

Yoga and Pain Management

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The contents of this bibliography do not provide medical advice and should not be so interpreted. Before beginning any exercise program, see your physician for clearance.

NOTE: For back pain, please see the “Back and Neck” bibliography.

“How is Yoga helpful as a pain management technique? Whether the pain has a structural, physiological, or psychological/emotional manifestation, Yoga’s skill is in [aiding] the body’s capacity to optimize the functioning of all three of these areas. This happens by relieving unnecessary tension in the musculoskeletal structure, by opening the breathing and circulatory capacity, and by teaching the mind to detach itself from the struggle against the pain.”

—Arthur Kilmurray
Mystic River Yoga

Israeli Yoga teacher Tsipi Weiner “spent 17 years suffering from severe chronic pain after she drove over a land mine in 1967. Only after meeting Iyengar and studying with him intensively in Pune, India, Weiner says, did she fully heal from the trauma.”

—Yoga Journal, December 2003, p. 20

Many years ago Yoga teacher Noreen N. Gosch broke both of her knees in an accident. This left her with a very painful arthritic condition, and she could not move without severe pain. She took up Yoga and her “flexibility returned, the pain vanished, and movement came with ease. [Her] physicians couldn’t believe the change.”

—Yoga Journal, December 2003, p. 19

“[David Wilson is] a Vietnam vet who wears clunky metal rings on nearly every finger and builds computers for fun, but lately the only place [he] wants to be is on his yoga mat. The 50-year-old is homeless, struggles with post-traumatic stress disorder and has chronic pain in his neck and back. And until recently, a good night’s sleep meant just two hours of solid snooze time. But since enrolling in a stress reduction class at the Middletown Community Health Center, Wilson says he’s finally sleeping through the night. Through yoga and meditation sessions, he is controlling his pain and has learned to focus his breathing.”

—From an article by Laura Walsh,
“Low-Income Patients Beating Stress with Yoga, Meditation Class,”
Worcester Telegram & Gazette, 3 December 2004

Baxter, Christopher Ken, with Moe Clancy. Chronic pain release through yoga: Creating a new relationship with the core of your body. *Kripalu Yoga Teachers Association Yoga Bulletin*, Summer 1999, pp. 9-12. Available online at The Yoga Site, URL: <http://www.yogasite.com/chronicpain.htm>.

Bayda, Ezra. When it happens to us: Living with the mistaken notion that we *should* be free of pain, we make matters worse for ourselves. *Tricycle: The Buddhist Review*, Winter 2002, pp. 38-39.

Berke, Tom. Pain. Article available online: <http://www.sunandmoonstudio.com/pain.html>.

“Yoga has taught me a great deal. Rodney Yee . . . told me not to run from pain so quickly. This was an alien concept—not running from or masking the pain. My friends think I am strange

because I don't 'pop' the latest painkiller the instant I hurt. Pain as a teacher was almost as bizarre a notion.

"The protecting instinct reminded me of when I was new to yoga. My body was closed, tight and tense from years of gripping, years of fearing pain, which had visited so often. Yoga acted on my body like the peeling of an onion—layer by layer getting deeper into the body. Removing fears. Liberating the body and the mind. Was the yoga now liberating me from pain?"

Block, Mary. Breath and occupation: An essential combination. *ADVANCE for Occupational Therapy Practitioners*. 17 Jul 2000. Article available online: <http://www.advanceforot.com/editorial/ot/7-17-2000/otfeature1.html?frominc=editorial&pub=ADVANCE+for+Occupational+Therapy+Practitioners&issuedate=7%2F17%2F2000>.

"Though breath and occupation are inextricably tied, the relationship is often not appreciated. Without breath we cease to fulfill occupation. Without occupation, we have no reason to breath.

"Ancient cultures acknowledge the connection between the two in both in Yoga and Tai Chi. All physical movement, whether active or passive, is accompanied by controlled breathing which enables a self-focus leading to the inner relaxation. This, in turn, facilitates the individual's concentration, self-realization, and integration with the universe . . ."

Addresses chronic pain management.

Boorstein, Sylvia. Answers the question, "What should I do if I experience considerable physical pain in my knees and my back when I practice sitting meditation?" *Tricycle*, Summer 2002, pp. 22-23.

Boyd, Jeffrey. *Joy, Despite Chronic Illness*. Forthcoming.

The author is searching for Buddhists to interview by phone who have been living with a chronic disease for a long time, yet have managed to remain upbeat and happy, at least some of the time. Do you know anyone who fits those criteria? Dr. Boyd is a physician at Waterbury Hospital, a Yale Medical School teaching hospital. He has been on the medical faculty of the National Institutes of Health in Bethesda, Maryland, where he did research on living with chronic illness. Please contact Jeffrey Boyd, MD, 57 Bethany Woods Road, Bethany, CT 06524, Tel.: 203-500-4988, email: jeffreyboyd@earthlink.net.

Brena, S. Chronic pain: A point of contact between yoga teaching and present Western thought. Paper read at IV Cong. Int. Coll. Psychosom. Med., Kyoto, Japan, 1977.

Brommell, Jacqui. Health: Bend and extend—put an end to the pain. *Independent*, 15 Mar 1994.

Brownstein, Art. *A Yogic Approach to Healing Chronic Pain* (working title). Forthcoming.

Art Brownstein, M.D., is the rare combination of a physician and Yoga practitioner with over 30 years of experience as an M.D. and 27 years of experience in Yoga, and his forthcoming book on chronic pain will be an invaluable contribution to the field of Yoga therapy.

Bushell, William C. Possible “transcendence” of pain, sickness, and aging in advanced ascetico-meditational practitioners: Psychophysiological, anthropological, and comparative religious evidence. Center for the Study of World Religions Director’s Seminar, November 17, 1993.

Castleman, Michael. Pain management [a section in the Meditation chapter]. In Michael Castleman, *Nature’s Cures*. Emmaus, Pa.: Rodale Pres, 1996.

“Anxiety decreases the threshold for pain, Dr. Benson notes, and pain causes anxiety. The result is a vicious cycle. Compared with people who feel relaxed, those under stress experience pain more intensely and become even more stressed, which aggravates their pain. Meditation breaks this cycle.

“Childbirth preparation classes routinely teach pregnant women deep breathing exercises to minimize the pain and anxiety of labor. Few call it breath meditation, but that’s what it is.

“Meditative techniques are also a key element in the Arthritis Self-Help Course at Stanford University. More than 100,000 people with arthritis have taken the 12-hour course and learned meditation-style relaxation exercises as part of a comprehensive self-care program. Graduates report a 15 to 20 percent reduction in pain.

“Meditation may not eliminate pain, but it helps people cope more effectively. In a recent study at the Mind/Body Medical Institute, after people with chronic pain learned the relaxation response, their pain-related physician visits decreased 36 percent.”

Chödrön, Pema. *Good Medicine: How to Turn Pain into Compassion with Tonglen Meditation* CD set with study guide. Boulder, Colo.: Sounds True, 1999. 2 hours.

Christensen, Alice. Chronic pain. In Alice Christensen, *The American Yoga Association’s Easy Does It® Yoga*. New York: Simon & Schuster, 1999, p. 31.

_____. Pain management. In Alice Christensen, *The American Yoga Association Wellness Book*. New York: Kensington Books, 1996, pp. 126-133.

Cohen, Darlene. Finding joy amid the pain. *Shambhala Sun*, Jul 2000, pp. 60-67.

“Even while we suffer, says Darlene Cohen, we can experience joy in life by opening up fully to our experience, not closing down. Drawing on her training as a Zen teacher and her own long experience with chronic pain, she offers an awareness approach to living well with suffering.”

_____. *Finding a Joyful Life in the Heart of Pain: A Meditative Approach to Living with Physical, Emotional, or Spiritual Suffering*. Boston: Shambhala Publications, 2002.

_____. The practice of nonpreference: When pain becomes just one object among many in our awareness, it loses its power. *Tricycle: The Buddhist Review*, Winter 2002, p. 37.

_____. Private consultations on pain and the despair resulting from living with chronic pain, either on a regular or a one-time basis. URL: http://www.darlenecohen.net/private_consultation.html.

Subjects covered in the consultations are: personal instruction and/or support needed by the client and access to the curriculum of the “Suffering & Delight” meditation groups for people in pain. For a detailed curriculum, see the URL above.

Cooper, Deborah. Yoga: Relaxation and relief for FM and chronic pain. Available online: <http://www.immunesupport.com/library/showarticle.cfm?ID=2821>.

