

The Alert Collector

Diane Zabel, Editor

Meditation and Health: An Annotated Bibliography

Anne Haynes, Guest Columnist

Meditation is clearly moving into the mainstream. Evidence of this is the August 4, 2003, cover story in *Time* magazine which explored the research on the physiological and psychological aspects of meditation. Since then, numerous stories have been published on the scientific findings relating to the benefits of meditation. Recent research conducted by scientists at the Laboratory for Affective Neuroscience at the University of Wisconsin at Madison demonstrated that meditation activates the part of the brain that is associated with positive emotions. 1 A study released in March 2004 by the Medical College of Georgia found that two fifteen minute meditation sessions daily (one at school, one at home) helped teenagers lower their blood pressure. 2 This study also reported other favorable outcomes for the teens who meditated, including decreased absenteeism and a reduction in behavioral problems. Meditation is becoming more common in American classrooms. Some middle schools in Detroit have practiced meditation for more than six years. 3 A recent article in *Barron's* highlighted a plan by parents to propose that transcendental meditation be offered in New York City public schools. 4

Interest in this topic is likely to grow as meditation increases in popularity. The number of adults in the United States who meditate on a regular basis has doubled in the past ten years, and is estimated to total 10 million. 5 This column focuses on meditation research, specifically on studies that have been done linking meditation with improved physical health and increased mental well being. There is growing evidence that meditation, used as a mind-body medicine, is effective alone and as a complement to allopathic medicine in relieving stress, pain, and other physical and mental conditions. The scope of the article includes spiritual and secular meditation, including breathing practices, mantra meditation, Buddhist mindfulness, Qigong, and other forms of meditation. Researchers in medicine, psychology, and sociology became interested in meditation during the twentieth century, and research has flourished especially in the past three decades. As meditation research has evolved, the standard of research has become more rigorous. The author has focused on scholarly rather than popular works on the topic. Among the resources included are books, review articles, Web sites, and organizations. Haynes' column will assist public, academic, medical, and seminary libraries interested in meditation.

Haynes has been a reference librarian in the Indiana University-Bloomington Main Library Reference Department since 2000. She provides library instruction and research assistance in many disciplines and coordinates library services for the campus' distance students. Her previous library experience was in acquisitions and cataloging. She is active within the Machine-Assisted Reference Section (MARS) of the Reference and User Services Association, serving most recently as editor of "Messages from MARS", the section's newsletter. She has also served on the MARS Executive Committee and the MARS Publications Committee.

Haynes has also been active in other ALA divisions. A meditator, she has studied and practiced several different types of meditation.—Editor

“Meditation is a state of heightened mental awareness and inner peace that brings mental, physical, and spiritual benefits. It is a useful self-help technique and can be practiced without adherence to any religion or philosophy.”⁶

Meditation has almost as many definitions as there are writers, scholars, and practitioners in the field. For many of us, the term conjures up images of people in loose robes sitting for hours in lotus position, eyes closed, in silence. Meditation can also be practiced while walking, engaging in exercises, chanting, working in the garden, or sitting at one’s desk. It can be solitary or accomplished in a room full of fellow practitioners. Time spent in meditation can be a few minutes a day to hours a week, but is usually somewhere in between. Meditation has its roots in spirituality, and for most people in the world who practice some form of it, that is its purpose.

Meditation is defined by Shapiro and Walsh as “... a family of practices that train attention and awareness, usually with the aim of fostering psychological and spiritual well being and maturity.”⁷ Meditation can take many forms and can be used for either sacred or secular purposes - often both - and a number of these forms have been, and continue to be, investigated for their roles in improvement of both physical and psychological health. Rubin defines two main types of meditation as: “... concentrative and insight. In concentrative meditation we focus on a single object ... with wholehearted attentiveness. ... In insight meditation, we attend without attachment or aversion to whatever thoughts, feelings, fantasies, or somatic sensations are being experienced.”⁸ Yet another definition separates meditation into the two types, focused and unfocused.⁹

