Holocaust trauma exposure on the gene expression profiles of adults and offspring

- Twenty-four-hour urinary cortisol excretion was measured in 35 adult offspring of Holocaust survivors and 15 health comparison control subjects
- Low cortisol levels were significantly associated with both PTSD in parents and in offspring.
- Parental PTSD appears to be associated with low cortisol levels in offspring, even in the absence of lifetime PTSD in the offspring
- In Yehuda's 2015 study, Holocaust survivors and their offspring both showed methylation alterations on the FKBP5 gene
- These results demonstrated the transmission of pre-conception stress effects resulting in epigenetic changes in both exposed parents and their offspring

Yehuda, R., Bierer, L. M., Schmeidler, J., Aferiat, D. H., Breslau, I., & Dolan, S. (2014). Low cortisol and risk for PTSD in adult offspring of holocaust survivors. *American Journal of Psychiatry*.

Yehuda, R., Daskalakis, N. P., Bierer, L. M., Bader, H. N., Klengel, T., Holsboer, F., & Binder, E. B. (2015). Holocaust exposure induced intergenerational effects on FKBP5 methylation. *Biological Psychiatry*.

Epigenetics and Mind-Body Medicine

- Researchers tracked men with low risk prostate cancer who had opted-out of conventional treatment and instead chosen an intensive 3-month lifestyle and nutritional program
- Treatment: 60 minutes of stress management included yoga, breathing, meditation, imagery and progressive relaxation; a low fat, plant based diet
- Results:
  - Improvements in weight, abdominal obesity, BP, and lipid profile
  - Patients reported significant reduction in psychological distress
  - **Down-regulation of a set of *RAS* family oncogenes, some of which may be normally increased in tumor tissues**
  - Significant modulation of biological processes that have critical roles in tumorigenesis, including protein metabolism and modification, intracellular protein traffic, and protein phosphorylation

Ornish, D., Magbanua, M. J., Weidner, G., Weinberg, V., Kemp, C., Green, C. et al. (2008). Changes in prostate gene expression in men undergoing an intensive nutrition and lifestyle intervention. *Proc.Natl.Acad.Sci.U.S.A.* 2008 Jun;105(24):8369-74

The Center for Mind-Body Medicine

- Founded in 1991 by James S Gordon M.D., Professor of Psychiatry and Family Medicine at Georgetown Medical School and Chairman of the White House Commission on Complementary and Alternative Medicine Policy under Presidents Clinton and G.W. Bush
- 10,000 health professionals, educators, and community leaders trained in CMBM's pioneering models of mind-body medicine (self-care, self- awareness, group support) and nutrition
- A worldwide leader in making self-care, group support, and community building central to all healthcare
- An international faculty of more than 160
- Programs for healing population wide trauma and stress in:
  - Kosovo
  - Israel
  - Gaza
  - Haiti
  - Southern Louisiana after Hurricane Katrina
  - Houston after Hurricane Harvey
  - Jordan with Syrian refugees
  - South Dakota on the Pine Ridge Indian Reservation
  - With US Military and Veterans at 30 military bases and VA facilities

Principles of Mind-Body Skills Groups

- Meditative
- Safe Place
- Respect
- Educational
- Staying in the moment
- Leader as teacher and real person
- Power of each person to know him/herself
- Power of each person to care for him/herself
- Mutual—we are all mirrors for one another
- Group as growth organism
- Balance of structure and flexibility

Mind-Body Skills Groups for Medical Students

- The Mind-Body Skills Group program was introduced to medical students, whom are known to face a substantial amount of psychological stress
- The MBSG program significantly improved the students' sleep, decreased anxiety, encouraged self-awareness and self-expression, and enhanced their educational performance
- This model has been offered in more than 15 US medical schools:
  - Georgetown University
  - University of Washington
  - University of Michigan
  - Johns Hopkins
  - Stanford University
  - Among others...