Coulter, David. Self-preservation: The role of flexion reflexes. *Yoga International*, Nov/Dec 1994, pp. 67-71.

CTV.ca web staff. Meditation effective for chronic pain: study. CTV News, 28 Aug 2005. Article available online: http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/1125069391890_120478591/?hub=CTVNewsAt11.

“Canadian doctors have presented a study that shows promising results for using meditation to treat chronic pain. The study was spearheaded by Dr. Jackie Gardner-Nix, who runs a meditation program at the Sunnybrook and St. Michael's hospitals in Toronto.

“‘We are decreasing their bodily pain, we’re decreasing the intensity of their pain and we’re increasing their quality of life,’ Gardner-Nix told CTV News.

“She turned to meditation techniques when she found that pain medications were inadequate for some patients, who continued to suffer or had to endure side-effects.

“‘I’ve been an expert in pain medications for a long time—many years—and what I found was that they only did so much,’ Gardner-Nix said.

“She now treats chronic, untreatable pain with a technique called mindfulness meditation. Her method is based on a program created by Dr. Jon Kabat-Zinn at the Stress Reduction Center at the University of Massachusetts. Many experts see Kabat-Zinn as a pioneer in the use of medical meditation, and Gardner-Nix studied with him personally.

“But while Kabat-Zinn’s method is practiced throughout Canada, experts feel there is a lack of data to prove its effectiveness. Through her study, Gardner-Nix found that after 10 weeks involving 10 to 20 minutes of daily meditation, many patients were better able to manage their pain.

“Patient Corrine Humphreys experienced chronic pain for over a decade before finding peace through mindfulness meditation. A car accident and spinal injury left her with nerve damage and unending discomfort. It even made simple tasks like driving a car excruciating ordeals . . .”

Dworkis, Sam. How yoga works: The neuromuscular laws as applied to yoga. Article available online: <http://www.extensionyoga.com/Laws.htm>.

Farhi, Donna. Pain relief. In Donna Farhi, *The Breathing Book: Good Health and Vitality Through Essential Breath Work*. New York: Henry Holt and Co., 1996, p. 222-224.

Gannon, Linda, and Richard A. Sternbach. Alpha enhancement as a treatment for pain: A case study. *Journal of Behavior Therapy and Experimental Psychiatry*, 1971, 2:209-213.

This case study provides some evidence that it is possible for a patient to learn to prevent the onset of pain by means of operant alpha conditioning techniques that include Yoga meditation.

Gitananda Giri, Dr. Swami. Pain and yoga. *Yoga Life*, Mar 2001, 32(3):27-34.

On release of flatulence-related pain.

_____. The conquest of pain [by yoga]. In *Abstracts of the 2nd Annual Symposium of the Indian Academy of Yoga*, Dec-Jan 1982-83. Madras: Indian Institute of Technology. Reprinted in *Yoga Life*, Jan 2003, 34(1):3-10.

On the *pavana mukta asanas* for relieving pain of gastric disorders.

Goodman, Julie. Yoga, water classes offer relief without drugs. *The Clarion-Ledger* (Mississippi), 21 Jun 2005. Author email: jgoodman@clarionledger.com

“[Susan] Ferber, 57, suffers from fibromyalgia, a syndrome characterized by widespread muscle pain, fatigue and multiple tender points. She also has a painful condition of the feet where the tendon pulls away from the bone.

“But since she began attending yoga classes regularly, the pain in her feet has disappeared, and her fibromyalgia has been significantly subdued. ‘It’s the stretching. It’s the breathing. It’s the taking control of it yourself,’ she said.

“Ferber has passed over the convenience and immediate gratification of painkillers, opting instead for some more alternative methods of pain management, such as yoga and deep tissue massage.

“It is a decision that could become more common in the wake of cardiovascular risk warnings associated with prescription pain relievers Bextra, Vioxx and Celebrex.

“Ferber and others like her say they’ve tried to shun the medications that have made them loopy or put them at risk for addiction or intestinal discomfort. Yoga, along with acupuncture, water athletics and even bags of ice offer some patients relief without the reliance on drugs . . .”

Hanada, E.Y. Efficacy of rehabilitative therapy in regional musculoskeletal conditions. *Best Practice & Research. Clinical Rheumatology*, Feb 2003, 17(1):151-166. PMID: 12659826.

Abstract: This chapter reviews the best evidence for the rehabilitation of regional musculoskeletal conditions. Evidence-based efficacy of different modalities for treatment of musculoskeletal pain is presented, and the value of the patient’s active participation in the rehabilitation program is emphasized. The following modalities are commonly included in the holistic approach to patient-centered care and are reviewed: exercise therapy, thermotherapy, transcutaneous electrical nerve stimulation (TENS), and alternative therapies such as acupuncture, massage and yoga. A review of cognitive-behavioral strategies in pain management to prevent or treat fear-avoidance behavior is also presented. Furthermore, the application of biomechanics in treating and preventing musculoskeletal disorders is illustrated. Moreover, the evidence for pain self-management to improve symptoms, health status and decrease the utilization of health care resources and cost is outlined. Finally, an overview will be presented, concerning the application of the evidence for treatment modalities to patient care, with focus on patient-centered, holistic treatment in a

supportive setting. The following key questions/issues are addressed. What are the relevant therapeutic modalities for musculoskeletal pain disorders? What is the evidence of efficacy of these modalities in regional musculoskeletal conditions? What is the importance of understanding biomechanics? What is the importance of understanding fear-avoidance beliefs? What is the evidence for “alternative” therapies such as acupuncture, massage or yoga? What is the evidence for “pain self-management?” How does one apply the evidence for rehabilitation in regional musculoskeletal conditions into clinical practice?

Hanna, Thomas. *The Myth of Aging: Somatic Exercises™ to Control Neuromuscular Stress* audiocassettes. Novato, Calif.: Novato Institute for Somatic Research. (Addresses chronic pain throughout the entire body.)

Harrison, Gavin. Working with pain. *Tricycle: The Buddhist Review*, Winter 2002, p. 40.

Diagnosed HIV-positive in 1989, Vipassana teacher Gavin Harrison offers some advice on how to confront physical pain.

Hopkin, Karen. Pain, pain, float away: For people who suffer from chronic pain, meditation may be the first step to recovery. WebMD Medical News, 9 Oct 2001. Article available online: http://my.webmd.com/living_better_content/alt/article/1668.50643.

“But how might meditation work to relieve pain? First off, the relaxation that’s at the heart of meditation relieves the muscle tension that most certainly contributes to pain, says Howard Fields, MD, of the University of California, San Francisco, who sat on the NIH technology assessment panel. And the anxiety involved in anticipating pain—or thinking it will never leave—causes additional muscle tightening, says Patel. Relieving that anxiety is another way meditation can help people cope with physical sensations.

“In addition, meditation most likely alters a person’s emotional response to pain. Remember, pain is more than just a physical sensation—it is an experience steeped in emotion. ‘I’m still in constant pain,’ says Benson. ‘But meditation makes the pain more bearable. It’s taught me how to live with it and to find ways to better manage it.’

“This makes sense, physiologically speaking, because the sensations and the emotions associated with pain are processed by different parts of the brain, says Catherine Bushnell, PhD, of McGill University. So relaxation techniques, including meditation and hypnosis, might allow people to tolerate pain they would ordinarily describe as unbearable. In her studies of hypnosis, Bushnell has found that people can be taught to reinterpret painful sensations, regarding them as ‘warm and pleasant’ rather than ‘burning and unpleasant.

“‘So it’s not just that people are being trained to ignore pain’ when hypnotized or meditating, says Bushnell. She’s concluded that relaxation techniques can alter the way the brain responds to a painful sensation and the way a person feels about it.

“Further, meditation also may change the neural pathways that control the physical sensation of pain. Perhaps it works like morphine, says Bushnell, dampening pain by stimulating the inhibitory nerves that extend from the brain to the spinal cord, where they block the sensation of pain.”

Hunt, Dorothy. Being intimate with what is: Healing the pain of separation. In John J. Prendergast, Peter Fenner, and Sheila Krystal, eds., *The Sacred Mirror: Nondual Wisdom and Psychotherapy*. St. Paul, Minn.: Paragon House, 2003.

Jerome, Richard, and Giovanna Breu. Mind over misery: At a cutting-edge clinic some victims of chronic pain learn to live again. *People*, 5 May 2003.