Western medicine has traditionally separated the mind from the body, while in traditional cultures the mind, spirit, and body have long been recognized to be integrally connected. In the last half-century many mind-body interventions, including meditation, have been demonstrated to have positive effects on various aspects of health and emotional well-being. The introduction to the United States and Europe in the 1950’s and 1960’s of certain forms of meditation practiced mainly in India and East Asia marked the beginning of the popularization of meditation in the Western world. This popularization brought with it a surge in interest in research linking meditation with positive health effects. In a much-publicized study, Richard Davidson and Jon Kabat-Zinn recently collaborated in the first study that linked brain and immune function changes produced by Mindfulness-Based Stress Reduction (MBSR).¹⁰ Meditation is practiced widely in India, China and other Asian countries for spiritual reasons; but it is also practiced worldwide by athletes, secretaries, students, corporate executives and truck drivers to promote better concentration and higher performance levels, and by individuals seeking improved health.¹¹ It has been successfully taught to prison inmates, for example in India and New York State, to quell violent behavior and promote peaceful states of mind.¹² Meditation rooms can even be found in airports.¹³ The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (NIH) (U.S.) and other health organizations around the world have been supporting research to investigate the link between meditation and mental and physical health. A search on the keyword “meditation” in the Complementary

Medicine section of PubMed (<http://www.nlm.nih.gov/>) in January 2004 resulted in 972 articles, the vast majority of which address meditation in medical studies. Meditation research has opened up possibilities for healing that were, until the 1970's or 1980's, not widely recognized in this country.

The volume of articles in the medical and psychology literatures demonstrates the surge of interest in meditation during the past thirty to forty years. Many scientific journals publish articles on meditation research. Among those are *Perceptual & Motor Skills*, *Psycho-Oncology*, *Psychological Reports*, *Alternative Therapies in Health and Medicine*, *Psychosomatic Medicine*, *Tidsskrift for Den Norske Laegeforening*, *American Journal of Psychiatry*, *Australian Family Physician*, *British Medical Journal*, *Indian Journal of Physiology and Pharmacology*, *Journal of Psychosomatic Research*, *International Journal of Neuroscience*, *International Journal of Psychosomatics*, and *Journal of Clinical Psychology*. Proquest's Digital Dissertations shows 450 dissertations with the word "meditation" in the title, and the majority of these are about current research in meditation.

In researching this topic in the journal literature, in books and on the Web, various keywords and subject terms were used in locating the appropriate resources including Library of Congress and MESH subject headings. Citation and full-text databases such as MedLine, Journals@OVID, ISI's Web of Science, ATLA Religion Index, PsycINFO, PsycARTICLES, Ingenta, and many others covering medicine, nursing, religion, psychology and sociology were searched for review articles on this topic. Library catalogs, personal libraries, WorldCat, RLIN Eureka, Books in Print online, and bookstores were searched for book titles. The catalogs included those of certain research libraries, medical libraries, Library of Congress, National Library of Medicine and others known to have collections in mind-body medicine or meditation. Bibliographies found in these books and articles were then used as leads to other works. The Web was used as a tool for seeking out medical schools, meditation societies and other organizations with an interest in promoting meditation research. Colleagues knowledgeable in this field were consulted.

Criteria for inclusion in this survey were an emphasis on the scientific research on meditation, thoroughness of coverage of the subject, length and/or depth of bibliographic references, and number of times cited by other authors. An attempt was made to include representation of various major schools of meditation, but there are so many methods of meditation that it would not be possible in an article of this length to include any but those most popularly practiced. English language resources were used for the purposes of this article, because most of the contemporary research studies found have been reported in, or translated into English, though some of the bibliographies contain references to works in other languages. An effort was made to include some works that the lay reader will find enjoyable and informative, as well as some of a more scholarly nature. All demonstrate a basis in, or reference to, scientific research.

Books

Benson, Herbert. *The Relaxation Response*. New York: Avon, 1976, c1975. ISBN 0-380-00676-6.