Gordon, J.S. (2014). Mind-body skills groups for medical students: Reducing stress, enhancing commitment, and promoting patient-centered care. *BMC Medical Education*. *14*. doi: 10.1186/1472-6920-14-198

CMBM Partnership with Eskenazi Health

→ Largest Safety Net Health System in Indiana

→ Collaborating Eskenazi Health to bring self-care, group support, health promotion, nutrition, wellness and lifestyle medicine to Eskenazi Health staff and patients

→200 Eskenazi Health leaders (administrative, clinical, and natural leaders) trained by CMBM in mind-body medicine and nutrition

→Consultation and mentoring of Eskenazi Health Nutrition Services to revamp all aspects of food services

Results:

- Employee healthcare costs, which were increasing at 5% per year are now increasing at 1%
- 400% increase in revenue at Eskenazi Health cafes and cafeterias
- Significant contribution to culture of wellness at Eskenazi Health

CMBM Partnership with Eskenazi Health

In an evaluation conducted by Eskenazi Health, Wellness Champions reported numerous positive outcomes as a result of the training:

- Reduced stress
- Lower blood pressure
- Weight loss
- Better family relationships
- Closer workplace bonds
- Increased physical activity
- Healthier food choices and more positive attitudes towards eating
- Diffusion of self-care skills into the hospital and the community

Mind-Body Medicine at Midtown Mental Health

- The Center for Mind-Body Medicine's Professional Wellness Training Program was implemented for the clinicians and administrators of Eskenazi Health's Midtown Community Mental Health Center
- 104 participants were in the initial training, 94 participants in the advanced training, and 80 participants were in the follow-up survey
  - Average age of the participants was 39 years and the average for the years of experience was 11 years

Results

- Significant improvements were found in various categories: Secondary Traumatic Stress, Perceived Stress, Health Promoting Lifestyles, Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, Stress Management, and Friendliness

Merritt, B. & Staples, J.K. (2017). Overview of program results: The center for mind-body medicine's professional wellness training for eskenazi health's midtown community mental health staff. *Indiana University Public Policy Institute.*

This experience has been life changing! The implementation of the teachings have been restorative and transformative. I am excited and hopeful for Eskenazi and the ways that our organization, our patients, and our community will benefit from our own transformations from within!

-Rana Snipe Berry, MD, Eskenazi Health, Indianapolis, IN

I did not know what I was getting into but know I wanted to learn how to live a happier, healthier life. This course has given me the tools and science to decrease stress and be mindful in my work, personal life and my relationships. I feel renewed.

-LeeAnn Blue, RN, MSN, Eskenazi Health, Indianapolis, IN

I have learned that as professionals, we don't acknowledge nor take care of ourselves especially feelings. We minimize them. This training has allowed me to connect my mind and emotions, as long as I have an open mind, desire, positive attitude, and motivation to learn and do it. Anyone can learn and do it regardless of different background; culture, level of education, and discliplines/roles. We should make it simple and practical.

-Weldon Koech, MSW, Eskenazi Health Hospital, Indianapolis, IN

Kosovo

- Our innovative approach to working with PTSD and the ongoing stress of war began in 1998 during Serbian offensive
- Origin of our Healing the Wounds of War model
- More than 600 Kosovar health and mental health professionals, teachers and community leaders have been trained by Kosovo leadership team
- They have taught to thousands of men, women and children
- CMBM approach
  - Now integral to entire community mental health system
  - Formally recognized and integrated into a nation-wide system of health and mental health care


TÜRKİYE

Kosovo students practicing meditation for CMBM's study

Treatment of Posttraumatic Stress Disorder in Postwar Kosovar Adolescents Using Mind-Body Skills Groups: A Randomized Controlled Trial

James S. Gordon, M.D.; Julie K. Staples, Ph.D.;
Afrim Blyta, M.D., Ph.D.; Murat Bytyqi, B.A.; and Amy T. Wilson, Ph.D.

Objective: To determine whether participation in a mind-body skills group program based on psychological self-care, mind-body techniques, and self-expression decreases symptoms of posttraumatic stress disorder (PTSD).

Method: Eighty-two adolescents meeting criteria for PTSD according to the Harvard Trauma Questionnaire (which corresponds with 16 of the 17 diagnostic criteria for PTSD in DSM-IV) were randomly assigned to a 12-session mind-body group program or a wait-list control group. The program was conducted by high school teachers in consultation with psychiatrists and psychologists and included meditation, guided imagery, and breathing techniques; self-expression through words, drawings, and movement; autogenic training and biofeedback; and genograms. Changes in PTSD symptoms were measured using the Harvard Trauma Questionnaire. The study was conducted from September 2004 to May 2005 by The Center for Mind-Body Medicine at a high school in the Suhareka region of Kosovo.