Yoga is one of the alternative modalities recommended for patients in the Cleveland Clinic's Chronic Pain Rehabilitation Program, directed by Dr. Edward Covington. See the citation in the "Of Related Interest" section below for an article by Dr. Covington on pain.

Kabat-Zinn, Jon. Coping with chronic pain: An interview with Jon Kabat-Zinn. *ReVision*, Spring 1984, 7(1):66-72. (On the use of Zen and Vipassana meditation and Hatha-Yoga in the management of chronic pain.)

_____. An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 1982, 4:33-47. PMID: 7042457.

Abstract: The practice of mindfulness meditation was used in a 10-week Stress Reduction and Relaxation Program to train chronic pain patients in self-regulation. The meditation facilitates an attentional stance towards proprioception known as detached observation. This appears to cause an "uncoupling" of the sensory dimension of the pain experience from the affective/evaluative alarm reaction and reduce the experience of suffering via cognitive reappraisal. Data are presented on 51 chronic pain patients who had not improved with traditional medical care. The dominant pain categories were low back, neck and shoulder, and headache. Facial pain, angina pectoris, noncoronary chest pain, and GI pain were also represented. At 10 weeks, 65% of the patients showed a reduction of greater than or equal to 33% in the mean total Pain Rating Index (Melzack) and 50% showed a reduction of greater than or equal to 50%. Similar decreases were recorded on other pain indices and in the number of medical symptoms reported. Large and significant reductions in mood disturbance and psychiatric symptomatology accompanied these changes and were relatively stable on follow-up. These improvements were independent of the pain category. We conclude that this form of meditation can be used as the basis for an effective behavioral program in self-regulation for chronic pain patients. Key features of the program structure, and the limitations of the present uncontrolled study are discussed.

_____. At home in our bodies: An interview with Jon Kabat-Zinn. *Tricycle: The Buddhist Review*, Winter 2002, pp. 34-36.

In this interview, Kabat-Zinn answers the questions: Can Buddhist practice liberate us from the prison of physical pain? How can meditation help when medicine falls short?

_____, **L. Lipworth, and R. Burney.** The clinical use of mindfulness meditation for the self-regulation of chronic pain. *Journal of Behavioral Medicine*, 1985, 8:163-190.

_____, **L. Lipworth, R. Burney, and W. Sellers.** Four-year follow-up of a meditation-based program for the self-regulation of chronic pain: Treatment outcomes and compliance. *Clinical Journal of Pain*, 1986, 2(3):159-173.

Khalsa, Dharma Singh, M.D., with Cameron Stauth. *The Pain Cure: The Proven Medical Program that Helps End Your Chronic Pain*. New York: Warner Books, 1999. (Contains sections on Yoga postures, breathing, and meditation.)

Lee, Sung W., Carol A. Mancuso, and Mary E. Charlson. Prospective study of new participants in a community-based mind-body training program. *Journal of General Internal Medicine*, Jul 2004, 19(7):760-765. PMID: 15209590. Author email: SWL9001@med.cornell.edu.

Abstract: **BACKGROUND:** Mind-body practices such as yoga are widely popular, but little is known about how such exercises impact health-related quality of life. **OBJECTIVE:** To measure changes in health-related quality of life associated with 3 months of mind-body training as practiced in community-based settings. **DESIGN:** Prospective cohort study. **SETTING:** Eight centers for practice of mind-body training. **PARTICIPANTS:** One hundred ninety-four English-speaking adults who had taken no more than 10 classes at the centers prior to enrollment in the study. One hundred seventy-one (88%) returned the 3-month follow-up questionnaire. **INTERVENTION:** Administration of the SF-36 questionnaire at the start of training and after 3 months. **MEASUREMENTS AND MAIN RESULTS:** At baseline, new participants in mind-body training reported lower scores than U.S. norms for 7 of 8 domains of the SF-36: mental health, role emotional, social, vitality, general health, body pain, and role physical ($P < .002$ for all comparisons). After 3 months of training, within-patient change scores improved in all domains ($P < .0001$), including a change of +15.5 (standard deviation ± 21) in the mental health domain. In hierarchical regression analysis, younger age ($P = .0003$), baseline level of depressive symptoms ($P = .01$), and reporting a history of hypertension ($P = .0054$) were independent predictors of greater improvement in the SF-36 mental health score. Five participants (2.9%) reported a musculoskeletal injury. **CONCLUSIONS:** New participants in a community-based mind-body training program reported poor health-related quality of life at baseline and moderate improvements after 3 months of practice. Randomized trials are needed to determine whether benefits may be generalizable to physician-referred populations.

Main, Darren. Yoga and chronic pain. *Castro Yoga Newsletter*, Spring 1999. Article available online: <http://www.darrenmain.com/pages/writing/articles/pain.pdf>.

Martin, Donna. Chronic pain and yoga therapy. *The Journal of The International Association of Yoga Therapists*, 1991, 1(I&II):35-38.

Martin, Sam. Easing the pain: Managing chronic ailments. *Psychology Today*, Sep-Oct 2001. Article available online: http://www.findarticles.com/cf_0/m1175/5_34/82261888/p1/article.jhtml?term=yoga or <http://cms.psychologytoday.com/articles/pto-20010901-000012.html>

“People suffering from chronic pain go through more than just the pain itself,” explains Sonia D. Gaur of Harbor-UCLA Medical Center’s department of psychology. “They contend with anxiety and depression as well as medication usage. Our study found improvement in every area.”

“Gaur’s study, presented at the American Psychiatric Association’s annual meeting, recruited 18 volunteers suffering from chronic pain from ailments such as migraines and osteoarthritis. The volunteers participated in 90-minute yoga sessions three times a week for four weeks; they combined meditative breathing exercises known as pranayam with different yoga poses. The poses were designed to release physical tension.

“To measure the effect that the yoga sessions had on the volunteers’ pain, Gaur asked them to rate their moods and the severity of their pain at the end of each week. Most volunteers reported that their pain decreased enough to ask their physicians to decrease their medication. Although no one knows the exact mechanism by which yoga works to relieve pain, Gaur says what is more important is its effectiveness. ‘Some people live with chronic pain their whole lives,’ Gaur says. ‘Yoga is another way of coping with these ailments.’”

Matray, JoAnn. Pain and yoga. *Joy: The Journal of Yoga*, Jul 2003, 2(7). Article available online: <http://www.journalofyoga.org/yogandpain.htm>

McCarberg, B., and J. Wolf. Chronic pain management in a health maintenance organization. *Clin J Pain*, Mar 1999, 15(1):50-57. (The treatment group participated in a 16-hour, 8-week class teaching cognitive-behavioral techniques, the relaxation response, meditation, and stress management. The minimal treatment group received a home-study manual.)

Meditation relieves chronic pain: Toronto doctor offers course that cuts stress levels and may reduce reliance on drugs. *Maclean’s*, 9 Jun 2005.

“Meditation can help relieve chronic pain and reduce the need for painkillers, walkers or canes, according to Dr. Jackie Gardner-Nix, a Toronto pain consultant.

“About 40 per cent of her patients have low-back pain, with the rest suffering from chronic headaches, migraines, arthritis, multiple sclerosis, Crohn’s disease and fibromyalgia.

“Gardner-Nix, who splits her time between St. Michael’s Hospital and Sunnybrook and Women’s College Health Sciences Centre, says drugs were unable to provide sufficient relief in her patients, reducing pain severity from eight out of 10 to ‘a five or six, at best.’ Meanwhile, some patients were ‘entrenched in being disabled.’

“After she took a seven-day course on mindfulness-based stress reduction, Gardner-Nix made a commitment to meditating daily to deal with her own stress. After a year, she knew she could apply the practice to her patients and their pain.

“Gardner-Nix began offering a 10-week course she calls ‘mindfulness-based chronic pain management,’ which involves classes where patients do some movement meditations and spend time sitting very still and focusing on their breathing—the key to mindful meditation. Once she began using mindful meditation in her practice, she found her patients’ pain scores and stress hormone levels were reduced.

“In some cases, the results were dramatic, with patients greatly reducing or even eliminating some pain medications or relying less on a walker or a cane. ‘They are also happier and feel they have more control over their life and become more hopeful.’

“Dr. Anjelica Fargas-Babjak, director of the acupuncture and pain clinic at McMaster University in Hamilton, has also seen positive results with meditation. She says it is ‘important to use the mind-body techniques such as meditation to help with the stress response. By decreasing muscle tension and stress, there is healing and decreased pain.’