The Relaxation Response, a best-seller and subsequently published in various countries, languages, formats and editions, is included here because it was the first popular, practical book for the lay reader on the health applications of meditation practice. Benson was an early promoter of his own method of relaxation for improved health soon after the 1960's popularization of the Transcendental Meditation (TM) method in the United States and elsewhere in the West. Benson is a physician and professor at the Mind Body Medical Institute in Massachusetts and a researcher of TM, and he has published numerous studies, including some with R. Keith Wallace, a well-known TM researcher. Benson challenged the idea that TM was the only or best way to practice a calming type of meditation. He claimed that based on his research, the secret mantras and established training program used in teaching the TM method were not necessary to achieve what he called the "relaxation response," which could counteract stress and its effects, such as high blood pressure and certain forms of heart disease. This book is controversial among those who believe that the spiritual elements of meditation are necessary to reap its benefits; that is why it is an important part of any meditation collection. In print; also available in large print, VHS videotape and audiotape.

Orme-Johnson, David W., and John T. Farrow, eds. *Scientific Research on the Transcendental Meditation Program: Collected Papers*. 2nd ed. Weggis, Switzerland: Maharishi European Research University Press, 1977-1990. ISBN 3-88333-001-9.

This is the complete official collection of research papers on Transcendental Meditation (TM) published by the TM organization. This edition is the compilation of the reports of the 508 research studies on the TM method and TM-Sidhi Program (a program for advanced practitioners), with some that are not included in the first edition of the papers. TM is a method of meditation originating in India and taught by Maharishi Mahesh Yogi throughout the world beginning in the late 1950's. Thousands of teachers were trained in a standardized instruction method and thus made the course widely available to the public. Some of these papers were first published in professional journals. Some were carried out under the auspices of the TM organization, and others are based on research done at other universities and research institutions. There is a wide variation in the degree of thoroughness applied to the research design, sample sizes, and other aspects of the studies, according to many researchers, but it is generally accepted that this huge body of TM research laid the groundwork for more recent meditation research, and it demonstrates the positive effects of meditation on many aspects of human physiology and psychological health. These volumes are available for purchase from the TM organization's Web site at: http://mumpress.com/p_b01-5.html. A *Summary of Research* found in these volumes has been compiled by David Orme-Johnson, Dean of Research, Maharishi University of Management, and is found on the web at: http://www.mum.edu/tm_research/summary_tm_res.html.

Shapiro, Deane H., and Roger N. Walsh, eds. *Meditation, Classic and Contemporary Perspectives*. New York: Aldine, 1984. ISBN 0-202-25136-5.

The Shapiro and Walsh book is included here for its historic value as the first scholarly compilation of meditation research up to about 1980 in the United States and several other countries. Unlike the other meditation bibliographies discussed here, it is a collection of reprints of many journal articles, including review articles and reports of research studies. Included are substantial introductory sections by Shapiro and Walsh, well known academic researchers in psychology and psychiatry. The articles in this volume are ones the editors considered to be the

most important contributions to meditation literature up to that time – not only research in such areas as drug abuse and stress, but elegant treatises on Buddhism, the meditative experience, and states of consciousness. The interested reader can have access to the actual studies, including the tables, charts and graphs, with the convenience of not having to locate copies of the articles. And unlike the collected papers on TM research, this volume also discusses various other forms of meditation, including Zen, Yoga, and insight meditation. This book was considered a foundational work in meditation research at the time it was published, and should be in every library's meditation collection. If your library holds it, this is one to keep. Out of print, but available from out-of-print booksellers.

Jarrell, Howard R. *International Meditation Bibliography 1950-1982*. Metuchen, N.J.; London: Scarecrow Press, 1985. ATLA Bibliography Series 12. ISBN 0-8108-1759-4.

The *International Meditation Bibliography 1950-1982*, the first international meditation bibliography published, differs from the two Murphy bibliographies in that it covers resources on the subject of meditation in general, and is not restricted to meditation research. Part of the American Theological Library Association Bibliography Series, it is a list of sources with very brief descriptions, not annotations, of some of the entries. Many of the works listed are about the Transcendental Meditation (TM) method, but also included are the subjects of yoga meditation, Christian meditation, Zen Buddhist meditation, and other relaxation techniques. The sources included are books; journal and magazine articles; dissertations; theses; motion pictures; sound recordings; and societies and associations. There are author, title and subject indexes, making this an unusually well-indexed work. Citations for books written in English, French, German, Spanish, Portuguese, Italian, and Dutch are included. Though dated, this very well-organized book is of particular interest because it includes works not included in later bibliographies or in collections of purely research studies. This factor makes it historically significant and it is an important work for any library's collection on meditation. In print and available.

