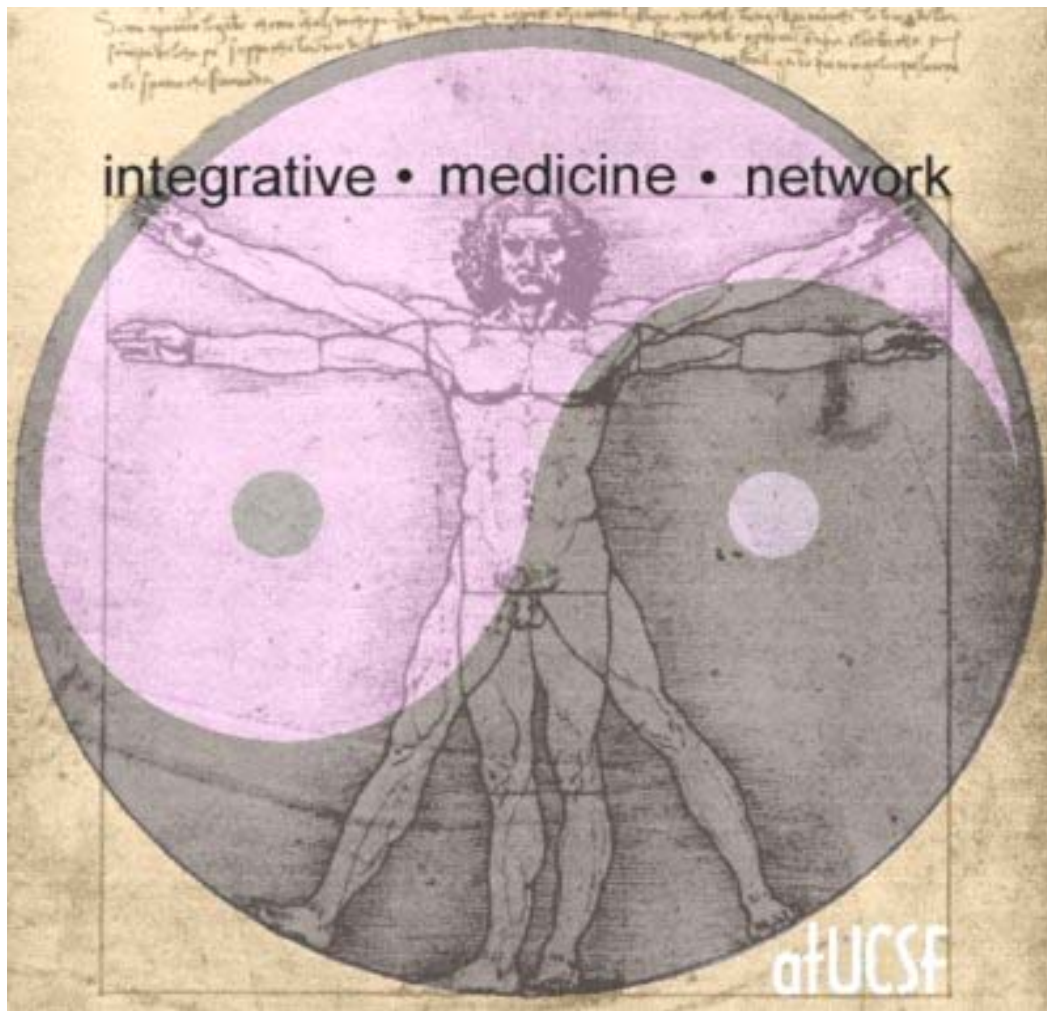


The UCSF Guide to Integrative Medicine



2006 EDITION

Guide to Integrative Medicine

Editors' Note

We are pleased to present the 2006 edition of the Guide to Integrative Medicine. Each year, the Guide is published and distributed to students and community members as part of an outreach effort in conjunction with the UCSF Integrative Medicine Network Forum, a nationally recognized conference highlighting topics and advancements in complementary and alternative therapies. For more information, please visit www.ucsf.edu/imm.

In the last two years, a group of UCSF students, postgraduates, and staff spent many hours writing, editing, and designing a thorough resource with the goal of expanding your vision of the many ways in which healing occurs. This year another group of students updated and revised the guide while preserving the incredible work of previous students. We hope this updated version will provide a broader perspective on complementary and alternative practices.

The National Center for Complementary and Alternative Medicine (NCCAM) divides Integrative Medicine into five modalities: Whole Medical Systems, Energy Therapies, Body-Based Methods, Biologically Based Therapies, and Mind-Body Practices. We have organized the guide by these categories and have also included a section with specific treatments for various conditions.

The articles begin with a brief overview and include information about conditions treated, training information, and current research when available. We hope that this information will facilitate communication about the complementary care and enable you to collaborate with alternative health care providers. Additionally, an interview with two allopathic practitioners is included to guide and inspire those of you wishing to deliver more integrative patient care.

This guide is designed to be practical and to provide direction for further study; it is not meant to be comprehensive. We hope that it will encourage you to continue learning about integrative medicine, and that you will take advantage of the many resources listed throughout the Guide.

In addition to being a professional resource, you will find tools for your own self care and healing.

Be well,
UCSF Integrative Medicine Network

We'd like to thank the Osher Center for Integrative Medicine for generous financial support of this project. Thank you also to Ellen Hughes, Rick Scott, and Albert Howell for their guidance. Also, thank you to all the talented writers, editors and designers of this guide.



Osher Center for
Integrative Medicine



Inclusion of a therapy, resource, or practitioner in this guide does not imply endorsement by UCSF, the Integrative Medicine Network, or the Osher Center for Integrative Medicine.

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Guide to Integrative Medicine

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Medical Systems

Acupuncture

Cathy Collins, edited by Gwendolyn Ho

History and Philosophy

Acupuncture is one of the oldest, most commonly used medical procedures in the world. Originating in China more than 2,000 years ago, acupuncture became better known in the United States in 1971, when New York Times reporter James Reston wrote about how doctors in China used needles to ease his pain after surgery. Since then, acupuncture has grown in popularity in the United States. It is currently practiced by thousands of physicians, dentists, acupuncturists.¹

Acupuncture relies on the idea of Qi, the energy force that runs in regular patterns called meridians through the body. A person's health is influenced by the flow of Qi in the body, in combination with the universal forces of Yin and Yang. If the flow of Qi is insufficient, unbalanced or interrupted, Yin and Yang become unbalanced, and illness may occur. By inserting fine

A Typical Treatment

At the initial visit, the practitioner evaluates the patient's current problems, medical history, available laboratory values and radiological tests, as well as a traditional physical exam of the tongue, reflex points, radial pulse, and external ear. The goal of the evaluation is to link the patient's problems to a specific imbalance or block of Qi.

Next, the acupuncturist develops a strategy to correct this imbalance. On average, practitioners insert about 10 needles per treatment between 0.5 cm and 0.8 cm deep. The needles are left in place for 30 minutes or less, depending on the patient's level of fatigue. Most patients feel only minimal pain as the needles are inserted. Once the needles are in place, there is no pain felt. Acupuncture needles are very thin and solid and are made from stainless steel. Practitioners may use techniques, like needle manipulation or attachment to an electrical device, to achieve "de-chi," a throbbing/pulsating sensation thought to indicate correct needle placement.

Each treatment may range from \$30 - \$100. The number of treatments needed differs from person to person. Acupuncture is one of the complementary alternative medical therapies that are more commonly covered by insurance. However, you should check with your insurer before you start treatment to see whether acupuncture will be covered for your condition and, if so, to what extent.

Types of Therapy

Traditional Chinese Acupuncture (TCM)

The most common form of acupuncture studied and practiced in the US.

Japanese Style Acupuncture

A more subtle approach compared to TCM. Fewer and thinner needles are used with less stimulation.

Korean Hand Acupuncture

Points on the hand correspond to areas of the body and to certain disharmonies.

Auricular Acupuncture

Points in the ear correspond to areas of the body and to certain disharmonies. Commonly used for pain control and addictions.

Medical Acupuncture

Acupuncture performed by a western physician. Licensure requirements for physicians are generally more lenient than for non-physicians. They usually use sterilized, stainless-steel needles, but may also use injections and even implants of gold and silver in their treatments.

needles on the body's surfaces at specific points to connect the meridians, acupuncture is used to regulate or correct the flow of Qi to restore health.

Side Effects & Contraindications

In the hands of a medically trained practitioner, acupuncture is a fairly safe and forgiving discipline. The FDA requires that sterile, nontoxic needles be used and that they be labeled for single use by qualified practitioners only. The possible risks and complications are the predictable consequences of penetrating the body with a sharp instrument: syncope, puncture of an organ, infection, local inflammation, dermatitis, a retained needle. Pneumothorax is the most frequently reported.

The sense of relaxation following acupuncture treatment occasionally evolves into a feeling of fatigue or depression that lasts for several days. Other transient psychophysiological responses include: light-headedness, anxiety, agitation, and tearfulness.

Conditions Treated

Digestive

Abdominal pain
Constipation
Diarrhea
Indigestion

Emotional

Anxiety
Depression
Insomnia
Addiction

Eye-Ear-Nose-Throat

Cataracts
Poor vision
Toothache/gingivitis

Gynecological

Infertility
Menopausal symptoms
Premenstrual syndrome

Miscellaneous

Athletic performance
Blood pressure
Chronic fatigue
Immune function
Stress reduction

Musculoskeletal

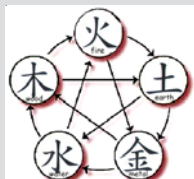
Arthritis
Back/ neck pain
Sciatica
Muscle pain/weakness

Neurological

Headaches
Bladder dysfunction
Parkinson's disease
Postoperative pain
Stroke

Respiratory

Asthma
Bronchitis/Sinusitis
Common cold
Tonsillitis



Research

Western scientists continue to search for mechanisms that account for acupuncture's effects on the central nervous system. Three main mechanisms have been proposed: conduction of electromagnetic signals, activation of opioid systems, and changes in brain chemistry sensation. First, there is evidence that stimulation of acupuncture points speeds the relay of electromagnetic signals. These signals may increase the flow of pain-killing biochemicals like endorphins, and immune cells to sites that are injured or vulnerable to disease.^{4,5} In addition, release of several types of opioids may reduce pain.⁶ Finally, acupuncture may alter brain chemistry by changing the release of neurotransmitters and neurohormones. Acupuncture also has documented effects on the regulation of blood pressure, blood flow and temperature.^{7,8}

Clinical Studies

The individualized nature of treatment, and difficulties in finding appropriate controls and measuring outcomes,

Resources

American Academy of Medical Acupuncture:
medicalacupuncture.org/
Journal of Medical Acupuncture (AAMA):
medicalacupuncture.org/aama_marf/journal/index.html
General reference:

has made systematic studies of acupuncture challenging. However, according to a 1997 NIH consensus panel, clinical studies have shown that acupuncture is an effective treatment for nausea caused by surgical anesthesia and chemotherapy, as well as post-surgical dental pain.⁹ Although relief from the chronic pain of arthritis and lower back disorders is a primary reason Americans seek acupuncture treatment, research regarding effectiveness remains inconclusive.^{10,11}

Most recently, researchers funded by the National Center of Complementary and Alternative Medicine (NCCAM) conducted a randomized controlled clinical trial and found that patients treated with acupuncture after dental surgery had less intense pain than patients who received a placebo.¹² Another NCCAM study found that in people with knee osteoarthritis, an extended course of acupuncture offered some improvement in pain and function compared with sham acupuncture (being pricked with a toothpick).¹³

www.acupuncture.com
Database for acupuncture research:
www.acubriefs.com
National Center for Complementary and Alternative Medicine, NIH
<http://nccam.nih.gov/health/acupuncture>

Practitioner Training & Licensure

In 25 states, the practice of acupuncture is included within the scope of a physician's license, and thus no further restrictions are imposed. In contrast, 15 states require further training.

To become members of the American Academy of Medical Acupuncture, physicians must complete 300 training hours, 2 years of clinical experience, and pass a two-part exam. Membership in the

AAMA has become the standard for determining state credentialing, hospital privileges, liability insurance, and third party reimbursement. California, however, requires practitioners to complete a separate exam.

About 40 states have instituted training standards for certification of non-physicians, though requirements differ greatly from state to state.

Medical Systems

Ayurveda

Manisha Dayal, edited by Gwendolyn Ho

History and Philosophy

Ayurveda is a holistic system of medicine from India that is over 5,000 years old that includes diet and herbal remedies and emphasizes the use of body, mind, and spirit in disease prevention and treatment.

Ayurveda is a Sanskrit term meaning “knowledge of life.” According to the ancient Ayurvedic scholar Charaka, “ayu” is comprised of four essential parts: mind, body, senses and the soul. The traditional healing system of Ayurveda is based on a theory of balance between the body, soul and mind. The essence of Ayurveda is knowledge and awareness of the qualities of nature. By understanding the qualities inherent in the environment, in food, and in activities, one gains an appreciation of their effects on the individual constitution through the principle of similarities.

There are many aspects of Ayurveda that distinguishes it from Western medicine:

1. Ayurveda focuses on establishing and maintaining the balance of the life energies within us, rather than focusing on individual symptoms.

2. Ayurveda recognizes the unique constitutional differences of all individuals and therefore recommends different regimens for different types of people. Despite similar outward symptoms, patients may require quite different remedies.

3. Ayurveda holds that all intelligence and wisdom flows from one Absolute source, *Paramatman*. Ayurveda assists Nature by promoting harmony between the individual and Nature.

4. Ayurveda describes three universal energies which regulate all natural processes. The body is seen as a microcosmic universe in which five great primordial elements, or *panchamahabhutas*—ether (*akasha*), air (*vayu*), fire (*agni*), water (*jala*) and earth (*prithvi*)—combine to form three humours, or doshas: wind (*vata*), cholera (*pitta*) and phlegm (*kapha*). These three universal energies are known as the Tridosha. Each dosha has its own qualities and functions in relation to the body. The balance between

the humors determines individual constitution (*prakriti*) and predisposition to disease. Disease occurs when the affairs of life, whether internal or external, cause an imbalance in one or more of these dosha.

The focus on the mind-body dynamic leads to two intertwined aspects in Ayurvedic nutrition. One is the physical food consumed, on which the organs of the digestive system act. The second aspect of digestion involves consumption through the mind-body. What the individual sees, hears, tastes, smells, feels, and thinks are all important for well being and impact health considerably. When any of the doshas (*Vata*, *Pitta* or *Kapha*) become accumulated, Ayurveda will suggest specific lifestyle and nutritional guidelines to assist the individual in reducing the dosha that has become excessive. Certain herbal supplements and a cleansing process to eliminate unwanted toxins known as **Panchakarma** may also be suggested.

A Typical Treatment

- The main aspects of Ayurveda are Panchakarma (cleansing), Abhiyanga (oil massage), and Samana (herbal remedies).
- Typically, an eight-fold examination is used to determine the balance of the three doshas. This involves examination of pulse (*nadi*), tongue (*jihva*), voice (*sabda*), skin (*sparsa*), vision (*drkha*), general appearance (*akrti*), urine (*mutra*) and stools (*mala*).
- The pulse is taken on the radial artery and overall pulse quality is noted. For example, a *vata* pulse is fast and slippery, a *pitta* pulse is jumpy and a *kapha* pulse is slow and steady. In tongue diagnosis, the general appearance, color and coating of the tongue is noted. Examination of the tongue and urine examination can reveal functional imbalances in the internal organs.
- Similar signs of dosha imbalance are noted in other types of examination and combined with other information, including the person’s constitution, age, and body type to determine the best treatment. Astrological charts may be used to determine the role of karma or spirits.

WHERE: There are hundreds of clinics and spas throughout the world, and numerous websites for the purchase of herbs. The Ayurvedic Institute (New Mexico) is recognized as a leading school and spa outside of India. The Ayurvedic Foundation is an organization that conducts treatment workshops and custom training in the U.S. and abroad (see resources below).

COST: Widely ranging, from around \$100 for a first-time clinic visit to hundreds of dollar per day for an Ayurvedic spa.

Side Effects & Contraindications

Health officials in India and other countries have expressed concerns over certain Ayurvedic practices, especially those involving herbs, metals, minerals, or other materials. In the United States, Ayurvedic medications are regulated as dietary supplements. As such, they are not required to meet the rigorous standards for conventional medicines. A study published in 2004 found that of 70 Ayurvedic remedies purchased over-the-counter, 14 contained lead, mercury, and/or arsenic at levels that could be harmful. Also in 2004, the Centers for Disease Control and Prevention received 12 reports of lead poisoning linked to the use of Ayurvedic medications.

Research

At present, the research surrounding Ayurvedic therapy is thin. Currently, the NIH's National Center for Complementary and Alternative Medicine (NCCAM) is supporting studies in these areas:

A compound from a plant called *Mucuna pruriens*, also known as cowhage, is being studied at the Cleveland Clinic Foundation. The research team is investigating the compound's potential in treating the disabling side effects of Parkinson's disease.

The Center for Phytomedicine Research at the University of Arizona College of Pharmacy is studying three botanicals (ginger, turmeric, and boswellia). These herbs are widely used in Ayurvedic medicine for the treatment of inflammatory diseases such as arthritis and asthma. The researchers propose to identify the active constituents of these three herbs and study their pharmacological activity.

Conditions Treated

Theoretically, any disease, mental or physical, could be treated because Ayurveda is an entire system of health care. In the U.S., Ayurveda has most commonly been applied to:

- Diabetes
- Digestive Disorders
- Skin Diseases
- Nasal and Lung Diseases,
- Rheumatoid Disorders
- Various Chronic Disease



Resources

Books:

Lad, Vasant. (2001). *Textbook of Ayurveda*. Avurvedic Press.
Krishan, Shubhra. (2003). *Essential Ayurveda: What It Is and What It Can Do for You*. New World Library.
Lad, Vasant. (1998). *The Complete Book of Ayurvedic Home Remedies*. Harmony Books.

Information on Training Institutions

The Ayurvedic Institute
www.ayurveda.com
Ayurvedic Foundations
www.ayur.com
International Vedic Institute
www.vedicschool.com
www.naturalhealers.com

Ayurvedic Spas

www.theraj.com

"By the third day I felt so much better physically I was able for the first time to walk down the stairs, then up the stairs, then I was able to cut my pain medication in half."

—Fibromyalgia patient after having received two months of Ayurvedic cleansing treatment, massage, diet and nutrition consultation and herbal treatments.

Practitioner Training & Licensure

Due to the signing of the Health Freedom bill (SB 577) in California, trained practitioners of Ayurveda, including graduates of programs from the Ayurveda Healing Arts Institute, can now practice in California. The necessary degrees for graduates are Clinical Ayurvedic Therapist (C.A.T.), Clinical Ayurvedic Herbalist (C.A.H.), Clinical Ayurvedic Herbalist Specialist (C.H.S.), or Master Ayurvedic Herbalist (M.A.H.). There is no national or

international accreditation for Ayurvedic healers.

The time needed to obtain one of the above degrees can vary from as little as 9 months up to two years. Ayurveda Holistic Center's School of Ayurveda offers a degree program in "Ayurvedic Sciences." Most programs include instruction in herbology, nutrition, aromatherapy, yoga, meditation, mantra therapy, and spiritual counseling.

Manish Dayal is a fourth-year medical student. Gwen Ho is a first-year medical student.

Medical Systems

Homeopathy

Heather Houska, edited by Lisa Chu

History and Philosophy

The practice of classical homeopathy originated in 1796 with the German physician Dr. Samuel Hahnemann. "Homeo" means same and "pathos" means disease. Therefore, classical homeopathic medicine is practiced under the belief that small doses of a substance with properties similar to the illness will help to cure the illness. If given to a healthy person, these substances will produce symptoms of the illness. Known as the Law of Similars, this type of healing extends back over 2500 years to Hippocrates and is used by many indigenous cultures who attempt to "let likes be cured by likes."^{4,6}

Dr. Hahnemann first formulated his principle of the Law of Similars after testing quinine, a cure for malaria. He found that it produced the symptoms of malaria in a healthy individual. However, when he discontinued the quinine, the symptoms disappeared. After several similar studies, Hahnemann found that very small doses of the substance are nontoxic and yet still work to produce the desired symptoms of the illness in

healthy individuals. Homeopathic remedies are therefore diluted to different degrees so that only traces of the original substance are present. Often chemical testing will show no presence of the active ingredient. This, however, is completely consistent with homeopathic philosophy as they believe that the ingredient leaves an imprint on the remedy and it is this ghost print which then acts within the body.^{4,6}



Samuel Hahnemann

Types of Homeopathy Practice

Classical homeopathy: *the most commonly practiced form of homeopathy.*

Constitutional practice: *differs from classical homeopathy in that the dose is given only once and at a very high potency (high potency in homeopathy means very dilute). This is most often used for chronic conditions as symptoms are supposed to improve six months after original dose.*

Combination homeopathy: *While in classical homeopathy the remedy uses only one active ingredient, combination homeopathy usually uses two to four active ingredients within the remedy.*

Complex homeopathy: *uses up to 25 ingredients and is typically used for patients experiencing multiple symptoms*

A Typical Treatment

Most homeopaths work in private offices, and the patient should check with his or her insurance company for coverage. A typical visit will include a detailed consultation before any treatment is considered. If needed, the homeopath will use lab results and other diagnostic procedures to determine the extent and intensity of the illness. The homeopathic doctor sees the patient as a whole person and attempts to treat all the aspects of the person, which include not only treating physical symptoms but also adjusting the remedies to fit the individual's personality. This means that two patients with the same diagnosis may be prescribed very different remedies, depending on their constellation of symptoms. The conventionally diagnosed disease itself does not necessarily predict the remedy.^{6,9}

Homeopathic remedies are used to treat a number of conditions including headaches, migraines, diabetes, heartburn, indigestion, irritable bowel syndrome, asthma, fibromyalgia, infertility, PMS, menopausal issues, and hypertension.¹³ Typically, the condition is supposed to worsen before it gets better, the body mimicking and exemplifying all symptoms before purging them. The remedies use ingredients derived from plants, animals, and minerals.¹²

Conditions Treated

Headaches
Migraines
Diabetes
Heartburn
Indigestion
Irritable bowel syndrome
Asthma
Fibromyalgia
Infertility
PMS
Menopause
Hypertension



Resources

For information on homeopathic drugs visit the Homeopathic Pharmacopoeia of the United States at www.hpus.com.

A detailed outline of FDA approved homeopathic practices can be found at:
www.fda.gov/ora/compliance_ref/cpg/cpgdrg/cpg400-400.html

Recommended books:
A Clinical Repertory to the Dictionary of Materia Medica by John Henry Clarke, M.D. (Health Science Press).

Side Effects & Contraindications

Homeopathic remedies are considered drugs by the Federal Food, Drug, and Cosmetic Act and the standards and practices of the Homeopathic Pharmacopoeia of the United States are accepted as the official guide. According to the Food and Drug Administration, the drugs and supplements can be either OTC or prescription depending on the severity and

extent of the disease. For example, homeopathic drugs used to treat self-limiting conditions may be marketed as OTC. There are generally few, if any, contraindications or warnings about safety as most remedies are greatly diluted to consist of mostly water and alcohol and very little of the active ingredient is present.⁴

Research

The effectiveness of homeopathy has been disputed since its beginnings. While there are patients who swear that homeopathic medicine cured them, skeptics attribute their successful outcomes to preconceptions. Some clinical trials show no difference between these remedies and the use of placebos. For example, a study on the effectiveness of homeopathic *A. nitricum* 12X (diluted in a one-to-ten ingredient-to-alcohol/water ratio twelve successive times) in reducing test anxiety concluded

that the substance had no effect.¹ Another study found that although use of homeopathic remedies did not differ from placebo in treating anxiety disorder, both showed a substantial reduction in anxiety.² Depending on the illness, there are some trials that show homeopathic remedies to be effective (i.e., pruritus in patients undergoing hemodialysis was found to be significantly reduced through homeopathic treatment).³ Overall there is a need for more clinical research in this area.

Practitioner Training & Licensure

There is currently no federally recognized license for homeopaths. However, California is one of thirteen states to officially license naturopaths, whose education includes training in homeopathy. Also, depending on the state, licensed practitioners (such as MD, NP, DO, etc.) may legally use homeopathy in treating patients. The Council for Homeopathic Certification was established to provide certification for both current healthcare practitioners and any individual who completes the required homeopathic

education.¹⁰ Homeopathic programs vary from weekend long courses to four year curriculum institutes. There are also correspondence courses taught via the web. The Council on Homeopathic Education is a nonprofit organization which assigns accreditation to qualified homeopathic institutes. There are no set standards but the Council looks for schools to provide the student with formal instruction, self-study, and clinical supervision.¹¹

Heather Houska is a third-year pharmacy student. Lisa Chu is a first-year medical student.

Medical Systems

Native American Healing

Kelli Barbour, edited by Asal Sadatrafie

History and Philosophy

Native American medicine is a catch-all term that refers to many healing beliefs and practices of indigenous people of the North American continent. While a huge diversity exists among the specific practices and medicines due to the spread of various Native American tribes across the continent, there are some general overarching principles that capture the essence of Native American medicine. For Native Americans, the health of the individual is directly linked to the surrounding environment (people, objects, and nature). An individual's inner life is reflected in the outside world and vice versa. Illness, which is considered simultaneously as spiritual, mental, physical and environmental, can result from an imbalance between a person and her community or surroundings. Healing practices emphasize respect for the many connections between man and his environment. Practices are often designed to promote harmony among

Types of Native American Medicine

Prayer
Meditation
Sacred Hoop
Medicine Wheel
"Sing"
Sand painting
Sweat Lodge
Talking Circle

the community and between man, nature and the spiritual world. Practices consist of counseling, ceremony and communing with nature. Exact practices, medicines and rituals differ according to tribe and geographic location, although there are four commonalities: involvement of a healer (man or woman), use of herbal remedies, use of ritual purging and purification, as well as the observance of symbolic rituals and observations

Advice for Patients

- When looking for a Native American Healer, personal references are recommended. If the patient knows a member of a tribe, s/he should consider asking about the possibility of consulting with a healer
- Patients should remember that a healing experience is personal and differs from patient-to-patient and healer-to-healer.



A Typical Treatment

- Healers work directly with a patient to determine which practices and rituals are needed to promote healing.
- The healer discusses and then employs his connection to the spiritual world to make a diagnosis based on an individual's medical history, symptoms, possible ailments and discernment of nonverbal cues. The healer may choose a single or combined approach, including prayer and meditation, symbolic healing rituals, purification rituals or counseling.
- Treatments may include the participation of the healer's or patient's community.

TIME: Treatment time varies depending on the practices and rituals involved. "Sing," for example, is a community ceremony lasting from two to nine days.

WHERE: Depending on the patient's distance from a healer, significant travel time may be required, either for the patient or the healer. Treatment location depends on the individual circumstance; it often takes place near the healer's location.

COST: Costs vary depending on services provided.

Conditions Treated

Heart disease
Diabetes
Thyroid conditions
Cancer
Skin rashes
Asthma
Alcoholism
Depression

Side Effects & Contraindications

Native American Medicine is not generally recommended as the primary treatment for serious medical conditions. Potential side effects may include drug interactions, depending on the herbs prescribed by the healer.

Research

Native American medicine is one of many complementary modalities that has not been well studied by conventional scientific methods. Because this whole body system approach is so very broad, there are no clinical studies available on Native American medicine as a whole. However, elements of Native American medicine are being studied, especially its herbal aspects. Echinacea, a traditional Native American herb, has been

studied extensively for its effects on various illnesses, including colds, chronic URI, and UTI. Black cohosh has also been shown to be effective for treatment of menopause symptoms. However, rigorous randomized control trials (RCT) are still lacking. Currently, the NIH's National Center for Complementary and Alternative Medicine plans on developing projects to study plants traditionally used by Native Americans.

Practitioner Training & Licensure

No government-based licensing procedures exist for Native American Healers. Within Native American tribes, new healers are trained through apprenticeship with a mentoring healer. The powers of healing are thought to come by receiving healing powers from one's ancestors, receiving healing powers from another healer, and/

or training and initiation. Practices and rituals are passed through oral tradition. Healers are often self-selected based on their personal desire to heal others based on their experiences and counseling with the elders of the tribe. The clan into which a person is born may also affect a person's path to becoming a healer.

Resources

The People's Health: Medicine and Anthropology in a Navajo Community, by John Adair and Kurt Deuschle (New York: Appleton Century Crofts, 1970)

Piman Shamanism and Staying Sick by D. M. Bahr, J. Gregoria, D. Lopez, and A. Alvarez (Tucson: University of Arizona Press, 1974)

American Indian Medicine by Virgil Vogel (Norman: University of Oklahoma Press, 1970).

The Scalpel and the Silver Bear by Lori Arviso Alvord and Elizabeth Cohen Van Pelt (Bantam Books, 2000).

Honoring the Medicine: The Essential Guide to Native American Healing by Ken Cohen (One World – Balantine, 2000)

American Indian Healing Arts: Herbs Rituals, Remedies for Every Season of Life by E. Barrie Kavash and Karen Barr (Bantam Books, 1999).

Related books listed on www.healing-arts.org/nativebooks.htm

www.healing-arts.org/index2.htm

www.wholehealthmd.com

www.pathofthefeather.com./index.htm

www.experiencefestival.com/native_american_medicine

www.naturalstandard.com

infodome.sdsu.edu/research/guides/calindians/calinddict.shtml

www.aworldofchinesemedicine.com/articles/native-american-medicine-information.htm

www.spiritalk.net/teaching.htm#NATIVE%20AMERICAN%20HEALING

www.aaip.com

www.ncai.org

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Medical Systems

Naturopathy

Allen Andrews, edited by Jalene Imaoka

History and Philosophy

The American Association of Naturopathic Physicians defines naturopathic medicine as a distinct system of primary health care - an art, science, philosophy and practice of diagnosis, treatment and prevention of illness. Naturopathic medicine is distinguished by the six principles that underlie and determine its practice and methods of treatment and are used with the focus on patient individuality.

The naturopathic doctor:

- ~ shall endeavor to first, do no harm; to provide the most effective health care available with the least risk to his/her patients at all times. (Primum Non Nocere)
- ~ shall recognize, respect and promote the self-healing power of nature inherent in each individual human being. (Vis Medicatrix Naturae)
- ~ shall strive to identify and remove the causes of illness, rather than to eliminate or suppress symptoms. (Tolle Causam)

Types of Therapy

Acupuncture
Aromatherapy
Counseling
Herbal/botanical medicine
Homeopathy
Hydrotherapy
Nutrition
Physical medicine, including exercise and massage.
Reflexology
Remedial therapy
Shiatsu

- ~ shall educate his/her patients, inspire rational hope and encourage self-responsibility for health. (Docere)
- ~ shall treat each person by considering all individual health factors and influences. (In perturbato animo sicut in corpore sanitas esse non potest)
- ~ shall emphasize the condition of health to promote well-being and

to prevent diseases for the individual, each community and our world. (Principiis obsta: sero medicina curatur)

The historical roots of naturopathy can be traced through the early Egyptians, who used massage and manipulation of the body, to Hippocrates, who formulated the concept of 'the healing power of nature,' and continued in the use of steam and vapor baths in Europe during the Middle Ages, and the 19th century German custom of vacationing at health spas. However, the term 'naturopathy,' as a name for the profession, is only a century old. Naturopaths have worked in California, without directly being called as such, since before the arrival of the Hispanic curanderos and curanderas. Today, the practice of naturopathy is governed by licensing laws in 15 US states and territories and four Canadian provinces, as well as extensively throughout Europe, Asia and South America.

Side Effects & Contraindications

The contraindications for naturopathic treatment are for the most part minor, correlating directly with the first principle of doing no harm. Thus, most therapies are non-toxic and non-invasive, while few may have precautions or side effects. These include the use of homeopathic remedies, which can trigger a 'healing crisis' or initial increase in symptoms, light-headedness following hydrotherapy immersion, adverse drug interactions between herbs and over-the-counter or prescription medication and animal derivatives in some supplements and remedies.

It is important to note that many problems involving herbal treatments result from the lay-public self-medicating without the guidance of a naturopath or a reputable source for the preparations used. The majority of practicing naturopaths hold recognized accreditations and rigorous training that includes pharmacology and associated contraindications, as well as all the other areas of practice. This training ensures comprehensive knowledge of remedies and their concomitant usage.

A Typical Treatment

Preparation for naturopathic treatment depends on whether the disorder is acute or chronic. Acute cases may receive treatment for the immediate symptoms, with subsequent discussion and advice about other aspects of the patient's life, both associated with the illness and in general. The treatment of chronic diseases develops as a long term plan from the initial discussion of the patient's lifestyle and medical history. Naturopaths, like homeopaths, note the patient's general emotional tone and character traits, as well as a physical examination. Laboratory tests include blood tests and diagnostic workups similar to mainstream practitioners. Follow-up visits involve discussing the test findings with the patient, along with nutritional recommendations and/or lifestyle modification. The intention is to educate the patient about the disorder and encourage his or her active participation in making informed treatment decisions.

The main goal of treatment is the removal of the disease without naturopathic agents being directed against the disease itself. Instead, these naturopathic agents support the body's ability to mount a defense against a disorder, essentially treating the whole person and not just the ailment. Naturopaths may use one or more types of therapy for treatment, depending on the location and character of the patient's illness. Most regard diet and nutrition as the core of naturopathic treatment. Dietary regimens can be used for the treatment of chronic conditions such as acne, arthritis and colitis. Furthermore, short-term fasts and fiber supplements play an important role in naturopathic detoxification programs.

Some private health insurance companies in Canada, the US and Australia will cover certain aspects of naturopathic care, such as massage and acupuncture treatments. Others have policies specifically aimed at covering alternative health treatments, or include these as 'extras' for existing policies. The cost of treatment can vary, depending on therapy and condition treated. In the US, most naturopaths will charge between \$200 and \$300 for the first visit and \$125 to \$150 for follow-up visits. However, herbal and homeopathic medicine can be significantly cheaper than conventional drugs, in some cases costing around \$5 a month, or as a one-off payment where a single dose is sufficient.

Resources

American Association of Naturopathic Physicians – www.naturopathic.org

Association of Accredited Naturopathic Medical Colleges - www.aanmc.org

Bestir University – www.bastyr.edu

California Naturopathic Doctors Association – www.calnd.org

Complementary and conventional medicine: a concept map., Baldwin CM, Kroesen K, Trochim WM, Bell IR, BMC Complement Altern Med. 2004;4:2.

General Council & Register of Naturopathy-www.naturopathy.org.uk

Homoeopathy America – www.homeopathyamerica.com

National College of Naturopathic Medicine - www.ncnm.edu

Southwest College of Naturopathic Medicine & Health Sciences – www.scnm.edu

The American Naturopathic Medical Association – www.anma.com

The Council on Naturopathic Medical Education – www.cnme.org

Conditions Treated

Age-related concerns such as Alzheimer's

Allergies and autoimmune diseases

Asthma

Chronic fatigue syndrome

Fibromyalgia

Gastrointestinal disorders

Mood disorders and stress

Skin Conditions

Weight management

Practitioner Training & Licensure

In the US and Canada, preparation for accreditation consists of four-year, graduate-level programs in naturopathic medicine, on completion of which students are eligible to apply for the naturopathic licensing examinations administered by the North American Board of Naturopathic Examiners (NABNE). The four accredited programs in

North America are in Ontario, Washington, Oregon and Arizona. The curricula cover many topics including biochemistry, orthopaedics, pharmacology, homeopathy, public health, botanical medicine, practice management, clinical lab diagnosis, ayurveda and anatomy. There are also postdoctoral courses available to licensed naturopathic physicians

offering postgraduate training in naturopathic family care and other specialties. There are no international standards for naturopathic education.

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Medical Systems Osteopathy

Brian Berger, edited by Asal Sadatrafie

History and Philosophy

In 1874, Andrew Taylor Still, MD, established the medical practice of osteopathy. Dissatisfied with standard medical practice of the day and frustrated by its ineffectiveness, Dr. Still came to believe that the physician's most important role was to facilitate the body's own healing mechanisms. Additionally, Dr. Still maintained that the body's structure and function were intimately connected, and he developed a system of osteopathic manipulative therapy (OMT) designed to restore the body to its best functioning state.

Dr. Still did not intend to establish a separate school of medicine, but rather, in his own words, "to improve our present system of medicine [by giving it] a more rational and scientific basis." However, the late 19th century was a time of many medical experiments and the medical mainstream of the day, led by the American Medical Association, was not eager to accept yet another newcomer. Nonetheless, Dr. Still continued his practice, and in 1892 he founded the American School of Osteopathy (now Kirksville College of Osteopathic Medicine) in Kirksville, Missouri. Four years later, Vermont became the first state to license

Four fundamental tenets of Osteopathy

- 1) Each patient is a unique unit consisting of an integrated mind, body and spirit.
- 2) Each patient has the innate ability for self-healing and inner reserves important in maintaining and maximizing health.
- 3) Structures of the body affect function and, likewise, functional demands determine structure.
- 4) Every osteopathic encounter adopts an approach that incorporates consideration and appropriate application of the three previous tenets above.

Doctors of Osteopathy (DOs), but it would take almost 80 years for all

50 states to afford osteopaths the same privileges as allopaths (MDs).

Today there are nearly 50,000 DOs in the US, accounting for 5% of the nation's physicians. Owing to a strong emphasis on primary care—65% of DOs enter primary care—10% of all primary care visits are to DOs, with even higher percentages in rural and underserved areas.

Dr. Still established a system of medical education and practice rooted in Western, reductionist science, but at the same time he encouraged an approach to the patient that is both holistic and individualistic. In osteopathy, the "laying on of hands" is highly encouraged, both as a means of diagnosis (see below) and as therapy (as in OMT). Osteopathy is the epitome of an integrative practice, relying both on the power of evidence-based clinical medicine and the less quantifiable but equally important power of human touch.

"...knowledgeable Americans who know something about the history of medicine and their own desires, would like a family doctor like that described to them by their grandparents, but one who also has access to a CAT scanner and an MRI...a phenomenon of high-tech and high-touch."

--Former surgeon general C. Everett Koop M.D. in reference to osteopathic practice

A Typical Treatment

- A visit to a DO is not unlike a visit to an MD consisting of four parts: physical exam, interview, diagnosis and treatment.
- During the physical exam, the DO will check the patient's posture, joints, spinal alignment and balance in an attempt to assess structural ailments that may have systemic effects. Muscles, fascia and other soft tissues are similarly assessed. This process is known as palpatory diagnosis.
- Like an MD, a DO may order tests and labs to further evaluate the patient and confirm findings.
- The interview consists of a standard medical history, including past illnesses, allergies, family history, work, stress and treatment goals.
- Based on the exam and interview findings, the DO will offer a diagnosis. Treatment may include any standard medical procedures (pharmaceuticals, surgery), OMT or both.

Medical Systems

Conditions Treated

Licensed and covered by insurance just like MDs, osteopaths address every condition that MDs treat. Osteopathy, however, puts an emphasis on primary care. Also, owing to the increased focus on the neuromuscular system, DOs are often found in sports medicine and related practices.

Where to Find a DO

Hospitals
Clinics
Private Offices
Wellness Centers
Anywhere you find an MD!

How to find a DO

The Osteopathic Physicians and Surgeons of California has a search engine for finding California providers. The American Osteopathic Association Patient Website has similar links for other states.

Resources

Osteopathy: Research and Practice, A. T. Still

The DOs: Osteopathic Medicine in America, Norman Gevitz

Foundations for Osteopathic Medicine, Robert C. Ward (Ed.), et al.

www.osteopathic.org

American Osteopathic Association Patient Web Site

do-online.osteotech.org

American Osteopathic Association Provider Web Site

www.aacom.org

American Association of Colleges of Osteopathic Medicine

www.opsc.org

Osteopathic Physicians and Surgeons of California

Research

Historically, osteopathy has emphasized clinical research as has allopathy. Nonetheless, because so much of osteopathic therapy mirrors allopathic therapy, the body of evidence that supports the latter also supports the former.

More recently, osteopathy has begun to apply the same evidenced-based approach to OMT and palpatory diagnosis. These techniques, however, are subject to the same study-design obstacles that other complementary therapies face, including the highly individualized practice of OMT and the challenge of creating “sham” treatment for control groups.