“At least 370 people have gone through the mindfulness-based chronic pain management course at St. Michael’s and Sunnybrook. Gardner-Nix has expanded the programs to offer courses via video link-up to Ontario hospitals in Orangeville, Barrie, Sudbury, Bracebridge and Elliott Lake.”

Midley, Connie. Yoga leaves aches and pains behind: How [Mary Glover] reduced joint pain and stress. *The Arizona Republic*, 6 Apr 2004. Article available online: <http://www.azcentral.com/health/fitness/articles/0405healthprofile06.html#>.

Miller, Lynn R. Crash course: A lesson in living. *Yoga International*, Sep/Oct 1995, pp. 19-22. (On Yoga and coping with the pain from injuries suffered in a car crash.)

Mills, W. W., and J. T. Farrow. The Transcendental Meditation technique and acute experimental pain. *Psychosomatic Medicine*, 1981, 43(2):157-164.

Nagarathna, R., A. Jain, and H. R. Nagendra. Immediate effects of pranic healing on chronic musculoskeletal pain: A single blind control study. Swami Vivekananda Yoga Research Foundation.

_____, **H. R. Nagendra, and S. Telles.** Comparison of the beneficial effects of special pranayama techniques (SAV, CAV & NS) in anxiety neurosis, back pain, bronchial asthma, chronic pain, diabetes mellitus, obesity and hypertension by clinical, autonomic and bio-chemical studies. Swami Vivekananda Yoga Research Foundation.

_____, **H. R. Nagendra, and S. Telles.** Psychological evaluation of the beneficial effects of 3 types of special pranayama (SAV, CAV & NS) in anxiety neurosis, back pain, bronchial asthma, chronic pain, diabetes mellitus, obesity and hypertension. Swami Vivekananda Yoga Research Foundation.

_____, **H. R. Nagendra, S. Telles, and A. Jain.** Psychological measures of the alleviation of chronic musculoskeletal pain by SAV, CAV & NS pranayamas. Swami Vivekananda Yoga Research Foundation.

Nahit, Elizabeth S., Christina M. Pritchard, Nicola M. Cherry, Alan J. Silman, and Gary J. Macfarlane. The influence of work related psychosocial factors and psychological distress on regional musculoskeletal pain: A study of newly employed workers. *Journal of Rheumatology*, Jun 2001, 28(6):1378-1384.

“The study has shown that adverse work related psychosocial factors, in particular aspects of job demand and control, influence the reporting of regional musculoskeletal pain [including back, shoulders, arms, and knees]. This occurs even after only short term exposure. The odds of reporting these adverse exposures are increased when pain is reported at multiple sites.”

Nahna, Madhu. Yoga and pain management. Research paper written for I.Y.T.A. (N.Z.), 1995.

Explains mechanisms of pain and gate control theory, along with detailed description of gentle, slow asanas, pranayama, relaxation, and visualization/meditation techniques taught by Madhu and Dr. Rabindranath Azariah, an orthopedic surgeon, in their pain management workshop. Also includes a description of the eightfold path of Yoga and an explanation of why it is ideal for sufferers of chronic pain.

Narayanaswami, V. Role of certain yoga postures in the treatment of spinal pains (Apapahuka and Katigraha). In *Abstr 2nd Ann Symp Indian Academy Yoga*. Dec-Jan 1982-1983. Madras: Indian Institute of Technology.

Nespor, K. Pain management and yoga. *International Journal of Psychosomatics*, 1991, 38(1-4):76-81. Review.

Abstract: The use of yoga and yoga-related techniques in pain management is reviewed and discussed. Self-awareness, relaxation, approaches which use respiration, increased self-understanding and self-acceptance, changed context of pain, increased control, life style improvements, group and social support proved beneficial. The use of yoga in pain management has its transpersonal and philosophical dimensions. Other topics discussed include the importance of pain; pain and personal growth; some unexplained issues related to yoga and pain; and systems approach and the use of yoga in pain control.

Nuernberger, P. Stress III. *Research Bulletin of the Himalayan International Institute*, 1982, 4:3-8. (Discusses pain.)

O'Bryan, Donna, and Micki Love. Pain management [Integrative Yoga Therapy approach. *Spirit of Healing Yoga Therapy Journal*. Article available online: <http://www.iytyogatherapy.com>.

Ott, Mary Jane. Yoga as a clinical intervention: Pain control and stress reduction may be just a breath away. *ADVANCE for Nurse Practitioners*, Jan 2002, 10(1):81. Article available online: <http://www.advancefornp.com> (you must register at the site). Author is a member of IAYT and may be contacted at: MaryJane_Ott@DFCI.Harvard.Edu.

“As nurse practitioners, we are consistently faced with the challenge of identifying and implementing safe, innovative ways to promote health and manage the health problems experienced by our patients. Yoga is a practice that you and your patients may find helpful to cope with stress, nurture health and support healing.”

Patrick, Priscilla. *Strengthening Stretches: Fibromyalgia and Chronic Muscle Pain* video. URL: <http://yogaone.com/cgi-bin/leeshop/open.pl>.

From the website: “This video contains two fifteen minute segments. There are nearly two dozen different exercises of gentle, slow and deep stretches. People of all walks of life, with and without chronic muscle pain worked through these poses time and again. ‘Tweaking’ was constant until we found this particular rhythm. Deep and gentle stretches are a must for people with these muscular problems.”

Payne, Julia. Email: jpayne@1st.net.

Julia teaches Yoga and meditation to patients in a pain management program, most of whom are worker’s compensation cases (coal miners, steel workers, heavy industry workers, etc.). Julia says these patients are very surprised when they find out that Yoga will be a part of their healing process, but that it does not take long before they discover just how much Yoga will help them.

Prince, Richard. Pain: Pathway to Transformation workshop. 6th Annual Yoga Journal Convention, 27-30 Sep 2001, Estes Park, Colorado.

_____. Postures for Pain workshop. 6th Annual Yoga Journal Convention, 27-30 Sep 2001, Estes Park, Colorado.

“This course will give each participant skill in using the sequence Dr. Prince uses in his practice. Each student will receive a syllabus with photos of each posture, the sequence used, and how to use props to help especially challenged clients get the changes they need.”

Raghavan, Ramesh. Conducted research examining the effects of complementary/alternative medicine interventions, including Yoga, on pain and immune changes in adolescents with irritable bowel syndrome. 2000. Dr. Raghavan at the time worked for the UCLA Pediatric Pain Program. Contact: raghavan@ucla.edu.

Ranade, Subhash, and Sunanda Ranade. Neuritis; Neuralgia. In Subhash Ranade and Sunanda Ranade, *Ayurveda and Yoga Therapy*. Pune, India: Anmol Prakashan, 1995, p. 99-100; 100.

Ravishankar, N. S. Leg pain; Muscular and body pain. In N. S. Ravishankar, *Yoga for Health: Curative Powers of Yogasanas*. New Delhi: Pustak Mahal, 2001, pp. 161-162; 163-164.

Relax the pain away. *Spectrum: The Wholistic News Magazine*, 4 Oct 1997, p. 15.

Reuters Health. Yoga may help those with chronic pain. New York: Reuters, 22 Aug 2001.

Article available online:

<http://www.healthcentral.com/news/newsfulltext.cfm?ID=57711&src=n1>. See additional story by WCHS-TV at <http://www.wchstv.com/newsroom/healthyforlife/1863.shtml#transcript>. Email address for Dr. Sonia Gaur: ypain2000@yahoo.com.

“A small study of patients suffering from chronic pain found that just 4 weeks of yoga improved symptoms.

“‘Yoga may be another way for people to help themselves through life when they live with chronic pain,’ lead investigator Dr. Sonia D. Gaur of Harbor-UCLA Medical Center in Los Angeles, California, told Reuters Health in an interview . . . Gaur presented her preliminary findings at the American Psychiatric Association’s annual meeting in May.

“In the study, 18 men and women who had been experiencing persistent pain for more than 3 months attended 90-minute yoga sessions three times a week for 1 month. The study did not include a ‘control’ group for comparison.

“The type of yoga that was practiced by the volunteers, called Iyenger yoga, combines meditative breathing exercises with different yoga poses, Gaur explained . . .

“All of the patients ‘showed a decrease of significant proportion in pain medication use,’ had improved mood and decreased levels of anxiety, and they were more likely to be able to participate in home and family activities, such as household chores or recreational activities, Guar noted.

“‘Yoga may be able to help some people who suffer from chronic pain when all other avenues are exhausted,’ she said.”