Murphy, Michael, and Steven Donovan, eds. *The Physical and Psychological Effects of Meditation: A Review of Contemporary Meditation Research with a Comprehensive Bibliography, 1931-1988*. San Rafael, CA: Esalen Institute Study of Exceptional Functioning, 1988. ISBN 0-9621232-0-X.

This book was the first such work to review a large international body of research in English on the scientific study of meditation. The first half of the book is a survey of the research on meditation's effect on each of a number of specific body systems, including the cardiovascular system, the cortical system, blood chemistry, the metabolic and respiratory systems, and others; and behavioral effects, including chapters titled "Perceptual and Cognitive Abilities," "Empathy," "Creativity and Self-Actualization," "Anxiety," and "Psychotherapy and Addiction." Particular studies are discussed in this section. The second half is the bibliography itself, containing over 1200 citations of published research in journals of many disciplines. This book is an important resource for anyone interested in the meditation research literature. Updated by, but an important addition to, the second edition by Murphy, Donovan, and Eugene Taylor, discussed later in this article. In print and available from online booksellers.

Goleman, Daniel. *The Meditative Mind: The Varieties of Meditative Experience*. London: Thorsons, 1996. ISBN 0-7225-3427-2.

Goleman began this book in 1971 when he was in the Himalayas pursuing his personal interest in Eastern spiritual practices, and it emerged in 1988 as a compilation of articles he had written for various journals. The book - an updated edition of the author's 1977 *Varieties of the Meditative Experience* - is in four parts; the first three present a survey of various meditative paths and some of their theory and practice, and point out what the different methods have in common. Chapter Four, "Meditation Paths: a Survey," is a brief but excellent overview for the lay reader of some of the most well-known meditative practices of the world, including Hindu Bhakti, Jewish Kabbalah, Christian Hesychasm, Sufism, Transcendental Meditation, Patanjali's Ashtanga Yoga, Indian Tantra and Kundalini Yoga, Tibetan Buddhism, Zen, Gurdjieff's Fourth Way, and Krishnamurti's Choiceless Awareness. Goleman indicates that the synopses in Chapter Four are intentionally brief and meant to be an introduction for the uninitiated. The fourth section covers psychology and research in this field. This book has many references and does have a significant chapter on "The Psychology of meditation" including meditation research. *The Meditative Mind* stands out in this collection because it includes brief sections on Jewish and Christian meditation, not usually included in general works on meditation. It also is an excellent introductory exploration of the topic of meditation for the uninitiated lay reader. Includes suggested readings and substantial bibliography on meditation, mysticism and consciousness studies. Goleman, a psychologist, has been associated with Harvard University, has been a reporter on the behavioral sciences for the *New York Times* and is internationally known for writing and speaking about the brain and behavior. In print; copies are available through online booksellers. Recommended for any meditation collection.

Kabat-Zinn, Jon. *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*. New York: Delta, 1990. ISBN 0-385-30312-2.

This book describes the first eleven years of the Stress Reduction and Relaxation Program (SR&RP) at the University of Massachusetts Medical Center, founded in 1979. This is the pioneering clinic where mindfulness meditation (based on Buddhist meditation) is used as complementary medicine to help patients suffering from stress, pain and various illnesses. Jon Kabat-Zinn, featured in Bill Moyers' public television documentary *Healing and the Mind*, is the founder and former director of the clinic (now called the Stress Reduction Clinic (SRC) (<http://www.umassmed.edu/cfm/srp/>) and is currently a professor in the Division of Preventive and Behavioral Medicine at the University of Massachusetts Medical School. The SRC is the oldest clinic of its kind in this country. The patients at the clinic commit to an eight-week course in mindfulness, or awareness, training. I have included this book - even though its reading list is brief - because it describes work that is based on academic study: "... more than 13,000 people referred by more than 1,800 physicians have completed this 8-week, 10-session program." 14 The SRC has been used as a model for hundreds of similar programs worldwide. In print.

