eliciting the Relaxation Response (RR) through meditation, yoga, prayer or other ways to focus and quiet the mind, has been part of informal health care for thousands of years. Its value is increasingly appreciated by the medical community as study after study shows positive effects on healing in a variety of clinical circumstances. The Benson-Henry Institute for Mind Body Medicine (BHI) has systematically incorporated new research technologies, such as brain imaging, to demonstrate that change is possible in RR practitioners. But no one quite understood how the RR made an impact at the most fundamental level by affecting our genes, which are the molecular blueprints for the proteins that control how our bodies work.

Building on the Human Genome Project and the availability of increasingly accurate ways to detect and measure gene activity, the BHI, in collaboration with researchers at Boston’s Beth Israel Deaconess Medical Center, has become a leader in exploring the genetic underpinnings of mind body medicine. Their first project compared gene activity levels (“expression levels”) in long-term RR practitioners with people who had no previous RR experience. After the latter group received eight weeks of RR training, their gene expression levels were re-measured.

Scientists categorize genes with related characteristics into sets, to make it easier to predict which genes are involved in particular functions in the body. Describing the results of the study, BHI Research Director John Denninger, MD, said, “The number of genes and important gene sets whose expression patterns differed was huge. For example, among RR practitioners, the expression of genes related to the control of energy was increased, and the expression (Continued on Page 2)
Focus on Infertility

“It sounds so corny to say that it changed my life, but it really did.”

— Participant in the Benson-Henry Institute (BHI) Mind Body Program for Health and Fertility

FOR OVER 20 YEARS, the BHI has offered a specialized program for women and couples who are experiencing the complex challenges of infertility. As BHI Director of Women’s Health Leslee Kagan, MS, NP, says, “Studies have shown that resiliency, or the ability to respond adaptively to adversity, is compromised over time in women undergoing infertility treatment. This has been associated with infertility-specific and general distress. [Infertility] really affects all aspects of a woman’s life.”

The goal of the BHI program is to increase resiliency. It includes instruction in a variety of methods to elicit the Relaxation Response, promote health-enhancing behaviors and skill-building to reframe negative thoughts and increase a sense of control. “The program gives women back their lives,” Kagan says. “By removing factors that may have a negative impact on fertility, we believe we can maximize their chances for success.”

The next Mind Body Program for Infertility begins on Jan. 9. For more information, visit www.massgeneral.org/bhi/services/program_listing

— MIND BODY MEDICINE AND YOUR GENES

(Continued from Page 1)

of genes related to the control of inflammation and cell death was reduced. This made sense given what was already known about the effect of the RR on the body; the key is that we showed the changes.”

The study was featured at the February 2009 Institute of Medicine Symposium on Integrative Medicine and the Health of the Public. It also enabled the BHI to receive additional funding from the National Center for Complementary and Alternative Medicine at the National Institutes of Health. The findings prompted further research into whether the changes in gene expression levels were short-term or whether they evolved over time, and whether expression levels were influenced by mechanisms that affect the DNA molecule without actually altering its structure – a branch of science known as “epigenetics.”

The BHI views these studies as the platform to launch an exciting new Center for Behavioral Epigenetics. As BHI Director Gregory L. Fricchione, MD, points out, “One of our major missions here is to serve public health as widely as possible. Learning how mind body approaches can affect gene expression, and how those changes might be influenced by the environment, is a great opportunity for us to help enhance patients’ capacity for health.”

To learn more about the Center for Behavioral Epigenetics and other research and clinical trials at the BHI, please visit www.massgeneral.org/bhi/research

Comparison of gene activity levels in long-term RR practitioners (M) with people who had no RR experience (N₁), but who then received eight weeks of RR training (N₂). Heatmaps of the 595 genes which are more or less active in long-term RR practitioners vs. those who had only short-term or no experience, (left), and the 418 genes which are more or less active in subjects who had either long-term or short-term RR experience compared to those who had none (right).

As Director of Women’s Health at the Benson-Henry Institute, Leslee Kagan, MS, NP, leads several focused clinical and research programs including the Mind Body Program for Health and Infertility and the Mind Body Program for Women. After earning her BA degree in French and Spanish from the State University of New York at Stonybrook, Ms. Kagan transitioned to a career in healthcare, earning the MSN and FNP degrees that would enable her to follow her passion for applying mind body techniques to all aspects of women’s health. Ms. Kagan joined the BHI in 1998 and has developed a loyal following among her colleagues, patients and members of the mind body medicine community. She is first author of “Mind over Menopause: The Complete Mind Body Approach to Coping with Menopause,” and a contributing author to the renowned book “Our Bodies: Our Selves: Menopause.”
A Pathway to Healing

Nila Webster is a children’s book author and massage therapist from Revere, Massachusetts.

When did you become aware of mind body medicine? My father worked long hours and was always under pressure. In 1975, he came home very excited. He had spotted the first book he’d ever seen in which a physician had made a powerful correlation between stress reduction and overall health. Unlike most physicians at that time, this doctor was actually inviting and welcoming patients to participate in their own treatment plan. The book was The Relaxation Response by Dr. Herbert Benson. Its techniques have made a positive difference for me all my life.