While several studies have demonstrated the effectiveness of OMT in treating lower back pain, evidence from controlled trials for other illnesses remains equivocal.

Tools of the Trade of an Osteopath

Osteopathic Manipulative Medicine (OMT)

OMT is a type of body manipulation often compared to, but distinct from, chiropractic practice. Although the two modalities often appear similar, the philosophy behind the treatments can be quite different. Although difficult to generalize, the osteopath tends to use OMT to ease pain, promote healing and increase mobility, while the chiropractor attempts to optimize the body's performance, typically through spinal manipulation. OMT focuses on both hard and soft tissue, while chiropractic method focuses on bone, especially the vertebrae. However, there are a variety of chiropractic modalities, so these rules are not hard and fast. While it is often used to treat neuromuscular problems, OMT can be used to treat other illnesses as well, including asthma, bowel distress, migraines and menstrual pain.

Palpatory Diagnosis

The laying on of hands is not only therapeutic, but diagnostic as well. Osteopaths use palpation to assess illness and design treatment.

Practitioner Training & Licensure

Pre-requisites for and training within osteopathic colleges is very similar to allopathic schools, although osteopathic students spend an additional 200-300 hours learning OMT techniques. Osteopathic students may sit for the same board exam as allopaths, the United States Medical Licensing Exam (USMLE), or they may sit for the Comprehensive Osteopathic Medical Licensing Examination (COMLEX). Some students take both exams. Upon graduation, osteopathic students earn the degree Doctor of Osteopathy (DO). Osteopaths are fully licensed in all 50 states and share the same scope of practice as allopaths.



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Medical Systems

Traditional Chinese Medicine

Rachel Smith, edited by Lisa Chu

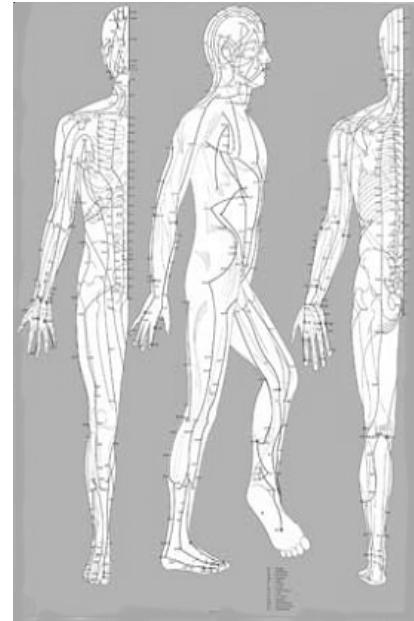
History and Philosophy

Traditional Chinese medicine, or TCM, is a healing modality that has been in practice for over 4000 years. It encompasses a complex philosophy that disregards the Western-based Cartesian philosophy that the mind and body are separate and do not influence each other. In Chinese medicine, the patient is viewed from a much more holistic vantage point that assumes that every aspect of the body is intimately connected. Disease, however, is still characterized as physical or mental in origin.

Another difference between TCM and Western medicine is that rather than seeing disease as an external imposition on the body as in Western medicine (microbes, pathogens etc.), Chinese medicine views disease as a result of an internal imbalance that either causes the problem or allows external agents to invade the body and cause harm (1). The healing practices of TCM attempt to restore the internal, natural balance of the body, thus allowing the patient's body to heal itself.

Some of the concepts underlying TCM's view of health and disease are Yin/Yang, Qi, and Zang/Fu organs (2). Yin and Yang are oppositional, yet complementary, concepts that constitute a delicate and necessary balance within the body. Even individual organs contain elements of both Yin and Yang, and although the balance may fluctuate, it is consistent disturbance that precipitates illness (3). Qi is described as the body's vital energy, and it travels through the body by way of channels or meridians, a concept that exists exclusively in TCM (4). Disruption of the flow of Qi through these channels can precipitate disease (5). Acupuncture points are specific areas on these channels that are thought to represent maximum influence on the flow of this vital energy (6).

Organs in TCM have similar functions as in Western medicine, with some differences. In TCM, five organs (heart, lungs, kidneys, liver, and spleen) are most important and are referred to as the Zang, or solid organs (7). These organs control the main Yin/



Meridian Chart

Yang balance of the body. Each solid organ is linked to a hollow, or Fu, organ (8). For instance, the liver is linked to the gallbladder. Treatment of the liver's imbalance can therefore be performed by manipulating the gallbladder and its energy channel.

A Typical Treatment

A typical TCM treatment varies greatly due to the large variation of practices underneath the TCM rubric. One can expect that in an initial meeting the practitioner will use the following as diagnostic tools: questioning (medical history, lifestyle), observation (skin color, tongue, and smell), listening (breath sounds), and palpation which includes pulse taking (9). This last aspect, the taking of the pulse, is highly diagnostic in Chinese medicine, and six pulses are taken on either arm.

Once a diagnosis has been made there are many avenues for treatment in traditional Chinese medicine. **Acupuncture**, a technique in which stainless steel needles are inserted into various therapeutic points on the body, may be used alone or in combination with a low energy current to increase stimulation. **Herbs** may be prescribed to be taken as a tea or in homeopathic remedies. Burning herbs near or on the skin is referred to as **moxibustion**, and is also a common practice. Other services offered are **massage**, ear acupuncture/**auriculotherapy**, scraping of the skin known as **guasha**, application of vacuum cups or cupping, and the use of external salves or liniments (10).

Many TCM visits are not covered by insurance, although this does vary from state to state. Most patients pay for services out of pocket. However, some practices (including acupuncture) are commonly covered by major insurance providers such as Blue Cross of California (11). As more and more practices are studied and researched, there may be a wave change in terms of coverage and cost.

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Research

Despite recognized methodological pitfalls, many aspects of traditional Chinese medicine have become the focus of research around the United States. The formation of the National Center for Complementary and Alternative Medicine at the NIH has done a great deal in terms of funding and legitimization of many traditional Chinese medical practices.

One of the best studied TCM components is acupuncture. A recent PubMed search revealed over 10,000 matches for acupuncture related studies. There has also been much recent research directed toward how best to create placebo

acupuncture treatments, in order to better design acupuncture research experiments (12). Such “sham” techniques include acupuncture outside of correct points or pricking with a toothpick without insertion.

Natural Standard is a website that collects excellent evidence-based reviews of herbs and supplements traditionally used in TCM. This can be used in conjunction with databases such as PubMed to get the latest data on TCM research. Even the more “fringe” practices, such as cupping and electro-acupuncture, do have active and recent research papers in publication.

Traditional Chinese medicine is reviewed in Rakel’s Integrative Medicine, an evidence-based guide for Western-trained health professionals. It is listed as a treatment system for Western practitioners to consider referring to for: allergic rhinitis, aphthous ulcer, asthma, attention deficit/hyperactivity disorder, gastro-esophageal reflux disease, gout, hypertension, hypothyroidism, inflammatory bowel disease, insulin resistance syndrome, irritable bowel syndrome,

Conditions Treated

Like Western medicine, TCM is a complete medical system. As such, it is meant to address the full breadth of human disease.

Side Effects & Contraindications

Some side effects and contraindications of traditional Chinese medicine do exist. With acupuncture the risk of infection is real and it is imperative to make sure the practitioner uses sterile needles. Some herbs and ointments can be toxic. A qualified practitioner should be aware of this and prescribe accordingly (diluted or decocted remedies). The most serious side effects, and the best publicized, such as the banning of ephedra or ma huang, occur when preparations of drugs differ from their traditional use or are prepared by inexperienced or unlicensed providers.

leiomyoma, nausea and vomiting in pregnancy and in cancer patients, otitis media, peptic ulcer disease, peripheral neuropathy, prostatitis, psoriasis, headache, detoxification, and menopause (13).

Resources & Advice

Herbs, including those used in traditional Chinese medicine, are very loosely regulated by the federal government, and there is no guarantee of purity or content. It is best to buy herbs through a licensed herbalist or by researching an over the counter brand that has been well documented.

Helpful Herb Websites:
www.NaturalStandard.com
www.ConsumerLab.com
www.usp.org
(US pharmacopoeia)

The NIH National Center for Complementary and Alternative Medicine has a collection of ongoing clinical trials that involve many aspects of traditional Chinese medicine and may be helpful for patients with such interests. Website: nccam.nih.gov
The California State Oriental Medical Association has resources about licensing and how to find a practitioner through their website. You can access this website through the national organization.

Practitioner Training & Licensure

As traditional Chinese medicine worked its way into the United States in the early 1970s, it was practiced without licensure or oversight. Today, over 35 states have licensing standards for acupuncture and other areas of traditional Chinese medicine (14).

However, one important caveat remains: most states allow physicians and surgeons to practice certain forms of TCM, such as acupuncture, with little or no training (15). The National Commission for the Certification of Acupuncture and Oriental Medicine (NCCAOM) is attempting to set up minimal standards in all states through its own certification process. Many practitioners have been certified

through this process and some states have adopted the NCCAOM exam as all or part of their licensing criteria. California has set a higher standard of certification beyond NCCAOM certification (16).

The licensing titles given in California include: C.A. for certified acupuncturist, L.Ac. for licensed acupuncturist, and A.P. for acupuncture physician. Degrees and certifications include Master of Acupuncture (M.A.), Diplomate of Acupuncture (a NCCAOM title), and Doctor of Oriental Medicine (OMD/DOM) (17).

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Medical Systems

Tibetan Medicine

Hadjh Ahrns, edited by Gwendolyn Ho

History and Philosophy

Tibetan Medicine traces its roots to the 4th and 5th century. It is derived from a guide to "right living," which is the core of Buddhist philosophy. Tibetan Medicine is one of the oldest continuously used systems of medicine in the world. So successful was the medical system that Tibet was known at the time as "the land of medicine." Around the 7th or 8th century Tibet hosted doctors from around the Asian and European continent for an international medical conference to share ideas and practices from their modalities of healing. During this time texts from the Greek medical system, the Ayurvedic medical tradition and Chinese medicine were translated and incorporated into the Tibetan Medical system. The time-honored curriculum of Tibetan Medicine consisted of the Four Tantras, which at this time were revitalized with new practices and knowledge. A major

revision of the Four Tantras occurred again in the 12 century. Many additional texts have been added but the underlying foundation of Tibetan medicine holds to the Four Tantras.

Disease in Tibetan Medicine is describe as disturbances or disharmonies in one or more of the **seven components** (milk, blood, meat, fat, bone, marrow and essence), the **three excreta** (excrement, urine and perspiration) and the **three principles of energy** (wind, bile and phlegm)

The three principles of energy are used to define the constitution of a person much like Ayurvedic medicine. Note that these definitions are not complete in translation due to language barriers.

Wind is said to control movement, circulation, breathing, intellect, speech and impulses.

Bile is responsible for internal heat and the digestive system

Phlegm maintains our physiologic set points and balances energies (Alternative Medicine Foundation).

Tibetan medicine can be seen as prophylactic medicine since it deals with unhealthy tendencies before they cause the patient to present with serious clinical problems. However, since many people only consult a doctor when things are quite badly wrong, the major part of this medical science - in practice - is concerned with an immediate treatment of the specific ailment with which the patient presents

- *The Four Tantras are known as the rGyud-bZhi (pronounced Goo-shee) in Tibetan.*

- *The headquarters of the Tibetan Medical and Astrological Institute are now based in Dharamsala, North India.*

Types of Therapy

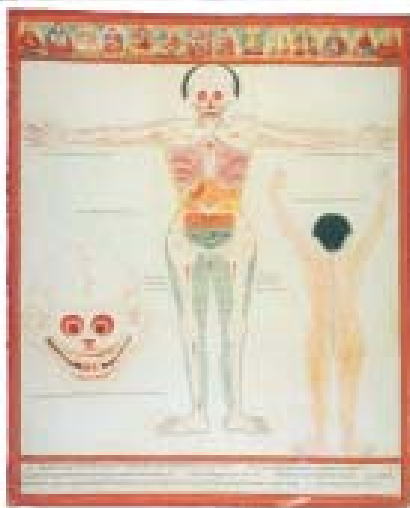
Behavioral modification can include meditation instruction, spiritual advice, counseling, exercise, or the reorganization of habitual patterns such as sleep habits and eating schedules. Much of this is derived from Tibetan medicine's link with Buddhist philosophy and a person's unique energetic composition.

Diet may be altered after considering which types of food are harmful and beneficial, the amount of food to be eaten, the number of meals per day and the proper meal times. They type of food to be eaten is based on the synergistic effects certain types of food have with people of a particular principal energy. Each food has its own energy profile in addition to its nutritional content and this idea is at the heart of TTM diet modification.

Herbal treatments range from simple to very complex, in a using anywhere from 3 to 150 herbs per formula. Each formula or set of formulas is prescribed to fit the condition of the individual patient. Herbal medicines often need to be modified at each visit. In India and Tibet other supplements can also contain precious metals in seven kinds of precious pills.

Surgical therapies such as acupuncture, moxabustion, bloodletting, cupping, massage, and inhalation therapy may be used. This is not allopathic medicines traditional definition of surgery. Look it up if you are concerned about the Tibetans used of the word. (NaturalVillage.com 2004).

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A Typical Treatment

Tibetan medicine views illness as the result of imbalances in the biological rhythm, or within the three principles of energy, seven components, and three excreta. The session includes **observation, palpation, and questioning.**

Observation is much like allopathic medicine would describe it with notable differences with regard to visual and odiferous urine analysis and tongue visualization. There are 13 sections of pulse palpation that the Tibetan physician must do. He/She places the index, middle and third fingers on the radial arteries at the same time in a well-relaxed patient. The space between each of the three fingers is the width of a grain of rice, and the fingers are placed half an inch from the crease of the wrist (The Office of Tibet London).

Then, the practitioner determines a reason for the imbalance and implements a method of restoring balance. There are four generalizable categories of tools for the treatment of the imbalance: Diet Modification, Behavior Modification (Buddhism), Prescription Medicines and Surgical procedures. These are very much like the treatment options that allopathic physicians utilize.



Before your First Visit

Traditionally, on the day before the consultation the patient should eat or drink neither too much nor too little, and the food should be easy to digest — not much raw or cold food, or very sweet or very greasy or very spicy food; the consumption of alcohol, coffee, tobacco and drugs should be omitted if possible. Likewise it helps to avoid strenuous physical exercise, and to make sure to get enough sleep. The purpose of all these guidelines is to help the doctor get a deep understanding of your health, unclouded by superficial disturbances.

Before going to sleep on the night before the appointment, prepare a clean glass jar with no label and a lid that doesn't leak. Collect a sample of the first urine after about 3 AM and bring it with you. It is best to try to catch the middle part of the stream — let the urine flow for a few seconds before catching the sample, and stop collecting the urine before the end of the flow. A sample of 4 to 8 ounces in volume would be ideal. (Dharma Heaven 2004)

Resources

www.naturalhealers.com/qa/tibetanmedicine.shtml

www.tibetmed.org/school_training.htm

www.dharma-haven.org/tibetan/medicine.htm

amfoundation.org/tibetanmedicine.htm

www.tibet.com/Med_Astro/tibmed.html

Practitioner Training & Licensure



In the United States there are no practitioner training or licensure programs available. Currently there are approximately 100 physicians in the United States that have been trained at Tibetan Medical Schools in India and Tibet. Most practitioners of Tibetan Medicine in the U.S. practice under another modality license, like acupuncture, or see patients without a license.

In India or Tibet the standard training is 5-7 years. The first 2-4 years are the sciences, history, and philosophy.

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Medical Systems

Traditional Mexican Therapy

Manuel Bravo, edited by Lynda Nguyen

History and Philosophy

Mexican traditional medicine encompasses native Indian folk practices, Western European medicine, and religious-spiritual beliefs. This blend of influences dates back to days of Spanish colonization of the Aztec empire in the early 16th century. Concepts of health incorporate both objective and scientific reasoning as well as supernatural and spiritual elements.¹ Health is, therefore, a balance of one's physical, emotional, psychological, and spiritual elements.

Some illnesses are attributable to an imbalance between hot and cold elements.^{2,3} This concept stems from the European (Greek) model that disease is an imbalance of bodily humors.⁴ Diseases and health states are classified as "hot" or "cold". Each disease should be treated with food and herbs that are of the opposite quality. For example, an upper respiratory tract infection (cold) should be treated with teas and soups (hot). Hot-cold categories will vary from region to region or family to family. It is important to note that actual temperature (of disease state or food products) often is irrelevant to its category. Pregnancy, for example, is consistently classified as "hot".

Diseases can have physiological, environmental, and supernatural etiologies. *Empacho* (constipation) is thought to be caused by undigested food stuck in the stomach or intestines. Sometimes common colds and tuberculosis are thought to be brought on by *mal aires*, or cold drafts. A person who has *susto* or *espanto* (fright) has been affected by a traumatic experience; symptoms include insomnia, depression, and fatigue.

Caida de mollera (sunken fontanel) on an infant is attributed to either pulling a baby away from the breast or bottle too quickly, improper handling, or falls. A person can harm another person by giving them *mal ojo* (evil eye), which can result in headaches, fever, and sometimes death. Lastly, someone can have a *mal puesto* or *embrujo* (curse) placed on them by a witch or evil person.

Health advice from elders, such as grandmothers, is highly respected. Most common ailments are treated with a wide range of herbs. Sometimes the help of a *yerbero* (herbalist), *sobador* (massage therapist), or *partera* (midwife) is sought when home remedies are not enough. In cases when these providers cannot cure the ailment, people will seek the services of a *curandero* (lay healer). The *curandero* is usually a community figure who either has learned, or has a gift from God, to heal people. He or she will make use of herbs, potions, prayers, and rituals to heal a person from their ill. The *curandero* can also ward off curses. A common fixture in most



A curandera treating illness (*mal de ojo*) involving the supernatural, rather than the natural part of the material.
Photo by Robert Trotter II PhD

households, including in houses of curanderos, is a small religious shrine with representation of Christian figures and votive candles. The help of God and Roman Catholic saints is evoked for almost any trouble.

Mexican traditional medicine is often practiced in conjunction with Western medicine. Its practice is prevalent in lower socioeconomic classes and those of lower education and limited health access.²

Conditions Treated

Mexican traditional medicine can treat most common illnesses:

- Constipation
- Diarrhea
- Common colds
- Ear aches
- Fever
- Anxiety
- Hypertension

Serious cases are referred to a medical doctor even by folk healers.

A Typical Treatment

Herbal teas are common for most common maladies. An infusion of *manzanilla* (chamomile) is indicated for nausea, colic and anxiety. *Yerba Buena* (peppermint) is indicated for flatulence, dyspepsia and *susto* (fright). An upper respiratory tract infection might be treated with chamomile, Echinacea, catmint, elderflower, vitamins C, B, and zinc, and prohibition of dairy products. Children with diarrhea and vomiting, for example, are given rice water.¹

For osteoarthritis and rheumatoid arthritis, an herbalist might prescribe a mixture of celery seeds, willow bark, ginger, and Devil's claw.²

For *susto*, a curandero may give a patient herbal teas and perform a *barrida* (cleansing ritual). These rituals may include spraying alcohol or water on a patient's face, having the patient stand or lie down in a cross position, sweeping the patient with herbs, and praying.³

Research

Active research in Mexican traditional medicine is very limited in the U.S. There are various articles and reviews on Mexican cultural awareness issues for practitioners. PubMed is probably the most up-to-date resource for researching botanicals used in traditional medicine in Mexico. The School of Medicine at University of Guadalajara (Mexico) is purported to have a comprehensive database of traditional herbs.



A curandero's working altar, showing objects that include the historical influences on Mexican American healing traditions.

Photo by Robert T. Trotter II Ph.D.

Side Effects & Contraindications

A couple of traditional practices may pose health risks. *Caida de mollera* (sunken fontanel) is sometimes treated by holding the baby upside down over a pan of water and slapping the bottom of the feet. This jolting could pose damage to the central nervous system. Another common danger is the use *azarcon* or *greta* for stomach aches, especially in children. Several cases of lead poisoning have been reported.¹

Practitioner Training & Licensure

The University of New Mexico offers a course on the practice of *curanderismo*. One must keep in mind that practices between Mexican traditional practitioners may differ. Often the traditional practices are handed down by elder family members or, as is the case with some curanderos, one has to be endowed by God with the gift to cure.

Resources

DeStefano, Anthony. (2001). *Latino Folk Medicine : Healing Herbal Remedies from Ancient Traditions*. Ballantine Books.

For more information on curanderismo courses and reading: www.unm.edu/~ovpsa/curanderismo.html

Websites

www.ethnomed.org

Manuel Bravo is a second-year pharmacy student. Linda Nguyen is a first-year pharmacy student.

Medical Systems Integrating Your Practice

Kara Lichtman and Yuri Iwaoka-Scott, edited by Jessica Woan

How did you get into integrative medicine?

SQ: My family comes from New Mexico, and some of the traditions in that area include indigenous healing – Native American healing – as well as traditional healing in the New Mexican Hispanic community. When I was in medical school and when I was first in practice I worked with traditional Indian healers in the Southwest, taking care of patients in community health centers. So I had exposure to [alternative healing] and I was interested in it, but I was mostly interested in it as an observer. As the years went on and I broadened my perspective, I began to see with new eyes how it is important to work with belief systems, intentionality – a broader approach that would include manual therapies, massage, and botanicals as well. This was something that I thought that I needed to take more seriously, and so about ten years ago I made the decision that I was going to consciously try to integrate those approaches into the way that I work as a physician.

DM: I'm interested in primary care and I believe that primary care needs to be something that serves the broad health needs of patients. As allopathic physicians, we are limited by what is given to us in medical school and residency training—this is really just a tiny slice of what has to do with “health”. The minute you start to care for patients who have chronic disease or who have lots of symptoms that are completely bewildering and not necessarily integrated, it is a very natural progression for physicians who are working with patients who have chronic health problems.

We interviewed two physicians about their experiences integrating their medical practice:

*Yuri Iwaoka-Scott interviewed **Sylver Quevedo, MD, MPH** on April 9, 2004. Dr. Quevedo is an internal medicine physician with a subspecialty in nephrology and training in family and community medicine. He is the Director of Clinical Programs at the Osher Center for Integrative Medicine and a founding director of the Center for Integrative Medicine at O'Connor Hospital in San Jose.*

*Kara Lichtman interviewed **Daphne Miller, MD** on April 20, 2004. Dr. Miller is a family practice physician in private practice in Noe Valley. She is also an Assistant Clinical Professor in the Department of Family and Community Medicine at UCSF. Dr. Miller is currently preparing for board certification through the Board for Nutrition Specialists.*

What is the additional training or study for your type of integrative practice?

SQ: Well, most of my training is in internal medicine and nephrology and I actually had training in family medicine before, but in addition to that, I've also had training and certification in hypnosis and guided imagery. But most of the exposure that I've had to integrative medicine has not been through training programs, but through participating in continuing education activities and conferences for almost ten years now. That's been the nature of my training. Now there are more organized, formal fellowships in integrative medicine. So it's actually different than when I first started.

DM: I have an interest in nutritional medicine. I think that, as an allopathic physician, working with nutritional therapies and behavior change related to eating habits is very compatible with our model of

thinking. Food is one of the strongest drugs in our therapeutic armamentarium and so why not use it as a primary tool for treating patients? If you think about it, it makes perfect sense. Unlike drugs, food is a therapy that most of us are motivated to take in three times a day. Food has a very big impact on our health, in many instances a larger impact than any medicine we are going to prescribe. I look at nutritional medicine as a way of being able to provide a much more holistic treatment for my patients. I do use a fair amount of herbs and I also am interested in yoga and movement therapy and tend to introduce that a lot in my practice. As a family doctor, I received a fair amount of training in family-centered therapy, cognitive behavioral therapy and so on, so I tend to use those modalities as well. I think my nutrition training in medical school was the sum total of an afternoon in which we learned how to mix a [partial parenteral nutrition] bag. I have done coursework (CMEs) and I've worked with nutritionists. But really most of my learning has been

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through my own reading and through working in my practice with my patients. Most of the good nutrition literature is published in PUBMED. It's just a matter of querying the right types of articles and having the right frame in which to ask the questions. Nutrition research is hard to do because there are so many variables but there are many well done prospective studies and even some randomized controlled trials. A lot of them are published in the New England Journal and JAMA. It's a matter of what glasses you put on and how you're willing to interpret the information. For example, you can look at the results of the DASH diet study and say well this is silly because 10mg per day of enalapril can get your blood pressure down as well as a careful diet or conversely you can say, by following a careful diet you avoid taking a medicine with potential side effects.

What are the approaches that you use in your integrative practice?

SQ: I am doing what many of us are calling "integrative medicine consultation." We work through a given series of problems with a patient, review the diagnoses and history and the approaches that they've taken and work to develop an expanded strategy that includes approaches to work on mind, body, spirit, and in community. And a lot of what I do specifically addresses each of those areas, consciously and explicitly with patients. Because I'm an internist, a lot of the patients that are sent to me are patients who have medical diagnoses and who either have complicated stories, multiple problems, or who have been failures in conventional circles.

DM: I just try to look at my patients as whole people and figure out what they need and not necessarily limit myself to the tools that I have in my toolbox as an allopathic

physician. I really try to be very open to their concerns and open to the possibility that I might need to collaborate with other types of practitioners in order to give them what they need. I don't really think of myself as someone who does a little bit of acupuncture and a little bit of homeopathy. It's more that I really try and think in a very holistic way and look at healthcare through the aperture of the patient rather than through the aperture of my skills.

Are there any specific liabilities or other barriers for a Western-trained person who wants to use this approach?

Including alternative providers in your group practice

SQ: There are several – let's say you're in practice somewhere and you want to do this. So first of all – are you going to do it on-site at your own practice? If you bring somebody in, then there's the whole issue of credentialing and liability. The malpractice companies – some of them are very nervous about that – it can be a big problem. There is a whole range of issues. What it comes down to is that if you're an MD on the staff of a hospital with a good record, the fundamental question that the malpractice insurers will ask you is "are these practitioners working for you as employees or are they independent private practitioners?" If they're independent private practitioners, the next series of questions have to do with "are they licensed and do they have their own individual liability insurance?" So that's how it flows. In an academic setting or an institutional setting, like if you work for a hospital or academic medical center, everybody has to be formally credentialed. In an office practice, it doesn't have to be that way. In our practice, at the O'Connor Hospital in San Jose, we've credentialed the entire group through the hospital credentialing

process. You don't have to do that, we just did it that way. And the people that practice the alternative therapies with us are independently licensed in the state, that is to say, they're licensed acupuncturists (and that's a licensure in California, it isn't in all states). The people that are doing hypnotherapy and guided imagery are licensed RNs, so they have RN licensure. Some of the people doing massage therapy are also RNs. The only person who is not licensed independently is one of our massage therapists who has a certification, she's a CMT (certified massage therapist), but it's not a state licensure, it's a more informal certification by a national group. Now we haven't had a problem with that, but some of the malpractice groups get nervous if that person isn't specifically an employee of the MD and our group in San Jose is not that way – we're peers in a group practice. So those are some of the issues that come up.

Referring to CAM Providers

SQ: If you're referring to someone in a separate location, then the only liability is that there is an "implied warranty." That is, if the patient asks you should I go to somebody and you say "go to this person, this is someone that I recommend" it is implied that you're saying this person is good. So in practice, people don't refer to people that they don't know are actually good. Now when you refer to other MDs that you don't really know, there's a whole system in place where they're licensed and they have to have credentials verified to be licensed. With alternative practitioners, it's a little more variable. So we have been relatively cautious - we refer to people that we actually know. And if we don't know them directly, we have to say that we can't physician there always is that concern that if they were to do harm and not be adequately insured, there may be a way that I could be implicated because I had made the referral.

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That's something that I think malpractice carriers caution physicians against. The truth is that I work with alternative practitioners who I really trust, who I've had a good deal of experience with and who I know are not doing anything aggressive or that clearly has no possible benefit. It is a little bit of a minefield for physicians in California who are working in a more integrative fashion. A lot of them have opted not to be a part of the system at all, not to be a part of medical societies and not to be affiliated with universities. There have been doctors who have been hunted down in kind of a witch hunt way for prescribing vitamins and so on. I don't think it's getting loads better, but as the conventional medical community is becoming more interested in alternative methods, the gap is closing.

Can you talk about the things that insurance does cover?

SQ: In general the insurance thing has not been that good for alternative therapies in general. A lot of acupuncture services are now covered but they tend to be heavily discounted; that is the payment that the acupuncturist receives is low, \$25 per treatment. And so it's maybe better than nothing, but it's not necessarily a big solution and for the stuff outside of that, like massage therapy, is very limited. MD services are generally well-covered by insurance even if they are in the "integrative medicine" area because they are really viewed as MD services. The problem is that integrative medicine is relatively labor-intensive because you end up spending a lot more time with people. In managed care settings, it's really hard to do it because you don't get that much time, so the reimbursement is not that good in general. But [reimbursement] is not that great in general for primary care.

DM: The only insurance I work with is Medicare. For any doctor, whether they're working within alternative medicine or not, getting reimbursed these days is a nightmare. If you're taking a holistic approach with your patients you need to take time. Time is the most critical piece to being able to hear the full story and being able to see your patients as whole people. You can't do that in a ten minute visit. If I really want to spend the time, which is usually an hour for an initial visit and thirty minutes for a follow up visit, then I have to find a creative way of doing it and my way is to charge reasonable fees, but charge them directly to the patient and then let them get reimbursed directly from insurance. I also have a sliding scale for low-income patients.

How do CAM practitioners who are not Western-trained respond to you?

A spectrum of responses

SQ: There are a couple of things. There are some CAM practitioners, for example, who are not that interested in integration. They say, "listen, just send us the patients, we can use TCM for any problem." And there are other practitioners – and we hear this from patients – who will say, for example with cancer, "the worst thing you can do is go to an allopathic medicine physician because they're going to poison you and you come to us and you're weak and you don't get better, so come to us first and don't go to an allopath." I mean that is out there. But I think the best ones are open-minded and are willing to be in a dialogue. Many of the TCM schools are actually opening new degree programs and sections that they call integrative medicine, so they're actually looking for Western MDs to teach on their faculty. They want to teach their TCM students Western

medical diagnoses and terminology so that their TCM students can be comfortable referring to allopaths.

DM: I get many referrals from alternative practitioners because they know I am a physician that will work with them. When patients give me permission to do so I will confer with them and talk with them very much as I would with specialists within allopathic medicine. I probably refer as much to acupuncturists and homeopaths as I do to [Ear, Nose, and Throat physicians] and surgeons and so on.

The value of integration when systems diverge

SQ: There is also a running critique in the field that integration is not just mixing modalities together--there is a deeper inquiry and process that needs to occur because these systems are very different in terms of how they view disease and disease-processes. For example with a lot of patients with Gastroesophageal Reflux Disease (GERD), they'll come in with symptoms of heartburn and reflux and their gastroenterologist would have put them on a proton pump-inhibitor and Hydrogen blocker. In TCM, that's considered a problem because reducing acid secretion turns off so-called "digestive fire" and actually leads to poorer digestion and can lead to a kind of malabsorption in TCM terms. [The allopathic] approach is very often seen as making the problem worse. So you have some systems where they have an actual opposite view of what is the right approach. So that's why it is important to have these efforts to integrate and these collaborations where people really do have this exploration between the two paradigms, seeking to understand where one paradigm can map onto the other, or where we could learn something interesting from one which could inform the other.

What is most satisfying about having an integrative health care practice?

Global medicine in action

SQ: I think the most satisfying thing for me is opening my eyes to the fact that it's okay to practice in this very holistic way. It's okay to talk to people about their spiritual experiences and the crises in meaning in their lives. It's okay to talk with them about the psychologic experience and the quality of the relationships in their life – relationship stress, for example. And it's okay to talk to people about their physical problems all in the same setting. And it's also okay to talk about other approaches to healing which are parts of other cultures and to explore actively what [patients] beliefs are and to use those actively. It's much more rewarding – it's sort of multiculturalism in action, global medicine in action. And really in many ways, I think it's the medicine of the future. And it's happening all over the world, it's not just happening in the United States. And in some places, conventional medicine is traditional healing in a village by a shamanic healer and alternative medicine is organ transplant. So the context in which you're working and the belief systems which people come with are very important for healing. To work actively in that and consciously in that paradigm is really an improvement over the kind of approach that I learned in medical school which is basically the doctor as mechanic, the disease is a mechanical problem that you fix with a specific intervention. The new paradigm is really much more "doctor as gardener" – you know, some mechanical things and fertiliz[ing] here and there, but you're participating in the mystery of life and nurturing a process that is definitely complex and in many ways much bigger than you are.

How have you had to restructure your practice in order to practice integrative medicine?

Keep overhead low, focus on patient care

DM: [I've totally redesigned] it in order to be able to do this. It wasn't exactly redesign because I really opened my practice with the intention of being able to work this way, it was more an escape from conventional practice that drove me to open this practice. I knew from day one that I wanted to have time with my patients. For me the keys have been to keep a very low overhead, to really focus as much time as possible on patient care, which means not fighting with insurance. I have one assistant so I don't have many people that I have to supervise. I wanted to really make my work directly with my patients be the cornerstone of my practice.

Reorganize schedules and office space

SQ: Definitely longer appointment times. We've completely reorganized the way that our office is set up so that we have facilities for massage therapy and TCM. We have a clinical psychologist who is part of our group and there is a psychiatrist at Osher who's part of the group, so we [need space in which to] work actively on psychological and psychospiritual aspects [of patient care].

Taking out the middle man

SQ: We did not have a very happy experience in San Jose with insurance companies. We actually began to opt-out of managed care and give patients a statement, a super bill with diagnostic codes that they submit as a claim form to their insurance companies, and they pay us directly. So we've sort of taken the insurance companies out of the middle, and interestingly the patients seem to be getting paid better by the insurance companies than we were. Basically, the patients have to go out of network if they're going to see us. Now the ones that have been doing it, they've been happy to do it.

Access to care for low-income or uninsured patients

SQ: And for patients who can't afford to go out of pocket, I think this kind of care is really not very available, and that is really too bad. Osher is actively working on that by establishing a community care fund which has been done and several grant applications are in to expand that and to develop some partnerships with groups that are working with indigent patients in order to make an expanded approach available to them as well. And I think that's an important area that needs further work.

Lifelong learning

DM: I'm continually learning. There are many wonderful things that we are taught in medical school and residency, but it's actually fairly limiting. I think that the biggest problem with doctors, besides their stress level in terms of trying to meet the bottom line, is that they get bored. After a few years of practice, they really experience burnout, they just don't want to follow the algorithms anymore and everything

feels very cookbook to them. When you actually start to say, OK there are new ground rules here, and what I'm really trying to do is look at what are the modalities that are going to make this person better rather than what are the modalities that I feel comfortable with, then suddenly, the sky's the limit and you're constantly learning and expanding and feeling challenged. It's very exciting.

Conditions appropriate for Complementary and Alternative Medicine Treatments

Mind-body/awareness practices could help everyone

SQ: For a lot of the health problems in Western allopathic medicine that are associated with behaviors, conventional approaches don't really do very well with them – things like diabetes and coronary artery disease. Some of the drugs are useful, but people don't change behaviors very effectively. So I think it is very useful to use an expanded approach where you talk to people about the whole mind-body interaction, for example. I think you almost can't go wrong by having everybody learn an awareness practice, which is basically a mindfulness practice, so that they become more conscious of what they're doing and what their behaviors actually are. So that's one thing.

Fibromyalgia and Chronic Fatigue

SQ: A second thing is specific problems like the whole fibromyalgia syndrome and chronic fatigue syndrome and many of the aches and pains that we see in primary care medicine that are poorly characterized. The conventional approach is pretty much non-steroidals, and you pretty much write a prescription and send them out the door and tell them to do some back exercises or something along that line. Usually they end up just taking non-steroidals and they get a little bit better from the pain, they don't necessarily get anything more out of it than that. In these situations, I think massage therapy is sometimes is magic, manipulation can be very useful, acupuncture can certainly be useful. Non-steroidals are fine, but they certainly have their problems and when people end up taking a lot of them, they're really a big problem. So I think that if you use a combined approach and some of these musculoskeletal approaches can be much better than a conventional approach which is either non-steroidals or sending them to an orthopedist. And a lot of the stuff that the orthopedists get is not very well treated by surgical means, in fact the orthopedists are beginning to refer to us a lot more, and they want patients to take yoga classes, for example.

Gastrointestinal disorders

SQ: Another area which is important is gastroenterology. Irritable Bowel Syndrome is a very common problem and conventional approaches are not that effective. There are a couple of new drugs (like the serotonin receptor blockers) but they have side effects and they don't necessarily always work that well. It's interesting to try hypnosis, guided imagery, and acupuncture with these patients, and so we've been doing that regularly, and some with very dramatic successes. Another area is esophageal motility disorders. We had a couple of dramatic cases that did not do well with conventional approaches and really responded to a TCM approach – acupuncture and some dietary changes.

Alternatives to pharmaceuticals

DM: I try to do no harm. A lot of the medicines and surgical interventions that we use in allopathic medicine are not necessarily being used to treat a life threatening illness. They are really to treat chronic symptoms or a theoretical condition that will evolve. So, for a lot of these treatments we actually don't have a lot of good evidence or we don't have a lot of data on long-term side effects. I tend to use alternative therapies for things that are chronic, aren't going to go away, and where the pharmaceutical or surgical treatment is most likely to cause more side effects than benefits. That's where I tend to find it most useful.

Nutrition for chronic pediatric problems

DM: I use it a lot in pediatrics for chronic problems such as eczema, constipation, reflux, etc. In most instances, giving steroids and other pharmaceuticals to kids is clearly not the way to go. It makes so much more sense to look at their diet, their environmental and food allergies and intolerances and then to manipulate their environment and their nutrition in order to cut down on allergens and boost their immune systems.

Kara Lichtman and Yuri-Iwaoka-Scott are fourth-year medical students. Jessica Woan is a first-year medical student.

Energy Modalities

Polarity Therapy

Diane Norcio, edited by Asal Sadatrafie

History and Philosophy

Polarity therapy is a system of holistic health care that utilizes four interrelated therapeutic methods: bodywork (gentle massage and touching the patient at two points to “balance” the flow of energy), nutrition, exercise, and self-awareness. It was created in the mid-1900s by Dr. Randolph Stone, who was trained in osteopathy, naturopathic medicine, and chiropractic. However, he believed that these three systems of health care did not go far enough in identifying and treating the underlying cause of illness. Dr. Stone began to study healing traditions around the world and then generated his own system, drawing heavily from both

Ayurvedic medicine and the physics of the day.

Polarity therapy is based on a belief that energy fields exist everywhere in nature. Because the particles, atoms, and molecules that comprise human cells can be charged, that is, *polarized*, they are in constant, dynamic interaction with external energy fields. According to polarity therapy, the flow and balance of energy in the human body is the foundation of health; when energy flow is insufficient or disordered, illness results. Dr. Stone believed that the flow of energy through the body could be insufficient in some areas and that redirecting that flow (by placement of the practitioner’s hands on prescribed areas of the body) could create new currents in the body and restore health.

Dr. Stone incorporated an Ayurvedic five-element approach into polarity therapy, stating that all matter and energy are comprised of five elements: ether, air, fire, water, and earth. Each element is related to an energy center in the body and has various physiological functions associated with it.

Research

Of note, a Medline search on polarity yielded no articles. An Alt Health Watch search yielded descriptive information on polarity and a few case reports, but no case-control, prospective or experimental trials. It was reported in *Massage Magazine* that the president of the American Polarity Therapy Association (APTA), LaRose Daniels, was approached by the NIH in 2001 and encouraged to submit proposals for research funding on polarity therapy (Walsh, 2001). No research proposals were submitted at that time, but the article reports that some APTA members were hoping to begin research on polarity therapy. Daniels also stated that the APTA was reviewing the polarity research, trying to strengthen ties with research institutions such as universities, and keeping its members informed about complementary and alternative medicine research funding sources.