Goleman, Daniel. *Healing Emotions: Conversations with the Dalai Lama on Mindfulness, Emotions, and Health*. Boston: Shambhala, 1997. ISBN 1-570-62212-4.

This book reports on a series of dialogues between His Holiness Tenzin Gyatso, the 14th Dalai Lama of the Tibetan people, and ten Western scholars, which took place in 1991. It was the third meeting in the series of "Mind and Life" conferences which began in 1987 (http://www.mindandlife.org/books.pubs_section.html). The purpose of these dialogues was "... to increase mutual understanding and facilitate the emergence of new insight into the relationship ... " between health and emotions, which according to Goleman has been documented since the

11th Century by Tibetan Buddhists. Western scientists have only been exploring this relationship for about thirty years, but Buddhists have been using meditation to help heal the body and mind for about 2,000 years, the editor claims. The other distinguished scholars participating in the dialogues were Daniel Brown, Richard Davidson, Jon Kabat-Zinn, Sharon Salzberg, Clifford Saron, Francisco Varela, and Lee Yearley – representing the fields of philosophy, psychology, physiology, and behavioral medicine. Jon Kabat-Zinn’s description of the successful use of mindfulness meditation in his stress reduction clinic at the University of Massachusetts goes to the heart of the topic discussed here.

This is a very readable presentation for the lay reader of a scientific approach to understanding meditation. There is no bibliography, but there is an extremely useful glossary (contained in the notes) that explains terminology associated with Buddhism and other Eastern spiritual practices. In print.

Austin, James H. *Zen and the Brain: Toward an Understanding of Meditation and Consciousness*. Cambridge, Mass.: MIT Press, 1998. ISBN 0-262-01164-6.

As the title indicates, this tome of 844 pages, written by a neurologist, is dedicated to Zen Buddhism practice and its confluence with science. It is an exploration into the questions of how the brain functions and what happens in the brain during meditation or altered states. It is rare for an academic scholar, particularly a neuroscientist, to make public his own experience with meditation and altered states of mind, and relate them to science. That is what makes this an unusual book. Austin’s experience with Zen led him to study its relationship with the workings of the brain. He combines his personal interest and long experience with zazen, or a kind of Zen sitting meditation, with his scientific quest for understanding the relationship between meditation and the pathways of the brain. Austin recounts his own fascinating experience of Zen training in Japan, and his ultimate experience eight years later of kensho - a brief occurrence of enlightenment achieved by some after a great deal of practice. A detailed table of contents reveals eight parts in the body of the book, divided into 158 short sections discussing the history and practice of Zen meditation, EEG patterns and alpha waves, physiological changes during meditation, development and anatomy of the brain, the study of sleep states and their relationship to Zen, pharmacology, and much more, in great depth. This remarkable book is written in language that is accessible by the lay person, and while it may be too long for most people to want to read from cover to cover, parts of it will undoubtedly appeal to many. Includes glossary and a 112-page References and Notes section. In print; also available as an e-book.

Lu, Zuyin. *Scientific Qigong Exploration: The Wonders and Mysteries of Qi*. Trans. by Hui Lin; ed. by Ming Dao. Malvern, Pa.: Amber Leaf Press, 1997. ISBN 0965-7135-71.

Qigong, qi gong, or qi kung (pronounced chee-gung), the term given to a broad category of Chinese training exercises for the mind and body, has been practiced for several thousand years. 15 Certain forms of qigong have been believed to have healing powers for illnesses of the body and mind. The NCCAM classifies qigong as a form of energy therapy, more specifically, a “biofield therapy.” 16 One example of healing Qigong is ChiLel™ Qigong. 17 Qigong is included in this collection of meditation literature because it is a relaxation technique and often produces a meditative state. However, it was not studied scientifically as a healing method until the 1970’s. Due to political repression of discussion about qigong in China, it has been difficult for researchers to exchange knowledge and ideas on this subject until very recently. This book, originally published in Chinese as Qigong Tansuo in 1994, discusses scientific research into

“external qi” up to 1982, but with greater emphasis on the author’s involvement in this research since that time. “External qi,” according to the author, a physics researcher, is an “ ... invisible and untouchable ... ” force, or energy, emitted by practitioners of qigong. In 1977, it was discovered that this external qi was capable of effecting changes in an infrared spectrometer and creating magnetic field measurements on a magnetometer. News of this created a renewed interest and increased Chinese people’s practice of qigong. The author’s experiments in collaboration with Dr. Yan Xin included work on the effects of external qi on DNA and radioactive isotopes. This is a substantial collection of research in a field in which it is difficult to obtain information on research at all. In print.