How have the ideas in the book stayed with you? In July 2010, I found myself in the Mass General emergency room. The diagnosis was metastatic lung cancer. I had surgery and began targeted chemotherapy. The good news was that I already had a pathway to healing. Peg Baim and Ann Webster at the Benson-Henry Institute taught me additional meditation techniques that I used while draining my lung and during every scan. I could do something to help my own recovery! I felt a physical difference as my heart rate and breathing slowed and the inner chatter ceased.

How are you feeling now? I just had my 11th scan and the tumor is stable. The work that I have done at the Benson-Henry Institute has been integral to the success of my treatment plan.

On July 7, Peter L. Slavin, MD, President, Massachusetts General Hospital, visited the Benson-Henry Institute for Mind Body Medicine (BHI) to present Excellence in Action awards to Medical Director Darshan Mehta, MD and clinicians Peg Baim, NP, and Ann Webster, PhD, in recognition of their exceptional service and commitment to patients. He read a letter that a Mass General patient had written to Dr. Mehta after receiving care at the BHI during her cancer treatment. “I am grateful to be living proof of the reality of the mind body connection, as it has directly affected my health,” the patient wrote. From left, Peter L. Slavin, MD, MGH President; John Denninger, MD, BHI Director of Research; Darshan Mehta, MD, BHI Medical Director; Gregory Fichione, MD, BHI Director; and Herbert Benson, MD, BHI Director Emeritus.

Not just another day at school

IT IS NO SECRET that being a high-school student can be challenging. Media and movies chronicle adolescents stressed by peers, parents, SATs and all of the transitions that characterize this vulnerable phase of life. Many stories are humorous, but some end in tragedy and a sense of frustration at an outcome that seemed preventable.

The Education Initiative (EI) of the Benson-Henry Institute (BHI) recently completed a study examining the feasibility and effectiveness of integrating Relaxation Response (RR) training into the school day. The project was hosted at Needham High School in Massachusetts, which experienced several teen suicides in the two years preceding the study and had identified stress as the school’s number one concern. School officials agreed to allow any 10th and 11th grade students who desired to enroll and received parent or guardian approval to be excused from physical education classes so that they could participate in eight sessions of formal RR instruction.

Students completed surveys measuring their perception of stress and anxiety before and after participating in the program. They were also monitored to see whether they had begun to set aside time to practice the RR on their own.

The students who participated showed significant reduction in their levels of anxiety, and many reported that they had begun to see positive changes in their overall health and well-being. According to BHI Senior Director Marilyn Wilcher, “The study confirmed the feasibility of this curriculum in a high school environment. We learned a lot, and we will be able to apply our findings in subsequent research.”

The Needham High study has been accepted for publication in the Journal of Adolescence. Lessons learned from it will help to shape a future BHI initiative – a collaboration with the Mass General Center for Community Health Improvement to bring healthy coping skills to fourth and fifth grade students in Boston public schools.

To learn more about the Education Initiative, please visit www.massgeneral.org/bhi/ei.
COMING UP!

Upcoming Benson-Henry Institute Continuing Medical Education Program

Changing Lifestyle with Mind Body Medicine: How to Build Resiliency in Patients will be offered on Dec. 12 in Massachusetts General Hospital’s O’Keefe Auditorium. For more information, contact Maureen Gilbert at 617-643-6067 or msgilbert@partners.org.

Future Benson-Henry Institute Programs

Stress Reduction Sessions are offered, free and open to the public, at both 12 noon and 12:35 pm in Massachusetts General Hospital’s Haber Auditorium on the following days: Nov. 7, 16, 21 and 29; and Dec. 8, 14, 22 and 27.

Relaxation Response Resiliency Program begins on Nov. 9, 5:30 to 7:30 pm in Boston; Nov. 17, 5:30 to 7:30 pm at Massachusetts General Hospital West in Waltham; Nov. 29, 5 to 7 pm in Boston. This program meets weekly for eight weeks, and is designed to reduce stress and build resiliency through proven mind body principles and interventions. For more information, contact Sue Clough at 617-643-6054 or sclough@partners.org.

The Mind Body Program for Health and Fertility also begins on Jan. 9. The group meets weekly from 2 to 4 pm for nine weeks in Boston. This groundbreaking program helps women through the difficulties of infertility. Women learn how to regain a sense of control and well-being, develop coping strategies to manage treatments better and optimize their chances for success. For more information, contact Lisa Teague at 617-643-6063 or lteague@partners.org.

The Mind Body Program for Successful Aging begins on Feb. 6. The group meets weekly from 10:30 am – 12:30 pm in Boston. The program teaches tools for aging with wisdom, health, humor and gratitude. Offered in collaboration with Massachusetts General Hospital West. For more information, contact Lisa Teague at 617-643-6063 or lteague@partners.org.

Cardiac Wellness Program – Basic and “graduate” programs are offered on an ongoing basis at Massachusetts General Hospital West in Waltham, MA. Learn to reduce stress, improve physical fitness and lose weight in this integrated lifestyle modification program. For more information, contact Lauren Lortie at 781-487-6100.

Most programs include individual pre-, interim, and post-visits. Insurance may cover some program costs. For a complete program listing, visit www.massgeneral.org/bhi/services/program_listing.aspx.