A Typical Treatment

In a typical Polarity session, the practitioner and client work together in a healing relationship to address physical, mental, and emotional energy blocks. The practitioner may use bodywork and guidance in diet, exercise, attitude and lifestyle to support the client’s healing process. In polarity bodywork, a variety of contacts and manipulations are used to stimulate and balance the body’s electromagnetic fields. The practitioner may help to process feelings and develop strategies for resolving any issues causing tension. The result is a safe and supportive experience encouraging understanding and respect for the client’s healing process.

Bodywork: The practitioner’s hands assist the body’s flow of healing energy.

Diet: Polarity promotes the use of specific dietary principles for internal cleansing and long term maintenance that lead to optimal well-being.

Exercise: Polarity Yoga is a series of simple self-help energy techniques that create relaxation and balance.

Self-Awareness: Patients are encouraged and supported through a process of self-examination. The goal is to learn and understand the sources of tension, as well as to discover ways to sustain health.

Practitioner Training & Licensure

There are two levels of certification for polarity therapists through the American Polarity Therapy Association. An associate polarity practitioner (APP) has completed at least 155 hours of training and is familiar with the four aspects of treatment, five elements, and the characteristic flow of energy in the body. A registered polarity practitioner (RPP) has completed 615 hours of training and has a deep understanding of the spectrum of polarity therapy techniques, and ideally, is involved in a process of self-

examination and self-care for optimal flow of practitioner energy. Many polarity practitioners are also massage therapists. The New Mexico Academy of Healing Arts offers a dual certification program in polarity therapy and massager therapy, for example.

Diane Norcio is a doctoral nursing student and a registered polarity practitioner. Asal Sadatrafie is a second-year pharmacy student.

Energy Modalities

Reiki

Ardelle Libby, edited by Jessica Woan

History and Philosophy

Reiki is a Japanese form of stress reduction and relaxation derived from an older Tibetan tradition designed to promote healing and enhance the quality of life. It was formalized by Dr. Mikao Usui. Rei is the upper Japanese character referring to the universal mind that knows the cause of all problems and how to heal them. Ki is the lower Japanese character referring to the life force or free energy that flows through all living organisms. Ki passes through chakras and meridians to nourish the body and support cells and organs in their

Types of Therapy

Distant healing
Self-healing
Group healing
Tera Mai Reiki™
Karuna Reiki™
traditional Japanese Reiki
Tara Reiki
Western Reiki

fundamental functions. When this flow of life force is disrupted, it causes diminished function in one or more of the organs and tissues of the physical body. A restricted flowing life source leads to compromised immunity and susceptibility to illness, as well as associated emotional distress. The body heals with ease when the life force is uninterrupted. Reiki heals by raising the vibratory level of the energy field in and around the physical body where the negative thoughts and feelings are attached, causing the negative energy to break apart and clear the energy pathways, resulting in a healthy and natural flow of life force.



A Typical Treatment

- Reiki is administered by laying hands on the body in twelve different locations over the organs responsible for ailments.
- The practitioner may spend time meditating or contemplating the universal life force that will be channeled into the client before the beginning of the session
- After treatment the patient should expect relaxation, feelings of peace and general well-being.
- A standard Reiki session will usually last about 45 to 90 minutes.

WHERE: Treatments are generally conducted in the home of the Reiki Master, a private office, or a Reiki center. Some hospitals are beginning to offer Reiki as part of an entire treatment regimen.

TIME/ COST: Costs vary. A session with a Reiki Master may cost approximately \$55/hour.

Conditions Treated

Pain associated with cancer
End of life care
Epilepsy
Anxiety
Mood disorders
Behaviors associated with dementia
Hypertension
Arrhythmia
Endocrine and Immune problems
Stimulation of endorphins
Stimulation of Hemoglobin levels

Side Effects & Contraindications

Reiki is not recommended as the sole treatment for potentially serious medical conditions, and its use should not delay the time it takes to consult with a health care provider or receive established therapies. Serious adverse effects have not been reported in association with Reiki. Some Reiki practitioners believe that Reiki should be used cautiously in individuals with psychiatric illnesses.

Resources

Reiki Healing Center of San Francisco 415.664.6654

Reiki Center of the East Bay 510.653.9884

International Center for Reiki Training, 21421 Hilltop St., Southfield, MI 48034; (800) 332-8112; www.reiki.org

www.wholehealthmd.com/refshelf/substances_view/0,1525,731,00.html
www.reikicouncil.com/practitioners.htm
www.naturalstandard.com

Practitioner Training & Licensure

Currently no licensing procedure exists for Reiki practitioners. Some Reiki organizations have strict requirements for their members and provide their own certification. Reiki is taught in three levels. In Level I, the participant receives attunement to the Reiki energy by the Reiki master permanently guiding the person to greater healing power. In Level II, the participant receives attunements,

Research

Reiki is one of many complementary modalities that has not been well studied by conventional scientific methods. Research conducted on Reiki treatment has been shown to successfully reduce pain associated with cancer, epileptic seizure episodes, any anxiety associated with a disease state, and improve the mood of the patient undergoing treatment. However, these studies are often poorly put together and carried out. Recent randomized control trials support the use of Reiki

for decreasing symptoms of psychological stress and in decreasing the behavioral symptoms of dementia. Challenges to studying Reiki include difficulty in designing appropriate placebo Reiki and controversy over measuring outcomes. Currently the NIH's National Center for Complementary and Alternative Medicine has four trials in place to study Reiki's effects on fibromyalgia, neuropathy, cardiovascular disease, prostate cancer, and HIV/AIDS.

"I am a Second Degree Reiki Practitioner of the Mikao Usui Tradition. In the 10 years of my Reiki practice I have seen healing transformations in all my clients, on all levels (mental, emotional, spiritual, and physical). One patient that stands out most is a nurse for the U.S. Embassy that had been suffering from Shingles for nearly three years. After several hospitalizations and medical evacuations for treatment, she called me for an appointment. She was on daily doses of morphine painkillers, was exhausted and in pain all the time and had gained a lot of weight. We began weekly Reiki treatments that lasted for about six months. During the six months, she first began sleeping well, feeling more energetic, reducing her morphine and ultimately eliminating all pain medicine, and arriving at full energy balance and recovery."

-- Laretta Agolli, Reiki Practitioner

Advice for Patients

When looking for a Reiki Practitioner, ask for a referral from your current medical practitioner or a trusted friend.

After selecting a practitioner make sure you feel comfortable and satisfied with them and that you feel the treatment is reasonable.

A responsible practitioner will never discourage a client from seeking medical care.

Reiki is not recommended for broken bones, acute pain, or any condition requiring immediate medical attention.

which increase the strength of the practitioner's Reiki energy. In Level III, the participant receives third level empowerment and is taught mainly for personal growth. A person who has completed the third level is able to give the Level I Reiki attunement. Once the third level has been reached the initials RM (Reiki Master) can be used after the name. The Reiki Plus® Institute offers practitioner certification programs.

The amount of hours and cost required to complete each level varies depending on the Reiki Master or institution. Most training takes place through apprenticeship, but several schools offer formalized training programs.

Ardelle Libby is a third-year pharmacy student. Jessica Woan is a first-year medical student.

Body Based Methods

Aikido

Roy Johnston, edited by Jalene Imaoka

History and Philosophy

Aikido is a martial art steeped in tradition, practical application, and personal development. Ai-ki-do is a "Do" or "Way," meaning it is a practice, an approach toward living one's life. "Ai" is the joining of two forces, a harmonious participation. "Ki" is the life energy, the universal force, the essence of spirit. By definition, aikido is a path of peace, a way of harmony with life.

Aikido was founded and developed by Morihei Ueshiba, a simple farmer and martial arts master, affectionately and respectfully referred to as "O Sensei" (Great Teacher). Born in 1883, Ueshiba lived in the ancient Japanese tradition of a true samurai. He lived a life of Budo, the Way of the Warrior, and brought forth his intense spiritual training as a creative expression in the form of aikido.

A Typical Class

A typical aikido class begins and ends with a bow, a nod to the spirit of mutual participation in, and exploration of, the way of harmony. This acknowledgment sets the tone for training together in a safe, respectful, and joyful manner. The "Sensei," or teacher, often begins the class with warm-up exercises designed to cultivate students' attention in the experience of being "in their body." This awareness then begins to stand apart from the typical states of mental chatter, analysis, and diffused attention resulting from life's daily competing priorities.

As the class proceeds, the Sensei demonstrates various techniques, one at a time, with a student. These demonstrations highlight a particular aspect of a conflicting encounter, an attack. Weight, height, strength,

With hundreds of thousands of practitioners worldwide, aikido is an evolving martial art that continues to reveal a path for personal development, discovery, and harmonious interaction with life and all its citizens.

As a martial art, aikido is an effective application of martial techniques designed to neutralize a conflict situation as harmoniously as possible. It is a practice of non-resistance that leads to the discovery and implementation of a conscious, appropriate response to day-to-day living. Just as a physician's solemn oath first and foremost is to "do no harm," so too a practitioner of aikido is grounded in O Sensei's commitment to develop a path of loving protection for all beings. Conflict becomes harmony as a natural, spontaneous occurrence when two forces meet without resistance.

speed, and ability are variable. Since each person is unique, each situation requires something different. While there are basics to apply, there are also variations to consider.

Although the entire class may be working on one particular technique, there will be some variety in presentation. One person may have "good ground." Another may display "strong extension." The same is true for teachers. While one teacher may highlight one aspect of a technique, another might see something completely different in it. Consequently, students of aikido gradually develop expertise in the fundamentals of the techniques. At the same time, each is internally mapping out approaches to conflict that are less about clashing and resistance and more about connection, flexibility, and blending.

Variations in Aikido

Different schools may emphasize different aspects of aikido. These include:

Mind/Body Harmony
Blending
Spiritual Development
Martial Technique
Centering
"Ki" Development
Breath Power

Advice for Students

The best way to find a good teacher and school is to visit a dojo, talk with the teacher, and sit in on a class. Watch how the teacher interacts with new students. Notice how the advanced students perform and the way they relate to each other and their teacher. Find out the experience level of the teacher you observe and the other teachers in the dojo. Is the atmosphere formal, casual, intense, fun, martial? A healthy blend of these is best for most students. Get a sense of how you feel in the dojo. Recognize if the students are having fun and enjoying themselves. Lastly, ask about the underlying philosophy and direction or focus of the Chief Instructor. You'll know if it's right for you. Also, consider these resources:

- *Aikido in America* by John Stone
- *Aikido and the Harmony of Nature* by Mitsugi Saotome
- Aikido Today Magazine
- www.CityAikido.com
- www.AikidoJournal.com

Medical Systems

Research

Data on the health effects of aikido are extremely limited, especially compared to martial arts as a general field or other Eastern forms or exercise, such as Tai Chi, Qi Gong, or Yoga.

However, according to a review of mind-body techniques for cardiovascular disease (Luskin et al, 1998), the existing research on aikido "shows a direct relationship between intensity and duration of practice and a reduction in hostility" as found by Daniels and Thornton (1992).

Hostility is considered to be a risk factor for cardiovascular disease (Miller 1996, Williams 1980) and cardiovascular mortality among high-risk patients (Matthews, et al 2004).



Hostility has also been associated with increased metabolic syndromes (defined as body mass index, insulin resistance index, ratio of triglycerides to high-density lipoprotein cholesterol, and mean arterial blood pressure above the 75th percentile) in children and adolescents (Raikkonen et al, 2003). Decreases in hostility levels have been shown to have beneficial short-term effects in patients with heart disease (Gidron et al, 1999). However, there are other studies on aikido not included in the analysis of Luskin and his colleagues that have not been able to show an effect of aikido on aggressiveness in

youth (Delva-Tauiilili, 1997) or in self-esteem, anxiety, or expression of anger among university students (Foster, 1997). It is important to note that both of these studies had serious methodological limitations.

As a form of non-aerobic exercise, aikido and its potential health effects do not appear to have been much studied (although it has been suggested that aikido may be an appropriate form of exercise for the elderly). Nor has aikido been studied for the effects of the meditative aspects of the practice. Further research on the health impact of aikido is recommended.



Benefits to Health

Aikido Increases:

- Balance
- Flexibility
- Mental focus
- Vitality

Aikido Develops:

- Self-confidence
- Mind/body harmony
- Peace
- Centering
- Ki extension

Contraindications

Students may experience muscle and joint soreness at various stages of their practice. Although injuries are rare and people of all ages train, this is a martial art that includes strikes, throws, joint locks, and weapons defense.

The Art of Peace begins with you. Work on yourself and your appointed task in the Art of Peace. Everyone has a spirit that can be refined, a body that can be trained in some manner, a suitable path to follow. You are here for no other purpose than to realize your inner divinity and manifest your innate enlightenment. Foster peace in your own life and then apply the Art to all that you encounter.

—Morihei Ueshiba

Practitioner Training & Licensure

The ranking system of aikido consists of *Kyu* and *Dan* ranks. There are normally six *Kyu* ranks, designated by colored belts, leading up to the *Dan* or black belt level. There are ten *Dan* ranks.

Ranks are awarded for demonstrating aikido techniques and principles in action. After the basic techniques are learned, progress is measured in more subtle ways, both on and off the mat. A *Shodan*, or 1st degree black belt, which can take anywhere from 4-7+ years to obtain, testifies to a student's competency to perform all fundamental techniques effectively within a context of harmony and power. *Sensei* are advanced black

belt practitioners that are capable of advancing students through the different ranks.

Many dojos are well run by 3rd to 5th degree black belts. Because the advancement of aikido virtually requires a lifetime of study and a significant contribution to the art, there are very few teachers ranked 7th *Dan* or above in the entire world. An additional title of *Shihan* (master teacher) is reserved for those exceptional teachers that the World Aikido Headquarters (*Hombu Dojo*) in Japan, recognized as carriers of the Way.

Roy Johnston is the Student Programs Manager for the Department of Family and Community Medicine. He has a 3rd Dan black belt and is an Aikido instructor. Jalene Imaoka is a first year pharmacy student.

Body-Based Methods

Alexander Technique

Aiyin Chen, edited by Yolanda Cheng

History and Philosophy

Frederick Matthias Alexander (1869-1955) was an Australian actor faced with chronic hoarseness during his performances. With medical doctors unable to determine a cause for his vocal condition, Alexander took it upon himself to conduct a self-examination of his own muscular movement to determine the cause. He noticed the way he tightened and protracted his neck when speaking caused unnecessary muscular tension, which adversely affected voice production. Through extensive personal observations and experiments, he developed a technique to resolve his chronic hoarseness into a full, rich voice. The Alexander technique involves controlling posture, movement and function of the upper body in order to establish a balance between the head-neck-torso relationship.⁽¹⁾ The general principle of the technique is to reduce the pressure of the neck muscle so the head can balance lightly atop the spine

and to reduce the compression of the spine so the torso can move freely with gravity.⁽²⁾ Practitioners of Alexander Technique believe that much of physical pain, tension and lack of body coordination stem from unnatural body movements and

misaligned posture. Alexander Technique aims to discourage habitual, counterproductive muscular reactions by having the practitioner relearn natural, efficient movements.



Alexander Technique's "Concepts of Good Use"

1. Allow your neck to release so your head can balance forward and up.
2. Allow your torso to relax into length and width.
3. Allow your legs to release away from your pelvis.
4. Allow your shoulders to release out to the sides.²

A Typical Treatment

An Alexander Technique teacher will evaluate a student's movement in regards to the problematic condition. The student may perform everyday actions such as walking, bending, standing or sitting while the teacher will use gentle hands-on guidance and verbal instruction to encourage the student to eventually allow healthy reflexes to take over. No strenuous exercise or machinery is involved. Typically, weekly sessions can be conducted in group or private settings that last for 30-45 minutes.

People with neurological or musculoskeletal conditions, such as chronic pain, arthritis, breathing disorders, stress related disorders or migraine. Often used by actors, musicians and athletes to improve performance, and for pregnant women in preparation for labor. With no known side effects, the Alexander Technique is generally considered safe for everyone. People with chronic health problems, however, should consult their doctors before starting therapy.²

Body-Based Methods

Resources

Organizations:

American Center for the Alexander Technique (ACAT)
129 West 67th Street
New York, NY 10023
Phone: (212) 633-2229

American Society for the Alexander Technique (AmSTAT)
P.O. Box 60008
Florence, MA 01062
Phone: 800-473-0620

Society of Teachers of the Alexander Technique (STAT)
1st Floor, Linton House
39-51 Highgate Road
London NW5 1RS

Books:

Alexander Technique: A Skill For Life
by Pedro de Alcantara

The Alexander Technique: How to Use Your Body Without Stress
by Wilfred Barlow, M.D.

How to Learn the Alexander Technique: A Manual for Students
by Barbara Conable



Research

Preliminary observational data from the 1930s showed that the Technique has a beneficial effect on pain and stress, lung capacity and muscular tension.¹ These studies, however, employed observational, subjective criteria with small sample sizes. Some lacked control groups for comparison.

More recent pilot studies have suggested that Alexander Technique improves balance in elderly women,³ reduces depression and disability in Parkinson's patients,^{4,5} and improves respiratory muscular functions in normal adults.⁶ These studies, however, were limited by small sample sizes, insufficient funding to achieve optimal study design, and lack of proper

blinding procedures. In a recent review of physical treatment for low back pain, the Alexander Technique was determined to be of unknown effectiveness.⁷ According to a review of the scientific evidence by Natural Standard, there is limited research supporting the efficacy of the Alexander Technique for postural development in children, chronic pain from temporomandibular joint disorders, and the aforementioned conditions. They conclude that better quality research is needed before firm conclusions can be drawn about its use for any of these conditions.⁸

"I recommend the Alexander Technique as an extremely sophisticated form of rehabilitation... From personal experience we can already confirm some of the seemingly fantastic claims made by Alexander and his followers— namely, that many types of under-performance and even ailments, both mental and physical, can be alleviated, sometimes to a surprising degree, by teaching the body musculature to function differently. We already notice, with growing amazement, very striking improvements in such diverse things as high blood pressure, breathing, depth of sleep, overall cheerfulness and mental alertness, resilience against outside pressures and in such a refined skill as playing a musical instrument."

-- Professor N. Tinbergen, 1907-1988, Nobel Prize for Medicine, 1973

Practitioner Training & Licensure

Typically, professional societies require successful completion of a 3-year full-time program at an accredited teacher-training course with about 1600 hours of instruction. A number of teachers have trained more informally on an apprenticeship basis. Some professional societies have a waiver process allowing these

teachers to become certified based on a peer-review process.

For international societies of Alexander Technique, go to www.stat.org.uk/pages/affiliatedpage.htm.

Aiyin Chen is a fourth-year medical student. Yolanda Cheng is a first-year pharmacy student.

Body-Based Methods

Breema

Maggie Simon, edited by Yolanda Cheng

Philosophy

Breema is a unique, gentle, and mindful form of meditative bodywork by deconditioning the body, mind and soul and guiding one to a natural state of balance.⁽¹⁾ One becomes present and aware that “there is a body” where an appreciation for life and a connection to life is established. By performing a series of simple and flowing movements, the Breema practitioner infuses the recipient with a sense of peace, calm energy, clarity, and well-being. A Breema practitioner does

not diagnose or treat illness but rather supports the instinctive healing energy of the body. With Breema, the body is not forced to conform it itself to a standard of health. Instead, Breema bodyworker practices the art of being present in each moment and by being fully aware of both the one’s body and that of the recipient, where the practitioner’s touch and movements facilitate the comfort, relaxation and release of tension in the recipient.³

Nine Universal Principles lie at the heart of Breema that guides not

Breema’s Nine Universal Principles

1. *Body Comfortable*
2. *No Extra*
3. *Firmness & Gentleness*
4. *Full Participation*
5. *Mutual Support*
6. *No Judgment*
7. *Single Moment/Single Activity*
8. *No Hurry/No Pause*
9. *No Force*

only the body and health maintenance but also life in general. The nine Principles are Body Comfortable, No Extra, Firmness and Gentleness, Full Participation, Mutual Support, No Judgment, Single Moment/Single Activity, No Hurry/No Pause and No Force.⁴ The philosophy of Breema assume that the body innately holds the Nine Universal Principles within and by applying the them in a Breema session, the practitioner can unlocks and releases this innate knowledge with the body of a recipient. When recognition of the Nine Principles by the body, we are transformed and infused with health and vitality in daily life.⁵ A unique feature of Breema is that both the practitioner and the recipient benefits from the treatment because it is a opportunity to practice mindfulness and presence in the moment for both involved.



A Typical Treatment

A typical Breema session occurs fully clothed on a padded floor. The recipient simply relaxes into the treatment as she is gently stretched, rhythmically moved, brushed or tapped by the practitioner. There is a wide variety of choreographed movements in a practitioner’s repertoire, and she chooses which movements to use based on the expressed or intuited needs of the recipient.

Breema is available to virtually anyone who can afford it. It can be offered to patients who prefer to remain in or are confined to a chair or bed. There are no contraindications to a Breema treatment. The benefits of a treatment series include gradual, beneficial transformations in posture, breathing, muscles and joints, circulation, digestion and emotion. Sessions can last from 30-60 minutes in length.

Self-Breema classes are also available and are designed to teach one on how to employ the principles of harmony in caring for themselves and in enriching their daily lives. Like Breema bodywork, Self-Breema is a unifying method that brings the body, mind, and soul into harmony by a common activity.

Body-Based Methods

"I feel like there's more space in my body, like a layer of armoring has come off."



--Tom Klaber, Former Editor of *Alternative Medicine Magazine*

A Breema practitioner does not diagnose or treat illness nor does she manipulate the body in an effort to conform it to a standard of health.

"Breema is a caress for the body and the soul. A few moments of it and harmony begins to find its own way of establishing itself. I highly recommend it."

--Carlos Warter, M.D., Ph.D., President of the World Health Foundation

Resources

The Breema Center
6076 Claremont Avenue
Oakland, CA 94618
The home of Breema, this facility offers treatments as well as classes in Self-Breema and practitioner trainings.

www.breema.com

This website provides information about Breema and offers a nation-wide listing of practitioners by state.

Books

Schreiber, Jon. *Touching the Mountain: The Self-Breema Handbook* (1989, California Health Publications)

Schreiber, Jon. *Breema: Essence of Harmonious Life* (1998, North Atlantic Books)

Research

Because Breema is non-diagnostic and focuses more on well-being and wholeness and less on disease, it does not lend itself well to scientific trials. In addition, funding for studies is scarce. There is currently no published scientific evidence to recommend for or against Breema.

Practitioner Training & Licensure

The Breema Center in Oakland is the international home of Breema. It is licensed by the State of California to offer a 165-hour practitioner certificate. More rigorous requirements are set out for those practitioners who desire to pursue a teaching certificate, and all instructors are trained and certified at the Center.

There are also yearly continuing education requirements for all practitioners and instructors and, although these can be satisfied at

a number of locations, the Breema community remains tightly knit and well-connected. The Breema Center is approved by the California Board of Registered Nurses and by the National Certification Board for Therapeutic Massage and Bodywork as a continuing education provider.

*Maggie Simon is a fourth-year medical student.
Yolanda Cheng is a first-year pharmacy student.*

Body-Based Methods Chiropractic

Carolyn Hendrickson, edited by Helen Wang

History and Philosophy

Chiropractic is a form of spinal manipulation, which is one of the oldest healing practices. Ancient documents from China and Greece, written in 2700 B.C. and 1500 B.C. respectively, mention spinal manipulation to ease low back pain. Hippocrates, too, wrote about the importance of chiropractic care.

In 1895, Daniel David Palmer founded the modern profession of chiropractic in Davenport, Iowa. Palmer believed that subluxations, or misalignments, of the spine interrupt or interfere with "nerve flow." He developed a procedure to adjust the vertebrae and correct subluxations. These adjustments constitute the central practice of chiropractic.

Chiropractic philosophy values natural and conservative methods of health care. Doctors of chiropractic have a deep respect for the human body's ability to heal itself and emphasize the importance of the mind-body relationship in the healing process. Chiropractors devote careful attention to the biomechanics, structure, and function of the spine, its effects on the musculoskeletal and

neurological systems, and its role in the preservation and restoration of health.

Today, doctors of chiropractic represent the third largest group of doctoral-level health professionals in the United States, after medical doctors and dentists. In 1997, it was estimated that Americans made nearly 192 million visits to chiropractors. Chiropractic is most

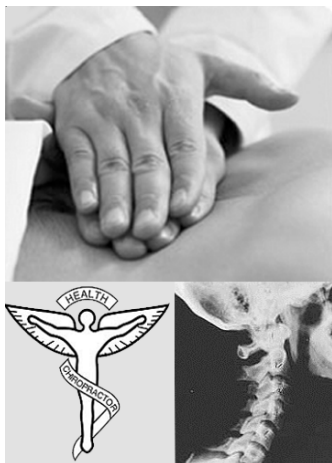
often used to treat musculoskeletal conditions, and guidelines published by the Federal Agency for Health Care Policy and Research (AHCPR) approve of spinal manipulation as a treatment for acute low back pain. With its strong emphasis on biomechanics, it is little wonder that chiropractic is often employed in the treatment of sports injuries.

Tools of the Trade

For diagnostic purposes, chiropractors frequently use X-rays and MRI, and CT scans are sometimes ordered.

Mobilization and manipulation are manual adjustment techniques used in spinal manipulative therapy to facilitate joint motion. Mobilization is passive movement of a joint within its physiologic range of motion. Manipulation is passive joint movement which takes the joint beyond its physiologic range into the parapsysiologic space. When a joint is moved into this parapsysiologic range, cavitation can occur, typified by an audible release or "pop."

Chiropractic techniques may include purposeful patient positioning using specialized tables and support equipment, as well as a handheld activator device that is used to adjust joints by applying a quick thrust of pressure at a specific site. The majority of chiropractors use corrective and therapeutic exercises and counsel patients on nutrition and exercise habits. Some chiropractors also use a variety of complementary and ancillary procedures such as ice, heat, bracing, orthotics, traction, and acupuncture.



A Typical Treatment

The initial visit to a chiropractor consists of a complete health history, a physical examination with special emphasis on the spine, and possibly other diagnostic tests such as X-rays. An initial adjustment may also be made. This initial consultation usually takes about 30 minutes to one hour.

During subsequent office visits, the chiropractor may perform one or more adjustments. Subsequent treatments generally last about 30 minutes or less.

Additionally, most chiropractors use other treatments such as massage, heat, or ice treatments.

WHERE: Typically, chiropractors see patients in private offices.

TIME/ COST: Initial: 30-60 minutes/ \$100

Follow-up: 15-30 minutes / \$50

Body-Based Methods

Conditions Treated

Neuromusculoskeletal Conditions:
Low Back Pain
Headaches and Neck Pain
Joint Pain and Osteoarthritis
Muscular Strain and Bursitis
Scoliosis
Spinal Disk Conditions
Sciatica
Other Conditions: Allergies,
Asthma, High Blood Pressure,
Obesity and Digestive Disorders

Side Effects & Contraindications

Possible side effects include temporary discomfort, headache, or tiredness and should resolve within a few days. An extremely rare complication is cauda equina syndrome, presenting with dull pain at the base of the spine, numbness in the buttocks, genitalia, or thighs, and disturbed bowel and bladder function. A patient experiencing symptoms should seek assistance. Adjustments should not be performed in patients with possible vertebral fracture.

Research

Scientific research has focused on whether, and how well care helps to relieve low back pain. Scientists at the National Center for Complementary and Alternative Medicine (NCCAM) examined clinical trials available in the PubMed database. NCCAM finds the data for the effectiveness of chiropractic treatment for back pain to be less than convincing.

However, the chiropractic community is becoming increasingly interested in pursuing research-driven integration of evidence-based therapy into practice. Recent studies of the appropriateness and effectiveness of spinal manipulation have included chiropractors as co-investigators or advisers. This movement may lead to more appropriate study designs that could support the benefits of chiropractic.

Potential harm due to chiropractic treatment also needs study. At present, no systematic reports of serious complications from spinal manipulation have been conducted in the United States.

Advice for Patients

Ask your primary health care provider if they have a recommendation for a chiropractor in your area. You may consider contacting your insurance company for local providers. More than 50 percent of HMOs, over 75 percent of private health care plans, and California's workers' compensation system cover chiropractic treatment. Chiropractors can also bill Medicare and Medicaid.

Before visiting a chiropractor, ask about the provider's NBCE certification, consultation prices, policies for billing specific insurance plans, and techniques and therapies. Arrive at the first visit prepared to answer questions about your health history as well as prescription medicines and supplements. After your consultation, your provider should inform you of the details of your treatment plan. Ask what benefits you can expect from chiropractic and what risks you would be taking by receiving a given treatment.

Practitioner Training & Licensure

The Council on Chiropractic Education (CCE) is recognized by the Department of Education and implements educational standards for curriculum and admissions processes. Chiropractic training is a four-year academic program including an average of 1,975 hours in clinical sciences and 1,405 hours of clinical clerkship. Students who graduate receive the degree of Doctor of Chiropractic (D.C.) and are eligible to take state licensure board examinations to practice.

The National Board of Chiropractic Examiners (NBCE) functions similarly to the National Board of Medical Examiners (NBME). Part I of the NBCE covers basic sciences, Part II covers clinical sciences, Part III is a written clinical competency exam, and Part IV is a practical exam testing students' skills in X-ray interpretation and

diagnosis, chiropractic technique, and case management. Postgraduate programs are available in family practice, orthopedics, clinical neurology, sports injuries, pediatrics, nutrition, and rehabilitation. Residency programs include radiology, orthopedics, family practice, and clinical sciences.

The residency and postgraduate programs are one to three years long and lead to eligibility to sit for competency examinations offered by specialty boards recognized by the American Chiropractic Association, the International Chiropractors' Association, and the American Board of Chiropractic Specialties. California has mandatory continuing education requirements to maintain or renew a license to practice.

Resources

American Chiropractic Association

(800) 986-4636
memberinfo@amerchiro.org
www.amerchiro.org

Council on Chiropractic Education

(480) 443-8877
cce@cce-usa.org
www.cce-usa.org

International Chiropractors Association

(800) 423-4690
chiro@chiropractic.org
www.chiropractic.org

www.chiroweb.com

Carolyn Hendrickson is a fourth-year medical student. Helen Wang is a first-year pharmacy student.

Body-Based Methods Massage

Jodi Sherman, edited by Jalene Imaoka

History and Philosophy

Massage therapy has been used throughout the ages to soothe, heal, and restore body and mind in virtually every healing system and culture in the world. In the East, the earliest known text discussing massage is the Chinese Yellow Emperor's *Classic of Internal Medicine*, dated near 2,000 B.C. In the 4th century, Hippocrates wrote that massage cured disease by moving fluids through the body to provide nutrition to tissues. Massage remains a pervasive healing approach.

Massage may be defined as manual soft tissue manipulation with therapeutic intent. All massage schools have a similar repertoire, but styles vary in their emphasis on certain techniques that differ in terms of depth pressure, target issues, use of joint mobilization, emphasis on energy redirection, and the degree of active patient participation. To maximize the benefit of massage, it is important to match the type of bodywork with the physical, mental, emotional, and even spiritual requirements of the patient. Massage was recently recognized by the National Center for Complementary and Alternative Medicine (NCCAM) as one of the most commonly employed complementary and alternative medicine modalities in the US. Massage has become one of the largest areas now funded by NCCAM.

A Typical Treatment

Regardless of the condition or the type of treatment, patients should notice some immediate benefit, whether it be relief from pain, reduced swelling, increased range of motion, or improved mood. It is not uncommon to feel some muscular soreness after deep treatments, which should not last more than 1-2 days. If patients do not experience some benefit by the third treatment, then either another practitioner or a different modality should be explored.

WHERE: Gyms, Private Offices, Salons, Spas, Hospitals

TIME/ COST: 1 hr/ \$50-\$125

Swedish massage

Swedish massage techniques emphasize general enhancement of the circulation and are commonly employed for relaxation purposes. Improved circulation increases the delivery of nutrients and oxygen to the tissues and increases the removal of metabolic wastes. Because of these benefits, Swedish techniques form a large component of medical and sports massage.

Manual lymph drainage

Lymphatic massage consists largely of very superficial, cutaneous strokes applied in accordance with lymphatic vessel anatomy. Practitioners also use a complex system of bandaging, particularly useful for patients suffering from primary lymphedema, or lymphedema secondary to surgery, radiation, or chemotherapy.

Rolfing / Structural integration / Myofascial release

This approach focuses on the deep connective tissue that is ubiquitous in the body. Since the fascia is elastic but non- contractile, it is believed that misalignment from injury or posture cannot be corrected by addressing muscle tissue alone. This approach can be extremely effective for certain pain from biomechanical dysfunction, but it is not for everyone, as treatment itself can be painful.

Trigger point therapy

A myofascial trigger point is a hyperirritable locus within a taut band of skeletal muscle or fascia (a.k.a. "a knot"). It represents a focal area of ischemia resulting from as well as causing additional pathologic musculoskeletal imbalance. The spot is painful upon compression and can evoke characteristic referred, autonomic phenomena, and distortion of proprioception. Therapy consists largely of direct fingertip compression and focal friction to promote circulation in ischemic points, ideally followed up with assisted stretching to promote the restoration of balanced proprioception.

Medical massage/Deep Tissue Massage

Medical massage is an eclectic approach to soft tissue treatment. It includes the general circulatory strokes of Swedish massage and Manual Lymph Drainage, myofascial and trigger point techniques, neuromuscular facilitation and re-education techniques, and assistance and instruction on stretching and strengthening. Medical massage focuses on both the primary trauma site and compensatory areas—a large source of pain and discomfort largely ignored in physical therapy due to constraints of prescription governance. A particularly useful technique is cross-fiber friction, applied to subacute and chronic soft tissue inflammation, followed by ice massage.

Shiatsu / Acupressure

Originally based on Traditional Chinese Medicine and adapted by the Japanese, Shiatsu is performed by applying pressure to acupuncture points using the fingers, palms, knees, elbows and feet, and by passive stretching. The objective is to restore the patient's "qi," or vital energy.

Body-Based Methods

Conditions Treated

Low back pain, Rotator cuff tear
Athlete preparation, recovery, injuries
General muscle tension
Stress, Anxiety, Tension headaches
Depression, Eating disorders
Premature infants
Post-traumatic stress disorder
AIDS, Cancer
Lymphedema
Pregnancy, pre- and post-natal

Side Effects & Contraindications

Contraindications generally apply to specific techniques rather than to touch therapy alone. They may include:

Fever – avoid all massage
Infection – avoid all massage
Deep vein thrombosis or other vasculitis – avoid all massage
Undiagnosed dermatitis– avoid local massage
Acute lesions/open wounds– avoid local massage
Cysts or tumors/cancers – avoid local massage when palpable in skin

Resources

National Organizations

American Massage Therapy Association

www.amtamassage.org

Associated Bodywork and Massage Professionals

www.abmp.com

National Certification Board for Therapeutic Massage and Bodywork

www.ncbtmb.com

Recommended Reading

Job's Body, by Deane Juhn, Station Hill Press, 1987.

Healing Massage Techniques: Holistic, Classic, and Emerging Methods, by Frances Tappan, Appleton & Lange, 1988.

Massage Therapy Journal: AMTA journal

Touchpoints: newsletter of the Touch Research Institute

Integrative Medicine Network at UCSF

Research

Reduction of Edema

Damaged lymph vessels can lead to lymphedema, a source of great morbidity, discomfort, and cosmetic embarrassment. Massage therapy—specifically *Swedish Massage*, *Medical Massage*, and *Manual Lymph Drainage*—has been shown to effectively return fluid to the lymphatic circulation (1).

Mobility Improvement

It is nearly impossible to measure the changes in soft tissue adhesions subsequent to massage treatment. There is some evidence of increased range of motion, but often the improvements are

subtle enough to evade external measurement. However, the internal changes reported by patients, while “merely anecdotal” can be extremely profound. Massage approaches embraced in *Myofascial Release*, *Trigger Point Therapy*, *Medical Massage*, and *Sports Massage* are of potential benefit.

Pain Reduction

Pain and discomfort are reduced by mechanically aiding the removal of metabolic waste products through massage techniques such as *Manual Lymph Drainage* and *Swedish Massage*, which enhance lymphatic and blood vessel microcirculation. In addition, by reducing soft tissue

adhesions with such methods as *Medical Massage*, *Myofascial Release* and *Trigger Point Therapy*, the pain-spasm-pain cycle may be broken and range of motion may be dramatically improved. By restoring motion potential, and by retraining the nervous system through neuromuscular bodywork techniques, pain syndromes may be permanently reversed (2, 3).

Mood Enhancement

Perhaps one of the most widely accepted and well researched benefits of massage therapy, by both the medical and lay communities, is improved mood. In addition to



psychometric tools, biologic markers (epinephrine, norepinephrine, dopamine, serotonin, and cortisol) are well recognized to reflect the positive impact of massage. Styles of massage best suited for mood enhancement include *Swedish Massage*, *Medical Massage*, and *Shiatsu/Acupressure* (4).

Immune Enhancement

One of the most active areas of ongoing research in massage therapy is its effect on immunity, specifically by the reduction of cortisol. Also, much attention is currently being given to the enhancement of Natural Killer Cells by massage. *Swedish Massage* and *Medical Massage* techniques are best (5).

Practitioner Training & Licensure

Requirements for the legal practice of massage are governed on a statewide basis. The US Department of Education Commission of Massage Therapy Accreditation (COMTA) currently recognizes 70 training programs. Some states may require up to 2000 hours (three years full time) of training at an accredited massage school and passing of a state-licensing exam.

Massage therapists organized the National Certification Board for Therapeutic Massage and Bodywork (NCBTMB). Certification by NCBTMB requires a minimum of

500 hours of classroom training in anatomy, physiology, pathology, massage theory and technique, and supervised practice, as well as successful completion of the NCBTMB exam. Some states, such as California, do not require any training or licensure. Insurance reimbursement is possible, but only if performed by properly credentialed practitioners.

Jodi Sherman, MD, LMT, is a post-doctoral clinical research fellow in the UCSF Department of Surgery where she studies wound healing. Jalene Imaoka is a first-year pharmacy student.

Body-Based Methods

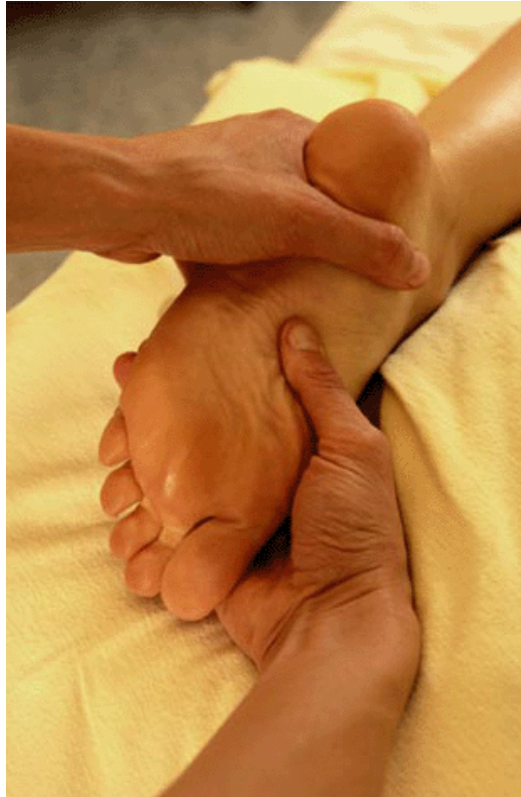
Reflexology

Zadok Sacks, edited by Lisa Chu

History and Philosophy

Reflexology is a therapeutic modality in which pressure is applied to “reflex” points on the feet, hands, or ears in order to influence the function of organs and glands in corresponding zones of the body. Foot massage has played a central role in many ancient healing traditions, as evidenced by pictographs from ancient Egypt showing the use of therapeutic foot treatments and 8th-century Japanese carvings of Buddha’s feet that divide the sole into distinct zones. However, “zone therapy,” the precursor of modern reflexology, was first developed by Dr. William Fitzgerald in the early 1900s. Dr. Fitzgerald divided the foot into ten distinct zones, and proposed that each zone could be “mapped” to a region of the body.

In the 1930s, American physiotherapist Eunice Ingham expanded on Fitzgerald’s work, introducing a system by which applying pressure on specific reflex points in the feet



could treat ailments throughout the body. It is her system, along with the related Laura Norman method, that is most widely used in the US today.