From the WCHS-TV report: “Eighteen patients between ages 18 and 65 enrolled in her study: 11 with low back pain, two with carpal tunnel syndrome, one each with migraines, dermatomyositis, hip pain, neck pain and osteoarthritis. All patients had been experiencing persistent pain for more than three months. They attended 90-minute yoga sessions three times a week. The volunteers filled out questionnaires each week focusing on mood states, pain severity, and the amount of pain medication used. After just four weeks, all 18 patients experienced some type of improvement. No one suffered any deterioration. All the patients showed a decrease in pain medication, decreased levels of anxiety, an improved mood, and were more likely to be able to participate in home and family activities. Dr. Gaur says a larger study is needed to determine whether yoga can actually cure chronic pain, but she says it’s clear yoga can help some people who suffer from chronic pain when all other avenues are exhausted.

“Dr. Gaur believes yoga heals by combing transcendental meditation with a variety of isometric exercises. The combination of the two leads to increased self-awareness which can increase resistance to disease. Yoga has provided relief for patients with a variety of chronic problems . . .”

Rockers, Daniel M. The successful application of meditative principles to treatment of refractory pain conditions. *Pain Medicine*, Jun 2002, 3(2):188.

Abstract: The potential psychological mechanisms mediating physically expressed pain are investigated through separate yet related means in case studies. In case 1, pt BI suffered from RSD/CRPS I and was treated with GSR and thermal, while in case 2 TT experienced a number of difficult conditions including biofeedback sciatica, acid reflux, breast soreness, anxiety and headaches and was treated with hypnotically induced meditation and self-induced meditation. At three months into treatment, BI had reduced pain ratings by 40%, increased sleep time by a factor of two. At four months into treatment, TT had decreased pain ratings by 40% and decreased pain medications intake by 50%.

Although the treatment modalities themselves appear disparate, they both involve the common underlying theme of regulating attentional thought processes from an intentional and conscious perspective. As applied to pain states this is useful because each thought, feeling, idea or perception involves some type of physical or physiological response. Uncontrolled and unregulated thought process of the mind can create (and through habituation maintain) offensive physiological conditions. Extant examples include angina, hypertension, and tension headache. Specific methodology applied to the above cases involved training in elements of Hinduist¹, Buddhist² and Taoist³ meditative principles with the goal being the increase in and volitional directing of attention. This involved quieting the thought processes of the mind and was accomplished in a variety of ways, including the utilization of external devices such as biofeedback instruments, through breathing exercises⁴, and examination of thought processes.

¹ Easwaran, Eknath. (1987). *The Upanishads*. Tomales, California: Nilgiri Press.

² Easwaran, Eknath. (1985). *The Dhammapada*. Tomales, California: Nilgiri Press.

² Evans-Wentz, W.Y. (2000). *The Tibetan Book of the Great Liberation: The Method of Knowing Nirvana through Knowing the Mind*. New York: Oxford University Press.

² Lamrimpa, G. (1995). *Calming the Mind: Tibetan Buddhist Teachings on Cultivating Meditative Quiescence*. Ithaca, NY: Snow Lion Press.

³ Walker, B. (1992). *Hua Hu Ching: The Teachings of Lao Tzu*. Clark City Press.

⁴ Rama, S., Ballentine, R., & Hymes, A. (1998). *The Science of Breath*.

Satyananda Saraswati, Swami. Yoga nidra relieves pain. In Swami Satyananda, *Yoga Nidra*. 6th ed. Munger, Bihar, India: Yoga Publications Trust, 1998, pp.

Schatz, Mary Pullig. Minimizing pain: The principles of therapeutic yoga. Yoga '87 conference publication.

The second arrow: Pain without suffering. *Tricycle: The Buddhist Review*, Winter 2002, pp. 33-40.

Four Buddhist teachers—Jon Kabat-Zinn, Darlene Cohen, Ezra Bayda, and Gavin Harrison—explore the benefits of daily practice for dealing with physical pain.

Sivananda Saraswati, Swami. I am pain: Thy teacher. In Swami Sivananda Radha, *Mantras: Words of Power*. Porthill, Idaho: Timeless Books, 1980, pp. 88-91.

Sovik, Rolf. Breathing through emotions. *Yoga International*, Feb/Mar 2000, pp. 61-64.

Statistics.

Detailed statistics: See PRNewswire (Chicago) and “Pitt, David” article on Gallup poll in “Of Related Interest” section below.

Chronic pain affects 86 million Americans. (From PRNewswire)

Bixby Knolls Health Online Magazine, 2 April 2002:

Cost to treat chronic pain in the US is estimated at \$470 billion/year.

Thirty-three percent of people in economically developed countries suffer from chronic pain.

Greatest health problems: #1 heart disease; #2 cancer; #3 chronic pain.

Tan, C. M. How does a meditator deal with pain? Article available online:

<http://www.serve.com/cmtan/buddhism/pain.html>

Thondup, Tulku. *Boundless Healing: Meditation Exercises to Enlighten the Mind and Heal the Body*. Boston, Mass.: Shambhala Publications, 2000. (See especially “Meditation for Dispelling Uneasy Sensations.”)

Vrajaprana, Pravrajika. Pain: Stumbling block or stepping-stone? *Yoga International*, Feb/Mar 2001, pp. 66-73.

Vries, Herbert A. de. Electromyographic observations of the effects of static stretching upon muscular distress. *Research Quarterly*, 1961, 32:468-479.

Wachholtz, Amy B., and Kenneth I. Pargament. Is spirituality a critical ingredient of meditation? Comparing the effects of spiritual meditation, secular meditation, and relaxation on spiritual, psychological, cardiac, and pain outcomes. *Journal of Behavioral Medicine*, 2005.

Abstract: This study compared secular and spiritual forms of meditation to assess the benefits of a spiritual intervention. Participants were taught a meditation or relaxation technique to practice for 20 min a day for two weeks. After two weeks, participants returned to the lab, practiced their technique for 20 min, and placed their hand in a cold-water bath of 2 degrees C for as long as

they could endure it. The length of time that individuals kept their hand in the water bath was measured. Pain, anxiety, mood, and the spiritual health were assessed following the two week intervention. Significant interactions occurred (time×group); the Spiritual Meditation group had greater decreases in anxiety and more positive mood, spiritual health, and spiritual experiences than the other two groups. They also tolerated pain almost twice as long as the other two groups.

Ward, Milton. *The Brilliant Function of Pain*. New York: Optimus Books, 1977. (According to the annotated bibliography from which this reference was taken, this book provides “a yogic understanding of pain.”)

Webb, Sharon. The heart of yoga (case studies 2 and 5). *YOGAChicago*, Mar-Apr 1999, pp. 26, 28.

Weller, Stella. Pain. In Stella Weller, *Yoga Therapy*. London: Thorsons, 1995, pp. 124-125.

White, Ruth. Natural stillness of yoga brings awareness, relieves pain. Article available online: <http://www.omplace.com/articles/YogaHealth.html>.

Williams, Jack. Pain sufferers find yoga therapeutic. *The San Diego Union-Tribune*, 7 May 2001.

Winters, T. H., and J. Kabat-Zinn. Awareness meditation for patients who have anxiety and chronic pain in the primary care unit. *Clinical Research*, 1981, 29(2):642.

Wood, Ginger G. Yoga and chronic pain management—telling our story. *International Journal of Yoga Therapy*, 2004, no. 14, pp. 59-67. Author email: ginger@livingwellstudio.com

Abstract: Purpose: To examine the effects of an 18-month period of Yoga therapy on a single student suffering from chronic pain, specifically fibromyalgia, and to determine what measures are needed to report improvements. Improvements documented over a specific time period in a controlled setting can further the case for using Yoga as a primary means for managing fibromyalgia and chronic pain and also provide a background to establish a working dialogue with practitioners of Western medicine. Study Design: Using case-study research methods, an 18-month period of gentle Iyengar-based Yoga was implemented 1–2x/week in a woman suffering from fibromyalgia and chronic pain. Findings: The findings showed that the student steadily improved in many measures, including pain, body awareness, medications dose/type, body weight, cholesterol, hypertension, bone density, and subjective quality of life measures (increased confidence, improved body image). Conclusions: The information collected during this study provides positive evidence that can assist in the future development of chronic pain management with Yoga therapy. As Yoga therapists, we have a professional obligation to document the changes and improvements our Yoga students are experiencing in a controlled Yoga studio environment. Collecting this information is vital to establishing an open dialogue between practitioners of Western and Eastern medicine. Future case studies and research should include more diverse populations of chronic pain sufferers as well as the use of tools that quantify a student’s intangible concerns and complaints (i.e., pain level, quality of life, psychological health, emotional health, ease of daily activity completion, etc.).