Results: Students in the immediate intervention group had significantly lower PTSD symptom scores following the intervention than those in the wait-list control group ($F = 29.8$, $df = 1,76$; $p < .001$). Preintervention and postintervention scores (mean [SD]) for the intervention group were 2.5 (0.3) and 2.0 (0.3), respectively, and for the control group, 2.5 (0.3) and 2.4 (0.4), respectively. The decreased PTSD symptom scores were maintained in the initial intervention group at 3-month follow-up. After the wait-list control group received the intervention, there was a significant decrease ($p < .001$) in PTSD symptom scores compared to the preintervention scores.

Conclusions: Mind-body skills groups can reduce PTSD symptoms in war-traumatized

Received Sept. 28, 2007; accepted Feb. 27, 2008. From The Center for Mind-Body Medicine, Washington, D.C. (Drs. Gordon and Staples); University Clinical Center, Pristina, Kosovo (Dr. Blyta); Grupi Psikosocial, Suhareka, Kosovo (Mr. Bytyqi); and the Department of Educational Foundations and Research, Gallaudet University, Washington, D.C. (Dr. Wilson).

The research was funded by the Oswald Family Foundation, Minneapolis, Minn.; the Oak Foundation, Geneva, Switzerland; the deLaski Family Foundation, Great Falls, Va.; Ms. Lyn Rales, Potomac, Md.; Ms. Judith Loeb Chiara, New York, N.Y.; and the Helen Clay Frick Foundation, New York, N.Y.

Acknowledgments appear at the end of the article.

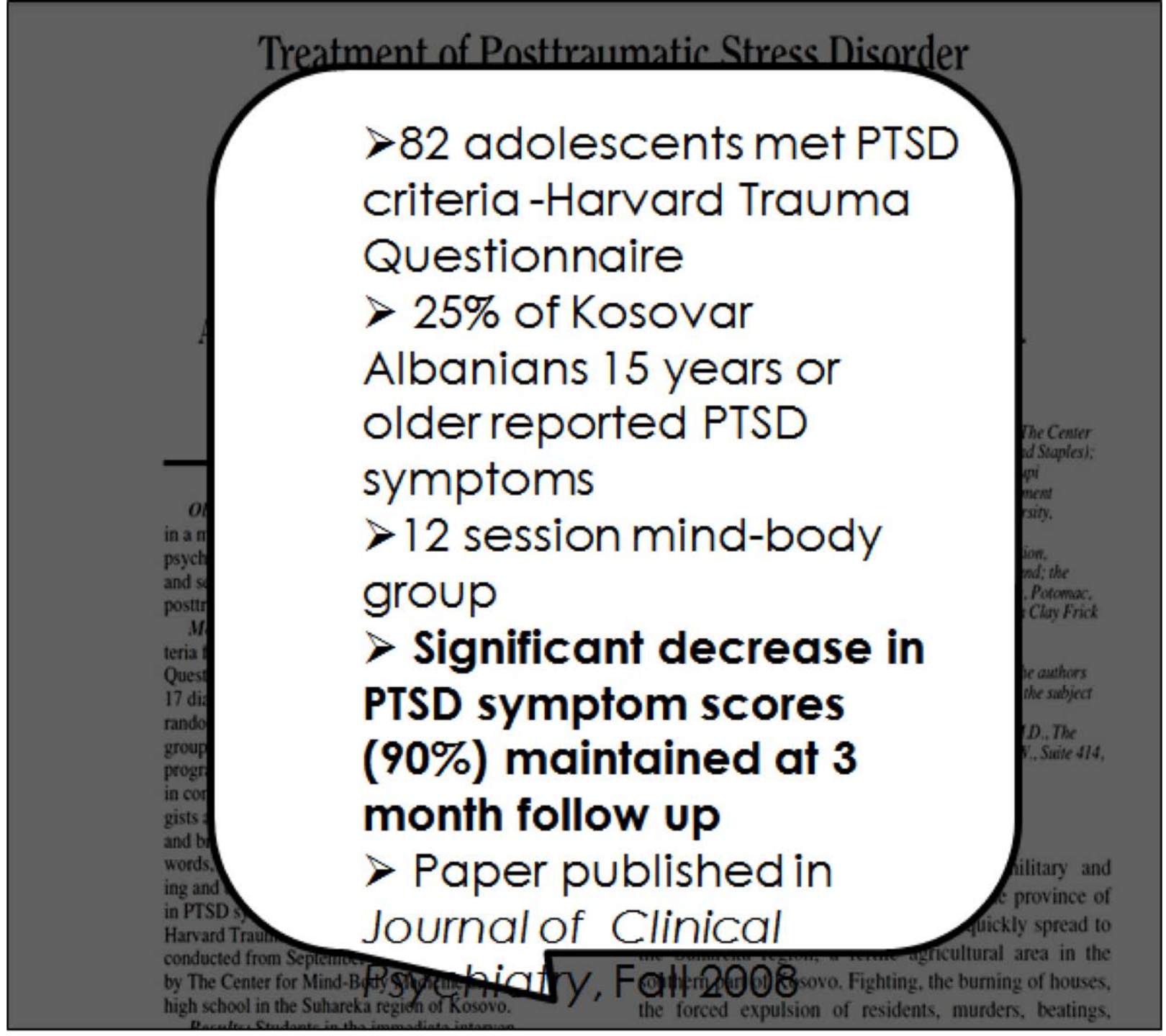
Except for the direct support of this study noted above, the authors have no financial or other affiliations to disclose relevant to the subject of this article.