In reflexology, tenderness in a particular point in the foot or hand is believed to indicate a buildup of crystalline deposits under the skin and to reflect an imbalance in a corresponding region of the body. There are several theories concerning reflexology’s mechanism of action. Therapeutic effects are variably ascribed to endorphin release due to alteration of the pain threshold; improvements in lymphatic and blood circulation; the effects of afferent nervous system stimulation on efferent autonomic and motor nervous system output; and the unblocking of energy channels, a theory which is consistent with the underlying philosophy of acupressure and acupuncture.

A Typical Treatment

A visit to a reflexologist will often begin with the taking of a full medical history, followed by examination of the patient’s bare feet. The patient otherwise remains fully clothed throughout the session, and either sits in a chair with his or her legs propped up or lies on a treatment table.

Treatment generally begins with gentle massage of the patient’s feet, followed by the application of pressure to specific reflex points in the feet, and occasionally the hands and ears. None of the applied pressure should be painful. Occasionally various instruments, including wooden sticks, rubber balls, and other implements, will be used to help apply focused pressure.

WHERE: Private practice, some hospitals

TIME/COST: Treatments generally last 30-60 minutes, and may be part of a four- to eight-week regimen. In private practice, treatments may run from around \$30 to over \$100.

Body-Based Methods

Conditions Treated

Pain
Anxiety
Stress relief
Fecal incontinence and constipation
Premenstrual syndrome
Migraine

Side Effects & Contraindications

The safety of reflexology has not been well studied. Patients with injuries to the foot, including recent fractures, unhealed wounds, or gout, should not receive reflexology. Since some reports indicate that pressure applied to the foot may cause uterine contractions, caution is advised in pregnant women.

Resources

Organizations:

American Reflexology Certification Board (ARCB), www.arcb.net

Reflexology Research Project, www.reflexology-research.com

Directory of Reflexology Schools: www.naturalhealers.com/feat-reflexology.shtml

Further Reading:

Feet First: A Guide to Foot Reflexology by Laura Norman

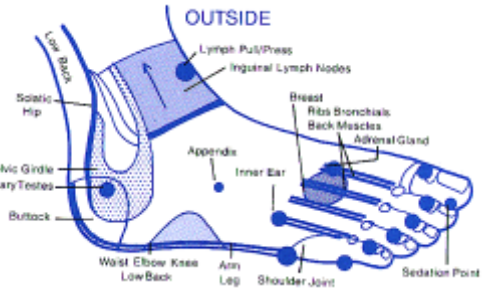
The Complete Idiot's Guide to Reflexology by Frankie Avalon Wolfe

Stories the Feet Can Tell by Eunice Ingham

Research

Although East Asian practitioners have published a large number of studies describing various clinical applications of reflexology¹, few Western studies have investigated the therapeutic and diagnostic value of this modality, and most have been limited by a small sample size. Nevertheless, there is preliminary evidence to suggest that reflexology may be used to treat several common conditions.

Small-scale studies have indicated that reflexology may have a significant therapeutic effect on children with fecal incontinence secondary to chronic constipation,² on the somatic and psychological aspects of premenstrual syndrome,³ and on systolic blood pressure in patients with essential hypertension.⁴ In addition,

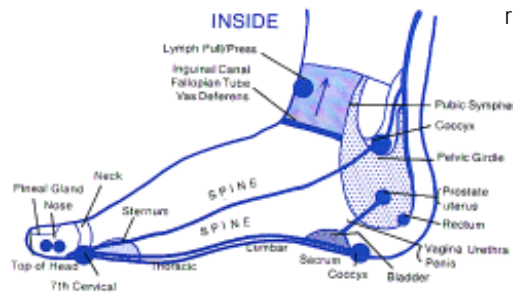


reflexology treatments may bring about a significant, if transient, amelioration of pain and anxiety in cancer patients.^{5, 6, 7}

However, the purported efficacy of reflexology as a diagnostic technique has not been borne out by evidence; one study found that reflexology could be used to diagnose disorders at a systemic level only,⁸ while other results failed to show that it has validity as a method of diagnosis.⁹

Larger-scale studies must be performed to confirm these results.

Current medical recommendations are that while reflexology may be used in conjunction with conventional and other CAM treatments, particularly to ease anxiety and pain in cancer patients, it should not delay diagnosis or treatment with conventional therapies.¹⁰



Practitioner Training & Licensure

Currently there are no state licensure or training requirements to practice reflexology in the United States; many states have specific legal provisions that set reflexology outside the regulations governing other forms of massage therapy.

The American Reflexology Certification Board (ARCB), an independent testing agency, administers a national certification

exam that consists of both written and oral sections. National certification, while not required to practice reflexology, is intended to "offer increased credibility for both the practitioner and the field." Practitioners who have completed at least 100 hours of training are eligible to take the exam.

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Lisa Chu is a first-year medical student.*

Body-Based Methods

Tai Chi

EB Smith, edited by Helen Wang

History and Philosophy

Tai chi is a form of Chinese martial art consisting of meditation, deep diaphragmatic breathing, and slow, coordinated movement, which aims to strengthen both the body and the mind. The full name for this discipline is actually *tai chi chuan*, the ending “*chuan*” indicating the origins of this art as a form of self-defense. *Tai chi* (pronounced “tie gee”) as it is used in Western practice today has dropped this suffix and is most commonly translated to mean “the supreme ultimate.” Without the “*chuan*,” *tai chi* can be considered a kind of kinetic meditation rather than a means of engaging with an opponent.

Like *qigong* and several other Chinese martial arts, *tai chi* seeks to strengthen an individual's vital energy, termed *qi* (pronounced “chi”), and its flow throughout the body and mind. *Tai chi* traces its origins back to esoteric or inner Taoism, a religion concerned primarily with internal spiritual development as opposed to external worship of a deity. Through mental focus and slow movement, an individual is able to bring the two fundamental forms of *qi*, *yin qi* and *yang qi*, into balance. This is the primary aim of *tai chi*: achieving balance at a spiritual, philosophical, and physical level.¹

According to Traditional Chinese Medicine, both *yin qi* and *yang qi* are essential, but an excess of either can lead to illness.

Yang qi is a heated form of energy and in excess it can lead to stress and worry. *Yin qi* is a cooling energy related to regulation of fluids in the body. Excess *yin qi* is associated with fluid retention and obesity. *Yin qi* is also directly responsible for the function of the immune system.² In addition to being the “supreme ultimate,” *tai chi* can also be translated to mean the united balance of *yin qi* and *yang qi* prior to separation.³

In the Chinese medical tradition, *qi* flows through the internal organs along meridians that run from head to toe. *Qi* can be strengthened or brought into balance either by accessing these meridians at certain acupuncture points or, in the case of *tai chi*, through meditation and slow, purposeful movement.

The *qi* of the body and the mind are intimately linked, which means that a deficiency of mental *qi* can lead



to physical illness. Likewise, strengthening of mental *qi* through meditation serves to strengthen the body as well as the mind.

The Practice of Tai Chi

The basic unit in the practice of tai chi is a “form.” A form consists of a series of coordinated movements strung continuously together from beginning to end and a single form may involve anywhere from 10 to over 100 movements.¹ The names of the form offer colorful suggestions of the motions involved, such as “white crane spreads wings” and “golden cock stands on one leg.” During the execution of a form, an individual focuses his attention on the *tantien*, an area just above the navel believed to be the center of the body's *qi*. Once mastered, a form may take only a few minutes to complete, but for maximum health benefits, most physicians recommend practicing *tai chi* for an hour a day, going through the movements at the same time each day if possible.²

Body-Based Methods

Health Benefits

There are a number of postulated benefits associated with *tai chi*, which are supported to varying degrees by studies in medical literature. The claims most commonly made about *tai chi*'s affect on health are summarized in the figure to the right.¹

Among the most convincing studies regarding the benefits of *tai chi* in a Western context is a meta-analysis of 47 studies examining the practice of *tai chi* in patients with chronic disease. Wang *et al.* (2004) concluded that regular practice of *tai chi* appears to be associated with benefits in balance, flexibility, and cardiovascular fitness.² The benefits of increased physical balance should not be underestimated as an estimated 30 percent of those 65 years and older will experience a serious fall in their lifetime.³

A similar meta-analysis of four studies involving patients with rheumatoid arthritis in particular reported increased range of motion in the lower extremities of arthritic patients practicing *tai chi* as well as self-reported increases in patients' quality of life.⁴ This last

Resources

Frantz B. *The Big Book of Tai Chi*. Thorsons Publishers, 2003.

Kaptchuk TJ. *The Web That Has No Weaver: Understanding Chinese Medicine*. McGraw/Hill Contemporary Books, 2000.

Gilman M. *108 Insights into Tai Chi Chuan: A String of Pearls*. Jamaica Plain, Mass: YMAA Publication Center, 1998.

"Tai Chi" and "Qigong" in Sifton D (Ed.) *PDR Family Guide to Natural Medicines*. New York: Three Rivers Press, 1999.

Postulated benefits of *Tai Chi*:

1. Increased relaxation and concentration
2. Strengthening of muscle and bone
3. Improved balance by increased strength and recalibration of inner ear through coordinated movements of head, eyes, and body
4. Improved posture
5. Improved mental alertness
6. Reduction in blood pressure

finding touches on one of *tai chi*'s main benefits. Although a number of studies suggest the benefits of *tai chi* affect various systems, from improved neuromuscular function⁵ to decreased insomnia,⁶ there is a clear lack of well-controlled studies. In the absence of this type of research, the effects of *tai chi* in treating most specific clinical disorders is unknown. Nearly all *tai chi* studies, however, do agree in reporting improved mood and mental stability in patients practicing *tai chi*. The improved mood and resultant increase in self-reported quality of life associated with the practice of *tai chi*, coupled with the fact that *tai chi* has no



Some doctors recommend Tai Chi for natural arthritic pain relief:

Tai Chi and water aerobics are types of balance exercises that can be effective without adding much pressure to joints.

associated side effects, make this low-impact form of therapeutic movement and meditation a safe recommendation for any patient seeking to improve balance, strength, and peace of mind, even in cases where an absence of data precludes proof that *tai chi* impacts a specific pathological condition.

*E.B. Smith is a second-year medical student.
Helen Wang is a first-year pharmacy student.*

Body-Based Methods Yoga

Maggie Simon, edited by Gwendolyn Ho

History and Philosophy

Derived from the Sanskrit word “yuj,” which means to attach, yoke or bind, yoga is commonly translated to mean “union.” Although the term conjures images of elaborate and sometimes seemingly impossible physical feats in the minds of many Americans, physical poses comprise only a part of this ancient Indian philosophy. Traditionally passed between generations in a family, yoga is designed to assist the practitioner, or yogi, in uniting the individual consciousness (*jivatman*) with the divine consciousness (*paramatman* or God).¹ While the origins of the philosophy developed through oral tradition in India over 5,000 years ago, the earliest written evidence of yoga is found in literature from the Vedic period, when the stories, poems, spells, and prayers of the early inhabitants of India were first written. The first mention of yoga was probably made in the *Bhagavad Gita* (500-300 BCE), but the more extensive yoga Sutras of Patanjali (200 BCE), a collection of 185 terse aphorisms, were the first written work to detail, systematize and provide instruction.

According to yoga philosophy, there are four main paths one can follow to find enlightenment. On the

Karma Path, the path of action, one finds God through work and duty. On the Bhakti Path, the path of joy, realization occurs through devotion to and love of a personal god. On the Jnana Path, the path of wisdom, the intellectual realizes God through sheer knowledge and understanding of the true nature of all living beings. The last path is the Raja Path, the path of kings, on which one finds realization through control of the mind and the use of Patanjali’s eight limbs.⁴ These are *yama* (self-restraints), *niyama* (observances), *asana* (postures), *pranayama* (breathing exercises), *pratyahara* (withdrawal of the senses), *dharana* (concentration), *dhyana* (meditation), and *Samadhi* (enlightenment). If mastered in the order designated, the eight limbs will guide the yogi toward enlightenment. The five self-restraints (non-violence, truthfulness, control of the senses, nonstealing, and non-covetousness) and the five observances (cleanliness, contentment, austerity, study of the sacred texts, and awareness of the divine presence)⁵ help the yogi control his emotions and passions and keep them in harmony with others. The physical postures purify the body and keep it healthy and strong. Breath control and sense

withdrawal then allow the yogi to “free the senses from the thralldom of the objects of desire.”⁶ Finally, concentration and meditation bring the yogi to union with God, just as a “great musician becomes one with his instrument and the music that comes from it.”⁷ This is enlightenment.

Yoga practiced outside of India is often called Hatha yoga, meaning “forceful union” or “union of the sun and moon.” Most of the western practice of Hatha yoga can be traced to Shri T. Krishnamacharya through his famous pupils B.K.S. Iyengar, Pattabhi Jois, Indra Devi and his son T.K.V. Desikachar. Hatha yoga is technically a subdivision of Raja yoga and consists of two of the eight limbs, *asana* (physical postures) and *pranayama* (breathing exercises). While the other six limbs are addressed in some schools of yoga in the United States, Hatha is by far the most commonly taught. This is considered by yoga masters to be a result of the sedentary American lifestyle and the need to be more “in the body” and less “in the mind.” Hatha yoga also involves relatively little dogma, which makes this practice more accessible to Westerners.

A Typical Yoga Session

Anyone can practice Yoga. You don’t need any special equipment, clothing, or lessons; all you need is the will to pursue a healthier and happier lifestyle. The Yoga Postures and Asanas exercise every part of your body. The Yogic Breathing Exercises known as Pranayama revitalize the body and help control the mind, leaving you calm and refreshed; combine this with the practice of positive thinking and Meditation, and the result will be increased clarity, mental power and concentration.

There are many different schools of yoga, many theories of how it should be taught and over 8 million known poses.⁸ Despite these wide variations, however, almost all classes take place in a clean, well-heated room and proceed under the guidance of a teacher who leads the students verbally through the session and passes through the room to gently adjust those who need help. While many styles of yoga incorporate spirituality and philosophy into their daily practice, most introductory classes will be limited to brief periods of chanting, breathing exercises and meditation, with most of the emphasis placed on the postures. The cost of a class is usually between \$10 and \$15. (Continued on next page)

Body-Based Methods

There are many styles of Hatha yoga currently practiced in the U.S., ranging from gentle, restorative yogas to rigorous, athletic ones. Three of the most popular are Iyengar, Astanga, and Bikram. Iyengar yoga was developed by yoga master B.K.S. Iyengar, considered by many to be the leading expert on yoga in the world. This practice places emphasis on alignment in the postures, long holds and the use of props for students with limited flexibility or special needs. Astanga yoga, developed by yoga master K. Pattabhi Jois and considered to be based on the original sequences laid out by Patanjali, is a fairly intense set of postures, between which students perform the vinyasa, a flowing sequence designed to maintain the intensity of the practice through body heat and energy. Power yoga is a more Americanized form of Astanga with less chanting and more emphasis on getting a workout. Bikram yoga has become well known as Hot yoga. A rigorous, preset series of postures are performed in a room heated to over 100°F to encourage sweating as a way of cleansing the body of accumulated toxins. Bikram is perhaps the most stylish and least spiritual of all the yogas.

Resources

Desikachar, T.K.V. *The Heart of Yoga*. Rochester, Vermont: Inner Traditions International, 1999. www.kym.org

Iyengar, B.K.S. *Light on Yoga*. New York: Schocken eare Books, 1979. www.bksiyengar.com

Jois, P.S.K. *Yoga Mala*. New York: North Point Press, 1999. www.ashtanga.org

Sivananda Yoga Vendanta Centres San Francisco www.sivananda.org

Popular Yoga Magazine www.yogajournal.com

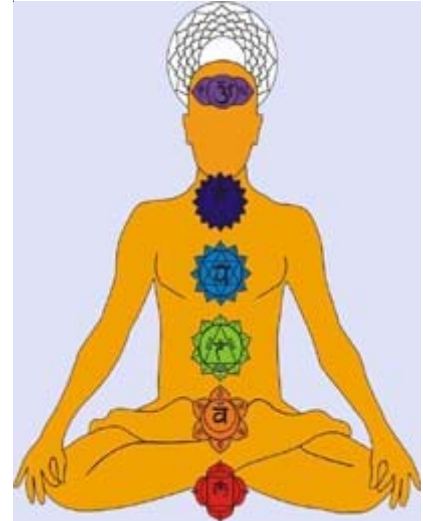
Research

Most students practice yoga for the emotional, spiritual and physical benefits without wondering if those benefits have been proven in studies. While a double-blind, randomized controlled trial in yoga therapy has inherent difficulties, randomized studies have been conducted.

There is good evidence that yoga can be useful for reducing symptoms and inhaler use in asthmatics,⁹ reducing pain and improving grip strength in carpal tunnel syndrome,¹⁰ treatment of hypertension,^{11, 12} improving lipid profiles,¹³ and increasing overall well being.¹⁴ Other studies have catalogued benefits of yoga for innumerable ailments, including arthritis, insomnia,¹⁵ emphysema, osteoporosis and musculoskeletal complaints. It should be noted that the tradition was passed from generation to generation as a powerful tool to attain enlightenment and not as a medical practice; the Indian tradition of Ayurveda, the Vedic science of health, deals with medicine and healing.

“Concentration and meditation bring the yogi close enough to god that he eventually becomes one with god, just as a great musician becomes one with his instrument and the music that comes from it. This is enlightenment or union.”

-- B.K.S. Iyengar



Conditions with scientific evidence of benefit¹¹

- Anxiety/Stress
- Obsessive Compulsive Disorder
- Asthma
- Hypertension
- Heart Disease Risk Factors
 - Cholesterol Levels
 - Blood Sugar Levels
 - Ability to Exercise
- Depression
- Seizure Disorder

Practitioner Training & Licensure

A national program founded by concerned yoga teachers, Yoga Alliance, has offered a national registry since 1999 for teachers that meet minimum standards for certification with at least 200 hours of training. RYT will appear after a

registered teacher's name. The Alliance has also set standards for continuing education and offers an online registry where you can look up your teacher: www.yogaalliance.org.

Maggie Simon is a fourth-year medical student. Gwen Ho is a first-year medical student.

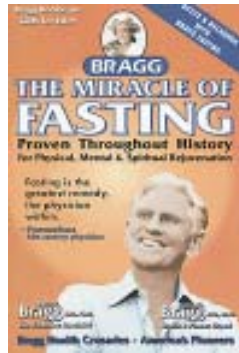
Biologically Based Therapies

Fasting

Jake Beverage, edited by Cathy Kim

History and Philosophy

Fasting is the process of depriving the body of solid food for a period of hours, days, or weeks. Also known as detoxification or cleansing, it is an alternative nutritional approach focused on ridding the body and mind of toxins that accumulate with the daily consumption of modern food. The branch of alternative medicine known as naturopathy employs fasting among other techniques to facilitate the process of the body's own healing. Since ancient times, fasting has been a mainstay of physical and spiritual healing. Christianity, Judaism, Islam and many Eastern religions today practice it as a means of purification and ritual. The naturopathic principle of fasting is that, by minimizing the intake of substances, the body is able to focus its energy on healing and regeneration instead of on the regular digestion and metabolism of materials in the digestive tract¹. The liver is able to concentrate its activity in the



elimination of toxins, the blood and lymph have the opportunity to be cleared and removed of substances². The cells of the body are given the opportunity to rid themselves of toxic accumulations without the imposed daily demands of regular dietary uptake. The spiritual self, in a parallel manner, is able to abstain from and eliminate that which is toxic to the body, mind, and soul. Spiritual energy can thus be focused inward where it can be used for healing and self transformation. Fasting has been claimed to be the missing aspect of nutrition for the overindulging, consumption-driven habits common in the Western world. Despite its history and usage in naturopathic medicine, fasting remains a controversial practice in the medical community. Unfortunately, there is a paucity of sound scientific evidence available to support or to reject its therapeutic value.

Precautions

Fasting is not for everyone! Significant morbidity has been documented with long duration fasts. It is recommended that any fast should be supervised by a naturopathic physician. Fatigue, irritability, bad breath and headache are common side effects reported with fasting². It is advisable to rest more frequently during a fast. Fasting should not be undertaken in people with the following conditions²:

- Underweight
- Cancer
- Fatigue
- Peptic ulcer diseases
- Compromised immune function
- Nutritional deficiencies
- Heart conditions
- Pre- and post surgery
- Hypotension
- Mental illness
- Cardiac arrhythmias
- Nursing or pregnant mothers

A Typical Fasting Regimen

There are many different types of fasting diets ranging from solely raw fruit and vegetable diets to water-only fasting regimens. A popular and less extreme type of fast is the juice fast, which consists of the consumption of only the juice of fruit and vegetables. The duration of a fast can be any time from a half a day to several days or weeks. A typical short duration fast is 36 hours (e.g. Friday evening through Sunday morning). More ambitious fasters may opt for a fast of five to seven days or even longer. With any fast, it is important to precede and follow the fast with a day or two of simple, raw fruits and vegetables in order to achieve a gradual dietary transition³. Caution must be observed in the undertaking of extended fasts as bodily injury and even death have been reported.⁴



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Biologically Based Therapies

Herbal Medicine

Alexandra Aminoff, edited by Lynda Nguyen

History and Research

Herbal medicine has been used for thousands of years to cure various ailments. The Chinese have used ginseng to treat a wide array of problems, including stress, impotence, and high blood pressure, for 5,000 years. Similarly, Europeans have used St. John's Wort for over 2,000 years to treat burns, fevers, and psychiatric disorders. Despite the long history of medicinal use, there is little scientific evidence to support the safety and therapeutic value of these remedies. With increasing popularity and availability of herbal medicines, consumers and healthcare professionals should seek a deeper understanding of the risks and benefits. As large pharmaceutical companies enter the industry of herbal medicine, it is likely more scientific evidence will emerge to guide consumers and providers.

Herbal remedies are widely available in supermarkets, drugstores, and health food stores. They are sold as dietary supplements as a result of the Dietary Supplement Health and Education Act (DSHEA) put forth by the Food and Drug Administration (FDA) in 1994. This act resulted in the reclassification of herbal products as dietary supplements rather than as drugs, having major consequences for consumers. Manufacturers do not have to provide scientific evidence of the safety of their products and only need to show that the products

"will reasonably be expected to be safe." It is unclear what sort of evidence is required by the FDA to make this assertion. Furthermore, since supplements are not subject to the strict approval standards for drugs, there may be safety issues regarding their purity. For many consumers, the appeal of herbal products is their natural origin. However, herbal preparations often contain other biologically active ingredients and contaminants that may not be listed on the product label. Studies have shown that some products have much higher concentrations of active ingredient than indicated on the label, while others lack active ingredients altogether. There is no way for consumers to ensure what is written on the label reflects what is inside the bottle.

Many believe the long history of herbal medicine use is a testament to its safety. In fact, the World Health Organization's "Guidelines for the Assessment of Herbal Medicines," state that "long-term historical use of a botanical in traditional medicine constitutes a presumption of safety unless contradicted by modern scientific research." Further research



is necessary to study drug-herb interactions. Many herbal remedies have a history of use and benefit, but may not have been used with other drugs. The risk of dangerous interactions cannot be overlooked. St. John's Wort is often

used to treat depression, but can interact dangerously with other antidepressants, causing increased blood pressure, dizziness, and confusion. Another herb called hawthorn is used to treat angina, but when mixed with digoxin, a commonly prescribed heart medication, it can dramatically lower the heart rate, which may lead to heart failure. For healthcare professionals to make informed recommendations about herbal remedies, there must be further research into potentially dangerous interactions.

Large pharmaceutical companies are now more involved in herbal medicine research. Their studies will hopefully improve the quality, purity, and safety of herbal products and increase awareness of the therapeutic value of herbs. Until more scientific evidence emerges, it is important to follow general safety guidelines listed below.

Safety Guidelines

- Only purchase herbal products that are labeled with the botanical name of the herb, the part of the plant used, the batch or lot number, date of expiration, and the manufacturer's name and address.
- Talk with your physician about herbal medicine use.

- Be cautious when using herbs during pregnancy.

- Use standardized extracts to ensure a standardized dose and decreased risk of contamination.

- Avoid simultaneous use of a large variety of herbs.

- Be cautious when using herbs with over-the-counter or prescription drugs.

- Report adverse side effects to your doctor and the FDA MedWatch Program (1-800-332-1088).

- Use cautiously when immunocompromised, due to risk of microbial contamination.

- Educate yourself about herbal medicine.

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Lynda Nguyen is a first-year pharmacy student.*

Biologically Based Therapies

Vitamins

Allen Andrews, edited by Linda Nguyen

History and Philosophy

The 20th century saw the discovery of vitamins and realization of their importance to good health. They are vital in maintaining normal metabolic functions through their role as catalysts, specifically as cofactors combined with proteins to create metabolically active enzymes. These in turn produce hundreds of important chemical reactions throughout the body. Without vitamins, many of these reactions would slow down or cease. In terms of structure, they are all organic compounds but otherwise unrelated both chemically and in their physiological actions.

As vitamin D is the only vitamin the body can manufacture itself, all the others must be derived from the diet. The well- 13 well-identified vitamins are classified according to whether they can be dissolved in fat or water. The fat-soluble vitamins - A, D, E, and K - are generally consumed along with

fat-containing foods, and because they can be stored in the body's fat, do not have to be consumed every day. The water-soluble vitamins - the eight B



vitamins and vitamin C - cannot be stored and must be consumed frequently, usually every day.

Vitamin deficiencies can result in a wide range of metabolic disorders, as well as other dysfunctions, some of which can

have serious consequences. In contrast, excessive intake of some vitamins will lead to poisoning and the effects of such toxicity can be as severe. The fat-soluble vitamins especially can block the effect of other vitamins and even cause severe poisoning when taken in excess. Recommended daily maintenance dosages vary from country to country and some vitamin supplements are in fact often quickly eliminated by the body without being absorbed. A healthy individual with a well-balanced diet can maintain sufficient and stable levels of vitamins without need for additional supplements. Those with metabolic disorders, who are on special diets, suffering from intestinal disorders or who are pregnant or lactating may need to bolster the intake of particular vitamins. Advice about supplements can be sought from a nutritional therapist.

Typical Vitamin Use

Nutritional therapists analyze a person's diet and tailor it to suit their individual needs, which can include addressing vitamin imbalances or deficiencies. With scientific advances continuing to increase our understanding of vitamins and their functions, therapy can become more and more specific for a particular disorder. Accreditation in nutritional therapy is often upon completion of three- or four-year graduate courses, for example through the Internship and Didactic Program in Dietetics at Bastyr University, approved by the American Dietetics Association.

Consultations often begin with a questionnaire analyzing the patient's diet and lifestyle, and a patient being asked to keep a food diary and take certain tests to determine levels of vitamins and minerals, as well as other nutrients, bowel function, levels of healthy bacteria in the gut and possible food intolerances. Testing can involve analysis of hair, sweat, urine and blood, as well as physical examinations of skin and nails, for example, to look for signs of deficiencies. Treatment focusing on vitamins will often include tailor-made diets coupled with specific supplements and advice on when and how to take these. This is especially important with vitamin therapy since the fat-soluble vitamins can especially be toxic in high doses and have decreased efficacy when taken with hot drinks or in combination with other drugs or supplements.



Biologically Based Therapies

| | VITAMIN | DIETARY SOURCES | USES IN BODY | DEFICIENCY | THERAPEUTICS |
|--|------------------------------------|--|--|---|---|
| F A T S O L U B L E | A | Green vegetables, milk products, liver, eggs. | Light-sensitive pigments in eyes, skin; resisting infection. | Night blindness, permanent blindness, extremely dry skin. | Skin conditions such as eczema, acne & psoriasis, night blindness, ulcers, respiratory, menstrual & urinary problems; possible important role in cancer prevention. |
| | D | Dairy products, eggs, cod liver oil; UV light. | Calcium absorption; bone, nerve development. | Rickets, joint pain, poor growth. | Possible benefits for the elderly or institutionalized; for people who have moved from a sunny climate to a dull one, are not exposed to sunlight, are on long-term low-fat diets, or are unable to absorb vitamin D or calcium. |
| | E | Margarine, seeds, green leafy vegetables | Protects fatty acids and cell membranes from oxidation. | Possibly anemia. | Cardiovascular disease, poor circulation (especially in the legs of smokers & diabetics), PMS, menstrual pain, menopausal flushes, joint & muscle pain & inflammation, eczema & dry skin, asthma, premature babies. |
| | K | Green leafy vegetables | Blood clotting. | Bleeding disorders. | May be required by newborns not yet able to produce bacteria in the gut, especially if the mother takes anti-epilepsy medication. |
| W A T E R S O L U B L E | B ₁ Thiamine | Organ meats, pork, wholegrains, grains, legumes. | Carbohydrate metabolism, nerve and heart function. | Beriberi (weakened heart, edema, nerve and muscle degeneration). | Useful for those who smoke or drink heavily, do strenuous physical work, have a diet high in sugar and refined carbohydrates, have heart problems, are breastfeeding, are undergoing a growth spurt, or are very stressed. |
| | B ₂ Riboflavin | Milk products, liver, eggs, grains, legumes | Energy metabolism, health of mucous membranes. | Eye irritation, sore mouth, inflammation/breakdown of skin cells. | Pregnant and breastfeeding women, the elderly, athletes; those on a contraceptive pill or estrogen-replacement therapy; young people during growth spurts; alcohol or drug abusers. Benefits for mouth/gastric ulcers. |
| | B ₃ Nicotinic Acid | Liver, lean meats, grains, legumes. | Oxidation-reduction reactions in cellular respiration. | Irritability, fatigue, mental change, dry skin, headache, mouth ulcers. | Dizziness, PMS, tinnitus, arthritis, treatment of burns, alcohol addiction, high cholesterol, mental problems & hyperthyroidism (this requires medical supervision). Useful for athletes, the elderly & people suffering from stress. |
| | B ₅ Pantothenic Acid | Milk products, liver, eggs, grains, legumes | Energy metabolism, normal growth and brain activity. | Fatigue, depression, poor coordination, numbness and tingling, nausea. | Used as an adrenal support; for those on a contraceptive pill or hormone-replacement therapy (HRT); smokers/alcoholics. Relieves stress, headache, insomnia, arthritis, food intolerance, hair problems & teeth grinding |
| | B ₆ Pyridoxine | Wholegrain cereals, vegetables, meats, bananas, nuts, seeds. | Amino acid metabolism, helps to maintain fluid balance. | Convulsions, irritability, kidney stones, sore tongue. | Morning sickness, PMS, insomnia & mild forms of anxiety & depression. Also recommended for women taking a contraceptive pill or HRT long-term, as these can lead to depletion of B6. |
| | B ₁₂ Cobalamin | Red meats, eggs, dairy products. | Nucleic acid production. | Pernicious anemia, neurological disorders. | Anemia, fatigue, digestive problems, mental or nervous problems. Vegans & vegetarians can become deficient as it is mainly found in animal products. |
| | Biotin | Meats, vegetables, legumes. | Fat synthesis and amino acid metabolism. | Depression, fatigue, nausea. | Skin, nail & hair problems, including alopecia. Important for people on iron supplements, those taking antibiotics or other medicines affecting biotin production in the intestines. Athletes are often deficient in biotin. |
| | C | Citrus fruits, green leafy vegetables, tomatoes. | Healthy blood vessels, muscles, gums, bones, teeth. Helps fight infection. | Scurvy (breakdown of skin, blood vessels and teeth). | Poor skin & hair, wounds slow to heal, constant infections, colds and flu, bleeding gums, scurvy. Heavy smokers & drinkers, the elderly, those taking a contraceptive pill or antibiotics. |
| | Folic Acid | Whole-wheat foods, green vegetables, legumes | Nucleic acid metabolism. | Anemia, diarrhea. | Essential when planning pregnancy, during pregnancy & breastfeeding, good for dairy-allergic infants fed on goats' milk, those suffering from IBS, depression, alcoholism, mental illness, early stages of Alzheimer's disease. |

Resources

American Academy of Nutrition
www.aan.edu

American Health and Sciences University
www.ahsu.com

Clayton College of Natural Health
www.ccnh.edu

National Assoc. of Nutrition Professionals
www.nanp.org

Register of Nutritional Therapists
www.nutritionalmed.co.uk

US Government Nutrition Information
www.nutrition.gov

How Vitamins Gained in Popularity: One Nobel Laureate's Blunder?

Nearly 40 years ago, one of the greatest scientists of the 20th century and double Nobel Prize winner, Linus Pauling, revolutionised the way people thought about vitamins. He claimed that by taking huge doses of vitamin C you could prevent or even cure the common cold.

He predicted that if everybody followed his advice, the common cold could even be eradicated. Many scientists dismissed his theory as quackery, but the public loved it and it helped launch a huge industry. But the latest evidence shows the great man was mistaken. Vitamin C can help you once you have a cold, but for most people it does nothing to prevent you from catching one in the first place.

www.bbc.co.uk

*Allen Andrews M.Phil. is a research associate in the UCSF Department of Orthopaedic Surgery.
Linda Nguyen is a first year pharmacy student.*

Mind-Body Medicine Art Therapy

Amber Lerma, edited by Cathy Kim

History and Philosophy

Art therapy seeks the same insight, conflict resolution, healing and learning results as talk therapy. In the presence of a trained art therapist, patients of all ages make art to express and explore feelings, thoughts and memories not easily expressed through words. The philosophy



Finding a Therapist

For a registered art therapist in your area, contact the American Art Therapy Association (AATA) at www.arttherapy.org/members/statechapters.htm. For individuals coping with life-threatening illness, contact the UCSF Comprehensive Cancer Center's Art for Recovery Program at www.cc.ucsf.edu/afr

of art therapy is grounded in the idea that the process of creating art and reflecting upon it can help people 1) increase awareness of self and others, 2) cope with symptoms, stress and trauma, 3) enhance cognitive abilities and 4) improve self-esteem.

Throughout history, human beings have created images as a mode of documentation, communication, and self-expression. Art therapy, however, did not emerge as a distinct profession until the 1930s. Psychiatrists in the early 20th century became interested in the possibility that the artwork of their patients could emotionally and symbolically communicate illness. Margaret Naumburg, an educator and psychotherapist who started the Walden School in New York City, is considered to be the founder of art therapy in the United States. Starting in the 1940s, Naumburg wrote several books on art therapy and its applications with psychiatric patients. The national professional organization, the American Art Therapy Association (AATA), was founded in 1969.

A Typical Treatment

Art therapists use drawing, painting and sculpture as vehicles for client self-expression and emotional release. An art therapist might pose a question to a client and ask that the answer be drawn or painted. The art therapist often works as part of a team, which may include a physician, psychologist, rehabilitation counselor and/or social worker. Together, they determine and implement a client's therapeutic, educational or mental health program. Art therapists also work as primary therapists in private practice. Like other psychiatric therapies, art therapy may be conducted in one or more sessions depending on the needs of the patient.

Where Art Therapists Work: Medical and Psychiatric Hospitals, Out-Patient Facilities, Clinics, Residential Treatment Centers, Shelters, Schools, Correctional Facilities, Elder-Care Facilities, Pain Clinics, Universities, and Art Studios.

Time/Cost: Art therapy may be offered free of charge by many organizations (e.g., hospitals, non-profit organizations, clinics). Art therapists with doctoral degrees or state licensure may charge upwards of \$75 per hour.

Mind-Body Medicine

Conditions Treated

Autism
Developmental Delays
Learning Disabilities
Depression
Sexual Abuse
Violence Exposure
Schizophrenia
Substance Abuse

Cancer
Eating
Post-

Disorders
Traumatic Stress
Disorder
Grief and Loss

“The process of art therapy is based on the recognition that man’s most fundamental thoughts and feelings, derived from the unconscious, reach expression in images rather than words.”

-- Margaret Naumburg

Research

At the present time there is a shortage of both qualitative and quantitative research in art therapy. Because the beneficial effects of the arts are not evidence-based, their acceptance as therapies is not widely acknowledged by the mainstream medical community. Regardless, the field is expanding as demonstrated by an increase in the number of art therapists in pediatric hospitals serving as active members of medical teams.

Of the information that exists, evidence points to art therapy’s role in:

- 1) Detecting depression and post-traumatic stress disorder in pediatric and young adult renal transplant recipients.¹
- 2) Providing benefit to patients who must deal with emotional conflicts and feelings about life and death.²
- 3) Promoting wellness among people with Alzheimer’s by reducing psychotropic medication use, unusual incidents and client-to-staff ratios while increasing attendance rates, self-esteem, confidence and emotional well-being.³

Of note, the Mindfulness-Based Art Therapy (MBAT) project is funded by the

National Center for Complementary and Alternative Medicine (NCCAM), an agency within the National Institutes of Health. MBAT integrates known benefits of art therapy, group therapy and mindfulness-based stress reduction. The purpose of this randomized crossover study is to determine whether cancer patients who receive MBAT demonstrate improvement in health-related quality of life, reduction in stress-related symptoms and enhanced coping responses. The long-term goal is to collect sufficient data to determine the overall efficacy of this promising intervention and to identify which patients are particularly likely to benefit from MBAT.



Resources

The National Coalition of Creative Arts Therapies Associations (NCCATA).
www.nccata.org

American Art Therapy Association.
www.arttherapy.org

Northern California Art Therapy Association. www.norcata.com/resources/find_therapist.asp

Naumburg M. *An Intro to Art Therapy*. New York, Teachers College Press, 1973.

Practitioner Training & Licensure

Art therapists are professionally trained and earn a masters degree in Art Therapy or a related field. The masters degree requires two-years of full-time study.

AATA approved programs in California include:

Loyola Marymount University in Los Angeles, CA

Notre Dame de Namur University in Belmont, CA

Phillips Graduate Institute in Encino, CA

The AATA regulates educational, professional and ethical standards for art therapists, while the Art Therapy Credentials Board (ATCB) grants postgraduate registrations. A minimum of 1,000 direct client contact hours is required to become a Registered Art Therapist (ATR). Registered Art Therapists who successfully complete the written examination administered by the ATCB are qualified as Board Certified (ATR-BC), a credential requiring maintenance through continuing education credits.

Amber Lerma is a third-year medical student. Cathy Kim is a first year pharmacy student.

Mind-Body Medicine

Biofeedback

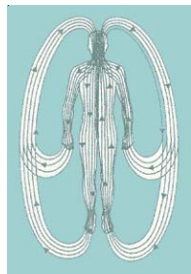
Victor Huang, edited by Cathy Kim

History and Philosophy

Biofeedback is a treatment technique in which people are trained to improve their health by using signals from their own bodies (NIMH). Biofeedback arose in the 1960s and 1970s as research began to reveal the human mind's potential to control physiological functions previously thought to be involuntary. Much as a baseball pitcher learns to throw a ball by adjusting his next attempt after watching the results of his first pitch, the subjects in research trials could adjust their body's reactions to stimuli if they were given feedback via physiologic monitors. Physical therapists use biofeedback techniques to help stroke victims regain movement in paralyzed muscles. Psychologists use biofeedback to help tense and anxious clients learn to relax and modify behavior. Specialists in many different fields use biofeedback to help their patients cope with pain. Control of heart rate, skin temperature, skin conductance, blood pressure, and brainwaves could be learned. Drs. Elmer and Alyce Green at the Menninger Foundation, Drs. David Shapiro and Gary Schwartz at

Harvard, and Dr. Chandra Patel in England were early researchers in the field.

The major practical implementation of biofeedback, however, was to come in treating and managing a number of medical ailments. The activation of the "fight or flight" response, in which stressful stimuli trigger the sympathetic nervous system, is believed to have a number of health-related consequences, including suppression of the immune system, acceleration of atherosclerosis, and chronic release of "stress hormones." that over time can lead to diabetes and other chronic diseases. By using biofeedback to train patients how to manage the stimulation of their sympathetic nervous systems, the Association for Applied Psychophysiology and Biofeedback suggests that the symptoms associated with migraine headaches, tension headaches, chronic pain, disorders of the digestive system, incontinence, high blood pressure, arrhythmias, attention deficit hyperactive disorder, Raynaud's Syndrome, epilepsy and paralysis can be allayed.