Yoga and chronic pain: A comprehensive perspective. Article available online: <http://www.quietmind.com/articles7.html>.

The Yoga of Intention: A Practical Yoga For Sensitive People and People In Pain. Article available online: <http://world.std.com/~minding/yoga/yiintro.html>.

“The Yoga of Intention is an experimental yoga practice being developed for people suffering with chronic physical or psychological pain, including Post-Traumatic Stress Disorder (PTSD). It is a delicate blend of Insight Meditation, hatha yoga and psychotherapeutic elements that focuses attention on volition, one of the points where mind and body intersect and trauma constantly regenerates.”

Of Related Interest

Albert, Lee. Positional Therapy workshop. Offered at Kripalu Center for Yoga and Health, www.kripalu.org.

Workshop description: “This cutting-edge program on recovery from chronic pain is very gentle and easy to learn. Results are immediate and often permanent. Clients report that the technique is magical! Taught by Lee Albert, a much-sought-after Kripalu Healing Arts therapist, the training combines strain-counterstrain, muscle-energy technique, stretching, and home care to eliminate the causes of most neuromuscular pain patterns. These methods effectively treat pain due to injury, stress, repetitive motion, postural distortion, and chronic neuro-muscular conditions.

“In the program, you will learn to search for and recognize trigger points, discover the causes of pain and how to disable chronic pain mechanisms, start addressing specific conditions and injuries, gain extensive knowledge in a short amount of time, learn by listening, watching and doing.”

Besant, Annie. *The Meaning and the Use of Pain.* An Adyar Pamphlet, Dec 1932. Issue 168.

Blomqvist, Kerstin, and Anna-Karin Edberg. Living with persistent pain: Experiences of older people receiving home care. *Journal of Advanced Nursing*, Nov 2002, 40(3):297-306.

Abstract: Background: Although the topic of pain among older people has received increasing interest, little is still known about how pain is experienced or handled by those who no longer manage independently but depend on professionals for help with daily living. Developing pain management for older people requires such knowledge. Aim: To explore sense of self, sense of pain, daily living with pain, sense of others and ways of handling pain in older people with persistent pain. Methods: Interviews with 90 older people receiving home care from nursing auxiliaries in their own homes or in sheltered accommodation were collected from January to June 2000. A typology of older people in persistent pain was developed. Activities for handling pain were examined using content analysis. Findings: Respondents' experiences of themselves and their pain varied. Two groups of older people, considered as “competent and proud” and “confident and serene,” expressed satisfaction in spite of pain, while the groups “misunderstood and disappointed” and “resigned and sad” expressed dissatisfaction. The most common strategies used were medication, rest, mobility, distracting activities and talking about pain. Respondents chose strategies by balancing the advantages of the activities against the disadvantages these brought for their daily living. Conclusion: This study indicates that characteristics of the older people, such as their way of experiencing themselves, how pain affects their daily life and how they perceive effects and side-effects of pain management are areas that need to be identified when staff assess pain and plan pain management. Caring for older people in pain could be improved by listening to and believing their complaints, evaluating effects and side-effects from

medications and nonpharmacological pain management and by emphasizing the importance of common everyday activities such as mobility and distraction to relieve pain.

Bouchez, Colette. Women are the harder sex . . . when it comes to tolerating pain, new research says. *HealthScoutNews*, 18 May 2003. Article available online: <http://www.healthcentral.com/news/NewsFullText.cfm?id=512473>.

The hormone estrogen plays a role in women's pain response.

Carroll, D., and K. Seers. Relaxation for the relief of chronic pain: A systematic review. *J Adv Nursing*, 1998, 27:476-487.

Coghill, Robert C., John G. McHaffie, and Ye -Fen Yen. Neural correlates of interindividual differences in the subjective experience of pain. *Proceedings of the National Academy of Science*, 10.1073/pnas.1430684100. Published online 24 Jun 2003 prior to print version. Author email: rcoghill@wfubmc.edu.

Abstract: Some individuals claim that they are very sensitive to pain, whereas others say that they tolerate pain well. Yet, it is difficult to determine whether such subjective reports reflect true interindividual experiential differences. Using psychophysical ratings to define pain sensitivity and functional magnetic resonance imaging to assess brain activity, we found that highly sensitive individuals exhibited more frequent and more robust pain-induced activation of the primary somatosensory cortex, anterior cingulate cortex, and prefrontal cortex than did insensitive individuals. By identifying objective neural correlates of subjective differences, these findings validate the utility of introspection and subjective reporting as a means of communicating a first-person experience.

Covington, Edward C. The biological basis of pain. *International Review of Psychiatry*, May 2000.

From a review by Daria Charlesworth in RSDSA Research Update: “. . . an excellent (though technical) overview of the recent research on nociceptive and neuropathic pain. The significance of this article is its potential impact on psychiatric and mental health practitioners, who see many patients whose chief complaint is pain yet may not be well informed on the latest physiological research. Author Edward Covington, M.D., of the Cleveland Clinic, emphasizes that ‘the concept of chronic pain as an extension of acute nociceptive pain is not valid, particularly in neuropathic pain. Chronic pain is often an evolving process in which injury may produce one pathogenic mechanism, which in turn produces others, so that the cause of pain changes over time.’ He provides copious data on why the old concept of straight wire pain transmission that implies a fixed relationship between stimulus and perception is incorrect and inadequate for understanding pain.”

Davis, Mary C., Alex J. Zautra, John W. Reich. Vulnerability to stress among women in chronic pain from fibromyalgia and osteoarthritis. *Annals of Behavioral Medicine*, Aug 2001, 23(3):215-226.

Abstract: In two investigations, we studied vulnerability to the negative effects of stress among women in chronic pain from 2 types of musculoskeletal illnesses, fibromyalgia syndrome (FMS) and osteoarthritis (OA). In Study 1, there were 101 female participants 50 to 78 years old: 50 had FMS, 29 had OA knee pain and were scheduled for knee surgery, and 22 had OA but were not planning surgery. Cross-sectional analyses showed that the three groups were comparable on

demographic variables, personality attributes, negative affect, active coping, and perceived social support. As expected, FMS and OA surgery women reported similar levels of bodily pain, and both groups scored higher than OA nonsurgery women. However, women with FMS reported poorer emotional and physical health, lower positive affect, a poorer quality social milieu, and more frequent use of avoidant coping with pain than did both groups of women with OA. Moreover, the perception and use of social support were closely tied to perceived social stress only among the FMS group. In Study 2, we experimentally manipulated negative mood and stress in 41 women 37 to 74 years old: 20 women had FMS, and 21 women had OA. Participants from each group were randomly assigned to either a negative mood induction or a neutral mood (control) condition, and then all participants discussed a stressful interpersonal event for 30 min. Stress-related increases in pain were exacerbated by negative mood induction among women with FMS but not women with OA, and pain during stress was associated with decreases in positive affect in women with FMS but not women with OA. These findings suggest that among women with chronic pain, those with FMS may be particularly vulnerable to the negative effects of social stress. They have fewer positive affective resources, use less effective pain-coping strategies, and have more constrained social networks than their counterparts with OA, particularly those who experience similar levels of pain. They also seem to experience more prolonged stress-related increases in pain under certain circumstances, all of which may contribute to a lowering of positive affect and increased stress reactivity over time.

Egoscue, Pete. *Pain Free: A Revolutionary Method for Stopping Chronic Pain.* New York: Bantam, 1998.

Recommended by a Kripalu Yoga teacher and addresses conditions of poor posture and crooked pelvis alignment, and the consequent joint damage that occurs over time from such misalignment.

Elert, Jessica, Sally Aspegren Kendall, Barbro Larsson, Bjarne Månsson, and Björn Gerdle. Chronic pain and difficulty in relaxing postural muscles in patients with FM and chronic whiplash associated disorders. *Journal of Rheumatology*, Jun 2001, 28(6):1361-1368.

Gopinath, K. S., R. Rao, N. Raghuram, N. Rama Rao, T. Shirley, C. Vinay, S. Chandrashekar, and B. S. Srinath. Evaluation of yoga therapy as a psychotherapeutic intervention in breast cancer patients on conventional combined modality of treatment. The Yoga Study Group; Bangalore Institute of Oncology, Bangalore, India; Swami Vivekananda Yoga Anusandhana Samsthana, Bangalore, India; M.S. Ramaiah Medical Teaching Hospital, Bangalore, India.