Corresponding author and reprints: James S. Gordon, M.D., The Center for Mind-Body Medicine, 5225 Connecticut Ave., N.W., Suite 414, Washington, DC 20015 (e-mail: jgordon@cmbm.org).

The conflict between the Serbian military and the Albanian resistance forces in the province of Kosovo began in early 1998. Fighting quickly spread to the Suhareka region, a fertile agricultural area in the southern part of Kosovo. Fighting, the burning of houses, the forced expulsion of residents, murders, beatings, rapes, and systematic massacres of groups of Albanian civilians continued through June 1999, when NATO troops entered Kosovo.

Suhareka was particularly hard hit by the war. One of the largest single massacres in Kosovo occurred here. Ninety percent of all homes in the area were destroyed or damaged beyond repair. Twenty percent of students in Suhareka's Jeta e Re ("New Life") High School lost 1 or both parents. Teachers and students were killed, and their portraits hang in the central hall of the school.

Posttraumatic stress disorder (PTSD) has been widely reported in children and adolescents exposed to war in the Balkans. One survey conducted during the war in Bosnia


Treatment of Posttraumatic Stress Disorder
➢82 adolescents met PTSD criteria -Harvard Trauma Questionnaire
➢ 25% of Kosovar Albanians 15 years or older reported PTSD symptoms
➢12 session mind-body group
➢ **Significant decrease in PTSD symptom scores (90%) maintained at 3 month follow up**
➢ Paper published in *Journal of Clinical Psychiatry*, Fall 2008

Gaza

- What may be ***the largest and most effective program for healing population-wide trauma in the world***.
- 900 health, mental health, education professionals, and community activists trained
- 50,000+ people total have participated in a group
- 110,000 additional individuals using Mind-Body approaches
- Over 160,000 total individuals using Mind-Body Medicine
- Supervision groups have been meeting weekly for 8 years
- Partnerships with the Ministry of Health, Education, Social Welfare, with United Nations Relief and Works Agency and over 200 local and international non-governmental agencies.