Murphy, Michael, and Steven Donovan. *The Physical and Psychological Effects of Meditation: A Review of Contemporary Research with a Comprehensive Bibliography, 1931-1996*. 2d ed. Ed. and with an introduction by Eugene Taylor. Sausalito, Calif.: Institute of Noetic Sciences, 1997. With Annotated Update, September 2002. ISBN 0-943951-36-4.

This book is more than just an update of the 1988 bibliography of similar title edited by Murphy and Donovan. Included is a 32-page introduction by Eugene Taylor presenting a history of the modern developments in meditation research. This introduction is a significant piece of work that adds great interest to this edition. Subheadings such as “The Americanization of Meditation,” “TM and the TM-Sidhi Project,” “Herbert Benson: The Mind-Body Medical Institute,” “Government Research and Medical Science,” “Difficulties of Research with Religious Adepts,” “The Cortical System,” and “The Qi Gong Database” show the scope of this very readable and informative introduction. As in the first edition, the next several chapters are devoted to a narrative survey of the studies done in each of the many areas of physical and psychological research. A strong feature of this book and its update is that both strengths and limitations in meditation research methodologies, and the reasons for them, are noted. The bibliography contains the citations plus almost four hundred new studies since the first edition. The 24-page 2002 update, printed separately, consists of a number of the latest research citations, all annotated. Subsequent editions of this book would be welcome and important to the continuing documentation of meditation research. In print; available from the Institute of Noetic Sciences by phone: 707.779.8217, or e-mail: RESEARCH@NOETIC.ORG. A searchable online version of the bibliography is also found at <http://www.noetic.org/ions/new.html>.

Review Articles

Sandlund, E. S., and T. Norlander. “The Effects of Tai Chi Chuan Relaxation and Exercise on Stress Responses and Well-Being: an Overview of Research.” *International Journal of Stress Management* 7, no. 2 (2000): 139-49.

Sandlund and Norlander present an overview of the research published between 1996 and 1999 (located through PsycLit and Medline) on tai chi chuan and its relationship to stress management. Tai chi chuan, or tai chi, originated in China as long as nine hundred years ago and is practiced worldwide. 18 The practice incorporates five principles: relaxation, separating yin and yang, turning the waist, keeping the back erect, and total body involvement. Some of the findings of this article are that tai chi research is very new; that more is known about tai chi’s benefits for senior adults than other age groups; and that there is great promise in studying tai chi

further in relation to other forms of stress management techniques, gender differences, length of experience in practice, and effects on the immune system.

Shapiro, Shauna L., and Roger Walsh. "An Analysis of Recent Meditation Research and Suggestions for Future Directions." *Humanistic Psychologist* 31, no. 2/3 (2003): 86-114.

This article reviews the recent literature (approximately the past 5-6 years) of meditation research, including the most well-designed (in their view) studies on meditation. The authors discuss the psychological, physiological, and transpersonal aspects, dividing meditation into two basic types: concentration and awareness. They discuss the limitations present in pioneering meditation studies, how these first studies laid a foundation for later research, and include a significant section on suggestions for future research.

Baer, Ruth A. "Mindfulness Training as a Clinical Intervention: a Conceptual and Empirical Review." *Clinical Psychology: Science and Practice* 10, no. 2 (Summer 2003): 125-143.

This review is a summary of the literature of mindfulness meditation as a clinical treatment from the 1970's on. The author acknowledges the increasing popularity of mindfulness meditation as an intervention and discusses both its success as an intervention and the ways in which empirical research methodology could be improved. Readers of Baer's article should also read Jon Kabat-Zinn's commentary on this article in the same issue of this journal, p. 144-156, "Mindfulness-Based Interventions in Context: Past, Present, and Future."