Research

Ongoing research is exploring biofeedback as an effective modality for treatment of a variety of conditions. As a consequence of the lack of large-scale, long-term randomized controlled trials with validated measures, evidence in favor of biofeedback is more suggestive than definitive. Most studies have been small in scale and conducted without control groups.

Nonetheless, multiple forms of mind-body therapies, including guided-imagery, progressive relaxation, and biofeedback, have been associated with a reduction in arthritic pain, chronic lower back pain, lower gastrointestinal disturbances, and in recovery from surgery or other invasive medical procedures. Biofeedback, itself, seems particularly well indicated for treating migraine headaches in children and adults.

A review of the literature in Mosby's Guide to Complementary and Alternative Medicine (2004) determined that biofeedback has been found to be efficacious in the following conditions: anxiety disorders, attention deficit hyperactivity disorder (though a small RCT by Heywood & Beale, 2003

Tools of the Trade

The number and nature of devices used in biofeedback are varied and diverse. Most involve either some form of electroencephalograph (EEG, charting brainwave activity), electromyograph (EMG, charting muscle activity), temperature biofeedback, or skin conductance (SC) biofeedback. These devices can be applied in a non-invasive manner.

The "triumvirate" of biofeedback devices includes: EMG, SC, and temperature. These are used in most biofeedback therapies to measure relaxation. In particular these three are used in combination for people who have anxiety, headaches, Irritable Bowel Syndrome, and hypertension.

Other specific conditions make use of more specialized measurements. Biofeedback treatment of congestive heart failure and cardiovascular disease involves the monitoring heart variability. Neurological conditions including epilepsy, Attention Deficit Hyperactivity Disorder (ADHD), and severe/profound brain injury are measured by EEG. The EMG is used in patients presenting with muscle tension, tension headaches, TMJ disorders, GI disorders such as fecal incontinence (used to measure intestinal motility), and urinary incontinence (pelvic floor muscles).

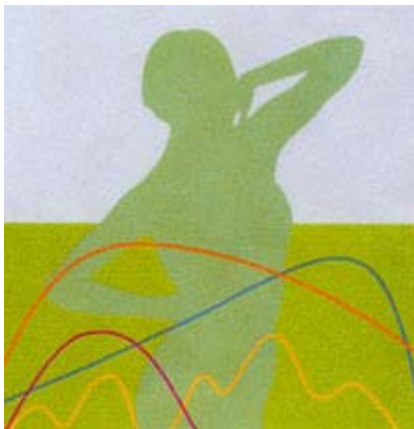
In addition to these biofeedback responses, patients are often asked to monitor signs and symptoms of their illness (intensity, duration, and frequency of headache pain, for instance) as a way of further monitoring the effects of the treatment.

Mind-Body Medicine

(Continued from previous page) did not support biofeedback for ADHD), hypertension, headaches in adults (including migraines), temporomandibular disorders, and urinary incontinence in males.

Biofeedback has been found to be highly efficacious in treating urinary incontinence in females. Burgio and colleagues (1998) conducted one of several randomized controlled trials (RCTs) that indicated biofeedback was superior to drug treatments for urinary incontinence and was superior or better than other behavioral treatments.

Holroyd and Penzien (1990) conducted one of the few meta-analyses of research on biofeedback and migraine headaches. Their study integrated 25 trials on propranolol and 35 trials on biofeedback and found that the two treatments were equally effective in reducing migraines in the



Resources

Association for Applied Psychophysiology and Biofeedback

www.aapb.org/

Biofeedback Certification Institute of America, www.bcia.org

Kabat-Zinn, Jon. *Full Catastrophe Living*. Delta Trade Paperbacks, 1990.

Robbins, Jim. *A Symphony in the Brain: The Evolution of the New Brain Wave Biofeedback*. Grove Press, 2001.

Schwartz, Mark S. and Andrasik, Frank. *Biofeedback, Third Edition: A Practitioner's Guide*. Guilford Press, 2003.

average patient. Both treatments were significantly better than placebo. A recent review of mind-body treatments for pain suggested that given the current research, "relaxation and thermal biofeedback may be considered as a treatment for recurrent migraine while relaxation and muscle biofeedback can be an effective adjunct or stand alone therapy for recurrent tension headache" (Astin, 2004).

A May 2004 review of biofeedback for cardiovascular diseases (including hypertension, cardiac arrhythmias, angina pectoris, cardiac ischemia, myocardial infarction, and Raynaud's phenomenon) indicated that "research to date suggests that biofeedback could be a useful alternative or adjunct to more conventional forms of treatment" (Kranitz L & Lehrer P). A study of coronary artery disease patients, found that biofeedback increased heart rate variability, an important indicator of sinoatrial node function. Thus researchers are hopeful that biofeedback may have the potential to influence cardiovascular morbidity and mortality.

The research is less clear when it comes to gastrointestinal disorders. After reviewing the sixteen existing RCTs for these conditions, Coulter and his colleagues (2002) concluded that due to the lack of well-designed studies, or the small size of studies, there is currently insufficient evidence to support biofeedback in these cases, although several of these studies showed statistically significant

difference in improvement in the biofeedback arm.

Diabetes researchers (Galper, et al 2003) conducted a review of mind-body techniques for diabetes treatment. They stated that thermal biofeedback "alone or in conjunction with other mind-body techniques, improves peripheral circulation, pain, neuropathy, ulcer healing, ambulatory activity, and quality of life." A clinical trial later in the year (Fiero, et al 2003) showed gains in cutaneous blood flow among diabetic patients with lower extremity vascular complications.

Conditions Treated

- Migraine headaches
- Tension headaches
- Other types of chronic pain
- Disorders of the digestive system
- Incontinence
- High blood pressure
- Cardiac arrhythmias (abnormalities in the rhythm of the heartbeat)
- ADD/ADHD (Attention Deficit Hyperactive Disorder)
- Raynaud's disease (a circulatory disorder that causes uncomfortably cold hands)
- Epilepsy
- Paralysis, spinal cord injury and other movement disorders

Practitioner Training & Licensure

Practitioners of biofeedback techniques range from psychologists to psychoanalysts to physicians. There is a certification program offered through the Biofeedback Certification Institute of America, that assures a minimal level of proficiency with **e l e c t r o m y l o g r a p h**,

electroencephalo-graph, and thermal modalities of biofeedback. Those certified are hold at least a bachelor's degree, 40 hours of biofeedback education, and 145 hours of mentored professional practice. Human anatomy is required in addition to the successful completion of a 3 hour examination.

Victor Huang is a fourth-year medical student. Cathy Kim is a first year pharmacy student.

Mind-Body Medicine

Eye Movement Desensitization and Reprocessing

Amy Chang, edited by Cathy Kim

History and Philosophy

Eye Movement Desensitization and Reprocessing (EMDR) is a relatively novel form of psychotherapy that is supported by empirical evidence for the treatment of post-traumatic stress disorder (PTSD). Its use in treating other disorders, including depression, panic disorder, phobias, somatoform disorder, and pain, is still experimental.

Francine Shapiro Ph.D. described the first use of EMDR to treat patients with intrusive traumatic memories in 1989. By 1998, with enough independent experimental evidence of EMDR efficacy, the American Psychological Association designated EMDR, along with exposure therapy and stress inoculation therapy, the only treatments with “probable efficacy” for the treatment of PTSD.

Today, there are over 40,000 mental health professionals who have been trained in EMDR in the U.S., and approximately 500,000 people have been treated with EMDR.

An information processing theory has been developed to explain the effects of EMDR. PTSD and other psychiatric disorders may arise from a defect in memory formation and processing. When we experience a notable event, an isolated memory of that event is stored in the

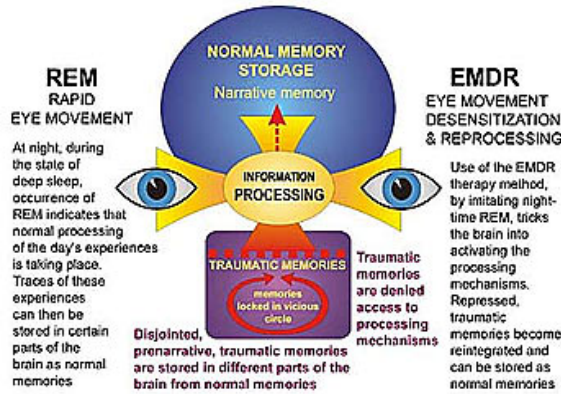
hippocampus and its related structures, including the amygdala, a structure that is involved in processing emotionally laden information. Over time, the memory is integrated with other memories and belief systems, which are stored in diffuse networks in the cortex. As this process of consolidation occurs, the original memory trace in the hippocampus and its associated effect in the amygdala are weakened.

associative networks. The unusually vivid and intrusive memories that are characteristic of PTSD may result from a failure to integrate episodic memories. The REM stage of sleep, which is disordered in PTSD, may be necessary for memory consolidation.

Proponents of EMDR believe it induces a neurophysiological and neurochemical state that facilitates the integration of incompletely processed traumatic memories. They

suggest that a re-orienting response is elicited each time a patient switches the focus of his or her attention between alternating bilateral visual, auditory, or tactile stimuli. This re-orienting response produces a pattern of neuronal and endocrine activity that is reminiscent of REM sleep. Other mechanisms to explain the effects of EMDR have also been hypothesized; however, they all share the idea that EMDR facilitates the patient’s innate capacity to reprocess and integrate

maladaptive information. Importantly, the resolution of anxiety and changes in behavior achieved with EMDR are due to the patient’s own learning process and not due to the therapist’s interpretations.



There are several important differences between hippocampal and cortical memories. The hippocampus stores distinct “episodic” memories of different events. Hippocampal memories also contain a great deal of sensory and emotional detail. On the other hand, the cortex stores memories of different events in highly overlapping

A Typical Treatment

EMDR is an 8-phase treatment. In Phase 1, the patient identifies targets for desensitization and reprocessing, including etiological traumatic incidents and current situations that cause emotional distress. In Phase 2, the therapist assesses the patient’s readiness for imaginal exposure to disturbing material and works with the patient to develop adequate coping skills and behaviors. The actual desensitization and reprocessing of traumatic memories and stimuli occur in Phases 3 through 6.

For each target, the patient is asked to identify the most vivid image related to the traumatic event, associated sensations and emotions, a negative belief about self that represents what the patient “learned” from the trauma, and a positive belief about self that the patient wishes could replace the negative belief. Examples of a negative and positive self-perception are: “I wasn’t strong enough” and “I am strong.” In Phases 3-5, the patient is instructed to focus on the image,

Mind-Body Medicine

Continued from previous page

sensations and emotions, or negative perception while simultaneously moving his or her eyes back and forth left to right, watching the therapist's finger or another moving stimulus for 20-30 seconds. Although a visual stimulus is more common, an alternating bilateral tone or touch may be substituted. The patient is then instructed to let her mind go blank and report whatever image, feeling, or thought that comes to mind, positive or negative. The patient's report will determine the focus of the next set of "dual attention."

Phases 7 and 8 involve closure and re-evaluation of therapeutic progress and goals. At the conclusion of EMDR therapy, previously disturbing memories and situations should no longer be problematic. New healthy beliefs and behaviors should have spontaneously developed from adaptive processing.

A typical EMDR session lasts about an hour and will track several memories, feeling or beliefs. Many patients report feeling that their bodies are "unlocking" stress during sessions. Patients with uncomplicated PTSD following a single traumatic incident may require only 2-3 sessions of EMDR to eliminate the symptoms. Patients with multiple traumas, early trauma or neglect may need many more sessions.

Resources

To find a clinician who is licensed to provide EMDR, visit:

www.emdria.org/search/buffer1.htm

Before selecting a provider, interview several different therapists. Ask whether the therapist received training from an EMDR International Association approved program, whether he or she has experience treating your particular problem, and what his or her rate of success is. Also, assess your level of comfort with the therapist.

EMDR Institute Inc.

<http://www.emdr.com>

EMDR International Association

<http://www.emdria.org>

Research

In the Clinical Practice Guideline for the management of PTSD, published by the Department of Veterans Affairs and the Department of Defense in 2003, EMDR is one of four psychotherapy interventions (also cognitive, exposure, and stress inoculation therapies) given an "A" level recommendation for the treatment of trauma, which is a "strong recommendation that the intervention is always indicated and acceptable" based on qualitative evidence of significant benefit. Amongst pharmacotherapies, only SSRIs are given an "A" level recommendation. The Guideline does recommend for or against the use of psychotherapy, pharmacotherapy, or a combination as the first-line treatment for PTSD. EMDR is also recognized by the International Society for Traumatic Stress Studies as an effective treatment for PTSD.

Randomized clinical trials have shown the efficacy of EMDR in treating single- and multiple-incident PTSD, including treatment of combat veterans, adult and adolescent survivors of childhood sexual abuse, children with disaster-related PTSD, and victims of sexual assault. EMDR appears to be effective in reducing intrusive, depressive, and arousal symptoms.

In 2000, the International Society for Traumatic Stress Studies recognized EMDR as an effective treatment for PTSD.

EMDR has only been found statistically effective in treating PTSD. Several reviews of randomized controlled trials suggest EMDR is as effective as traditional therapies, such as exposure therapy and cognitive behavioral therapy. Additionally, EMDR may be more efficient, achieving similar outcomes in fewer sessions, and have a lower drop-out rate than other techniques. For example, several studies have indicated that the majority of PTSD diagnoses due to single-incident traumatic experiences are eliminated after 3-5 hours of EMDR treatment compared to 16-60 hours of combined in-session and homework exposure therapy. Few long-term follow-up studies of patients treated with EMDR have been published. But the benefits of EMDR appear to be maintained over time if a full course of treatment, until the patient ceases to report changes in his or her emotional response, is provided.

Although there is no shortage of anecdotal evidence and some controlled evidence suggesting benefit in other disorders, more evidence-based research is needed for EMDR. This being said, such rigorous research using standardized protocols exists for surprisingly few psychotherapies, including "gold standards," such as cognitive behavioral and exposure therapies.

Practitioner Training & Licensure

In order to be licensed to practice EMDR, a mental health professional must complete training in an EMDR International Association approved program that includes both didactic and supervised practical instruction in EMDR. In order to be eligible for training, a mental health professional must (1) have a masters degree or higher in a mental health field (i.e. clinical psychology, psychiatry, counseling, or social work) and (2) be licensed to practice independently through a state or national board or be on a licensing

track under the supervision of a licensed clinician.

The largest training program is run by EMDR Institute, Inc., a company founded by Dr. Francine Shapiro, the creator of EMDR. The program consists of two 2 1/2 day sessions and a recommended minimum of 20 supervised sessions of EMDR. The cost of the training program is about \$1,200.

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Mind-Body Medicine

Mindfulness Based Stress Reduction

Kara Lichtman, edited by Cathy Kim

History and Philosophy

Mindfulness based stress reduction (MBSR) is a participatory wellness program developed in 1979 at the University of Massachusetts Medical Center by Jon Kabat-Zinn and colleagues. Dr. Kabat-Zinn developed this program to treat chronically ill patients who found little relief from conventional medical treatments. These patients experience considerable physical and emotional distress from their conditions. The goal of MBSR is to reduce this distress by lessening the impact of anxiety and stress that accompany chronic illness.

Mindfulness meditation has a long and rich history in many spiritual traditions. Vipassana Buddhism, for example, encourages awareness of the present moment and an understanding of the reactive nature of the mind as the source of suffering. Mindfulness meditation differs from other forms of meditation, such as concentration meditation, by its focus on phenomena of the present moment rather than single-minded contemplation of an object or

Types of Therapy

Body Scan: attention is brought to sensations in different parts of the body, scanning from the toes to the top of the head.

Sitting Meditation: attention is brought to the breath as it expands the belly.

Mindful Yoga: based on the principals of working with the mind, body, and breath to achieve physical and mental balance. postures are low impact physical movements and are used to teach mindfulness of bodily sensations during gentle movements and stretching

In all forms, thoughts are noted in a non-judgmental manner as they arise and are allowed to float away.

spiritual ideal. Attention is brought to the body and the mind as they exist in the present moment. Thoughts, emotions and sensations are noted as they arise and are allowed to pass away. When the mind inevitably wanders into plans,

memories and emotions, meditators will gently remind themselves to return to the present moment by focusing on their

breathing or sensations in different parts of the body. The recognition that one's mind has wandered is not considered a failure in mindfulness meditation. Rather, the ability to notice one's skipping thoughts is considered a sign of heightened awareness. As the practice builds over time, a meditator may begin to notice certain habitual patterns of thought or may find they are more aware of underlying causes of their emotions. Thus, mindfulness meditation is sometimes called insight meditation.

Seven core attitudes are cultivated with the practice of MBSR. These are non-judging, patience, beginner's mind, trust, non-striving, acceptance and letting go. Students are encouraged to approach MBSR with these attitudes and, in turn, these attitudes are made more accessible through practice.

Since its inception at the Center for Mindfulness in Massachusetts 25 years ago, more than 13,000 people have completed the eight-week course.

A Typical Treatment

MBSR is generally taught as an eight week course with weekly sessions lasting two and a half hours each. Students also participate in a day-long mindfulness retreat. Participants are asked to practice their skills outside of group meetings for 45 minutes per day, six days a week.

Weekly Sessions: The instructor guides the group in a mindfulness meditation focusing on sensations in the body, the breath, or slow mindful movement. Students discuss challenges and insights they experienced as they practiced meditation during the previous week. Some may experience spontaneous emotional outpourings or the retrieval of emotionally laden memories. The leader reiterates the goals of non-judgment, patience, beginner's mind, trust, non-striving, acceptance and letting go.

COST: Courses are available through hospitals and clinics and cost about \$350.



Mind-Body Medicine

Conditions Treated

- Anxiety
- Depression
- Stress associated with cancer
- Chronic pain
- Fibromyalgia
- Eating disorders

Research

There are now approximately 80 published studies on the effects of MBSR in medical journals. These studies examine a variety of outcomes in several populations, including patients, healthy subjects, physicians and nurses. Participants report improved functioning, greater vitality, and a sense of well being as a result of taking the course. While many of these studies were controlled, they nonetheless have been criticized for lack of an adequate placebo treatment, poor design, use of concurrent treatments other than MBSR and occasionally questionable use of measures. Rigorously designed randomized controlled trials are needed to confirm the promising results suggested by research to date.

One study (Specia et al), found significant reduction in mood disturbance in cancer patients. Furthermore, a positive correlation

between the amount of time spent in meditation and improvements in mood were found.

Another study (Teasdale et al) found the rate of recurrence of relapse in patients with major depressive disorder decreased by fifty percent. Interpretation of these results, however, is limited by the utilization of a combined treatment protocol of MBSR with cognitive therapy.

A number of uncontrolled studies show similar promising results. Pain related psychological distress appears to diminish with completion of the course and be maintained over time (Kabat-Zinn et al). Fibromyalgia patients experienced a significant reduction in psychiatric symptoms and binge eaters were less likely to report anxiety and depression. Another study (Carlson et al) examining patients with early stage breast cancer and prostate cancer found that MBSR improved quality of life and sleep quality, and decreased symptoms of stress. These patients also experienced positive changes in the levels of biochemical markers of immunity.

Among healthy subjects, MBSR appears to be effective in decreasing anxiety and depression and increasing empathy in medical students (Shapiro et al). Baccalaureate nursing students also reported less stress and anxiety after taking the MBSR course (Beddoe et al.) In addition, college students reported positive ef-

fects such as decreased depression, anxiety, and obsessive compulsive symptoms.

Resources

Centers:

UCSF Osher Center for Integrative Medicine
MBSR Program
Kevin Barrows, MD (instructor)
Kaiser Permanente, South San Francisco
MBSR Program
Amy Beddoe, RN, MS (instructor)

Books:

Kabat-Zinn, Jon, Ph.D. *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*. New York: Dell Publishing, (1990).
Santorelli, S. *Heal thy self: Lessons on Mindfulness in Medicine*. New York: Bell Tower, (2000).

Website:

www.umassmed.edu/cfm
Center for Mindfulness in Medicine, Healthcare and Society (CFM)
UMass Medical School
55 Lake Avenue
North Worcester, MA 01655

Practitioner Training & Licensure

The Center for Mindfulness in Medicine, Healthcare and Society (CFM) offers a teacher certification program that is open to healthcare practitioners, educators and social activists. To become a Certified MBSR Teacher, an applicant must have completed the following Center for Mindfulness Professional Training Programs: (a) MBSR in Mind-Body Medicine – 7 day training retreat; (b) Practicum in MBSR- 8 week or 9 day intensive (c) Teacher Development Intensive in MBSR- 92

hours, and (d) supervision in teaching MBSR. In addition, the applicant should have a daily meditation practice and the commitment to integrating mindfulness into everyday life, regularly participate in teacher-led mindfulness meditation retreats, have professional experience and a graduate degree or equivalent in the fields of health care, education, and/or social change, have a mindful bodywork practice such as yoga, tai chi, aikido, and experience teaching a minimum of

four eight-week MBSR courses. Membership in the AAMA has become the standard for determining state credentialing, hospital privileges, liability insurance, and third party reimbursement.

Kara Lichtman is a fourth-year medical student. Amy Beddoe Rn, MS, is a doctoral student in the Department of Family Health Care Nursing at UCSF. Cathy Kim is a first-year pharmacy student.

Mind-Body Medicine

Modern Medical Hypnosis

Sara Thierman, edited by Jalene Imaoka

History and Philosophy

Modern medicine has long recognized the powerful interaction between mind and body, and the practice of hypnosis is one of the most effective tools for manipulating this relationship. Hypnosis, which means "sleep" in Greek, is not sleep at all, but a state of profound relaxation where the subconscious mind experiences heightened suggestibility unrestrained by the superego. (The superego is defined by Merriam-Webster's Dictionary as: "one of the three divisions of the psyche in psychoanalytic theory that is only partly conscious, represents internalization of parental conscience and the rules of society, and functions to reward and punish through a system of moral attitudes, conscience, and a sense of guilt.")

During this phase of hyper-suggestibility, goals or memories may be explored and questions may be asked. After the patient returns to a normal state of consciousness, new behaviors or thoughts based on the hypnotic suggestions may be practiced.

Hypnosis has been around since before recorded history and in almost every ancient culture, often forming the basis of religious beliefs in supernatural "miracles" and faith healings. Rhythmic chanting, monotonous drumbeats, or strained fixation of the eyes are used by Hindus, Fakirs, Yogis, snake charmers, and Eastern magicians to perform unusual human feats and eliminate pain.

The power of suggestion as a Western medical treatment first reached popularity in the late 1700s as practiced by students of Anton Mesmer. He believed that disease was caused by an imbalance in the body's "magnetic fluids," which could be corrected by "animal magnetism." The hypnotist treated the ill, according to Mesmer, by transferring his or her own personal magnetism to the patient.

Mesmer's successors used this therapy to conceive modern psychotherapy. In the early 1800s in Europe, physicians such as James Esdaile and Jean-Martin Charcot used hypnosis to sedate pre-operative patients and treat hysteria. After using hypnosis to cure his famous

changing the direction of modern hypnosis from removal of symptoms to dealing with the hidden causes of these symptoms.

Halfway through the twentieth century, the British and American Medical Associations and the American Psychological Association recognized hypnosis as a legitimate medical procedure.

Testimonials

"When I came out of that hypnosis session I felt a clarity that I had never experienced before in my life. It was as if someone had ...turned on a beautiful, powerful, very clear light in the room."

-- Diane to Gayle Earle, certified

"The power of hypnosis and self-hypnosis is unbelievable. I had no problem staying away from the tavern night clubs since my happy little visit. I've had many tests of my will to avoid having a drink. And the feeling of refusing is a great feeling."

-- Tim J. to Calvin Banyan

A Typical Treatment

When you go for a session of hypnosis, you can expect to be in a peaceful environment and a comfortable, supported position, most often reclined. There are usually ten steps in a standard hypnotic induction: focusing of attention, suggestion for relaxation, eye closure, encouraging a fading of the generalized reality orientation (GRO fading), deepening suggestions, mental imagery and dissociation, setting the overall



goal, reinforcement of response, posthypnotic suggestions, and alerting.

Treatments can be obtained in various settings, including an internist's office, a dental office, or with a private licensed hypnotherapist. One can also call the National Guild of Hypnotists (888-531-6179) to find a local certified hypnotist or use a professional association web site, such as www.natboard.com.

Conditions Treated

Alcoholism/substance abuse
Anxiety
Asthma
Atopic dermatitis
Chemotherapy side effects
Dental anxiety
Erectile dysfunction
Insomnia
Irritable bowel syndrome
Labor
Migraine
Nausea/vomiting
Pain (of various causes)
Phobias
Psoriasis
Rheumatoid arthritis
Tension headaches

Contraindications

Hypnosis is not recommended for patients who have unrealistic expectations of therapy or for patients with more serious psychopathology, such as borderline personality disorder or dissociative disorders. No side effects have been reported, except for an ineffective or failed session.

Resources

Books:

Self-Hypnosis: The Complete Manual for Health and Self-Change by Brian M. Alman and Peter T. Lambrou

Teaching Self-Hypnosis: Introductory Guide for Clinicians by David A. Soskis

Hypnosis: A Comprehensive Guide by Tad James, et al.

Websites:

www.thenationalboard.com

www.infinityinst.com

www.hypnosiscenter.com

Research

There is evidence that hypnosis may be used to help patients relax, reduce pain, and alter moods.

The efficacy of hypnosis in smoking cessation is mixed. However, a study performed by Elkins et al. (2004) presents preliminary data regarding hypnosis treatment for smoking cessation in a clinical setting. Twenty-one patients received hypnosis for smoking cessation. At the end of treatment, 81% of those patients reported that they had stopped smoking, and 48% reported abstinence at 12 months post treatment. Most patients (95%) were satisfied with the treatment they received.

For mild asthmatics who are "motivated," and whose symptoms include an emotional component, hypnosis may improve symptoms, reduce reliance on medication, and improve lung function. Based on a small study of 18 people with atopic dermatitis, researchers found that self hypnosis combined with progressive relaxation could help ameliorate itching and reduce topical steroid usage. Hypnosis can also help with pain that is in part psychogenically derived. For example, preparation for labor may be improved with visualization and

hypnosis tapes. In another study evaluating 25 individuals with neck pain, hypnosis was found to show similar efficacy to acupuncture, though the latter seemed to work better for acute pain.

In a yearlong trial conducted by Hermes et al. (2004), surgeries were carried out on 174 people using anesthesia in addition to hypnosis. Researchers concluded that medical hypnosis proved to be a valid and reliable method by which remarkable improvements in treatment conditions for both patient and surgeons were achievable.

In 1995, the U.S. National Institutes of Health issued a consensus statement, declaring that "evidence supporting the effectiveness of hypnosis in alleviating chronic pain associated with cancer seems strong.... with other data suggesting the effectiveness of hypnosis in other chronic pain conditions, which include irritable bowel syndrome, oral mucositis, temporomandibular disorders, and tension headaches."

Practitioner Training & Licensure

There is no government licensing for hypnotists. Rather, the International Society of Hypnosis coordinates and assesses standards and practices of professional hypnotists across the world. Practitioners can be certified by private bodies such as the American Council of Ethical Hypnotists and the National Guild of Hypnotists. Support for the teaching of the therapeutic use of hypnosis in medicine finally came in 1955 from the British Medical Association,

which was closely followed in 1958 by the American Medical Association.

The requirements for obtaining a license vary greatly depending on the granting agency. There is no universal set of requirements, nor universal titles for certified hypnotists. In general, the courses require between 60-180 hours of class time with an additional 100 hours or more of practice.

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Mind-Body Medicine

The Placebo Effect

Zelda Di Blasi, edited by Teresa Ko

History and Overview

From the Latin meaning "I will please," the word placebo first appeared in medical dictionaries in the early 19th century, where it was defined as a medicine: "adapted more to please than benefit the patient" (Hooper's Medical Dictionary, 1811) and as: "a commonplace method or medicine" (Motherby, 1785). This was seen as a valuable device "to smooth (the patient's) path", which "cannot harm and may comfort" patients, especially the "ignorant... disappointed and displeased... hopeless, (and) incurable case(s)" (Pepper, 1945). Patients who were "hysterical," "neurotic" or "hypochondriac," or whose symptoms were "in their head" were treated with sham pills whose effect was based on the "power of suggestion."

Early research exploring the personality characteristics of placebo responders assumed that they would be: "less intelligent, less educated, more frequently neurotic or psychotic, more frequently female, from low social classes, more dependent, inadequate, immature, impulsive,

atypical, depressed, religious, and stereotypic, and more likely to have symptoms of hypochondriasis, obsessive-compulsiveness, anger-hostility, bewilderment-confusion, and performance difficulties" (Shapiro & Shapiro, 1997, p.39-40).

Efforts to link these personality characteristics to placebo response proved to be unsuccessful (Shapiro & Morrison, 1978). Investigators concluded that rather than being an enduring personality characteristic, "the capacity to elicit a placebo response is likely [to be] inherent in us all" (Spiro, 1997, p.49).

The placebo effect dances at the crossroads of alternative and conventional medical avenues. It has perplexed, frustrated and at times excited clinical investigators, but largely it has been either ignored or controlled for in clinical trials. Remarkably, this mysterious and magical phenomenon could actually be the key towards the integration of different systems of care, and ultimately towards our understanding of healing mechanisms. Recent research is elucidating some of the psychophysiological mechanisms of placebo effects in depression and

pain (Leuchter, Cook et al. 2002; Benedetti, Pollo et al. 2003), and providing evidence for the role of expectations and health care relationships in harnessing this effect (Di Blasi, Harkness et al. 2001).

The term "placebo" encompasses a wide range of complex physical or psychological changes associated with the use of inactive drugs, sham procedures, or therapeutic symbols within a clinical encounter. It is also understood as a subgroup of mind-body mechanisms such as the effects of the therapeutic alliance, cultural and religious beliefs, visualization, meditation, faith healing, and hypnosis. However, due to misconceptions, negative connotations and its role as a control system in biomedicine (Kaptchuk 1998), as well as complicated ethical and practical issues, the placebo effect continues to be an enigma, and must be examined directly in order to understand the meaning and mechanisms of this phenomenon.

The Placebo-Controlled Randomized Clinical Trial

It may come as a surprise to discover that the first placebo-controlled trial was conducted in 1801. Finding no difference between the two groups, Haygarth concluded that the study: "clearly prove[d] what wonderful effects the passions of hope and faith, excited by mere imagination, can produce on disease". He felt that this was a: "lesson... too often overlooked in the cure of disease" (Haygarth, 1801, in Shapiro and Shapiro, 1997, p.127). Despite efforts by individuals like Mesmer, Charcot, and Freud, the physiological influence of belief and the imagination continued to be ignored and later controlled for in medicine for the next two centuries.

When the Randomized Controlled Trial (RCT) was formally introduced in 1948, the placebo was adopted to separate the specific (e.g. pharmacological) effects of medicine from the influence of suggestion and expectations, as the latter were perceived to be 'noise' and 'interference' in the evaluation of real and active treatment. In drug trials, the placebo often took the form of a sugar pill, while in surgical interventions it involved a general anesthetic, valium and skin incisions (Moseley, O'Malley et al. 2002) and in trials of physiotherapy the ultrasound machine may have been turned off (Hashish, Hai et al. 1988). To provide evidence for the effectiveness of their tools, placebos were also used to study psychotherapy and complementary and alternative therapies.

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In acupuncture the placebo may have consisted of placing needles in the 'wrong' pressure points (Berk, Moore et al. 1977), or treatment would be provided by an untrained practitioner (Shiflett, Nayak et al. 2002).

Adopting placebos in clinical research is challenging. Identifying a credible placebo that looks just like the therapy being investigated can be awkward for certain healing modalities such as massage or yoga. While in the past patients need not have known they were being recruited in a study, since informed consent documents describe placebos as 'inert', 'inactive', 'fake', 'sham' and 'dummy' interventions, patient recruitment, blinding and retention in placebo controlled trials can be difficult. This is understandable. Many patients who are sick or in pain would want to avoid the risk of getting 'nothing' or to be 'tricked' to believe they are getting something. Furthermore, finding that participants respond equally well to the active treatment as well as the placebo can be frustrating, as it is hard to publish papers with negative findings and difficult to explain to placebo responders why and how they may have improved without risking to disrupt the healing response. In many cases, participants continue to be blinded long after the study is over (Di Blasi, Kaptchuk et al. 2002). In one study when placebo responders found out they were in the placebo arm, most of them relapsed and had to be put on the 'real' medication (Leuchter, Cook et al. 2002).

A significant proportion of patients respond to placebos and in a variety of conditions (Turner, Deyo et al. 1994; Kirsch and Sapirstein 1998). Patients with severe depression have been shown to respond to placebos with specific brain changes (Leuchter, Cook et al. 2002; Mayberg, Silva et al. 2002) and Parkinson sufferers responding to placebo release the same amount of dopamine as those receiving active treatment (de la Fuente-Fernandez, Ruth et al. 2001; de la

Fuente-Fernandez and Stoessl 2002). In one study, patients with osteoarthritis of the knee responded to placebo surgery with significant improvement in pain and function for up to two years (Moseley, O'Malley et al. 2002).

The whole realm of the placebo effect is complex and fragmented. Conceptual problems have caused heated debates in the literature around the 'reality' and 'power' of placebos (Kienle and



Kiene 1996; Kienle and Kiene 1997), and have led some to conclude that it is not possible to define this effect without contradiction (Gotzsche 1994). For example, there are many types of placebo effects, some can result without a placebo (Thomas 1987) and placebo effects are not always pleasing (e.g. *nocebo* effect). Over the past fifty years the term has been used to describe a variety of things, including not just the effects of a sham pill, but also "natural history, routine medical and nursing care, and the 'art' of medicine" (Kaptchuk 1998).

In the past decade, there has been a movement towards honest consideration and exploration of the placebo effect (e.g. www.placebo.nih.gov). A number of rigorous textbooks have been written on the subject (White et al., 1985; Harrington, 1997; Shapiro and Shapiro, 1997; Moerman, 2002), including one applied to Complementary and Alternative Medicine (Peters, 2001). Various systematic reviews (Kleijnen, de Craen et al. 1994; Turner, Deyo et al.

1994; de la Fuente-Fernandez, Ruth et al. 2001; Di Blasi, Harkness et al. 2001; Hrobjartsson and Gotzsche 2001; Leuchter, Cook et al. 2002; Mayberg, Silva et al. 2002; Moseley, O'Malley et al. 2002) have started to highlight some important facets of this phenomenon. However this is just the tip of the ice-berg. We are limited by the artificiality of the randomized controlled trial and its focus on identifying average responses, and are therefore missing out on individual responses as well as the processes and mechanisms of these healing responses. In partnership with patients and the lay public, conventional and alternative health professionals and researchers need to ask questions such as what we mean by placebo responses, how can these be activated in a clinical context, and how best do we measure and harness these in ethical and practical ways.

Conclusion

Rigorous investigation of the placebo effect has been hampered by misconceptions and skepticism due to conceptual problems associated with the word 'placebo' and discrepant beliefs systems around healing mechanisms and ways to measure these. The past decade has seen a renewed interest in the placebo effect as scientists take this phenomenon increasingly seriously, perhaps because of the escalating number of patients with chronic conditions. Research in this field allows for an integration of conventional and complementary approaches to health care, offering a window into a broader and deeper understanding of healing processes.

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Mind-Body Medicine

Spiritual Healing

Tam Khuu, edited by Teresa Ko

History and Philosophy

Some of the earliest incarnations of spiritual healing date back to the New Testament when Jesus' therapeutic touch heals a leper and his distant prayer heals a servant.¹ Today, spiritual healing takes on many forms, including therapeutic touch and intercessory prayer. The approach is different in each case, but the principles are the same: Healers do not diagnose specific conditions. Rather, they work with the patient to attain greater well-being and quality of life through the direction of compassionate thoughts, intentions, or prayers toward patients via an underlying energy field.

The theory behind spiritual healing involves both quantum physics and ancient metaphysics. Quantum physics perceives the universe and the elements it contains as interconnected by an energy field that can be affected by individual members, even if they are at opposite ends of the universe.² Spiritual healing is also based upon faith: in a higher power, being, life, or love that is seen as having the ability to impart health. Prayer may be within the framework of organized religion or without significant benefit to the human psyche. It is known that depression,

Types of Spiritual Healing

Intercessory Prayer: *healing through prayer with or without physical or face-to-face contact*

Therapeutic Touch: *manipulating energy fields around the body to promote healing and wellness without physical touch*

Paranormal Healing: *act of healing by paranormal means (beyond normal experience or scientific explanation)*

Psychokinetic Influence: *control of motion by the exercise of psychic powers*

Remote Mental Healing: *use of meditation with a strong healing intent to initiate a self-healing process in the healee*

anxiety, and sense of self-efficacy affect physical health.³ It is thus possible to believe that something as emotional as prayer and uplifting as faith in a higher entity would have the ability to improve health by ascribing to a particular belief system. The power of prayer in either of these cases still provides improving the mental state.

Delores Krieger, RN, PhD, and Dora Kunz, natural healer, developed the therapeutic touch technique in the early 1970s.⁴ In therapeutic touch, the power of positive thought is combined with concurrent manipulation of an imbalanced energy field thought to surround an ill patient.

Intercessory prayer is believed to provide healing through both metaphysical and scientific venues. Prayer can influence health by providing hope, increasing the ability to cope, and decreasing anxiety. Hope has also been shown to have a positive effect on the immune system, central nervous system, and the endocrine system. Scientifically, prayer has been shown to reduce blood pressure through its relaxing and meditative properties.⁵

A 1996 study found that 82% of Americans polled believed in the healing powers of prayer,⁶ and 49% of all participants in a 2002 breast cancer study regularly used prayer and spiritual healing.⁷ Spiritual healing is developing into an integral part of modern healthcare, and consequently, increased practitioner awareness is now even more essential.

A Typical Treatment

Treatment with therapeutic touch will begin with the healer's hands sweeping a few inches over the patient's body. The healer is scanning the patient's energy flow and will make adjustments to any imbalances.

Treatment involving intercessory prayer may range from no patient involvement or knowledge to the patient praying along with a healer.

During spiritual healing, patients may feel tingling or warmth at the site of treatment, as well as overall relaxation and/or comfort after an initial sense of elation. Since spiritual healing is based upon faith, patients may experience a spiritual uplifting.

WHERE: Treatment is mainly provided at private facilities, provider or patient homes and hospices.

TIME/ COST: 1 hr/ Free-\$100

Mind-Body Medicine

Conditions Treated

Asthma
Burns
Cancer
Chemical dependency
Heart Disease
HIV/AIDS
Labor
Pain
Anxiety
Headache
General health recovery
Quality of life in chronically ill

Side Effects & Contraindications

These effects may be experienced if there is too much healing energy:

Restlessness
Anxiety
Dizziness
Nausea
Irritability
Tension headache
Crying

Therapeutic touch should not be used for fever, inflammation, or over cancerous areas.^{iv}

Research

Although spiritual healing has been practiced for centuries, it is still not clearly understood. The energy flow between patient and healer can be scientifically measured and it does not necessarily abide by the general rules of physics. Clinical trials have reported mixed results; some studies find benefits, while others report no effect.

John Astin, PhD; Elaine Harkness, BSc; and Edzard Ernst, MD, PhD conducted a mass study of the efficacy of distant healing in 2000. They found that while 57% of the randomized, placebo-controlled trials analyzed produced positive treatment results, issues with methodology made comparison of the respective results difficult. Resolution of methodological issues such as baseline control (i.e., quantity of conventional medications used by patients in both control & effect groups), randomization (i.e., equal

representation of disease states in both study groups), and significant sample size are essential for conducting stronger studies in the future.ⁱⁱⁱ

There is currently good scientific evidence of the benefit of therapeutic touch for treatment of pain. Early research has found that patients may require less pain medication after receiving therapeutic touch.^{iv} However, these studies also faced many design issues, such as those previously mentioned.

Benefit from prayer is supported by two clinical trials examined by Astin, et al. Both of these trials involved coronary care patients.^{1,2} Prayer poses an inherent difficulty in that it has an immense placebo effect, and many patients in the placebo group may, in fact, have friends and family praying for them. It has been suggested that studies of prayer conducted on non-humans could eliminate some of these difficulties. Prayer and spiritual healing merit further study.