Abstract (ASCO Abstract #101 Adjuvant Therapy): To compare the efficacy of yoga therapy with supportive therapy sessions in reducing psychological distress, improving quality of life, reducing pain and enhancing anti-tumor immune responses in subjects with locally advanced breast cancer undergoing 6 cycles of standard dose-systemic adjuvant chemotherapy.

69 subjects with stage II and III breast cancer matched for age, stage of disease, node status and conventional treatment regimen were randomly allocated to either yoga group (Intervention), n=32, age=47.06(7.76) or supportive therapy (control), n=37, age- 50.84(10.49), prior to their primary treatment.

Subjects in yoga group were imparted various relaxation techniques pranayama and breathing exercises, and control group were imparted supportive therapy sessions involving counseling and reinforced social support during the post operative period.

Subjects completed a battery of psychological tests. Blood draws for evaluation of Cytokines (sIL2r, TNF Alpha, IFN Gamma), CD56 counts and Serum Immunoglobulin assessments (IgG, IgM and IgA) were also carried out before and after adjuvant chemotherapy.

There was no significant improvement in affective states such as anxiety and depression among groups during the post operative phase. Subjects in the yoga group had lower pain scores ($p < 0.01$) than control group. They also had significantly lower levels of pro-inflammatory cytokines such as TNF Alpha ($p < 0.036$) and s IL2 r ($p < 0.03$) than controls.

Yoga group also had significantly lower levels of serum IgA ($P < 0.04$) and higher levels of CD56 counts ($p < 0.036$) than control group envisaging effective anti-tumor immune response. Subjects in the yoga group had lower serum levels of IgA ($r = -0.36, p < 0.005$) indicating reduced disease activity and higher levels of CD56 counts (NKH-1 clones) ($p < 0.05$) as compared to control group.

The results suggest a possible use for yoga therapy as a psychotherapeutic intervention in reducing psychological morbidity; treatment toxicity and improving quality of life and anti-tumor immune responses in breast cancer patients undergoing conventional treatment for cancer.

Hoertz, Joanne Stevens. Pain management: Assessment of the patient who has pain necessitates a holistic approach. *ADVANCE for Occupational Therapy Practitioners*, 19 Mar 2001. Article available online: http://www.advanceforot.com/pastarticles/mar19_01feature3.html.

Ivanhoe Broadcast News. Virtually painless. *Ivanhoe's Medical Breakthroughs*, Mar 1999. Available online at www.ivanhoe.com.

On the use of virtual reality glasses to distract burn patients from pain. "It's been found over and over again that if you work with someone's higher brain functioning that you can influence how much suffering they feel from the experience of pain."

Keefe, Francis J., Mark A. Lumley, Angela L. H. Buffington, James W. Carson, Jamie L. Studts, Christopher L. Edwards, Debra J. Macklem, Ann K. Aspnes, Laurie Fox, and Danielle Steffey. Changing face of pain: Evolution of pain research in *Psychosomatic Medicine*. *Psychosomatic Medicine*, 2002, 64:921-938. Author email: keefe003@mc.duke.edu.

Abstract: OBJECTIVE: This article provides an overview of how psychosomatic research on pain has evolved over the past 60 years as exemplified by studies published in *Psychosomatic Medicine*. METHODS: Each issue of *Psychosomatic Medicine* from 1939 to 1999 was reviewed to identify papers that dealt with pain, painful medical conditions, or pain management. A total of 150 papers were identified and grouped into seven categories: 1) case studies; 2) studies of personality traits and other individual differences; 3) psychophysiological studies of pain; 4) studies using pain induction techniques; 5) studies examining the relation of race, ethnicity, and culture to pain; 6) studies of pain unique to women; and 7) studies examining treatments for pain. RESULTS: A substantial number of studies on pain and painful conditions were published in the Journal in the 1940s and 1950s, and that number has almost doubled in the most recent full decade of the Journal. Within the pain area, however, the topics of interest to psychosomatic researchers have been, and continue to be, quite diverse. Although publications on certain methods or topics (e.g., psychodynamic case studies, physiological correlates of pain) have decreased over time, publications on other topics (e.g., personality traits and individual differences) have remained relatively constant, and publications on still other topics (e.g., studies using pain induction techniques; studies of race, ethnicity, and culture; women's pain; and treatment studies) have flourished recently. CONCLUSIONS: Considered overall, the results of

our review suggest that the face of pain research published in PM has changed considerably in the past 60 years. Given the ongoing commitment of psychosomatic researchers to this area, we expect this evolution to continue in the years to come.

Kumar, Sanhay, O. P. Tandon, and R. Mathur. Pain measurement: A formidable task. *Indian Journal of Physiology and Pharmacology*, Oct 2002, 46(4).

Abstract: Pain is defined as unpleasant sensory and emotional experience, associated with actual or impending tissue damage. It consists of multi-dimensional phenomena having sensory discriminative, cognitive-evaluative and effective motivational components. Though the technology has advanced, still it is very difficult to objectively assess all the attributes of pain, including alteration in cognitive behaviour. However, subjective methods like Visual Analog Scale rating (VAS) and preliminary objective methods like pain evoked responses, behavioural monitoring and event related evoked potentials for cognition are currently in vogue. It will take some more time and effort to evolve yet other newer and sophisticated techniques to measure all aspects of pain in human beings.

Mayer, Michael. Qigong and behavioral medicine: Integrated approach to chronic pain. *Open Exchange Magazine*, Jan/Feb/Mar 2003, No. 160, p. 104. Excerpted from a longer article in the Winter 1996-1997 issue of *Qi: The Journal of Traditional Eastern Health & Fitness*.

Newshan, Gayle. Transcending the physical: Spiritual aspects of pain in patients with HIV and/or cancer. *Journal of Advanced Nursing*, Dec 1998, 28(6):1236-1241.

Abstract: Spirituality is an important though often neglected aspect of pain in patients with human immunodeficiency virus (HIV) and/or cancer, for both patients and nurses. The spiritual domain involves: (1) meaning, (2) hope and (3) love and relatedness. The author examines spiritual aspects of pain in persons with HIV and/or cancer, as supported by the literature. Understanding spiritual aspects of pain carries implications for nursing. One of these implications is that it is important for the nurse to be closer to his/her own spirit in order to be there for the patient in pain. Other nursing implications include spiritual assessment and interventions, such as presence, attentive listening, acceptance and judicious self-disclosure, for promoting comfort and diminishing pain.

NIH Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches into the Treatment of Chronic Pain and Insomnia. Integration of behavioral and relaxation approaches into the treatment of chronic pain and insomnia. *Journal of the American Medical Association*, 1996, 276:313-318.

Olivier, Jocelyn. The missing link: Neuromuscular reprogramming. *Massage & Bodywork*, Dec/Jan 2000, pp. 60-66.

“Dysfunction of the motor coordination programs governing movement, postural support and alignment are the biggest source of non-pathological body pain.”

Pitt, David. Poll: Most Americans live with pain. Atlanta: The Associated Press, 6 Apr 2000.

A Gallup survey conducted for the Arthritis Foundation from May 21 to June 9, 1999, with margin of error of plus or minus 2 percentage points, of 2,002 adults (1,002 women and 1,000 men) ages 18 and older found that 89% of U.S. adults experience pain at least once a month and

more than half believe it's just something people have to live with. Forty-six percent of women and 37% of men experience pain daily.

The most common type of pain, reported by 23% of respondents was joint pain. Backaches, sore feet, and muscle pain are the next most common ailments. Arthritis was fifth.

Only half the adults visited a doctor for pain in the past three years. Eighty percent believe aches and pains are just a part of getting older, and 28 percent believe there is no solution.

A large majority of the survey respondents ages 65 and older—88 %—said they believe getting older is the cause of their pain, and 69 percent cited arthritis as the reason.

Younger respondents, ages 18-34, attributed their pain to tension or stress, being overworked, or their lifestyle.

Sixty-four percent of pain sufferers will see a doctor only when they cannot stand the pain any longer and 60 percent of the respondents said pain is something people must live with.

Many survey respondents—43 %—said pain keeps them from activities as simple as standing or waiting in line for long periods of time. Twenty-seven percent said they missed work in the past year due to pain.

PRNewswire (Chicago). One out of four people in the U.S. suffers from chronic pain. 19 Jun 2001.