Organizations, Conferences and Web Sites

Meditation research is a dynamic, rapidly advancing field. The research done in earlier years has suggested the current research initiatives that are continuing with greater insight and improved methodologies. The recent use of the web to disseminate such information is helping to promote global awareness of this current research interest. The information about the web sites and organizations provided here is current as of this writing, though it is in the nature of both web sites and organizations to change, particularly in a field that is evolving so rapidly.

Stress Reduction Clinic at the University of Massachusetts Medical School
<http://www.umassmed.edu/behavmed/clinics/>

The web site of the Stress Reduction Clinic founded by Dr. Jon Kabat-Zinn and described above in the annotation of Full Catastrophe Living. Also describes the Center for Mindfulness in Medicine, Health Care, and Society (CFM) at UMass.

National Center for Complementary and Alternative Medicine (NCCAM) (U.S. National Institutes of Health) <http://nccam.nih.gov/>

As of this writing, there are four clinical trials on meditation being conducted by this Center. These trials are studying cardiovascular disease in older blacks and in older black women, coronary heart disease, and binge eating disorder. Another trial, "Mindfulness-Based Art Therapy for Cancer Patients," is in progress, as are three studies on tai chi and one on qigong (Chinese exercise systems incorporating meditation). Details of the studies and links to related articles can be found at this web site. The NCCAM also funds many studies based in university medical schools.

Mind/Body Medical Institute, Harvard University and Beth Israel/Deaconess Medical Center
<http://www.mbmi.org/default.asp>

Herbert Benson is the President of this institute, incorporated in 1988, which seeks to study and teach mind/body medicine.

“CAM on Pubmed” <http://www.nlm.nih.gov/nccam/camonpubmed.html> is a search engine at the NCCAM site that limits searches to the complementary and alternative subset of PubMed, a medical database providing free access to MEDLINE.

Investigating the Mind. The McGovern Institute, MIT. September 13-14, 2003 (conference)
http://web.mit.edu/mcgovern/html/Events_and_Seminars/investigating_mind.shtml

The McGovern Institute at the Massachusetts Institute of Technology is investigating the relationship between thought and emotion and how they relate to the physical brain. The “Investigating the Mind” conference was jointly sponsored with the Mind and Life Institute (see next entry in this list), and was the eleventh such meeting involving the Dalai Lama and a group of Buddhist meditators and scientists in dialogue.

Health Emotions Research Institute, University of Wisconsin <http://www.healthemotions.org/>

Descriptions of state-of-the-art research facilities; descriptions of current research projects, including a recent study of mindfulness meditation

Institute of Noetic Sciences <http://www.noetic.org/ions/new.html>

This non-profit organization supports research and education in consciousness studies, including meditation research. Its quarterly journal, Shift: At the Frontiers of Consciousness, communicates to both scientific and lay readers.

Mind and Life Institute <http://www.mindandlife.org/>

This is the institute responsible for the publication of the books in the Mind and Life Series described above in the bibliography section. This organization works to create a collaborative research partnership between Buddhism and science. They have published a series of books on this subject and sponsor conferences and a Summer Research Institute.

Transcendental Meditation (TM) organization <http://www.tm.org/>

TM is a yogic meditation technique practiced by several million people throughout the world. The program (see citations on the scientific research above) was developed by Maharishi Mahesh Yogi and brought to the West in the form of an education program. In addition to the meditation course, the TM organization runs three schools: one for K-12, a liberal arts university offering advanced degrees, and a continuing education school for adults. The web site is extensive and includes the TM Summary of Research, edited by David Orme-Johnson (http://www.mum.edu/tm_research/summary_tm_res.html).

The Qigong Institute <http://www.qigonginstitute.org/>

This is a non-profit organization devoted to research and education. A number of scientific papers in full text, describing research on qigong, are found on this site; also a list of dissertations written about Qigong, a Qigong database with 3,500 abstracts of articles and

conference papers, and other resources. The database is available for purchase from this web site.

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