"When Joe came out of the hospital he had to be carried into the house as he was too weak to walk up the stairs. He had been re-diagnosed with Gastrointestinal Stromal Tumor and his prognosis was very bleak—two weeks to be exact. This was in April 2003. With all the healing support [prayer] ... he's received, he is now full of energy, is able to walk around, is eating, and really enjoying life..."

Resources

National and International Associations

National Federation of Spiritual Healers: www.nfsh.org.uk
British Complementary Medicine Association: www.bcma.co.uk

Training Institutions

American Association of Naturopathic Medical Colleges: www.aanmc.org
World Federation of Healing: www.wfh.org.uk

More Information

www.wholistichealingresearch.com

Recommended Reading

Healing Words—Larry Dossey, MD (1993)
Timeless Healing—Herbert Benson, MD (1997)

Practitioner Training & Licensure

In the US, there are thousands of spiritual healers, and several schools in California offer spiritual healing certification. Although an official licensure program does not exist, organizations such as the National Center for Complementary and Alternative Medicine provide practitioner and consumer guidelines for spiritual healing. England has thousands of registered practitioners in healing organizations such as the National Federation of Spiritual Healers, Confederation of Healing Organizations, and the British

Complementary Medicine Association.

Certifications such as Certified Spiritual Healing Practitioner (CSHP) and certified advanced energy healer (CAEH) can be obtained and involve training from a few days to two years. A degree of doctor of naturopathic medicine (ND) is also available through four year programs. Many spiritual healers are nurses, doctors, and clergy members.

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Specific Treatments

Diabetes and Nutrition

Pablo Bernardson, edited by Jessica Woan

Overview

Diabetes mellitus is a group of metabolic diseases that involves a defect in insulin secretion, insulin action or both. Insulin is a vital regulatory protein that widely participates in many pathways governing the metabolism of energy resources in the body. When blood glucose levels are high, insulin stimulates glucose uptake and storage by skeletal muscles and the liver, synthesis and storage of fatty acids, and incorporation of amino acids into proteins. It also inhibits ketone body production, hepatic glucose output and lipolysis. This counteracts the effects of glucagon and helps maintain the body in energetic homeostasis. Defects in insulin secretion or metabolism lead to hyperglycemia and eventually

much more serious complications.¹

Diabetes mellitus is categorized into four types, with type I (5% -10%) and type II (85%-90%) being the most common. Type I is an autoimmune disease involving the destruction of pancreatic β -cells that secrete insulin. This results in an inability to produce insulin, or absolute insulin deficiency. Type II, on the other hand, involves insulin resistance due to a number of possibilities such as faulty insulin receptors, a decreased number of insulin receptors, production of defective insulin molecules, etc. This causes hyperinsulinemia and consequently a series of symptoms such as obesity, hypertension, and dyslipidemia, known as Metabolic Syndrome X that lead to cardiovascular disease.¹

While family history and the environment play key roles in the development of type I diabetes, the onset of type II diabetes is greatly determined by precipitating factors attributable to lifestyle choices in addition to genetic predisposition. Diet and obesity are undeniably two of the major risk factors for the occurrence and development of Type II diabetes.² The increased incidence of type II diabetes in the U.S. may be closely correlated to the rapid growth of obesity across the nation. Obesity, in turn, may be largely attributed to improper diet and lack of exercise. Through proper nutrition, it is not only possible to avoid the onset of Type II diabetes but also to control its progression. In fact, early stages of Type II diabetes may be regulated by diet and exercise alone.¹

Dietary Guidelines for Diabetic Patients

The American Diabetes Association currently recommends a well-balanced, high fiber diet for the effective control of blood glucose levels. Careful monitoring of carbohydrate intake is essential for glycemic control. In persons with Type I and Type II diabetes, ingestion of starches such as potatoes, and refined carbohydrates have similar glycemic effects as sucrose.² The ADA states that it is not mandatory to completely cut sugar from the diet, but rather substitute it for another of these types of carbohydrates. Carbohydrates high in fiber, on the other hand, provide much more beneficial effects and are strongly recommended over sugars and starches. In Type I patients,

research has shown that fiber has positive effects on glycemia, but more recent studies indicated mixed effects on glycemia and lipids. In Type II diabetics, copious ingestion of fiber was shown to have beneficial effects on glucose metabolism, hyperinsulinemia and lipid levels.^{2,3} One study conducted on 20 lean diabetic men has even shown that consumption of a high fiber diet over 2 weeks could stabilize glucose levels so effectively that insulin treatment could be reduced or even eliminated.⁴ High fiber foods also have the added benefit of being rich in essential nutrients that promote good health. For instance, whole grains, legumes, and dark, leafy vegetables contain folate, vitamin B6 and B12 which

lower homocysteine levels, thereby reducing the risk for developing coronary heart disease and endothelial dysfunction.⁵ However, stomach upset, gas and palatability may preclude adherence to a diet very high in fiber. The ADA therefore encourages patients to closely monitor carbohydrate intake and substitute starches, refined carbohydrates and sugars for high-fiber foods and phyto-nutrients containing vegetables and fruits whenever possible. Non-caloric sweeteners such as saccharin, aspartame, acesulfame potassium, and sucralose are also recommended by the ADA as sugar substitutes, but fruit consumption should not be limited.²

Protein metabolism is not as greatly affected by insulin complications.

Specific Treatments

Although type II diabetics have been shown to have a slightly higher protein turnover rate, the ADA recommends that protein consumption should remain within the normal range of 15-20% of the daily energy requirement. High protein diets may be deleterious to diabetes management and should be avoided.

Lipid consumption, according to the ADA, should be restricted for overweight patients. Mono-unsaturated fats and ω -3 fatty acids are strongly favored over saturated fats and trans-fatty acids. ADA guidelines state that individuals with normal weight and lipid levels should consume no more than 30% of their calories

from fat and 30%-40% from carbohydrates.² However, restriction alone is not the solution. Studies have shown that ω -3 linolenic fatty acids lower LDL levels (bad cholesterol) without lowering HDL levels (good cholesterol) and thereby may prevent CHD.⁶ Poly- and mono-unsaturated fats (namely ω -3) have also been shown to increase fat burning and lower total body fat.^{7,8} Flaxseeds, soy, fish, canola oil, olive oil, and peanut oil are all good sources of healthy monounsaturated and ω -3 fatty acids.

Finally, alcohol and caffeine consumption should be restricted for Type I and Type II diabetic patients due to the risk of

hypoglycemia caused by ethanol. Acute alcohol ingestion leads to the overproduction of NADH via the enzyme, alcohol dehydrogenase, which metabolizes ethanol into dihydroxyacetone. High levels of NADH favor the production of malate and lactate and consequently inhibit gluconeogenesis and glycogen synthesis.⁹ Excessive caffeine consumption has the opposite effect. It increases glycogen breakdown, and raises blood glucose levels.¹ ADA recommends no more than 2 alcohol beverages for men and 1 drink for women daily and no more than 2 caffeinated drinks for men or women daily.²

Dietary Guidelines for Diabetes Prevention

It is commonly known that diet and excessive calorie consumption lead to obesity, a major risk factor for diabetes. However, there are often misconceptions about what types of food to ingest and how to eat it. Research has shown that temporary insulin resistance, similar to Type II diabetes, may actually be induced in healthy individuals by various dietary factors. For instance, large glycemic loads due to overeating or eating rapidly absorbed foods such as refined carbohydrates and sugars leads to greater insulin response and subsequent insulin resistance.¹⁰ Spikes in blood insulin levels also augment hunger and create a positive feedback loop that promotes overeating and weight gain.¹¹ However, not only does overeating cause insulin resistance, but under-eating as well.¹² Hence, a balance must be met between eating too much and eating too little in order to



avoid insulin resistance. Fiber lowers insulin resistance by delaying glucose absorption and has been shown to be inversely related to the incidence of diabetes.^{10,13} Eating smaller meals more frequently also improves blood glucose levels and insulin and lipid levels.¹⁴ As far as lipids and proteins are concerned, saturated fat consumption and high protein diets induce insulin resistance.^{15,16} On the other hand, poly- and mono-unsaturated fats, primarily ω -3 fatty acids found in flax seed and fish oil reduce insulin resistance, presumably by altering the cell membrane of insulin receptors.^{16,17} Consumption of fish has been shown to actually prevent insulin resistance induced by high fat meals.¹⁸ Nonetheless, caution must be exercised when consuming

a seafood rich diet due to the risk of mercury toxicity.

Summary

Proper diet is essential for both the treatment and prevention of diabetes. In order to control glucose levels and insulin resistance, small, balanced meals should be consumed frequently throughout the day rather than large meals spaced far apart. Carbohydrates high in fiber and phyto-nutrients are recommended over refined carbohydrates, starches and sweets, while protein should be consumed in regular amounts. Finally, poly- and mono-unsaturated fats (especially ω -3 FA), consumed in reasonable quantities, are essential in the prevention and treatment of hyperglycemia, dislipidemia, diabetes and CHD. Saturated fatty acids, especially trans-fatty acids should be avoided. With just a little bit of nutritional awareness, we can help mitigate the unfortunate yet avoidable diabetic epidemic.

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Specific Treatments

Diet and Inflammation

Melissa Carey, edited by Gwendolyn Ho

Overview

Inflammation is the body's defense against injury and infection. The inflammatory response includes pain, redness and the rush of fluid and white blood cells to the injured site to speed the healing process and prevent further damage. Normal inflammation is needed to heal a sprained ankle, a paper cut or a sun-burn, and is short-lived and localized. When this process goes awry, a chronic condition can arise in which inflammation is excessive and damages healthy tissue. Chronic inflammation has long been associated with certain diseases such as arthritis and is believed to be related to the aging process. Research now indicates that chronic inflammation may be the underlying cause for a wide-variety of major illnesses such as heart-disease, Alzheimer's disease,

diabetes and cancer. A high degree of inflammation is associated with elevated blood levels of a cytokine known as C-reactive protein (CRP), considered to be a marker of inflammation. However, in some normal individuals, CRP levels are elevated and this may be an indicator of a person's future risk of developing cardiovascular disease. Studies show that those with the highest levels of CRP are three times more likely to suffer a heart attack than



those with lower levels. Elevated CRP levels have also been associated with a higher risk of diabetes. Moreover, people taking anti-inflammatory medications such as aspirin or ibuprofen have a lower risk of developing Alzheimer's disease. It is speculated that one of the leading causes of chronic inflammation is the standard American diet, high in calories and overloaded with saturated fat and processed carbohydrates. Research into the effects of diet on inflammation is in the preliminary stages, but definite relationships are emerging between specific food types and inflammation

Nutritional treatment involves avoiding pro-inflammatory foods, food types believed to cause inflammation, while consuming more types of foods that act to counter the inflammatory process.

Food "Treatments"

Foods to avoid

Fats: Inflammation is regulated by a group of hormones called prostaglandins, some of which intensify inflammation response while others reduce it. You can affect this system by the kinds of fats you eat since the body makes prostaglandins from fatty acids.

Trans-Fats: (Partially hydrogenated oils) Trans fatty-acids or trans fats are produced by the partial hydrogenation of saturated fats. Trans fats are frequently found in a wide variety of processed foods such as crackers, cookies as well as some margarines and fried foods. High intakes of trans fats have been linked to increased levels of inflammation. In addition, trans-fats have been conclusively linked to atherosclerosis and may also play a role in neurodegenerative diseases such as Alzheimer's disease.

Saturated Fats: Saturated fats are known to increase cholesterol and levels of CRP. Sources include fatty cuts of meat, full fat milk and cheese, butter, cream, commercially baked products such as biscuits and pastries, deep fried fast foods, coconut and palm oil.

Omega-6-fatty acids: Omega-6 fats are found in vegetable cooking oils such as corn, safflower, peanut and soybean oil. Omega-6-fats are converted into prostaglandins that increase inflammation and can act to suppress Omega-3 fats, which are known to control inflammation. In addition, over-consumption of omega-6-fats in relation to omega-3-fats seems to increase the production of COX-2 enzymes in the body. The typical American consumes a diet much higher in omega-6 fats than omega-3s, which tips the balance in the favor of inflammation.

Simple-Carbohydrates: Avoid refined, overly-processed carbohydrates. These foods usually have a high glycemic-index, meaning they raise blood-sugar to high levels. High blood sugar results in excessive insulin secretion which also may raise CRP levels in the blood. Specifically, studies showed women eating large amounts of potatoes, breakfast cereals, white bread, muffins, and white rice had elevated CRP levels, indicating high levels of inflammation and an increased risk of heart disease. Moreover, refined carbohydrates are also believed to produce free-radicals in the body.

Specific Treatments

Safety & Contraindications

Mercury & fish consumption: Fat-soluble toxins such as methylmercury may be high enough in certain fish to warrant avoiding them. This is important especially for women of child-bearing age, pregnant women and young children. Avoid swordfish, tilefish, shark and king mackerel and limit consumption of other species to 12 ounces per week.

Whole foods vs. Supplements: While supplements may provide benefits in reducing inflammation, it is better to attempt to eat whole foods rather than to rely solely on supplements. Anti-inflammatory compounds most likely act along with other components in food to produce their effects.

Patient Education

Antioxidant Supplements: Vitamin C, E, Zinc and quercetin. Vitamin E was shown to reduce markers of inflammation by 30-50%. Vitamin C and Zinc may act to reduce inflammation and Zinc may aid in wound-healing. Quercetin is an antioxidant flavonoid found in plants believed to be useful in reducing inflammation.

Other supplements: SAME, alpha lipoic acid, as well as Coenzyme Q10 are also believed to counter inflammation.

Food education: Include a variety of anti-inflammatory foods in your diet and avoid those that may exacerbate it:

- Avoid / limit intake of convenience and snack foods and refined carbohydrates. Avoid foods with added sugars, especially high-fructose corn syrup. Consume more complex carbohydrates containing whole-wheat & grains.
- Eat a wide-variety of colored vegetables and fruits.
- Eat wild, cold-water fish at least three times weekly*, especially salmon.
- Consume lean meats, poultry that are free range and organic, not corn-fed (grass-fed instead).

Arachidonic acid: Red meat, eggs, and wheat products all contain arachidonic acid, one of the major building blocks of inflammatory agents in your body. While some arachidonic acid is essential for your health, too much arachidonic acid in the diet will make your inflammation worse.

Foods to Eat In Greater Amounts

Omega-3-fats: The main omega-3-fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), are converted into eicosanoids that act to counter the inflammatory process. Omega-3 oils have been shown to inhibit a specific family of enzymes that break down cartilage and to block production of pro-inflammatory molecules such as TNF-alpha and COX-2. DHA, specifically, is known to have an anti-inflammatory effect on the heart and is believed to have similar effects on the brain. Studies have shown that people who ate fish once a week showed a 60 percent reduction in the risk of Alzheimer's disease compared with people who never ate fish. Foods containing omega-3-fats include oily/cold-water fish such as salmon, herring, anchovies and mackerel as well as plant sources like walnuts, flaxseed and some leafy green vegetables. Eat oily fish 2-3 times a week. In place of fish, take 3 g of fish oils daily or vegetarians may consume 3 grams of flaxseed oil. In addition, supplement diet with 2-3 oz of walnuts and flaxseed.

Omega-9-fats: The major omega-9-fat in the diet is oleic acid. This type of fat is found in olive oil, macadamia nut oil and cold-pressed canola oil. Omega-9-fats have been shown to reduce the activity of certain adhesion molecules which promote inflammation. Cook with extra-virgin olive oil and avoid other vegetable oils.

Fruits & Vegetables: Nutrients found in fruits and vegetables may counter inflammation by reacting with tissue-damaging free-radicals which are linked to overactive immune responses. Research suggests that the antioxidants and phytochemicals found in fruits and vegetables decrease levels of key inflammatory molecules. A study conducted by researchers at UC Irvine found that dogs fed a diet rich in antioxidants performed better at new tasks than dogs fed a normal diet. In another study, rats genetically engineered to have Alzheimer's disease showed improved cognitive function after being fed a diet high in antioxidant-rich blueberries. It is recommended to eat non-starch or low-starch vegetables such as broccoli, green-beans, cauliflower, salad greens. Especially important are blueberries and kiwis which are highest in antioxidant levels. In addition, apples and citrus fruits are known to contain compounds that act as antioxidants and reduce inflammation.

Spices & Teas: Garlic, ginger, turmeric (found in curry) and components of green tea are believed to be natural anti-inflammatory molecules.

Alcohol: Individuals consuming 2-7 drinks per week had lower levels of CRP and IL-6 compared to individuals who never drank or drank more than 8 drinks per week. Red wine may contain certain compounds that reduce inflammation, or the anti-inflammatory effects of wine may be due to the ethanol alone.

- Eliminate trans-fats, avoid saturated fats
- Cook with olive oil.
- Consume alcohol moderately (2-3 drinks per week)
- Include "anti-inflammatory" supplements

CRP levels: Ask your doctor to check your CRP levels. Tests are relatively inexpensive (\$30)

Exercise: Research has shown that excessive fat, especially abdominal fat enhances inflammation, and exercise is associated with suppression of low-level inflammation.

Sleep: Sleep-deprivation has been associated with high levels of inflammation.

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Specific Treatments

Gastrointestinal Disease

Debajyoti Datta, edited by Asal Sadatrafie

Overview

The prevalence and impact of gastrointestinal disorders has led to the creation of individualized treatment approaches in most major healing traditions. Additionally, gaps in Western treatment options for specific GI conditions have led to the widespread adoption of complementary and alternative modalities (CAM). Usage studies have shown patients are more likely to utilize CAM as adjuvant therapies to conventional medicine rather than in place of conventional medicine.¹ CAM usage may be underreported in the general population for several reasons. It has been shown that doctors do not ask specific questions regarding CAM usage and patients may be reluctant to volunteer information.² A new prospective study of three GI disease subgroupings against a general population control group showed CAM usage as 49.5% for patients with histologically proven inflammatory bowel disease, 50.9% for patients with diagnosed irritable bowel syndrome, 20% for patients with all other GI disease (reflux disease, celiac disease, diverticular disease, polyp monitoring) and 27% for the controls.

Gastrointestinal Disorders and Treatments

Nausea and Vomiting

Multiple randomized controlled trials have provided strong evidence demonstrating the effectiveness of acupuncture in the treatment of pregnancy-induced, chemotherapy-induced, as well as post-operative nausea and vomiting. One review looked at 33 trials using the P6 acupuncture point and found that 27 of these identified real acupuncture as being more effective than sham acupuncture or placebo control. Subgroup analysis showed that all five studies involving cancer chemotherapy were positive; six out of seven studies for pregnancy-induced symptoms were positive; and 16 out of 17 studies for postoperative nausea and vomiting were positive when the acupuncture was performed while subjects were not under general anesthesia. The NIH consensus development panel on acupuncture stated, "There is clear evidence that needle acupuncture is efficacious for adult postoperative and chemotherapy induced nausea and vomiting and probably for the nausea of pregnancy."¹ Though acute chemotherapy-induced nausea and vomiting can be effectively

treated, delayed nausea occurring between 24 hours and up to 5 hours after completion of therapy continues to be a treatment challenge. Management of delayed nausea in patients diagnosed with pediatric sarcomas frequently involves recurrent administration of high dose corticosteroids, with undesirable side effects that can include weight gain, growth retardation and immunosuppression. Currently, a randomized, blinded Phase II trial with control sham needling is examining the effectiveness of electroacupuncture as an alternative therapy in these patients.² Dietary and herbal supplements have also been used to reduce nausea and vomiting. Two double-blind trials showed that supplementation with vitamin B6 significantly reduced the severity of morning sickness.^{3,4} Ginger is widely used as a remedy for nausea and vomiting. Ginger root contains compounds that have the ability to scavenge free-radicals in the intestines and block 5-HT₃ receptors. These characteristics render it beneficial in reducing both the prevalence and severity of chemotherapy-induced nausea

and vomiting. A double-blind, placebo-controlled, randomized Phase II trial is currently underway to test the safety and efficacy of ginger extract in treating certain cancer patients.⁵ Ginger has also been shown to be effective in treating nausea and vomiting as a result of motion sickness⁶ and seasickness.⁷ Ginger is also thought to be effective in reducing pregnancy-induced nausea and vomiting, but further study is needed to confirm its effectiveness.



Pink Ginger

Specific Treatments

Constipation

Constipation is clinically defined as two or fewer bowel movements per week or excessive difficulty and straining during defecation. A number of conditions ranging from physical immobility to drug side effects can cause constipation, but the most common cause is dietary, due to inadequate intake of fiber and fluids (recommended 10-12 g of fiber per day and at least one or two glasses of fluid with meals). Constipation may also be a symptom of more serious conditions such as irritable bowel syndrome, and it may appear acutely as a result of bowel blockage in colon cancer.¹ Chronic constipation can be prevented by including enough insoluble fiber in the diet. Insoluble fiber, found in vegetables, beans, brown rice, and whole grains, helps to pull water into the stool, making it easier to pass. Many traditional laxatives are made from herbs, and these are either bulk-forming or stimulating in action. Bulk-forming laxatives work by increasing volume in the bowel, stimulating a reflex muscular contraction and bowel movement. These include glucomannan, a water-soluble dietary fiber derived from konjac root, as well as psyllium and flaxseed.² Stimulant laxatives increase fluid secretion and colonic contraction, resulting in a bowel movement 6-12 hours after oral ingestion or 15-60 minutes after rectal administration of the laxative.³ Herbal varieties include preparations of senna leaves, cascara bark, and aloe latex. Senna is the most popular, while cascara has a milder action. Aloe is quite potent and should be used with caution.⁴ Biofeedback techniques have been shown to significantly increase the frequency of bowel movements in women with chronic constipation.⁵ Some research suggests that acupuncture may be beneficial in the treatment of constipation, but higher quality trials are needed to determine its usefulness.

Irritable bowel syndrome

Irritable bowel syndrome (IBS) is a common disorder affecting up to 20% of the adult population. Symptoms can include abdominal bloating, alternating diarrhea and constipation, or abnormal stool frequency, form, or passage. Clinically, it is defined as an idiopathic functional bowel disorder with chronic (more than 3 months) presentation; abdominal discomfort or pain that has two of the following features: (1) relieved with defecation, (2) onset with change in stool frequency, (3) onset with change in stool appearance.¹ There is much debate surrounding the use of complementary and alternative therapies for IBS. A recent review of published investigations of traditional (antidepressants, bulking agents/fiber, antispasmodics, antidiarrheals) and alternative (Chinese herbal supplements, peppermint oil, behavioral therapies) IBS therapies concluded that there is not enough evidence to support the effectiveness of these alternative treatments because previous clinical trials were either too small or of poor design.² The best data on dietary and herbal remedies suggest several treatments that may help for IBS. A double-blind clinical trial showed that avoidance of lactose in patients who are lactose intolerant can alleviate symptoms of IBS.³ Some patients have benefited from the use of bulk-forming laxatives such as psyllium seeds, which have improved IBS symptoms in double-blind trials.⁴ Peppermint oil has also been shown to reduce gas production, ease intestinal cramping, and soothe irritation, but studies have found conflicting findings as to its efficacy in relieving IBS symptoms. However, in combination with caraway oil, peppermint oil did lead to a significant reduction in IBS symptoms in a double-blind, placebo-controlled trial.⁵ Traditional Chinese Medicine, involving acupuncture and herbal therapies,

has also been reported to be helpful in treating IBS. A double-blinded, randomized controlled trial of Chinese herbal medicine showed improvement of bowel symptoms in some patients with IBS versus placebo.⁶ In addition, Phase I and Phase II trials examining acupuncture's efficacy for IBS are underway.⁷ Another study currently underway is examining alternative modalities to treat functional bowel disorders in children. This study will include a randomized controlled trial to confirm the effectiveness of relaxation/guided imagery for treating functional bowel disorders. The second part of this study will examine the use of chamomile tea as an adjunct to traditional treatment for reducing pain in children with functional bowel disorders.

Inflammatory bowel disease

Given the limited effectiveness of antibiotic use in improving inflammatory bowel disease, the scientific community and public has begun showing interest in the use of probiotics. Probiotics are defined as nutritional supplements composed of living microorganisms which exert beneficial effects on the host.¹ Research is focusing on combating disease by favorably altering bacterial composition, immune status, and inflammation. Additionally, preventative bacterial exposure might protect against inflammatory bowel disease by allowing the immune system to build a tolerance to future insults. To date, the lack of well-designed randomized controlled trials and poorly regulated probiotics of variable quality prohibit the evidence-based use of probiotics.²

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Specific Treatments Mental Health

Linda Change, edited by Jalene Imaoka

Overview

Mental health covers a wide range of mental disorders including those related to mood, depression, schizophrenia, anxiety, and attention deficit hyperactivity. About 1 in 5 adults a year suffer from a diagnosable mental disorder (1). A variety of symptoms exist for persons with mental disorders and may include inappropriate anxiety, disturbances of thought and perception, dysregulation of mood, and cognitive dysfunction (2). The focus of this article will be on the relationship between depression and anxiety, and the use of CAM. This article is intended to be a review and does not encompass all the research available.

Complementary and alternative medicine is a collection of therapies, systems, and techniques that emphasize the interrelationship between mind, body, and spirit (3,4). In industrial

nations, 25-50% of the populations use CAM. The use of CAM for pain, neurological, and psychological problems is significant (4). Different types of CAM used to treat depression and anxiety are herbal remedies, nutritional supplements, acupuncture, homeopathy, and mind-body interventions (3-5).



Conditions Treated

The number of people using CAM and the number of patients suffering from a mental illness using CAM is significant. Unutzer et al. (2000) telephone surveyed over 9000 individuals and found that 16.5% of the individuals have used CAM in the past 12 months. Of the people that have used CAM, 21.3% of the individuals were diagnosed with a mental disorder. Kessler et al. (2001) reanalyzed data from Eisenberg et al. (2000) and found that of the individuals with anxiety attacks, 56% of them self-treated with CAM including relaxation imagery, spiritual healing, and massage. Of the individuals with severe depression, 53% of them self-treated with CAM. In addition, Druss et al. (2000) suggested that mental health conditions could be a predictor for the use of CAM. Not surprisingly, Kessler et al. and Druss et al. independently found that few patients informed their physicians about their CAM use (6).

Description of Different Treatments

Herbal remedies

Herbal remedies contain varying ingredients and the mechanism of action of each is usually complex and unknown. Herbal remedies have also been known to cause herb-drug interactions (5). Health professionals are encouraged to take a thorough history of their patient's herb and supplement profile to reduce herb-drug interactions. In addition, for any herbal product, there is no guarantee of the potency and purity of the plant used. Health professionals are encouraged to educate their patients on the use of herb remedies. For mild to moderate depression, St. John's wort (*Hypericum perforatum L.*) is most commonly used and most thoroughly studied. In a meta-analysis done by Linde et al (1996), St. John's wort showed efficacy similar to antidepressants, and had lower dropout rates and adverse effects. Although studies look promising, trials of longer duration and better design are needed (5). Patients need to inform their health professional if they are using St. John's wort because it affects the metabolism of certain drugs and will alter drug concentrations in the patient's body. For anxiety, kava (*Piper methysticum*) shows the most promising results. Traditionally, kava has been used in the South Pacific to make beverages. Recent studies have found that kava's effectiveness may be comparable to Valium (diazepam) or benzodiazepine drugs (7) However, in 2002, the FDA issued a warning about the risk of severe liver injury with the use of kava in dietary supplements, which are much more concentrated (and often use a different part of the plant) than traditional preparations (8).

Specific Treatments

Acupuncture

Acupuncture uses points in the body to manipulate the body's flow of energy. Illness is believed to be caused by an imbalance in a person's energy. By stimulating well-defined points in the body, balance can be achieved, and the cause of the illness can be resolved. Acupuncture is used to help reduce the symptoms of depression (3). Several controlled and uncontrolled studies yielded promising yet unconvincing results for acupuncture. Two randomized controlled trials (RCTs) showed no statistically significant difference between one group that was treated with electroacupuncture and another group that was treated with amitriptyline HCl (5). Acupuncture has also been used to treat anxiety, but data has been inconsistent or incomplete (4).

Mind-body methods

Mind-body interventions include exercise, relaxation methods, hypnosis, and dance therapy (4, 5). Studies have shown that any type of exercise can help reduce the symptoms of mild to moderate depression. Physiological effects, psychological effects, and benefits to social interactions are some proposed mechanisms by which exercise helps to reduce the symptoms of depression (5). Relaxation methods have been used for patients suffering from anxiety due to stressful situations. These techniques are aimed at decreasing physical and mental tension.

For depression, relaxation treatments are promising, but more studies need to be done (4, 5). Hypnosis uses hypnotic suggestions to facilitate the change in a person's behavior. RCTs suggest hypnosis can reduce anxiety (4). Dance therapy allows patients to move and express themselves. This type of treatment enhances well-being and therefore may reduce the symptoms of depression; however, little scientific evidence is available on

the effectiveness of dance therapy (5).

Nutrition and Dietary Supplements

Rakel's *Integrative Medicine*, an evidence-based guide for Western-trained health professionals, suggests discontinuation of caffeine and alcohol consumption in patients who are prone to anxiety. Depressed patients may want to consider a trial elimination of caffeine and decrease their use of simple sugars. B vitamins, folic acid, and S-adenosyl methionine (depression only) are also discussed as potential alternative treatments for anxiety and depression, though large-scale clinical studies are lacking for these conditions (9,10).



Omega 3 fatty acids, in large doses of 10 grams per day, were shown to reduce signs of depression and bipolar disorder in a pilot study published in the Archives of General Psychiatry and conducted by Dr. Andrew Stoll, professor of Psychiatry at Harvard School of Medicine. Dr. Stoll is currently conducting larger studies to validate these findings (11).

Clinical Psychologist Julia Ross, founder of Recovery Systems in Mill Valley, uses nutritional supplementation to treat eating disorders, addictions and mood disorders. Her treatment plan, outlined in her books *The Diet Cure* and *The Mood Cure*, involves balancing blood sugar, treating underlying thyroid and hormonal

disorders, avoiding allergy foods and increasing intake of good fats and a wide range of vitamins and minerals (12, 13).

Homeopathy

Homeopathy is based on the principle of "like treat like." The substance that would produce the illness in a healthy person is diluted step-wise and theoretically made more potent for the person with the illness. Each treatment is specific for the patient. Many depression and anxiety patients use homeopathy to treat their symptoms, but no significant studies are available to prove its effectiveness (4, 5).

Natural Standard has reviewed the scientific literature for the following mental health problems and found **strong** evidence for the efficacy of the following alternative treatments:

Anxiety: kava
Depression: St. John's wort

They found **good** evidence for the following:

Anxiety: Aromatherapy, Yoga
Hypnosis, Lavender
Depression: Yoga

Summary

Health professionals are advised to be proactive and ask questions, be informed about complementary and alternative medicine and be open to discussing the patient's use of CAM. Several studies suggest that the use of St. John's wort and exercise improve symptoms of depression. There is also evidence supporting the use of Kava to reduce anxiety. Other CAM techniques are used for depression and anxiety, but sufficient data is not available to prove their effectiveness.

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Specific Treatments Pregnancy

Amy Beddoe, edited by Lisa Chu

History and Overview

This discussion of healthy pregnancy emphasizes a holistic approach to working with the back pain, sleep disturbance, and stress associated with pregnancy.

Fifty to eighty percent of all women have low back or posterior pelvic pain at some time during their pregnancy. Back pain may be moderately severe, disturb sleep, and interfere with daily activities.¹ Multiple physiologic changes may contribute to back and pelvic pain. For instance, hormonal changes weaken ligaments and tendons while the gravid uterus and weight gain alter the center of gravity. Poor muscle tone from inactivity may also contribute to pain. Pre-existing injuries, back pain during menstruation, and during a previous pregnancy increase risk.^{2,3} In addition, sleeping on one's back for long periods has been associated with greater back pain in pregnancy.⁴ Furthermore, pregnant women with little control over the pace of work, and work conditions that are associated with standing or walking for more than four hours per day, limited

opportunity to change posture, and high levels of anxiety and intense concentration experience a greater incidence of posterior pelvic and back pain as well as pain that persists beyond pregnancy.⁵

Women often experience added stressors and emotional swings during pregnancy. Pregnant women and their partners may worry about the health of their unborn child, their ability to cope with labor and birth, body image, being a good parent, and finances. These worries and stressors may lead to anxiety and depression. One study found that depression during pregnancy was more common than depression during the postpartum period.^{6,7} A stressful life may be associated with greater incidence of pregnancy and obstetric complications, such as preeclampsia and low birth weight.⁸ Research has shown that women who feel supported by friends and family experience better pregnancy outcomes.⁹

According to one study, 68% of pregnant women have difficulty falling asleep or staying asleep. Sleep problems associated with pregnancy include

restlessness, sudden waking, and tiredness throughout the day. The hormonal influence of progesterone is associated with fatigue, yet progesterone may also disrupt sleep at night. Also disrupting sleep is the need to make frequent trips to the bathroom as the growing uterus places increased pressure on the bladder. As pregnancy progresses, women also may experience heartburn, leg cramps, restless leg syndrome, and snoring.¹⁰ Results of one study showed that pregnant women who spent at least 8 hours per night in bed underwent fewer cesarean sections and experienced shorter periods of labor compared to those who slept only 6 hours per night.¹¹



Managing Back Pain, Stress, and Sleep Disturbance

Managing Back Pain

Exercise- During a healthy, uncomplicated pregnancy, moderate and low impact exercise such as walking or swimming are excellent ways to maintain strength, relax muscular tension, and feel good.

Yoga- Yoga in pregnancy may also be beneficial in maintaining core strength, fostering relaxation, and preparing for labor and birth. Yoga, when combined with a cardiovascular exercise such as walking, can be an ideal way to maintain fitness during pregnancy.

Acupuncture- Several studies have found that pregnant women with back pain find relief as a result of acupuncture treatments.¹²⁻¹⁵

Rest, Relaxation, and Changing Positions - Pay attention to your body's cues for rest such as feelings of fatigue or discomfort. Limit standing and walking at work to less than four hours per day. Change positions frequently. Take breaks, especially if your job requires high levels of prolonged concentration.

Working with Stress and Emotion

Acupuncture- Acupuncture holds promise as a treatment for depression during pregnancy and postpartum.¹⁶

Deep breathing- Breathing deeply and rhythmically can ease muscle tension, lower the heart rate, and encourage sleep. Lie on one's side with a pillow between the legs for support. Breathe through the nostrils, feeling the abdomen rise, gradually filling the lungs with air. Hold for one second. Exhale through the nostrils and sense the stomach release.

Massage- Massage can soothe and release tension in muscles. Make sure the massage therapist has experience working with pregnant

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women and uses a table and pillow designed for that purpose. A foot, hand or neck massage at home from your partner is also helpful. According to one study, pregnant women who received massage felt less anxious, experienced less back pain and had lower levels of stress hormones than women who had not received massage.^{17,18}

Mindfulness Based Stress Reduction (MBSR) Childbirth Classes- Mindfulness is the quality of paying attention to the present moment. This course has been helpful to those coping with stress. Some MBSR classes are tailored to pregnancy and childbirth to help prepare a woman to face the challenge of childbirth and to become an attentive parent. The program involves meditation and yoga including progressive relaxation, listening to somatic cues, attending to the breath and finding courage and acceptance for feelings experienced in the present moment.¹⁹

Yoga- Prenatal Hatha Yoga is based on principles of working with the mind, body and breath in unison to achieve physical and mental balance. Postures and gentle physical movements build core strength, engender flexibility and help to retrain deep muscles. A good yoga class will emphasize alignment, posture and somatic awareness. Yoga is beneficial because it teaches skills that may help a woman cope with the physical demands of labor, birth and motherhood.

Social Support- Maintaining relationships with one's partner, friends and family is essential. Partnership, understanding and the spirit of cooperation help people feel safe and relaxed. Seeking the presence of people who understand or who are sympathetic to pregnancy is best. Talking, listening and accepting help when offered may be important in pregnancy. **Consulting Health Care Providers-** Feeling a sense of trust and rapport with the prenatal provider goes a long way to alleviate worries. Many women prefer seeing the same healthcare provider each visit rather than multiple providers within a group practice. If stressed or fearful about

any aspect of pregnancy, childbirth or motherhood, one should ask for advice.

Balancing Activities- It can be difficult for a pregnant woman to accomplish all the things she was accustomed to doing before pregnancy. One should do things she enjoys. But if too many activities are causing stress, limiting activities is helpful.

Managing Sleep Disturbance

Relaxation with the Body Scan- Simple relaxation techniques such as the Body Scan can foster sleep and help ease stress. This can best be accomplished while lying down with the eyes closed. Pay attention to the gentle and rhythmic activity of breathing. Then direct awareness sequentially to specific areas of the body, starting with the toes and ending with the head. Sense the entire body as a unified whole within the attention to the breath.

Positioning- Sleeping on the left side may improve sleep and diminish the risk of back pain. Try bending the lower leg at the knee to support the abdomen. Sleeping with a pillow between the legs is also supportive. Lying on the left side helps improve circulation to the uterus, fetus, and kidneys. Good circulation to the kidneys helps to expel waste products and fluids more efficiently, in turn reducing the swelling to the ankles, feet, and hands. Sleeping on one's back puts the full weight of the uterus on the spine, intestines, and the inferior vena cava, which increases the risk of developing backaches, hemorrhoids, poor digestion, and impaired breathing and circulation.

Napping- Listen to your body's cues and take naps when you are tired. Finish a nap before 3 PM to ensure being tired at bedtime.

Warm Baths- Taking a bath 90 minutes before bedtime raises body temperature. The subsequent drop in body temperature fosters sleepiness.

Exercising- Regular exercise is recommended in the morning or early afternoon to improve sleep, but exercising at night may interfere with sleep. Refrain from exercise at least 4 hours before bedtime.

Bedroom Atmosphere- Make sure your bed and bedroom are dark, quiet, and comfortable. A cooler room is helpful along with enough blankets to stay warm. Wear earplugs or get a "white noise" machine to handle noise.

Getting in a rhythm- Develop sleep rituals that provide cues to the body that it is time to slow down, go to bed, and fall asleep. For instance, listen to relaxing music, read something soothing for 15 minutes, have a cup of caffeine free tea, and/or do a relaxation exercise. Go to bed at the same time everyday to facilitate the sleep cycle rhythm. Sunlight in the morning will also help to set the internal clock. Go outside when you get up in the morning and turn your face to the sun for 15 minutes.

Liquids and Foods- Drinking plenty of fluids during the day and then cutting down in the late afternoon or evening may help reduce the number of trips to the bathroom at night. Avoid caffeine, nicotine and alcohol. Not only are they not recommended in pregnancy, caffeine and nicotine are stimulants interfering with the ability to fall asleep and alcohol fragments sleep. A light snack before bed may help as hunger can interfere with sleep. On the other hand, a heavy meal before bedtime may interfere with sleep.

Resources

Mindfulness-Based Stress Reduction:

Amy Beddoe RN, MS
Mindfulness-Based Stress Reduction
Kaiser Permanente, South San Francisco
abeddoe@baymoon.com

Nancy Bardacke, CNM/Mindful Birthing Programs
www.mindfulbirthing.com

Prenatal Yoga Resources:

Jill Keltner, prenatal yoga
Iyengar Yoga Institute of San Francisco
www.iyisf.org/classes
Deborah Saliby

Iyengar Yoga Classes in Berkeley
dsaliby@aol.com

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Specific Treatments

Treatments for Cancer

Christina Lee, edited by Lisa Chu

Overview

Many cancer patients use complementary and/or alternative medicines (CAM) as part of their treatment regimen, with some studies reporting that nearly half of all patients use some form of CAM in addition to their conventional oncology treatment. Complementary therapies, which are used in adjunct to conventional medical treatment, are commonly employed in order to help manage cancer symptoms and side effects of conventional cancer therapies (e.g. chemotherapy toxicity, nausea and vomiting, constipation, and radiation); to control pain; to enhance quality of life and well-being; and to reduce stress and anxiety. Conversely, alternative therapies typically replace conventional medicine and focus primarily on improving the patient's immune system and killing cancerous cells and tumors.