“Chronic pain affects 86 million Americans . . . in addition to affecting the patient physically, chronic pain may cause mental anguish. Researchers have found a connection between mind and body in which misery leads to stress, and stress leads to pain. The cycle can be repeated over and over again until the patient can break through the cycle by using the appropriate pain management methods.

“‘Many chronic pain patients have been suffering for so long, they’ll try almost anything to relieve their pain,’ said Dr. Harden. ‘Therefore, most of my patients are receptive to what might be considered unconventional pain management treatments, including occupational therapy, exercises that focus on the mind-body connection and social setting therapy.’

“. . . the Rehabilitation Institute of Chicago Chronic Pain Care Center has recognized the importance of identifying pain as a specific condition for years . . . What makes the Chronic Pain Care Center different from other pain centers is that it focuses on treating the whole patient, as well as the disorder . . . The Center designs programs for each patient that could include exercises such as yoga, Pilates, and the Feldenkrais method and exercises in how to deal with pain at work and home. The Center examines the biological, psychological and sociological aspects of a patient's life to help ensure that the quality of life can improve.”

PRNewswire (Fairlawn, N.J.). Myths about how children experience and handle pain still abound. Survey finds parents say they shrug it off, but survey reveals guilt, worry and a strong desire for pain relief. 18 Jul 2001.

“With researchers taking a closer look at the impact of painful medical procedures on young children, a new survey reveals that parents may be minimizing the physiological and emotional

affects of pain even while admitting that painful medical procedures are a key reason why they—and their children—dread the doctor’s visit . . .

“Clinical research has indicated that repeated pain exposure causes children to become more ‘sensitized’ and ‘preoccupied’ with pain, rather than helping them cope with immediate or future stress, as some may believe. Recurrent pain can have a detrimental and cumulative effect on quality of life, particularly for infants and young children. It may, in fact, permanently affect future perception and reaction to pain as a child grows.

“For instance, anxiety caused by the memory of past pain can magnify the perception of pain during subsequent procedures. Furthermore, the distress caused by shots can lead to a poor relationship between healthcare provider and child, and in turn, the possibility of unscheduled or missed appointments for critical immunizations, blood tests or other medical procedures. And, the bodily stress that occurs in reaction to pain, such as increased blood pressure and heart rate, can hinder a child’s ability to fight disease and recover from illness, and uses energy that would ordinarily be expended toward normal growth.

“Emotionally, childhood pain can lead to feelings of guilt and helplessness due to the fact that a child might associate their pain with a transgression of their own. This may lead the child to hide their pain rather than acknowledge it, as they may feel responsible for receiving the pain. Additionally, some school-age children and adolescents believe that their parents, doctor or other provider will view them as ‘good’ if they internalize the pain . . .”

Reuters Health. Women, men experience pain differently. Cleveland: Reuters Health, 7 Aug 2001. Article available online:
<http://www.healthcentral.com/news/newsfulltext.cfm?ID=57036&src=n1>.

“Women report more pain, more intense pain, and more painful conditions than men do, according to studies presented here at the Second International Conference on Women’s Health sponsored by the American Medical Women’s Association and the Cleveland Clinic Foundation.

“What’s more, a woman’s pain is less likely to receive adequate treatment than is a man’s pain.”

Seers, Kate, and Dawn Carroll. Relaxation techniques for acute pain management: A systematic review. *Journal of Advanced Nursing*, Mar 1998, 27(3):466-475.

Abstract: This review aims to document the effectiveness of relaxation techniques, when used alone for the management of acute pain, after surgery and during procedures. A systematic review of randomized controlled trials (RCTs) was undertaken. Seven studies involving 362 patients were eligible for this review. One hundred and fifty patients received active relaxation as the sole intervention. Reports were sought by searching MEDLINE, psycLIT, CINAHL, and the Oxford Pain Relief Database. The outcome measures used were pain and psychological factors. A meta-analysis was not possible, due to lack of primary data. Three of the seven studies demonstrated significantly less pain sensation and or pain distress in those who had relaxation. Four studies did not detect any difference. There was some weak evidence to support the use of relaxation in acute pain. However, this was not conclusive and many of both the positive and the negative studies suffered from methodological inadequacies. Well designed and executed randomized controlled trials are needed before the clinical use of relaxation in acute pain management can be firmly underpinned by good quality research evidence. Until this evidence is available we recommend that the clinical use of relaxation in acute pain settings is carefully evaluated and not used as the main treatment for the management of acute pain.

Singhania, Lisa. Boomers search for relief from aging. New York: Associated Press, 9 April 2002.

“The demand for pain management solutions, ranging from prescription drugs to massage to surgery, is expected to surge in coming years as the generation that embraced Jane Fonda and going to the gym gets older. The 76 million baby boomers born between 1946 and 1964 are expected to have less tolerance for pain than previous generations, making them willing to try and to spend more on different treatments for their aches and pains.”

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Based on a summary by Belleruth Naparstek, *ImageryNews* (www.healthjourneys.com), 19 Jan 2003: A group of researchers from the University of Southern Maine examined the effects of offering Therapeutic Touch (TT) as an adjunct to cognitive behavioral therapy (CBT) for people with chronic pain. Patients were randomly assigned to a relaxation training condition or to relaxation training plus Therapeutic Touch. Pre- and post-program data were used to identify changes in pain intensity, self-efficacy, disability, and perceived distress. Patterns of attrition also were examined. The group that received TT plus relaxation training fared statistically better in terms of self-efficacy and sense of internal power, as well as having lower attrition rates. There also were trends associating TT with less distress and disability.

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Vallerand, April Hazard, Judith M. Fouladbakhsh, and Thomas Templin. The use of complementary/alternative medicine therapies for the self-treatment of pain among residents of urban, suburban, and rural communities. *American Journal of Public Health*, 2003, 93(6):923-925.

Vertosick, F. T. *Why We Hurt: A Natural History of Pain*. San Diego: Harcourt Brace, 2000.

Walsh, Laura. Low-income patients beating stress with yoga, meditation class. *Worcester Telegram & Gazette*, 3 Dec 2004. Article available online: <http://www.telegram.com/apps/pbcs.dll/article?AID=/20041203/APN/412030790>.

“He’s a Vietnam vet who wears clunky metal rings on nearly every finger and builds computers for fun, but lately the only place David Wilson wants to be is on his yoga mat.

“The 50-year-old is homeless, struggles with post-traumatic stress disorder and has chronic pain in his neck and back. And until recently, a good night’s sleep meant just two hours of solid snooze time.

“But since enrolling in a stress reduction class at the Middletown Community Health Center, Wilson says he’s finally sleeping through the night. Through yoga and meditation sessions, he is controlling his pain and has learned to focus his breathing . . .”

Westcott, T. B., and J. J. Horan. Effects of anger and relaxation: Forms of in vivo emotive imagery on pain tolerance. *Can J Behav SCI*, 1977, 9:3, 216-223.

Women feel pain more than men. *Medical News Today*, 6 Jul 2005.

“Women feel pain more than men despite the popular notion that the opposite is true, according to research.

“Scientists investigating gender differences in pain have found that not only do women report more pain throughout the course of their lifetime, they also experience it in more bodily areas, more often and for longer duration when compared to men.

“There also seem to be differences in how men and women think and feel about their pain. For example, anxiety may affect men and women in different ways, and the strategies used to cope with pain may actually make their experience worse . . .

“‘While most explanations concentrate on biological mechanisms, such as genetic and hormonal differences, it is becoming increasingly clear that social and psychological factors are also important,’ said Dr Keogh.

“One example of this is the different strategies men and women use to cope with pain. Whilst women tend to focus on the emotional aspects of pain they experience, men tend to focus on the sensory aspects, for example concentrating on the physical sensations they experience.

“‘Our research has shown that whilst the sensory-focused strategies used by men helped increase their pain threshold and tolerance of pain, it was unlikely to have any benefit for women,’ said Dr Keogh.

“‘Women who concentrate on the emotional aspects of their pain may actually experience more pain as a result, possibly because the emotions associated with pain are negative . . .’”

Ziegler, Alfred. *Archetypal Medicine*. Dallas, Texas: Spring Publications, 1985. (Discusses the somatic meaning of pain.)

Ongoing Research

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Research on Yoga and pediatric pain

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Has recently received a small grant from the Army to explore a pilot Yoga program for troops returning from Iraq who are experiencing chronic pain. In this first pilot phase they will be assessing participants’ pre- and post-intervention knowledge and awareness of Yoga, among other things.