The New York Times
Opinionator

SEPTEMBER 26, 2012, 7:00 AM

For Veterans, a Surge of New Treatments for Trauma

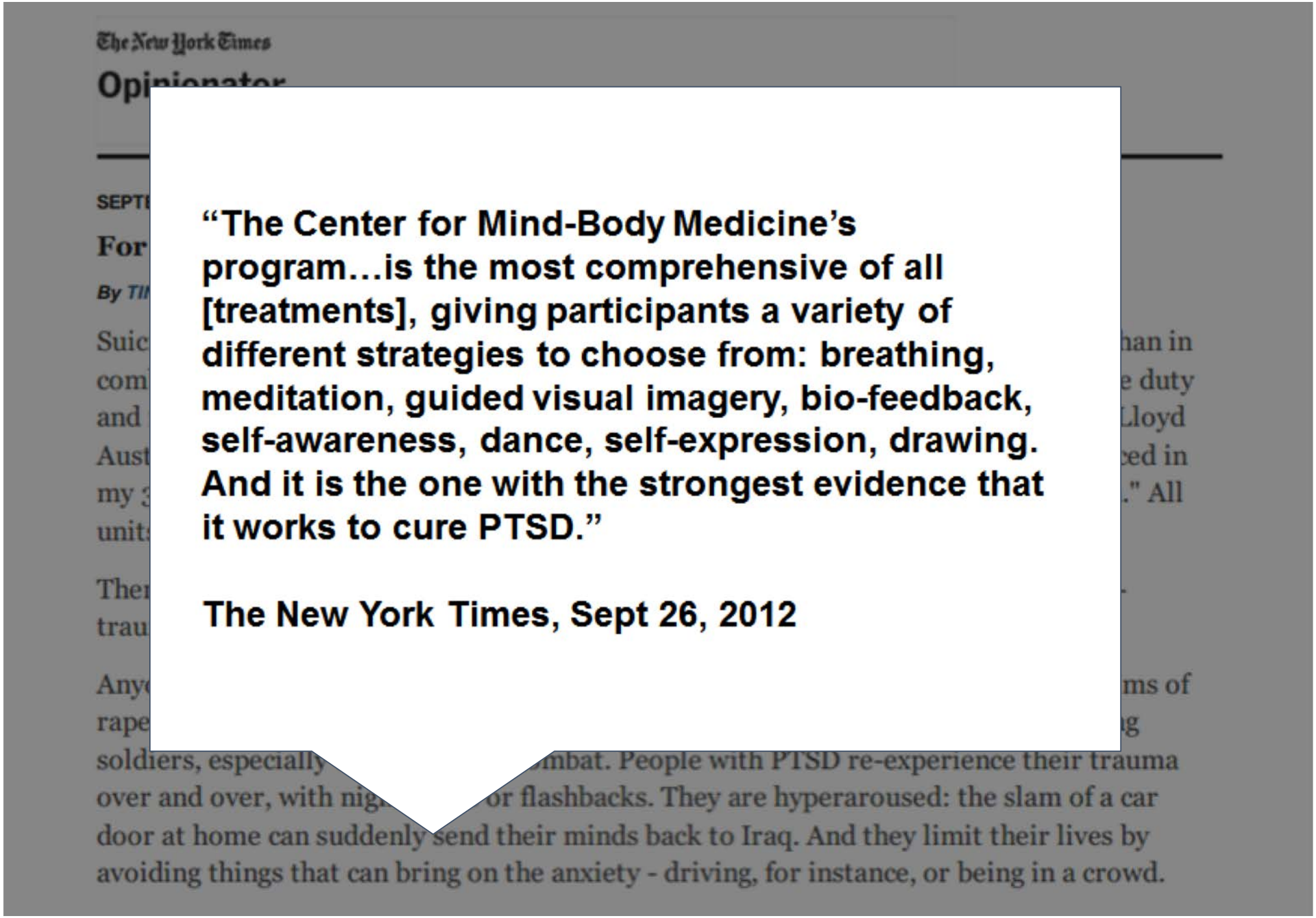
By TINA ROSENBERG

Suicide is now the leading cause of death in the army. More soldiers die by suicide than in combat or vehicle accidents, and rates are rising: July, with 38 suicides among active duty and reserve soldiers, was the worst month since the Army began counting. General Lloyd Austin III, the army's second in command, called suicide "the worst enemy I have faced in my 37 years in the army." This Thursday, the Army is calling a "Suicide Stand-Down." All units will devote the day to suicide prevention.

There are many reasons a soldier will take his own life, but one major factor is post-traumatic stress.

Anyone who undergoes trauma can experience post-traumatic stress disorder - victims of rape and other crimes, family violence, a car accident. It is epidemic, however, among soldiers, especially those who see combat. People with PTSD re-experience their trauma over and over, with nightmares or flashbacks. They are hyperaroused: the slam of a car door at home can suddenly send their minds back to Iraq. And they limit their lives by avoiding things that can bring on the anxiety - driving, for instance, or being in a crowd.