CAM therapy may appeal to cancer patients due to its image as a more natural and less invasive

approach to treating the illness, as well as fewer toxic side effects when compared to conventional chemotherapy and radiation regimens. Some patients who turn to CAM do so because the treatment plan is holistic and more individualized to each patient than is mainstream clinical treatment. Inadequate pain management may also motivate patients to seek out CAM therapy.

Many different types of complementary and alternative cancer therapies exist. These therapies are frequently incorporated into standard cancer treatment plans for patients in Europe and other parts of the world but are less commonly prescribed by medical professionals in the United States, possibly due to the relative lack of formal CAM training in U.S. medical schools. The most common complementary therapies include meditation and relaxation, acupuncture, massage, dietary treatment, herbal medicine, hypnotherapy, homeopathy, megadose vitamins, ozone therapy,

therapeutic touch, bromelain, and spiritual healing. Currently used alternative therapies include antineoplastons, metabolic therapy, shark cartilage, botanical and herbal medicine, and immunoaugmentive regimens.

Alternative therapies may be dangerous because they are often unproven and administered in lieu of traditional treatment such as chemotherapy or radiation. Using alternative therapies instead of conventional treatment for highly curable, early-stage cancers is not recommended.

CAM therapies are also considered useful approaches to recurrence, metastatic cancers, and secondary cancers.

Treatments

Mind-Body Techniques

Mind-body medicine offers a holistic approach to treating cancer and often focuses on relieving anxiety, stress, pain, and symptoms of cancer. Effective practice of mind-body medicine may contribute to better surgical outcomes, improved quality of life, and shortened hospital stays.

Hypnosis and relaxation techniques are thought to alleviate nausea related to chemotherapy treatment in cancer patients. Patients make a list of situations that cause them to be nauseous and rank the list based on which situations make them the most and least nauseous. Patients then enter a hypnotized or relaxed state while imagining each scenario. Relaxation also appears to help reduce anxiety, improve overall mood, and improve quality of life in cancer patients, as well as induce biochemical changes during the actual process of relaxation. Cancer patients may also employ techniques of guided imagery and visualization. Using mental images to represent bodily functions helps patients to gain a sense of control over their own illness.

Where to Obtain Treatment

Many of the above complementary therapies such as acupuncture, massage, and mind-body relaxation are becoming increasingly mainstream. Many conventional cancer centers in the United States, such as Memorial Sloan-Kettering Cancer Center in New York and the Osher Center for Integrative Medicine at UCSF, now include an integrative medicine component through which patients may obtain these unconventional services while simultaneously being treated by their oncologists with chemotherapy and radiation. Some conventionally trained primary care providers incorporate complementary and/or alternative medicine therapies into their private practices, and their patients receive treatment in their doctors' offices.

Herbal remedies may be purchased over-the-counter in grocery stores, health-food stores, or over the Internet, although some patients work with trained traditional Chinese herbalists to devise individualized treatment regimens for their cancer.

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Meditation may be employed to help alleviate stress. Patients focus on their breathing and gain a greater awareness of themselves and their thoughts. Yoga stretches are performed to increase flexibility and to develop “mindfulness through movement.”

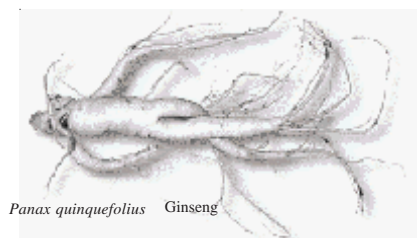
Mindfulness reduction and relaxation programs are often organized as group activities, thus lending patients an additional support network that may further help in dealing with a diagnosis or treatment of cancer.

Some cancer patients and their families and friends turn to prayer and spiritual healing as part of their treatment process. Spiritual practitioners believe patients’ attitudes towards their own health and well-being influence survival time. Patients are therefore encouraged to maintain positive attitudes and to engage in health-promoting actions.

Traditional Chinese Medicine & Acupuncture

The philosophy underlying traditional Chinese medicine involves strengthening and balancing Qi, the life force that flows through our bodies via meridian energy channels. Exercises such as Qi Gong and Tai Chi are

complementary therapies that focus on maintaining good Qi. Traditional Chinese medicine also involves the use of many different herbal remedies, as well as relaxation and acupuncture. Different herbal medicines are frequently combined in order to achieve the correct balance of Qi. In traditional Chinese medicine, acupuncture involves point-stimulation of Qi energy channels that run throughout a patient’s body (see Traditional Chinese Medicine). Small needles are used to direct energy flow properly at designated points. Many acupuncturists today instead believe that acupuncture works by stimulating key physiological and anatomical points in the body. Acupuncture helps to relieve acute and chronic pain, as well as alleviating chemotherapy-associated nausea and vomiting. Acupressure, a variant of acupuncture, involves the practitioner using his fingers and hands to stimulate pressure points throughout the body, stimulating the delivery of oxygen and other nutrients to body tissues.



Panax quinquefolius Ginseng

Side Effects of Herbal Treatment

Like any other drug, herbal remedies can have side effects. Some antioxidants may antagonize the helpful effects of radiation and chemotherapy (although this is highly controversial, as well as variable—some antioxidants may act synergistically, while others act antagonistically). Ginkgo biloba increases risk of bleeding, as may ginger and saw palmetto. Asian ginseng can cause insomnia, agitation, and diarrhea, and it may be contraindicated for patients with hypertension, diabetes, or centrally acting medication (MAOIs and haloperidol). Essiac is known to cause mild nausea and diarrhea, and Iscador can cause headache, chills, localized inflammation and skin irritations. Mistletoe itself is a toxic plant. Herbal remedies have been implicated in potentially harmful drug interactions and even complications involving liver and kidney damage. Worse quality of life is also considered a potential side effect for some CAM therapies.

Massage

Massage involves manipulating the whole body or parts of the body in order to affect overall health. This technique helps to relax muscle tension. Massage may reduce anxiety and stress, as well as alleviate nausea, fatigue, and pain.

Bioelectromagnetics

Bioelectromagnetic treatment is based on the principle that exposure to magnetic fields will kill cancer cells. One technique, used widely in China, involves placing cathodes and anodes into tumors and running a current through the tumor.

Botanicals and Herbal Medicine

Herbal remedies refer to plant-derived medicines. They are widely utilized throughout the world, and there are several hundred known herbs that have been used for medicinal purposes. Currently, 25% of Western pharmaceutical drugs are derived from herbs. Popular herbal and botanical remedies in cancer therapy include Essiac, Iscador, MGN-3, Astragalus, and Asian ginseng. Essiac is a mixture of four different herbs (burdock, turkey rhubarb, sorrel, and slippery elm) that was first used in Canada and is widely used in North America. Iscador is an extract from mistletoe plants that has been used for centuries in Europe (and is in fact available in standard European cancer clinics). According to anthroposophical philosophy, mistletoe is believed to reinforce higher organizing forces that control tissue and organ function and whose failure has caused cancer in patients. MGN-3 is an extract from mushroom and rice bran, taken as cytotoxic cancer therapy. Astragalus is an herb found in northern China and Tibet that has traditionally been a part of Fu-zheng therapy and is thought to improve immune function. Asian ginseng (*Panax ginseng*) is a widely used Chinese herbal remedy thought to have immunostimulating and anti-cancer activity. Some botanicals and herbals are better for treating certain cancers (Vitamin A is indicated for treatment of acute promyelocytic leukemia, but contraindicated for lung cancer). Thus, be sure to consult studies on herbals and botanicals.

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Diet and Nutrition - Macrobiotics

While conventional medicine promotes fruits, vegetables, fiber and whole grains in one's diet, alternative medicine proponents of macrobiotics believe eating certain foods will cure cancer by strengthening the immune system. A popular macrobiotic diet involves consuming mostly whole grains, vegetables, beans, seaweed and soybeans. It is relatively healthy because it is high in fiber and low in fat, albeit difficult to digest for some patients.

Metabolic therapies

Some CAM practitioners believe toxic byproducts of cancer cells accumulate in the colon and liver, ultimately leading to liver failure and death. Another theory maintains that toxin accumulation in these organs *causes* cancer. Practitioners aim to counteract this damage by placing patients on strict low-fat, low-sodium, high-potassium diets; megadoses of vitamins, minerals and enzymes; high volumes of fruit and vegetable juice; and enema-inducing colon detoxification with coffee, herbs or enzymes. These treatments include the Gerson metabolic therapy and the Gonzales method.

Antineoplastons

Also known as the Burzynski treatment, antineoplastons are used to reduce the size and metastasis of solid tumors. The antineoplastons used as cancer therapy constitute a group of synthetic compounds originally isolated from human blood and urine. This method is used mostly in children with brain tumors.

Immunoaugmentative therapy

Developed by the late Dr. Lawrence Burton, immuno-augmentative therapy is an injected treatment that seeks to balance four central proteins in the blood and boost the patient's immune system. Therapy involves the measurement of four factors in blood serum [tumor necrosis factor (TNF), tumor complement factor (TCF), deblocking protein factor (DPF) and blocking protein factor (BPF)], followed by administration of a combination of TNF, TCF and DPF to correct the imbalance and allow the immune system to fight the cancer.

Resources for Patients

National Center for Complementary and Alternative Medicine

www.nccam.nih.gov

Office of Cancer Complementary and Alternative Medicine

www3.cancer.gov/occam

A Cancer Patient's Guide to Complementary and Alternative Medicine,

Cancer Patient Education Program, Duke Comprehensive Cancer Center

www.cancer.duke.edu/pated/CAM.asp

Natural Standards

www.naturalstandards.com

Research

Research in the field of complementary and alternative cancer treatments is ongoing, as many CAM therapies are supported by anecdotal evidence but have not been studied in a well-designed clinical trial. Recent studies have shown that some herbals can actually be used to help prevent cancer. These herbals include lycopene, selenium, green tea, Vitamin A, Vitamin C, and Vitamin E.

Treatments that have been found to be effective in cancer patients:

- **Acupuncture** for cancer-related pain, postoperative pain, and chemotherapy induced nausea (Lee et al., 2005; Alimi et al., 2003; Shen et al., 2000).
- **Traditional Chinese medicine** for postoperative cancer pain, chemotherapy induced diarrhea, and post-radiation therapy recovery and cure (Lan et al., 2003; Li et al., 1994; Mori et al., 2003).
- **Progressive muscle relaxation training** for anxiety, quality of life, physical and psychological health, and chemotherapy-induced nausea and vomiting (Yoo et al., 2005; Cheung et al., 2003; Molassiotis et al., 2002).
- **Relaxation and imagery** for depression, anxiety, and quality of life (Sloman, 2002).
- **Mindfulness meditation** for stress reduction and mood disturbance (Specia et al., 2000).

- **Therapeutic massage and touch therapy** for pain and fatigue (Post-White et al., 2003).

- **Iscador**, the popular European herb, has been shown to prolong survival time (Grossarth-Maticcek et al., 2001).

A sample of the many ongoing Cancer Clinical Trials sponsored by the NCCAM:

- **Touch therapy** for reducing end-of-life symptoms
- **Mindfulness-based art therapy**
- **Massage therapy** for lymphedema related to breast cancer treatment
- **Macrobiotic diet** for effects on estrogens, phytoestrogens, and fibrinolytic factors
- **Distant healing** for glioblastoma treatment
- **Acupuncture** for reducing advanced colorectal cancer symptoms
- **Hyperbaric oxygen therapy** for treating laryngectomy patients
- **Massage therapy** for cancer related therapy
- **Shark Cartilage** for advanced colorectal and breast cancer treatment
- **Mistletoe extract** for treating solid tumor cancers
- **Pancreatic enzyme therapy plus specialized diet** for treating pancreatic cancer

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Lisa Chu is a first-year medical student.

Specific Treatments

Cardiovascular Disease

Robert Su, edited by Asal Sadatrafiei

Overview

Cardiovascular disease (CVD) is the number one cause of death in the US. It is not surprising that individuals often resort to complementary and alternative medicine (CAM) in hopes of keeping their hearts healthy and blood pressures low. A 1997 telephone survey revealed that 9% of people over the age of 65 use some form of CAM for their heart disease, and 12% applied CAM to treat their hypertension. And recently a cardiology clinic in New York found that about half of its patients took supplements.¹ Given the prevalence of CAM usage and the mortality associated with CVD, it is necessary to understand the benefits and potential dangers of this growing trend.

Treatments

Relaxation techniques

Relaxation techniques are widely utilized to lower blood pressure because stress is a contributor to CVD mortality and morbidity. Transcendental meditation in particular has been extensively evaluated for its efficacy in reducing stress levels. Studies have demonstrated not only the technique's ability to reduce blood pressure but in addition, to reduce the incidence of cardiovascular risk factors like smoking and alcohol abuse.² Randomized control trials have also shown that the transcendental meditation groups are less likely to experience myocardial infarcts and carotid atherosclerosis compared to control groups. Reductions in vascular tone and changes in stress-related neurotransmitters during or after meditation have been observed, and may explain the technique's mechanism of action.

The medical significance of transcendental meditation is underscored by the technique's applicability. Studies involving hypertensive African American populations revealed that the technique shares high cultural acceptability and compliance, in part due to its cost-effectiveness.

Acupuncture

In countries such as China and Russia, hypertension is also treated with acupuncture. The practice of

acupuncture is rooted in the idea that human bodies contain "meridians" (or channels) through which "qi" (energy) flows. An imbalance in "qi" in any part of the body causes illness, and by redirecting "qi," acupuncture corrects this problem. Using mouse and feline models, researchers have shown that acupuncture and electroacupuncture stimulates sensory nerves to release endorphins



and opiates. Other studies have also suggested that acupuncture may reduce blood pressure by decreasing plasma renin, aldosterone and angiotensin II activity, and increasing sodium excretion.

A review of the literature reveals multiple published reports of the effectiveness of acupuncture on blood pressure and other

hemodynamic parameters in humans.³ While some case studies have shown some efficacy in lowering blood pressure, more rigorous research is needed before conclusions can be made. Adverse events such as pneumothorax and infection are rare, and the latter can largely be avoided using sterile disposable needles. Otherwise, no significant harms are associated with acupuncture.

Herbal and Nutritional Supplements

Aside from practicing meditation and acupuncture, individuals may also ingest herbs or supplements for CVD. One popular supplement taken is coenzyme 10 (CoQ10), a vitamin-like quinone important for cellular respiration and scavenging of free radicals. Patients consume CoQ10 for various conditions, including congestive heart failure (CHF), angina, and hypertension. CHF patients in Italy and Japan commonly take CoQ10 and while some studies have shown improved patient outcome, others have not. The same controversy exists over the use CoQ10 for angina and hypertension. CoQ10 may also be useful for treating patients with hyperlipidemia, because it could counteract statin-induced myopathy and decrease

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oxidation of low-density lipoproteins. Fortunately, research has shown that CoQ10 has low toxicity, and is generally safe for use in treating cardiovascular disease.⁴ However, it should be noted that as an antioxidant, CoQ10 may interfere with radiation or chemotherapy, and reports indicate that CoQ10 may interfere with warfarin treatment.⁵

The Chinese have used hawthorn (*Crataegus spp.*) flowers and leaves to treat cardiovascular disease for thousands of years, and current research lends support for its efficacy. The active ingredients in the plant extract have been identified as flavonoids and procyanidins, and these *Crataegus* extracts have become registered therapeutics in Germany. One special extract, WS® 1442, also demonstrates radical scavenging and human neutrophil elastase (HNE) inhibitory activity.

Today *Crataegus* extracts are primarily used to treat mild forms of congestive heart failure classified as NYHA functional class II. Approved extracts have been reported to increase myocardial contractility, improve coronary flow, boost oxygen utilization in cardiomyocytes, and prolong the refractory period as well as the action potential duration in isolated hearts and papillary muscles, respectively.⁶ Furthermore, they seem to exert cardioprotective effects in animal models of ischemia and

reperfusion. For example, in recent experiments rats were subjected to surgical coronary artery occlusion followed by reperfusion, and those not in the control group received varying doses of *Crataegus* extract WS® 1442. The study demonstrated that the herb led to a dose-dependent reduction in the occurrence of ventricular arrhythmias and mortality rates. After reperfusion, the size of the necrotic area within the ischemic zone was smaller and this effect was statistically significant in rats treated with 10 mg/kg WS® 1442. Possible toxicities associated with *Crataegus* extract include nausea, GI upset, fatigue, sweating, palpitations, and agitation. In addition, *Crataegus* extract may have additive effects with drugs such as digoxin, coronary vasodilators, and cardiac glycosides.

Preliminary results suggest that ginkgo biloba extract may also be useful in preventing and treating CVD, particularly ischemic cardiac syndrome.⁷ Ginkgo biloba is a Chinese herb and contains substances such as flavone glycoside and terpenolactones. Although the exact mechanism is not known, it's suggested that the pharmacological effects of ginkgo are related to its antioxidant ability to scavenge free radicals. Clinical trials have shown that standardized leaf extracts of ginkgo reduce the symptoms of age-associated memory impairment and dementia, including Alzheimer's disease, and may also ameliorate intermittent claudication. Ginkgo has the therapeutic potential to reduce the incidence of restenosis after angioplasty by reducing IL-1 and cell proliferation.⁸ Since many patients with cardiovascular disease are already taking anticoagulants and antiplatelet drugs, self-medication with ginkgo extract is not recommended without the advice of their physician.⁹



Ginkgo biloba

Evidence for Efficacy

Natural Standard has reviewed the scientific literature for the following cardiovascular diseases and risk factors and found **strong** evidence for the efficacy of the following alternative treatments:¹⁰

High cholesterol

Niacin
Omega-3 fatty acids
Psyllium
Red yeast rice

Hypertriglyceridemia

Omega-3 fatty acids
Fish Oil
Alpha-linoleic acid

Claudication

Ginkgo biloba

Congestive Heart Failure

Hawthorn (*Crataegus*)

They found **good** scientific evidence for the efficacy of the following:

High cholesterol

Barley
Germinated Barley
Garlic
Sweet Almond (whole almonds)

Atherosclerosis/ Prevention of 2nd Heart Attack

Niacin

Heart Disease

Yoga

Robert Su is a fourth year medical student. Asal Sadatrafiei is a second year pharmacy student.

Specific Treatments

Treatments for HIV

Trung Pham, edited by Lynda Nguyen

Overview

Although advances in antiretroviral drug therapy have led to treatments that effectively slow progression of the Human Immunodeficiency Virus (HIV) and prolong the life of HIV patients, the use of complementary and alternative medicine (CAM) is increasingly prevalent among these patients. HIV patients use CAM to relieve side effects of allopathic treatments or symptoms of HIV/AIDS, to have a more proactive involvement in their disease management, to boost their immune system, and to create physical/spiritual balance. Only a small number of patients cite dissatisfaction with allopathic therapies as the reason for using CAM. Most patients with HIV use CAM as a complement to conventional therapies, rather than as a substitute. Patients believe that

CAM therapies can work synergistically with conventional therapy for the best outcome in managing their illness. The use of CAM in patients with HIV has increased over the last decade, mirroring a national trend of increase in the use of such therapies within the general population. It is estimated that between 30%-68% of HIV-infected patients use CAM.



Types of Treatment

Traditional Chinese
Medicine
Homeopathy
Acupuncture
Mind-body therapies
Dietary supplements
Bodywork and massage
Meditation
Visualization
Herbal supplements:
St. John's wort
Garlic
Echinacea
Ginseng
Licorice root extract
Blue-green algae

Description of Different Treatments

Acupuncture

Acupuncture is used in an attempt to alleviate symptoms related to HIV, such as neuropathy, fatigue, and pain, as well as to strengthen the immune system. A component of traditional Chinese healthcare system, the practice of acupuncture can be traced as far back as 2500 years ago. According to the theory of acupuncture, health is maintained by a normal, balanced flow of Qi, a form of energy, along the body's superficial channels called meridians. Disturbance of normal Qi flow either through blockage, excess, or deficiency of Qi can result in symptoms such as pain, decreased immunity, and digestive or urinary problems. Acupuncture is believed to relieve these symptoms by restoring the normal, balanced flow of Qi with fine needle manipulation at specific points along the meridians. Massage can be useful to HIV-infected patients in relieving chronic muscle tension and decreasing the mental and emotional stresses that accompany the illness. Among the body manipulation and massage techniques being used to treat patients with HIV are acupressure, yoga, Swedish massage, and the Alexander techniques. Similarly, chiropractic medicine has been shown to help reduce joint pain in these patients.

Mind -Body Therapies

Psychoneuroimmunology (mind-body therapies) is used to treat patients with HIV based on the belief that the body's ability to fight off disease can be influenced by brain activity. In this psychoneuroimmunologic model, psychological changes are hypothesized to modulate the release of hormones by the brain, which are in turn associated with the functions of the immune system, such as suppression of the HIV virus and mounting an effective attack against opportunistic infections. For example, a group-based behavioral stress management intervention is shown to affect the level of hypothalamic-pituitary -adrenal (HPA) and sympathetic nervous system (SNS) hormones through mood changing effects. These hormonal changes influence the level of IgG antibody titers to herpes virus CD8 suppressor/cytotoxic cells. Meditation and visualization- a process in which a person is instructed to see himself or herself in a vibrant, healthy physical, emotional, and spiritual

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state are believed to be useful for patients with HIV not only to reduce tension and fatigue, but also to diminish anxiety and stress that might negatively impact the immune system. Although the benefits of CAM therapies have been demonstrated generally, the specific effects of many of these therapies have not yet been demonstrated in patients with HIV. However, that is bound to change as the use of these therapies increase and more research studies are done to understand their benefits.

Herbal Remedies

Herbal and natural products are among the most popular CAM therapies used by patients with HIV. Among the most widely used products are St. John's wort, garlic, Echinacea, ginseng, extract from licorice root, and blue-green algae. As with other forms of CAM, patients take herbal medicine and supplements to maintain a healthy and balanced diet, to boost the immune system, and to relieve symptoms from HIV infection or side effects from allopathic therapy such as fatigue, pain, stress, depression, muscle tension, etc. However, many of these herbal and natural products actually contain compounds that have been reported to have anti-HIV activity and, thus, can decrease the infectivity and virulence of the virus. There is great promise for a mechanistic understanding of how herbal and natural products benefit patients with HIV, as many of these products contain organic compounds that have been well characterized. As of now, all of the antiviral drugs used in antiretroviral therapies are synthesized products from the laboratory. However, scientists and pharmaceutical companies are actively studying compounds found in herbal and natural products as potential candidates for HIV antiviral drugs.

Research

Some of the organic compounds found in herbal and natural products prevent the HIV virus from binding to human immune cells, a process necessary for the virus to gain entry into cells to permit transmission. For example, cyanovirin-N is a protein that has been isolated from cyanobacteria, blue-green alga. This compound tightly binds a viral protein called gp120, which is found on the surface of the virus' envelope and abrogates the attachment of the virus to human immune cells, therefore reducing the infectivity of the virus. Plants in the family *Hypericum*, commonly known as St. John's wort, contain compounds such as hypericin and pseudohypericin, which have also been reported to have anti-HIV activity. These compounds inhibit the formation of new virus by interfering with the assembly and processing of virions, which are virus particles. Once formed, these virus particles can leave previously infected cells and go on to infect other cells. Other compounds that have anti-viral activity against HIV are found in vegetables and spices such as bitter melon and turmeric.



Garlic



Echinacea



Licorice

Safety

Despite their positive benefits, the use of CAM therapies is not without potential negative effects. Some of these effects are due to the fact that CAM therapies interfere with allopathic antiviral therapy. St. John's wort, for example, has been showed to decrease the level of indinavir, an antiretroviral drug, by as much as 60% when patients with HIV take the two medicines concurrently. This herb-drug interaction could result in failure of the antiviral treatment and drug resistance. CAM products are often marketed as natural and therefore considered to be harmless. However, several herbal products contain ingredients that are carcinogenic or that can cause liver damage. Life root and calamus are example of such products. Similarly, long-term use of licorice at high doses can cause headache, sodium retention, hypertension, heart failure, and cardiac arrest. Many herbs and plants that have medicinal value many also contain toxic compounds, although at such a low level that no harm is caused when they are used in their natural forms. However, when an extract is made from these herbs and plants, the toxic ingredients become so concentrated that they can be harmful. Another negative aspect of herbal and natural products is that they are not as tightly regulated as allopathic drugs. Thus, consumers are not guaranteed that the products are correctly identified, that quality and safety have been checked, or that they have been proven effective. Lastly, a matter a great concern is that many patients who use CAM therapies aside from conventional treatment do not talk to their physicians about such uses. This lack of communication can be detrimental to the care for patients, as their physicians may unknowingly prescribe medications that adversely interact with the forms of CAM that the patients are undertaking.

Trung Pham is a fourth-year Medical Scientist Training (M.D./Ph.D.) student. Linda Nguyen is a first-year pharmacy student.

Specific Treatments

Women's Health: PMS

Linda Schiff, edited by Lynda Nguyen

Overview

Premenstrual syndrome (PMS) is defined as a recurrent, variable group of emotional and physical symptoms that develop during the 7-14 days before the onset of menses and then subside when menstruation occurs. The symptoms are caused by normal fluctuations of hormones during the luteal phase of the menstrual cycle. The symptoms vary widely but the most common complaints include bloating, irritability, breast tenderness/fullness, headaches, mood swings, and food cravings.

The syndrome intermittently affects about one-third of all premenopausal women, mostly between the ages of 25-40. In about 10% of these affected women, the

syndrome may be severe and it is known as as Premenstrual Dysphoric Disorder (PMDD).¹ A recent article on the NIH website for women's health states that it is estimated that between 85% to 97% of women of reproductive age experience some symptoms of PMS and about 30-40% of these women will seek some form of treatment for these symptoms.²

Dong Quai



Although the more severe form, PMDD, may require drug therapy, many minor symptoms can be relieved by alternative therapies. These include dietary supplements, herbal therapies, and alternative treatments and exercise.

Given the prevalence of PMS, health care providers are likely to be asked for recommendations on treating the symptoms associated with the syndrome. In recent years there have been many vitamin and herbal supplements marketed for use in treating PMS. Only a few of these have been substantiated by well performed, randomized, placebo-controlled trials. These treatments are reviewed below.

A Typical Treatment

Calcium

Calcium is one of the most well documented treatments for PMS. Trials have shown that 1,200 to 1,600 mg/day can be used to help reduce water retention, food cravings, and pain.³ Estrogen levels rise during the luteal phase and correlate with a decrease in serum calcium and a rise in parathyroid hormone, both of which are thought to contribute to the physical and psychological symptoms of PMS. Calcium supplements are thought to counter this natural disturbance and help reestablish normal serum calcium levels.

Magnesium

Magnesium has also been shown to have possible beneficial effects for reducing the pain and discomfort associated with menstruation. The recommended dose for PMS treatment is 400 to 800 mg/day. Several smaller clinical trials suggest that women who take magnesium have lower prostaglandin F₂ (PGF₂) alpha levels during menstruation.⁴ This may be due to magnesium inhibiting PGF₂ alpha along with induction of vasodilation and muscle relaxation. The trials showed reduced symptoms in those taking magnesium versus the placebo as measured by a decrease in the use of traditional medications, such as NSAIDs.

Chasteberry

Chasteberry (*Vitex agnus-castus*) or *Vitex* herbal supplements have been shown to exhibit dopamine agonist activity and are indicated to help relieve symptoms of PMS.⁵ Several large studies suggest that *Vitex* inhibits prolactin and thus eliminates deficits in luteal

Types of Therapy

Calcium

Precaution should be taken with patients who have renal disease or cardiac disease. Some calcium supplements may interfere with other medications (verapamil, iron, and quinolones), and proper precautions should be made. Calcium is best absorbed when taken with food and Vitamin D.

Magnesium

As with calcium, magnesium supplementation should be used under physician supervision in patients with renal disease or cardiac disease. Some magnesium may interfere with other drugs (aminoquinolones, nitrofurantoin, tetracycline), and proper steps should be taken when taking these substances concurrently.

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Side Effects & Contraindications

Chasteberry

Because of the effects on hormones the use of chasteberry is not recommended in pregnancy or when breastfeeding. Vitex may also reduce the efficacy of certain birth control pills and is generally avoided in those patients.

Dong quai

Patients taking warfarin or other blood-thinners or hormone medications should not take dong quai. Due to an increase in photosensitivity when using dong quai care should be taken to minimize sun exposure and patients should avoid concurrent use of other photosensitizing agents such as St. John's Wort.⁸



Chasteberry

Resources

National Women's Health Information Center:
www..4woman.gov

American College of Obstetricians and Gynecologists:
www.acog.org

Mayo Clinic (Complementary and Alternative medicine Center):
www.mayo.com

National Center for Complementary and Alternative Medicine:
www.nccam.nih.gov

progesterone.^{6,7} The results of these studies showed a partial or full relief of symptoms ranging from 50% up to 90%. *Vitex* is likely to have significant reductions in irritability, mood alterations, headache, and breast fullness. There was also a low incidence of mild side effects. The recommended dose of *Vitex* depends on the specific extract used. The most common dose is 1.6 to 4.2 mg/day of dried extract or 4 to 20 mg/day of drug. *Vitex* can be found in either pill form or liquid form. Several studies have been made using the following brands of *Vitex*: Agnolyt, Femicur, Strotan, and Ze 440.

Dong quai

Dong quai (*Angelica sinensis*) is a traditional Chinese remedy for several disorders including PMS. Dong quai root is thought to reduce uterine contractions that lead to cramping in addition to the relief of other premenstrual symptoms. Dong quai is traditionally taken as a tablet of a fluid extract (two 500 mg tablets twice a day) or as a raw root (4.5 g to 30 g) that is boiled or soaked in wine. Although dong quai is widely used in Chinese and Japanese health care facilities, no studies have been done to prove its method of action or efficacy.

Physical Therapy

Physical therapies have also been suggested to alleviate symptoms of PMS. Aerobic exercise is shown to have therapeutic value for several symptoms, especially depression and mood alterations. Several trials have shown a positive effect for women who increased their activity levels versus sedentary women. Females experiencing PMS should be encouraged to exercise 20 to 30 minutes a day, 3-4 days a week. For females who are just beginning an exercise routine, suggestions may be made to begin with some form of low-impact aerobic exercise. Inclusion of relaxation techniques such as those used in yoga, meditation and guided imagery, and tai chi may also help to alleviate symptoms relating to depression and anger.

Acupuncture and Reflexology

Several small studies have indicated that acupuncture and reflexology may help to relieve PMS in some women. One study of 35 women compared effects of a placebo treatment to a true reflexology treatment and showed that there was a significant decrease in symptoms of those women receiving the true reflexology.⁵ Similar results have been shown for acupuncture. As these forms of therapy become more accessible to the average patient it is likely that larger studies will be done evaluating their efficacy. Because of their low risk of side effects these two alternative therapies should be considered as an option for those women seeking non-drug therapy. Related articles in this publication give consumer information for finding certified practitioners.

Summary

In conclusion, it is important that medical providers become familiar with these complementary and alternative treatments for women. Many people want relief from these monthly symptoms yet often do not want to resort to pharmaceutical options. Low-cost alternatives are available, and patients may be able to choose the right combination for themselves given proper information.

Linda Schiff is a third-year pharmacy student.

Linda Nguyen is a first-year pharmacy student.

Appendix

Bay Area Resources for Low Income Patients

compiled by Kara Lichtman and Jessica Woan



COMPLEMENTARY CLINIC

5691 Telegraph Avenue
Oakland, CA 94609
(510) 601-7660
www.charlottemaxwell.org

The Charlotte Maxwell Complementary Clinic provides free complementary and alternative health services to low income women with cancer.

Acupuncture
Chinese Herbs
Western Herbs
Homeopathy
Therapeutic Massage
Guided Visualizations

Berkeley Primary Care Access Clinic

2001 Dwight Way Rm.#1363
(510) 204-4666

The Berkeley Primary Care Access Clinic offers free acupuncture for detox for homeless and low-income persons.

Low-Cost Yoga for HIV/AIDS

Jason Jivana Heyman (instructor)
California Pacific Medical Center (donation \$0-\$7)
Davies Hospital, Divisadero and Duboce Streets
Conference Room B
Mondays 5:00-7:00pm
415-600-HEAL



The Suitcase Clinic is a student-run free clinic offering a wide arrange of complementary and allopathic medical, social, and legal services for homeless and uninsured individuals.



ucsf resource ctr

1600 Divisadero Street, Room B101, in San Francisco
(415) 885.3693
cc.ucsf.edu/crc

The Ida & Joseph Friend Cancer Resource Center provides free programs and services to individuals with cancer and their families.

Tile-making Workshops and the Healing Garden
Knitting Gathering
Healing Through Dance
Gentle Yoga
Restorative Movement
Pilates Mat
Drop In Meditation and Guided Imagery
Support Groups
Nutrition and more...



Immune Enhancement Project

3450 16th Street
SF, CA 94114
(415) 252-8710
www.iepclinic.com

IEP is a non profit traditional chinese medicine clinic offering low cost complementary care. Originally founded as a response to the HIV/AIDS epidemic they now treat diverse conditions including cancer, hepatitis, menopause, infertility, depression and addiction.

Community Acupuncture & Massage Program (CAMP)

Acupuncture and massage provided to low/no income youth and adults living with HIV. CAMP services are available in residential homes and other meeting places and programs offering services to HIV+ individuals.

Compiled by Kara Lichtman, a fourth-year medical student, and Jessica Woan, a first-year medical student..

Appendix

Research at UCSF

compiled by Jessica Woan

For more information, please visit the Osher Center for Integrative Medicine webpage:

<http://www.osher.ucsf.edu/Research/Current.aspx#mindbody>

Mind-Body Based Modalities

Meditation based stress reduction and Early Stage HIV

Principal Investigators: Susan Folkman, PhD; Co-PI: Rick Hecht, MD

P01 I. Clinical Trial of MBSR and Education in Early HIV

Director: Rick Hecht, MD; Co-Director: Donald Abrams, MD

P01 II. MBSR, Education, and Stress Arousal

Director: Susan Folkman, PhD; Co-Director: Elissa Epel, PhD

P01 III. MBSR, Education, and the Immune System

Director: Jay Levy, MD; Co-Director: Margaret Kemeny, PhD

K23 Mind body Therapies and Back-Pain

Principal Investigator: Wolf Mehling, MD

Traditional Chinese Medicine

Acupuncture for the Treatment of Chronic Sinusitis

Co-PIs: Andrew N. Goldberg, MD, MSCE; Joseph S. Acquah, OMD, LAc

Observational Studies

CHAI Study: Coping, HIV, and Affect Interview Study

Judith Moskowitz, PhD

Positive Affect and Stress Hormones in Newly Diagnosed HIV+ Men Supplement

Judith Moskowitz, PhD; Co-PI: Elissa Epel, PhD

The Osher Center for Integrative Medicine

AT THE UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

1701 Divisadero Street (at Sutter), Suite 150, San Francisco · 415/353-7720 · www.osher.ucsf.edu

The Osher Center for Integrative Medicine provides both individual and group programs to address specific health concerns, or to promote overall well-being.

- Biofeedback
- Tai Chi Chuan
- Integrative Medicine Consultations
- Manual Medicine with Spinal Manipulation
- Massage Therapy
- Mindfulness-Based Stress Reduction
- Prepare for Surgery Workshops
- Emotional Wellness for Women
- Traditional Chinese Medicine
- Psychotherapy
- Psychiatry
- Yoga

The Osher Center was featured in the 2005 edition of *San Francisco Magazine* with the following brief article:



UCSF's respected Osher Center is pioneering a new health-care model that combines the best of conventional and complementary medicine in a larger vision of health and healing. With UCSF's medical expertise, along with a team of highly esteemed holistic practitioners, the center provides care for many medical conditions as well as classes in meditation, yoga, and Tai Chi. "Patients here get the best of both worlds," says clinical programs director, Dr. Quevedo. "We treat them as whole people, in all their dimensions—biologically, psychologically, socially, and spiritually—and collaborate with other specialists across UCSF."

Four of the Osher Center clinicians are pictured above. From left to right: Joseph Acquah, OMD, LAc, Beverly Burns, MS, LAc, Sudha Prathikanti, MD, & Sylver Quevedo, MD, MPH

Appendix

References

Acupuncture

- Culliton PD. Current utilization of acupuncture by United States patients. Abstract presented at: National Institutes of Health Consensus Development Conference on Acupuncture; 1997.
- Barnes PM, Powell-Griner E, McFann K, Nahin RL. Complementary and alternative medicine use among adults: United States, 2002. *CDC Advance Data Report #343*. 2004.
- World Health Organization. *Viewpoint on Acupuncture*. Geneva, Switzerland: World Health Organization, 1979.
- Dale, R.A. (1997) Demythologizing Acupuncture Part 1. The Scientific Mechanisms and the Clinical Uses. *Alternative & Complementary Therapies Journal*. 1(2)-125-31.
- Takehige, C. (1998) *Mechanism of Acupuncture Analgesia Based on Animal Experiments*. Scientific Bases of Acupuncture. Berlin, Germany: Springer-Verlag.
- Han, J.S. (1997) Acupuncture Activates Endogenous Systems of Analgesia." National Institutes of Health Consensus Development Conference on Acupuncture, Program & Abstracts (Bethesda, MD. November 3-5, 1997). Sponsors: Office of Alternative Medicine and Office of Medical Applications of Research. Bethesda, MD: National Institutes of Health.
- Wu, B., Zhou, R.X., and ZI M.S. (1994) Effect of Acupuncture on Interleukin-2 Level and NK Cell Immunoactivity of Peripheral Blood of Malignant Tumor Patients. *Chung Kyo Chung Hsi I Chieh Ho Tsa Chieh*. 14(9):537-9.
- Wit, B. (1995) Effect Of Acupuncture on the Regulation of Cell-Mediated Immunity in Patients with Malignant Tumors. *Chen Tzu Yen Chiu*. 20(3):67-71.
- National Institutes of Health Consensus Panel. (1997) Acupuncture National Institutes of Health Consensus Development Statement November 3-5, 1997). Sponsors: Office of Alternative Medicine —and Office of Medical Application, of Research Bethesda, MD: National Institutes of Health.
- Levine, J.D., Gormley, J., and Fields, H.J. (1976) Observations on the Analgesic Effects of Needle Puncture (Acupuncture). *Pain*. 2(2):149-59.
- Ter Reit, G., Kleijnen, J., and Knipschild, P. (1990) Acupuncture and Chronic Pain: A Criteria-Based Meta-Analysis. *Clinical Epidemiology* 43:1191-9.
- Lao, L., Bergman, S., Langenberg, P, Wong, R., and Berman, B. (1995) Efficacy of Chinese Acupuncture on Postoperative Oral Surgery Pain. *Oral Surgery, Oral Medicine, Oral Pathology*. 79(4):423-8.
- Berman, B.M., et al. (2004) Effectiveness of acupuncture as adjunctive therapy in osteoarthritis of the knee: a randomized, controlled trial. *Ann Intern Med*, 21;141(12):901-910.