PTSD has affected soldiers since war began, but the Vietnam War was the first in which the American military started to see it as a brain injury rather than a sign of cowardice or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avoiding things that can bring on the anxiety - driving, for instance, or being in a crowd.
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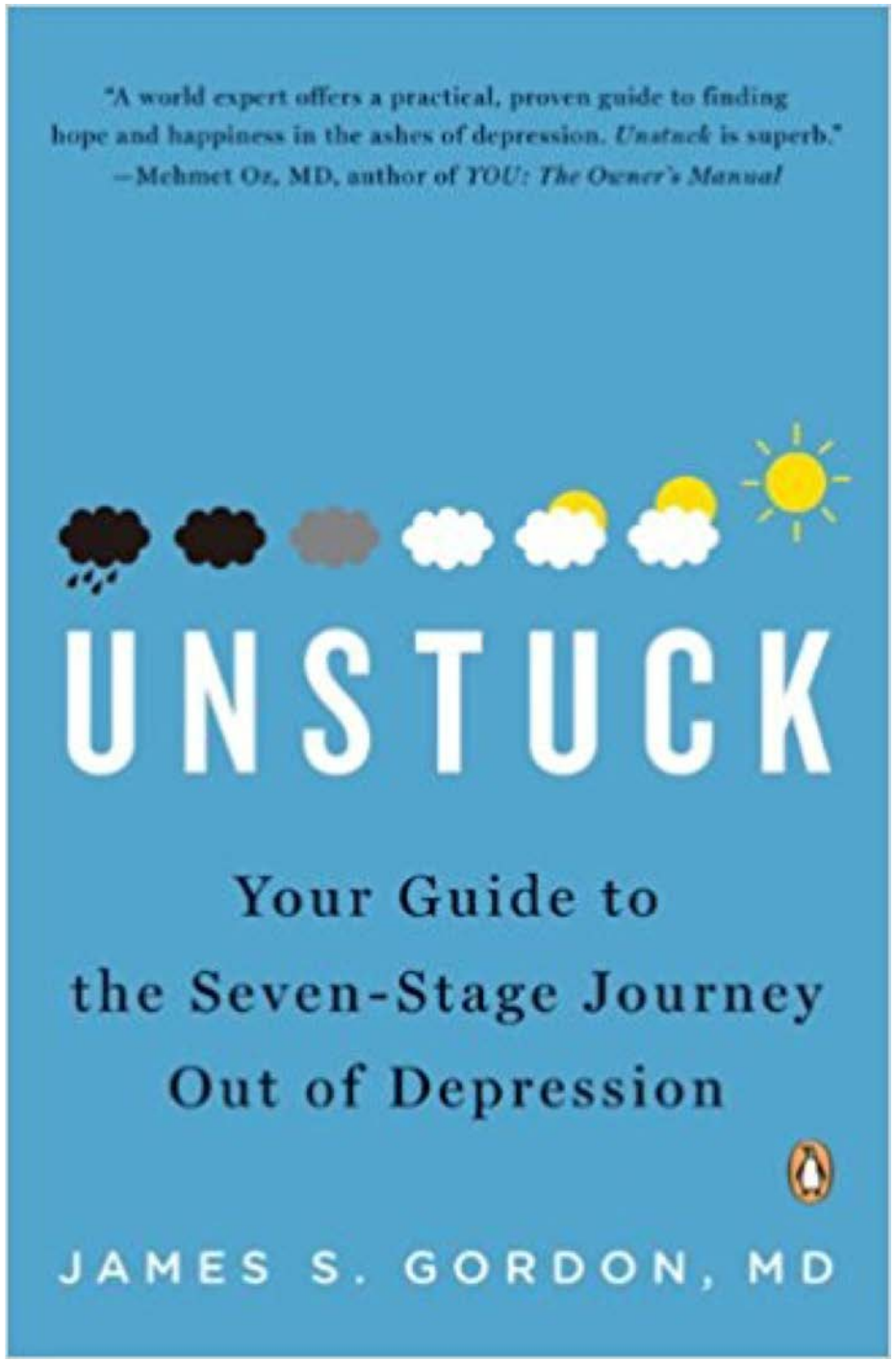
or flashbacks. They are hyperaroused: the slam of a car
"The Center for Mind-Body Medicine's program…is the most comprehensive of all [treatments], giving participants a variety of different strategies to choose from: breathing, meditation, guided visual imagery, bio-feedback, self-awareness, dance, self-expression, drawing. And it is the one with the strongest evidence that it works to cure PTSD."
The New York Times, Sept 26, 2012

Inside a Mind-Body Medicine Fundamentals Training - Dylan Tête



"A world expert offers a practical, proven guide to finding hope and happiness in the ashes of depression. Unstuck is superb."

- Mehmet Oz, MD, author of YOU: The Owner's Manual

"*Unstuck* is revelatory, passionately humane, and thoroughly knowing guide for those who are troubled"

- Robert Coles, MD, professor of psychiatry and medical humanities, Harvard Medical School, and author of the *Children of Crisis* series

Professional Training Program in Mind-Body Medicine

October 11-15, 2018

Turf Valley Resort
Ellicott City, Maryland

cmbm.org/mbm