Ayurveda

www.bbc.co.uk/health/complementary/medical/ayurvedic.shtml#find
www.ayur.com/about.html
www.holistic-online.com/ayurveda/ayv_home.htm
www.ayurveda.com/
www.niam.com/

Homeopathy

- Baker DG, Myers SP, Howden I, Brooks L. The effects of homeopathic Argemum nitricum on test anxiety. *Complement Ther Med*. 2003 Jun;11(2):65-71. PMID: 12801490 [PubMed - indexed for MEDLINE]
- Bonne O, Shemer Y, Goral Y, Katz M, Shalev AY. A randomized, double-blind, placebo-controlled study of classical homeopathy in generalized anxiety disorder. *J Clin Psychiatry*. 2003 Mar; 64(3):282-7.
- Cavalcanti AM, Rocha LM, Carillo R Jr, Lima LU, Lugon JR. Effects of homeopathic treatment on pruritus of haemodialysis patients: a randomised placebo-controlled double-blind trial. *Homeopathy*. 2003 Oct;92(4):177-81. PMID: 14587682 [PubMed - indexed for MEDLINE]
- FDA website. Sec. 400.400 Conditions Under Which Homeopathic Drugs May be Marketed (CPG 7132.15) www.fda.gov/ora/compliance_ref/cpg/cpgdrg/cpg400-400.html
- Homeopathic Pharmacopoeia of the United States: www.hpus.com
- National Center for Homeopathy: http://www.homeopathic.org/index.html
- Natural Healers: www.naturalhealers.com
- Pacific Academy of Homeopathy: www.homeopathy-academy.org/catalog.htm
- The Council for Homeopathy Certification:

www.homeopathicdirectory.com

- The Council on Homeopathic Education: www.chedu.org
- Stehlin, Isadora. Homeopathy: real medicine or empty promises? *FDA Consumer Magazine*. 1996 5/31/88. Revised 3/95.
- Clarke, John Henry. A Dictionary of Practical Materia Medica. *Health Science Press*

Native American Healing

- Alvord, Lori Arviso and Elizabeth Cohen Van Pelt (2000). *The Scalpel and the Silver Bear*. Bantam Books. 6.
- Anonymous (2000), Native American Medicine, WholehealthMD web site www.wholehealthmd.com/rcfshelf/substances_view/1,1525,721,00.html. Accessed on April 5, 2006.
- Anonymous (2004), Traditional Native American Medicine, Aworldofchinesemedicine web site www.awordofchinesemedicine.com/articles/native-american-medicine-information.htm. Accessed on April 5, 2006.
- Anonymous (January 10, 2000), Traditional, Indigenous Systems of Medicine Grant Application, NIH web site http://grants.nih.gov/grants/guide/pa-files/PA-00-041.html. Accessed on April 5, 2006.
- Anonymous (Spring 2004), "Investigating the Science Behind Plants as Treatment" in *Complementary and Alternative Medicine at the NIH Newsletter*, vol. XI, no. 2. http://nccam.nih.gov/news/newsletter/previous/index_spring04.htm. Accessed on April 5, 2006.
- Kligler, Benjamin (June 1, 2003), Black Cohosh, *American Family Physician* (electronic pages), vol 68, no. 1. www.aafp.org/afp/20030701/114.html. Accessed on April 5, 2006.
- Mehl-Madrona, Lewis E. Traditional [Native American] Indian Medicine Treatment of Chronic Illness, The Healing Center Online web site www.healing-arts.org/mehl-madrona/mmpapers.htm. Accessed on April 5, 2006.
- Rakel, D., editor (2003), *Integrative Medicine*, Philadelphia, PA: Saunders.
- Venkatraman, Manorama M., et al. Alternative Systems of Medical Thought: Yoga, Ayurveda, Native American and Yoruba Based Medicines, American Medical Student Association web site www.wamsa.org/humed/camresources/learn.cfm. Accessed on April 5, 2006.

Naturopathic Medicine

References are current and updated as of April 7, 2006:
Alternative Insurance - alternativeinsurance.com
American Association of Naturopathic Physicians - naturopathic.org
California Naturopathic Doctors Association - calnd.org
General Council and Register of Naturopaths - naturopathy.org.uk
Natural Health Coalition - naturalhealthcoalition.ca/naturopathy.htm
Northwest Naturopathic Clinic - nwclinic.com
The British Naturopathic Association - naturopaths.org.uk
The Canadian Association of Naturopathic Doctors - naturopathicsoc.ca
The Council on Naturopathic Medical Education - cnme.org

Osteopathy

- Gevitz, Norman. *The DOs: Osteopathic Medicine in America*, Baltimore: Johns Hopkins University Press, 1991.
- Still AT. *Osteopathy: Research and Practice*, Eastland Press, 1992.
- Ward, Robert C. (Ed.) *Foundations for Osteopathic Medicine*, New York: Lippincott, Williams & Wilkins, 1992.
- www.osteopathic.org American Osteopathic Association Patient Website, retrieved April 5, 2006.
- do-online.osteotech.org American Osteopathic Association Provider Website, retrieved April 5, 2006.
- www.aacom.org American Association of Colleges of Osteopathic Medicine, retrieved April 5, 2006.
- www.opsc.org Osteopathic Physicians and Surgeons of California, retrieved April 5, 2006.

Traditional Chinese Medicine.

- Lewith, George T. *Conceptual Basis of Traditional Chinese Medicine*. London, Thorsons Publishing Group.
- California State Oriental Medical Association: Overview of Oriental Medicine: www.aaom.org
- Retrieved April 20, 2006 from www.acupuncture.com

- Dincer, F. and Linde, K. "Sham Interventions in randomized clinical trials of acupuncture—a review." *Complement Ther Med*. 2003 Dec;11(4):235-42.
- Rakel, D (ed.) *Integrative Medicine*. Philadelphia: Elsevier Science, 2003.
- California State Oriental Medical Association: Overview of Oriental Medicine www.aaom.org
- Lecture, Dr. Ellen Hughes. University of California at San Francisco Medical School. 4/20/2006
- California State Oriental Medical Association: Overview of Oriental Medicine www.aaom.org

Tibetan Medicine

www.naturalhealers.com/qa/tibetanmedicine.shtml
www.tibetmed.org/school_training.htm
www.dharma-haven.org/tibetanmedicine.htm
http://amfoundation.org/tibetanmedicine.htm
www.tibet.com/Med_Astro/tibmed.html
European Herbal Practitioners Association. Tibetan Herbal Medicine Core Curriculum.

Traditional Mexican Therapy

- Lopez, Rebecca A. "Use of Alternative Folk Medicine by Mexican American Women." *Journal of Immigrant Health*, Vol. 7, No.1, January 2005.
- Smith, Andrea B. "Mexican Cultural Profile: Traditional Medical Practices." www.ethnomed.org/ethnomed/cultures/mexican/mexican_cp.html#western. Accessed April 5, 2006.
- American Public Health Association. "Latin America: Health Culture Sketch." www.apha.org/ppp/red/lagenchar.htm. Accessed April 5, 2006.
- Neff, Nancy. "Module VII: Folk Medicine in Hispanics in the Southwestern United States." www.rice.edu/projects/HispanicHealth/Courses/mod7/mod7.html. Accessed April 5, 2006.
- Colucciello M.L. and V. Woelfel. "Child Care Beliefs and Practices of Hispanic Mothers." (1998) *Nursing Connections*. Vol 11, No 3, p 33-40.
- Fishman, B.M.; Bobo, L.; Kosub, K; and Womeodu, R.J. "Cultural Issues in Serving Minority Populations: Emphasis on Mexican Americans and African Americans." *Am J Med Sci* 1993; 306(3):160-166.
- Washington State Health Department. "State Dept. of Health warns about dangerous Mexican folk remedies." June 15, 2000. www.doh.wa.gov/Publicat/2000_News/00-59.html. Accessed April 5, 2006.

Polarity Therapy

Siegel, Alan. *Polarity Therapy: The Power That Heals*. Dorset, UK: Prism Press, 1994.

Phillips, P. Polarity Therapy: Bodywork to address our energetic nature. *Massage Magazine*. May/June 98, Issue 73.

Reiki, K. (2001) Table Talk. *Massage Magazine*, Issue 91, p34, 1p.

Ward, R. (2001) *Reiki: The Power of the Touch*. New York: HarperCollins Publishers. April 1, 2006 from www.polaritytherapy.com/camresources/bio.cfm

A RK, Kurup PA (June 2003). Changes in the isoprenoid pathway with transcendental meditation and Reiki healing practices in seizure disorder. *Neural India*, 51(2), 211-4.

Cook CA, Guerrero JF, Slater VE (May-June 2004). Healing touch and quality of life in women receiving radiation treatment for Shapiro F and Forrest M. (1997) *EMDR: The breakthrough therapy for overcoming anxiety, stress, and trauma*. New York: Basic Books.

Shapiro F. (1995) *Eye movement desensitization and reprocessing: Basic principles, protocols, and procedures*. New York: Guilford Press.

Shepherd J, Stein K, and Milne R. (2000) Eye movement desensitization and reprocessing in the treatment of post-traumatic stress disorder: a review of an emerging therapy. *Psychol Med*. 30(4): 863-71.

cancer: a randomized controlled trial. *Altern Ther Health Med.*, 10(3), 34-41.

Denison B (2004 May-June). Touch the pain away: new research on therapeutic touch and persons with fibromyalgia syndrome. *Holist Nurs Pract.*, 18(3), 142-51

Holistic Online. (2005): Reiki Infocenter (n.d.). Retrieved April 1, 2006 from http://holisticonline.com/Reiki/hol_Reiki_home.htm

Mackay N, Hansen S, and McFarlane O (Dec 2004). Autonomic Nervous System changes during Reiki treatment: a preliminary study. *J Altern Complement Med*, 10(6), 1077-81.

Post-White J, Kinney ME, Savik K, Gau JB, Wilcox C, Lerner I (Dec 2003). Therapeutic massage and healing touch improve symptoms in cancer. *Integr Cancer Ther*, 2(4), 332-44

References

- Rand, William (1991). *Reiki, The Healing Touch*. Southfield, MI: Vision Publications.
- Shore, AG (May-June 2004). Long-term effects of energetic healing on symptoms psychological depression and self-perceived stress. *Altern Ther Health Med*, 10(3), 42-8.
- Usui M (1999). *The Original Reiki Handbook*. Frank Arjava Petter, ed. Lotus Press.
- Woods DL, Craven RF, and Whitney J (Jan-Feb 2005). The Effect of Therapeutic Touch on behavioral symptoms of persons with dementia. *Altern Ther Health Med*, 11(1), 66-74.
- Aikido**
- Daniels K, Thornton E. Length of training, hostility and the martial arts: a comparison with other sporting groups. *Br J Sports Med*. 1992;26(3):118-120.
- Delva-Taulilili J. Does brief Aikido training reduce aggression of youth? *Percept Mot Skills*. 1995 Feb;80(1):297-8.
- Foster YA. Brief aikido training versus karate and golf training and university students' scores on self-esteem, anxiety, and expression of anger. *Percept Mot Skills*. 1997 Apr;84(2):609-10.
- Gidron Y, Davidson K, Bata I. The short-term effects of a hostility-reduction intervention in CHD patients. *Health Psychol*. 1999;18:416-420.
- Luskin FM, Newell KA, Griffith M, Holmes M, Telles S, Marvasti FF, Pelletier KR, Haskell WL. A review of mind-body therapies in the treatment of cardiovascular disease. Part 1: Implications for the elderly. *Altern Ther Health Med*. 1998 May;4(3):46-61. Review.
- Matthews KA, Gump BB, Harris KF, Haney TL, Barefoot JC. Hostile behaviors predict cardiovascular mortality among men enrolled in the multiple risk factor intervention trial. *Circulation*. 2004 Jan 6;109(1):66-70. Epub 2003 Dec 08.
- Miller TQ, Smith TW, Turner CW, et al. A meta-analytic review of research on hostility and physical health. *Psychol Bull*. 1996;119:322-348.
- Raikkonen K, Matthews KA, Salomon K. Hostility predicts metabolic syndrome risk factors in children and adolescents. *Health Psychol*. 2003 May;22(3):279-86.
- Williams RB, Haney TL, Lee KL, Blumenthal JA, Kong Y. Type A behavior, hostility, and coronary atherosclerosis. *Psychosom Med*. 1980;42:539-549.
- Alexander Technique**
1. Stevens C. "The development of the Alexander Technique and evidence for its effects." *British Journal of Therapy and Rehabilitation*, November 1997; Vol 2, No 11, p. 621-626.
 2. <http://www.alexandertech.org/misc/whatisat.html> Accessed April 6, 2006
 3. <http://www.alexandertechnique.com/at/> Accessed April 6, 2006
 4. Dennis RJ. "Functional Reach Improvement in Normal Older Women After Alexander Technique Instruction." *Journal of Gerontology*, 1999; Vol. 54A, No. 1. M8-M11.
 5. Stallbrass C, Sissons P, and Chalmers C. "Randomized controlled trial for the Alexander technique of idiopathic Parkinson's disease." *Clinical Rehabilitation*, 2002; 16:705-718.
 6. Ernst E. The Alexander technique: a systematic review of controlled clinical trials. - *Forsch Komplementarmed Klass Naturheilkd* - 01-DEC-2003; 10(6): 325-9
 7. Austin JH, Ausubel P. "Enhanced respiratory muscular function in normal adults after lessons in proprioceptive musculoskeletal education without exercises." *Chest*, Aug 1992;102(2):486-90.
 8. Maher C. "Effective treatment for chronic low back pain." *Orthop Clin North Am*, 2004 Jan 35(1); 57.
- Breema**
1. Bright, Mara. Breema: The Essence of Harmonious Life. The Alternative Medicine Journal of New England. Online at www.manyhands.com/articles/breema.html
 2. The Breema Clinic, 2004.
 3. Personal interview with Jon Schreiber and Angela Porter
 4. The Breema Center. *Breema: The Nine Principles of Harmony*. Publication, ©2004.
 5. Schreiber, Jon. Breema— Essence of Harmonious Life. Positive Health. April 2000, pages 45-50.
 6. The Breema Center. *Breema and Health*. Publication.
 7. <http://www.breema.com/about/sbbb/index.html> Accessed April 6, 2006
 8. <http://www.positivehealth.com/PERMIT/ARTICLES/Bodywork/jon51.htm>. Accessed April 6, 2006
 9. <http://www.positivehealth.com/permit/articles/Bodywork/schreiber61.htm>. Accessed April 6, 2006.
 10. http://www.findarticles.com/p/articles/mi_g2603/is_0002/ai_2603000228. Accessed April 6, 2006.
 11. <http://www.thehealthylivingguide.com/breema.htm>. Accessed April 6, 2006
- Chiropractic**
- www.amerchiro.org, retrieved April 23, 2006.
- www.ccc-usa.org, retrieved April 23, 2006.
- www.chiropractic.org, retrieved April 23, 2006.
- www.chiroweb.com, retrieved April 23, 2006.
- Massage**
1. Zanolta, R., et al. Evaluation of the Results of Three Different Methods of Post mastectomy Lymphedema Treatment. *J. Surg Oncol*. 1984;26:210-213.
 2. Ernst E. Massage for Low Back Pain A Systematic Review. *Journal of Pain and Symptom Management*. 1999; 17 (1): 65-69.
 3. Kaard B et al. Increase in Plasma Beta Endorphins in Connective Tissue Massage. *General Pharmacology*. 1989;20(4):487-489.
 4. Field TM. Massage Therapy Effects. *American Psychological Association*. 1998;53(12):1270-1281.
 5. Ironson G, et al. Massage Therapy is Associated with Enhancement of the Immune System's Cytotoxic Capacity. *Intern J Neurosci*. 1996;84:205-217
- Reflexology**
1. See bibliography in Kunz, B. & Kunz, K. (2003). *Findings in Research about Safety, Efficacy, Mechanism of Action and Cost-Effectiveness of Reflexology (Revised)*, RRP Press.
 2. Bishop, E. et al. (2003). Reflexology in the management of encopresis and chronic constipation. *Pediatric Nurs*, 15(3):20-1.
 3. Olesen, T. et al. (1993). Randomized controlled study of premenstrual symptoms treated with ear, hand, and foot reflexology. *Obstet Gynecol*, 82(6):906-11.
 4. Park, H.S. et al. (2004). Effects of foot reflexology on essential hypertension patients. *Taehan Kanho Hakhoe Chii*, 34(5):739-50.
 5. Stephenson, N. et al. (2003). The effect of foot reflexology on pain in patients with metastatic cancer. *Appl Nurs Res*, 16(4):284-6.
 6. Stephenson, N.L. et al. (2000). The effects of foot reflexology on anxiety and pain in patients with breast and lung cancer. *Oncol Nurs Forum*, 27: 67-72.
 7. Grealish, L. et al. (2000). Foot massage. A nursing intervention to modify the distressing symptoms of pain and nausea in patients hospitalized with cancer. *Cancer Nurs*, 23(3):237-43
 8. Raz, I. et al. (2003). Correlation study between conventional medical diagnosis and the diagnosis by reflexology (non conventional). *Harefuah*, 142(8-9):600-5, 646.
 9. White, A.R. et al. (2000). A blinded investigation into the accuracy of reflexology charts. *Complement Ther Med*, 8(3):166-72.
 10. Reflexology. (n.d.) *Aetna IntelHealth Online*. Retrieved April 20, 2006 from www.intelhealth.com/1H/1H1H/WSIH0000/8513/34968/360060.html?d=dmContent.
- Tai Chi**
1. Frantz B. *The Big Book of Tai Chi*. Thorsons Publishers; 2003.
 2. Kaptchuk TJ. *The Web That Has No Weavers: Understanding Chinese Medicine*. McGraw/Hill Contemporary Books; 2000.
 3. Gilman M. *108 Insights into Tai Chi Chuan: A String of Pearls*. Jamaica Plain, Mass: YMAA Publication Center; 1998.
 4. "Tai Chi" and "Qigong". In Sifton D (Ed) *PDR Family Guide to Natural Medicines*. New York: Three Rivers Press; 1999.
 5. Ibid
 6. Ibid
 7. Wang MD, et al. (2004). 501 The Effect of Tai Chi on Health Outcomes in Patients With Chronic Conditions. *Arch Intern Med*. 164:493-499.
 8. PDR Family Guide
 9. Han A, et al. (2004). Tai Chi for Treating Rheumatoid Arthritis. *The Cochrane Database of Systematic Reviews*. Issue 3.
 10. Qin L. et al. (2005). Beneficial effects of regular Tai Chi exercise on musculoskeletal system. *J Bone Miner Metab*. 23:186-190
- Yoga**
1. www.sivananda.org
 2. Iyengar, B.K.S. *Light on Yoga*. New York: Schocken Books, 1979. Pages 1-53.
 3. Turlington, Christy. *Living Yoga*. New York: Hyperion, 2002. pages 22-29.
 4. Iyengar
 5. www.sivananda.org
 6. Iyengar
 7. Iyengar
 8. www.sivananda.org/teachings/asana/exercise.html
 9. Cooper S, Osborne J, Newton S, Harrison V, Thompson Coon J, Lewis S, Tattersfield A. Effect of two breathing exercises (Buteyko and pranayama) in asthma: a randomised controlled trial. *Thorax*. 2003 Aug; 58(8): 674-9.
 10. Garfinkel MS, Singhal A, Katz WA, et al. Yoga-based intervention for carpal tunnel syndrome: a randomized trial. *JAMA* 1998;280(18):1601-1603.
 11. van Montfrans GA, Karemaker JM, Wieling W, et al. Relaxation therapy and continuous ambulatory blood pressure in mild hypertension: a controlled study. *BMJ* 1990;300(6736):1368-1372.
 12. Yeolekar ME. Yoga practices and hypertension. *J Assoc Physicians India* 2002;50(5):631-632.
13. Mahajan AS, Reddy KS, Sachdeva U. Lipid profile of coronary risk subjects following yogic lifestyle intervention. *Indian Heart Journal*. 1999 Jan-Feb; 51(1): 37-40.
14. Malathi A, Damodaran A, Shah N, Patil N, Maratha S. Effect of yogic practices on subjective well being. *Indian Journal of Physiology and Pharmacology*. 2000 Apr; 44(2): 202-6.
15. Tooley GA, Armstrong SM, Norman TR, Sali A. Acute increases in night-time plasma melatonin levels following a period of meditation. *Biological Psychology*. 2000 May; 53(1): 69-78.
- Fasting**
1. www.alternative-healthzine.com/html/herbal_naturopathy.html
 2. www.healthy.net/scr/article.asp?ID=1996
 3. Van Straten, M., *Healing Foods, Nutrition for the Mind, Body and Spirit*. Barnes and Noble, 1997.
 4. www.ncahf.org/articles/e-i/fasting.html
- Herbal Medicine**
- Hughes, E. (2003). Herbal Medicine. 2003 *Guide to Integrative Medicine* (pp. 24-25). San Francisco: Integrative Medicine Network at UCSF
- Belew, C. (2003). Evaluating the Efficacy and Safety of Herbs. 2003 *Guide to Integrative Medicine*. (pp. 38-39). San Francisco: Integrative Medicine Network at UCSF
- DreamPharm Online Pharmacy. <http://dreampharm.com/index.html>. Accessed April 5, 2006.
- Herbal Medicine Introduction. www.holistic-online.com/Herbal-Med/hol_herb-intro.htm. Accessed April 5, 2006.
- US Food and Drug Administration. Dietary Supplement Health and Education Act (1995). www.cfsan.fda.gov/~dms/dietsupp.html. Accessed April 5, 2006.
- Glickman-Simon, R. (2004). Shopping for Dietary Supplements: Understanding Safety Concerns. www.swedist.org/19978.cfm. Accessed April 5, 2006.
- Vitamins**
- Botanical Council (2005). www.herbalgram.org/BotanicalCouncil. Accessed April 5, 2006.
- Academic Programs. <http://bastyr.edu/academic/profiles/>. Accessed April 5, 2006.
- Young, Jacqueline. (2002). Vitamins. http://www.bbc.co.uk/health/healthy_living/complementary_medicine/remedies_vitamins.shtml. Accessed April 5, 2006.
- British Association of Nutritional Therapists. Practitioner Search. <http://www.bant.org.uk/bant/jsp/practitionerSearch.faces>. Accessed April 5, 2006.
- McMorran, J. et al. (2005). General Practice Notebook: A UK Medical Encyclopedia. <http://gpnotebook.co.uk/author.cfm>. Accessed April 5, 2006.
- National Association of Nutrition Professionals. <http://nanp.org/> Accessed April 5, 2006.
- Art Therapy**
1. Wallace, J. (February 2004) Detection of Depression and Post-Traumatic Stress Disorder in young renal transplant recipients. *Pediatric Transplantation*, 8(1), 52.
 2. Gabriel B, et al. Art therapy with adult bone marrow transplant patients in isolation: a pilot study. *Psycho-Oncology*. Mar 2001; 10(2):114-123.
 3. Zeltzer BN, et al. Arts Therapies Promote Wellness in Elders. *Behavioral Healthcare Tomorrow*. April 2003; 12 (2):7(5).
- EMDR**
- Davidson PR and Parker KCH. (2001) Eye movement desensitization and reprocessing (EMDR): a meta-analysis. *J Consult Clin Psychol*. 69: 305-16.
- Foa EB and Meadows EA. (1997) Psychosocial treatments for posttraumatic stress disorder: a critical review. *Annu Rev Psychol*. 48: 449-80.
- Maxfield L and Hyer LA. (2002) The relationship between efficacy and methodology in studies investigating EMDR treatment of PTSD. *J Clin Psychol*. 58: 23-41
- Mindfulness Based Stress Reduction**
- Bishop SR. What do we really know about mindfulness-based stress reduction? *Psychosomatic Medicine*. 64:71-84 (2002).
- Carlson LE, Speca M, Patel KD, Goodey E. Mindfulness-based stress reduction in relation to quality of life, mood, symptoms of stress and levels of cortisol, dehydroepiandrosterone sulfate (DHEAS) and melatonin in breast and prostate cancer outpatients. *Psychoneuroendocrinology* 29:448-474 (2004).
- Kabat-Zinn, J. (1990). *Full Catastrophe Living*. New York: Doubleday.
- "Mindfulness-Based Professional Education and Training Programs" brochure, www.umassmed.edu/cfm/, retrieved April 24, 2006.
- Placebo Effect**
- Benedetti, F., A. Pollo, et al. (2003). "Conscious expectation and unconscious conditioning in analgesic, motor, and hormonal placebo/nocebo responses." *J Neurosci* 23(10): 4315-23.
- Berk, S. N., M. E. Moore, et al. (1977). "Psychosocial factors as mediators of acupuncture therapy." *J Consult Clin Psychol* 45(4): 612-9.
- de la Fuente-Fernandez, R., T. J. Ruth, et al. (2001). "Expectation and dopamine release: mechanism of the placebo effect in Parkinson's disease." *Science* 293(5532): 1164-6.

References

- de la Fuente-Fernandez, R. and A. J. Stoessl (2002). "The placebo effect in Parkinson's disease." *Trends Neurosci* 25(6): 302-6.
- Di Blasi, Z., E. Harkness, et al. (2001). "Influence of context effects on health outcomes: a systematic review." *Lancet* 357(9258): 757-62.
- Di Blasi, Z., T. J. Kaptchuk, et al. (2002). "Informing participants of allocation to placebo at trial closure: postal survey." *BMJ* 325(7376): 1329.
- Gotzsche, P. C. (1994). "Is there logic in the placebo?" *Lancet* 344(8927): 925-6.
- Hashish, I., H. K. Hai, et al. (1988). "Reduction of postoperative pain and swelling by ultrasound treatment: a placebo effect." *Pain* 33(3): 303-11.
- Hrobjartsson, A. and P. C. Gotzsche (2001). "Is the placebo powerless? An analysis of clinical trials comparing placebo with no treatment." *N Engl J Med* 344(21): 1594-602.
- Kaptchuk, T. J. (1998). "Powerful placebo: the dark side of the randomised controlled trial." *Lancet* 351(9117): 1722-5.
- Kienle, G. S. and H. Kiene (1996). "Placebo effect and placebo concept: a critical methodological and conceptual analysis of reports on the magnitude of the placebo effect." *Altern Ther Health Med* 2(6): 39-54.
- Kienle, G. S. and H. Kiene (1997). "The powerful placebo effect: fact or fiction?" *J Clin Epidemiol* 50(12): 1311-8.
- Kirsch, I. and G. Sapirstein (1998). "Listening to Prozac but Hearing Placebo: A Meta-Analysis of Antidepressant Medication." *Prevention & Treatment* 1(Article 0002A): 8.F D A / C F S A N Consumer Advisory: Kava-Containing Dietary Supplements May be Associated With Severe Liver Injury. (2002). Retrieved April 11, 2004, from www.cfsan.fda.gov/~dms/addskava.html Available on the World Wide Web: <http://journals.apa.org/prevention/volume1/pre0010002a.html>.
- Kleijnen, J., A. J. de Craen, et al. (1994). "Placebo effect in double-blind clinical trials: a review of interactions with medications." *Lancet* 344(8933): 1347-9.
- Leuchter, A. F., I. A. Cook, et al. (2002). "Changes in brain function of depressed subjects during treatment with placebo." *Am J Psychiatry* 159(1): 122-9.
- Mayberg, H. S., J. A. Silva, et al. (2002). "The functional neuroanatomy of the placebo effect." *Am J Psychiatry* 159(5): 728-37.
- Moseley, J. B., K. O'Malley, et al. (2002). "A controlled trial of arthroscopic surgery for osteoarthritis of the knee." *N Engl J Med* 347(2): 81-8.
- Shifflet, S. C., S. Nayak, et al. (2002). "Effect of Reiki treatments on functional recovery in patients in poststroke rehabilitation: a pilot study." *J Altern Complement Med* 8(6): 755-63.
- Thomas, K. B. (1987). "General practice consultations: is there any point in being positive?" *Br Med J (Clin Res Ed)* 294(6581): 1200-2.
- Turner, J. A., R. A. Deyo, et al. (1994). "The importance of placebo effects in pain treatment and research." *JAMA* 271(20): 1609-14.
- ### Spiritual Healing
1. Metzger B. and Murphy R. *The New Oxford Annotated Bible, Book of Matthew, Verse 8.3 - 8.13*. New York, NY: Oxford University Press, 1991.
2. Dossey L. *Space, Time, & Medicine*. Boulder, CO: Shambhala Publications, Inc., 1982.
3. Astin JA, Harkness E, Ernst E. "The Efficacy of "Distant Healing": A Systematic Review of Randomized Trials." *Annals of Internal Medicine*, June 6, 2000, Volume 132, Issue 11, 903-910.
4. www.naturalstandard.com/naturalstandard/monographs/monoframeaset.asp?monograph=/monographs/alternativemodalities/patient-therapeutic_touch.asp. Accessed April 21, 2006.
5. my.webmd.com/content/article/26/1728_58642.htm?lastselectedguid={5FE84E90-B7C7-4056-A91C-9531713CA348}. Accessed April 21, 2006.
6. Lengacher CA, Bennett MP, Kip KE, Keller R, LaVance MS, Smith LS, Cox CE. "Frequency of use of complementary and alternative medicine in women with breast cancer." *Oncology Nurse Forum*, Nov-Dec, 2002, Volume 29, Issue 10, 1445-1452.
7. freehaling.org/testimonials2003.html. Accessed April 21, 2006.
8. Byrd RC. Positive therapeutic effects of intercessory prayer in a coronary care unit population. *Southern Medical Journal*, 1988, Volume 81, 826-829.
9. Harris WS, Gowda M, Kolb JW, Strychacz CP, Vacek JL, Jones PG, et al. "A randomized, controlled trial of the effects of remote, intercessory prayer on outcomes in patients admitted to the coronary care unit." *Archives of Internal Medicine*, 1999, 2273-2278.
- ### Diet and Inflammation
- Atinoro, Linda. "Defending Against Disease with an Anti-Inflammation lifestyle"
- Jan, 2005: [Intelihealth.com: Healthy Lifestyle. www.intelihealth.com/HH/IntHH/WSIH0000/35320/35327/412005.html?d=dmthMSContent](http://www.intelihealth.com/HealthyLifestyle/www.intelihealth.com/HH/IntHH/WSIH0000/35320/35327/412005.html?d=dmthMSContent)
- Carper, Jean. "Your big new threat: Inflammation" USA Weekend Magazine.com Eat Smart. 2003. www.usaweekend.com/03_issues/030309/030309eatsmart.html
- Challem, Jack. *The Inflammation Syndrome*. New York: Wiley, 2003.
- Downey, Michael. "The Battle Within" 2004. Better Nutrition: First in Natural Health. www.betternutrition.com/document_display.cfm?document_id=433
- Jaret, Peter. "Trans Fats On the Brain: Fresh New Concerns About Partially Hydrogenated Oils" 2003. Eating Well Magazine: Nutrition Watch. www.eatingwell.com/articles_recipes/nutrition/nut_watch_transfats_am05.html
- Jeqtvig, Shereen. "Anti Inflammatory Diet- Controlling Inflammation with Food" 2004. <http://nutrition.about.com/od/dietsformedicaldisorders/a/antiinflammfood.htm>
- Lehrman, Sally. "The Case of the Woman Who Ate Too Well: A Cautionary Tale For Lovers of Fish" 2003. Eating Well Magazine: Nutrition Watch. www.eatingwell.com/articles_recipes/nutrition/nut_watch_fish_tale.html
- Masland, Molly. "Food for thought: Can diet protect memory?" Dec, 2004. MSNBC.com: Health. www.msnbc.msn.com/id/6560710/
- Micco, Nicky. "Fighting fire with Food: Reducing Chronic Inflammation" 2003. Eating Well Magazine: Nutrition Watch. April/May 2004. www.eatingwell.com/articles_recipes/nutrition/nut_watch.htm Accessed March 21, 2005.
- Minsky, Bonnie C. "Inflammation = Degenerative Disease" June, 2004. Conscious Choice. www.consciouschoice.com/2004/cc1706/healthconscious1706.html
- ### Diabetes and Nutrition
1. Berardi, Rosemary R.; McDermott, June H.; Newton, Gale D.; Oszko, Michael A.; Popovich, Nicholas, G.; Rollins, Carol J.; Shimp, Leslie A.; Tietze, Karen J. *Handbook of Nonprescription Drugs, 14th Ed.* American Pharmacists Association, Washington, D.C.: 2002.
2. *Diabetes Care* 25 2002 S50-S60
3. Glorie SR et al., *J Am Diet Assoc* 94 1994 42
4. Anderson JW; Ward K, *Am J Clin Nutr* 32 1979 2312
5. Ubbink JB et al., *JAMA* 274 1994 1927
6. Ginsberg HN et al., *NEJM* 322 1987
7. Power GW; Newsholme EA, *J Nutr* 127 1997 2142
8. Hill JO et al., *Int J Obesity* 17 1993 223
9. James BF et al., *J Clin Invest*. 1963 April; 42(4): 497-506.
10. *JAMA*. 1997;277:472-477.
11. Holt, SHA, Mille JB, *Appetite* 24 1995 43
12. Koffler M, Kisch ES, *J Diabetes Complications* 10 1996 102
13. *Diabetes Care* 27 2004 2701
14. Jenkins DJA et al. *Al N Engl J Med* 321 1989 929
15. Terruzzi L et al. *Mol Cell Endocrinol* 190 2002 135
16. Vessby B et al., *Diabetologia* 44 2001 312
17. Liu S et al., *Biochem J* 299 1994 831
18. Storlien LH et al. *Science* 237 1987 885
- ### Gastrointestinal Disorders
1. Astin JA. Why patients use alternative medicine: results of a national study. *JAMA*. 1998;279:1548-1553.
2. Hilsden RJ, Scott CM, Verhoef MJ. Complementary medicine use by patients with inflammatory bowel disease. *Am J Gastroenterol*. 1998;93:697-701.
3. Kong SC, et al. The incidence of self-prescribed oral complementary and alternative medicine use by patients with gastrointestinal diseases. *J Clin Gastroenterol*. 2005;39:138-141.
4. *Current Medical Diagnosis & Treatment 2003*, 42nd Edition. ed. By Lawrence M. Tierney Jr., Stephen J. McPhee, Maxine A. Papadakis (New York: McGraw-Hill, 2003), 1706.
5. NIH Clinical Trials: clinicaltrials.gov/show/NCT00034996.
6. Vutyavanich T, Wongtra-ngan S, Ruangsri R. Pyridoxine for nausea and vomiting of pregnancy: a randomized, double blind, placebo-controlled trial. *Am J Obstet Gynecol*. 1995;173:881-4.
7. Sahakian V, Rouse D, Sipes S, et al. Vitamin B6 is effective therapy for nausea and vomiting of pregnancy: a randomized, double-blind placebo-controlled study. *Obstet Gynecol* 1991;78:53-6.
8. NIH Clinical Trials: clinicaltrials.gov/show/NCT00065221.
9. Mowrey DB, Clayton DE. Motion sickness, ginger, and psychophysics. *Lancet* 1982;1:655-7.
10. Grontved A, Brask T, Kambskard J, et al. Ginger root against seasickness. *Acta Otolaryngol* 1988;105:45-9.
11. *Current Medical Diagnosis & Treatment 2003*, 527.
12. Yale New Haven Health: yalenewhavenhealth.org/Library/HealthGuide/CAM.
13. *Current Medical Diagnosis & Treatment 2003*, 527.
14. Yale New Haven Health: yalenewhavenhealth.org/Library/HealthGuide/CAM.
15. Heymen S, Wexner SD, Vickers D, et al. Prospective, randomized trial comparing four biofeedback techniques for patients with constipation. *Dis Colon Rectum* 1999;42:1388-93.
16. *Current Medical Diagnosis & Treatment 2003*, 598.
17. Fennerty MB. Traditional therapies for irritable bowel syndrome: an evidence-based appraisal. *Rev Gastroenterol Disord*. 2003;3 Suppl 2:S18-24.
18. Bohmer CJ, Tuynman HA. The clinical relevance of lactose malabsorption in irritable bowel syndrome. *Eur J Gastroenterol Hepatol*. 1996 Oct;8(10):1013-6.
19. Jalihal A, Kurian G. Ispaghula therapy in irritable bowel syndrome: improvement in overall well-being is related to reduction in bowel dissatisfaction. *J Gastroenterol Hepatol*. 1990 Sep-Oct;5(5):507-13.
20. May B, Kuntz HD, Kieser M, Kohler S. Efficacy of a fixed peppermint oil/caraway oil combination in non-ulcer dyspepsia. *Arzneimittelforschung* 1996 Dec;46(12):1149-53.
21. Bensoussan A, Talley NJ, Hing M, Menzies R, Guo A, Ngu M. Treatment of irritable bowel syndrome with Chinese herbal medicine: a randomized controlled trial. *JAMA*. 1998 Nov 11;280(18):1585-9.
22. NIH Clinical Trials: clinicaltrials.gov/show/NCT00065403.
23. Sanders ME. Probiotics. *Food Technology* 1999;53:67-77.
24. Tamboli CP, Cauchetux C, Cortot A, Colombel J, Desreumaux P. Probiotics in inflammatory bowel disease: a critical review. *Best Practice & Research: Clinical Gastroenterology* 2003;17(5):805-820.
- ### Mental Health
1. National Institute of Mental Illness. The Numbers Count: Mental Disorders in America, 2003. NIMH Publication No. 01-4584. Bethesda, MD: National Institute of Mental Illness, 2003.
2. Mental Health: A Report of the Surgeon General - Chapter 2. (1999) Retrieved April 7, 2006 from <http://www.surgeongeneral.gov/library/mentalhealth/chapter2/sec2.html>
3. Mamtani R, Cimino A. A primer of complementary and alternative medicine and its relevance in the treatment of mental health problems. *Psychiatr Q*. 2002 Winter;73(4):367-81.
4. Ernst E, Rand J, Stevinson C. Complementary Therapies for Depression. *Arch Gen Psychiatry*. 1998 Nov; 55:1026-1032
5. St. John's wort (Hypericum perforatum L.). (2004). Retrieved April 7, 2006, from www.naturalstandard.com/naturalstandard/monographs
6. Sparber A, Wootton JC. Surveys of complementary and alternative medicine: Part V. Use of alternative and complementary therapies for psychiatric and neurologic diseases. *J Altern Complement Med*. 2002 Feb;10(1):93.
7. Kava (Piper methysticum G. Forst). (2004). Retrieved April 7, 2006, from www.naturalstandard.com/naturalstandard/monographs
8. FDA/CFSA Consumer Advisory: Kava-Containing Dietary Supplements May be Associated With Severe Liver Injury. (2002). Retrieved April 7, 2006, from www.cfsan.fda.gov/~dms/addskava.html
9. Schneider, C. *Depression*. In D. Rakel (Ed.), *Integrative Medicine* (pp. 19-26). Philadelphia: Springer, 2003.
10. Lee, R. Anxiety. In D. Rakel (Ed.), *Integrative Medicine* (pp.27-34). Philadelphia: Springer, 2003.
11. Stoll AL, Severus WE, Freeman MP, Rueter S, Zboyan HA, Diamond E, Cress KK, Marangell LB. Omega 3 fatty acids in bipolar disorder: a preliminary double-blind, placebo-controlled trial. *Arch Gen Psychiatry*. 1999 May;56(5):407-12
12. Ross, J. *The Mood Cure*. NY: Penguin, 2002.
13. <http://www.dietcure.com>, retrieved April 7, 2006.
- ### Treatments for Cancer
- Allimi, D, Rubino, C, Pichard-Leandri, E, Fermand-Brule, S, Dubreuil-Lemaire, MI, Hill C. (2003) Analgesic effect of auricular acupuncture for cancer pain: a randomized, blinded controlled trial. *J Clin Oncol*, 21:4120-6.
- Anonymous (2005). Natural Standard Special Report: CAM Therapies in Cancer and Cancer Prevention, Natural Standard web site www.naturalstandard.com/monographs/news/news200310004.asp Accessed on April 20, 2006.
- CAM Clinical Trials from NCI's PDQ® Database (December 2, 2004), Office of Cancer Complementary and Alternative Medicine web site. www.cancer.gov/cam/clinicaltrials_pdq.html Accessed on April 20, 2006.
- Cancer clinical Trials (July 30, 2004), National Center for Complementary and Alternative Medicine. <http://nccam.nih.gov/clinicaltrials/cancer.htm> Accessed on April 20, 2006.
- Cancer Fact Sheets (no date). National Cancer Institute. <http://cis.nci.nih.gov/asp/FactSheetPub/AlphaSubList.asp?alpha=99> Accessed on April 20, 2006.

References

- Cancer Treatments (March 23, 2005). National Center for Complementary and Alternative Medicine. <http://nccam.nih.gov/health/cancer.htm> Accessed on April 20, 2006.
- Cassileth BR (1996). Alternative and Complementary Cancer Treatments. *The Oncologist* 1:173-9.
- Cheung YL, Molassiotis A, Chang AM. (2003) The effect of progressive muscle relaxation training on anxiety and quality of life after stoma surgery in colorectal cancer patients. *Psychooncology* 12:254-66.
- Complementary and alternative medicine in cancer treatment: Questions and answers. National Center for Complementary and Alternative Medicine, http://cis.nci.nih.gov/fact/9_14.htm
- Grossarth-Maticcek R, Kiene H, Baumgartner SM, Ziegler R. (2001) Use of Iscador, an extract of European mistletoe (*Viscum album*), in cancer treatment: prospective nonrandomized and randomized matched pair studies nested within a cohort study. *Altern Ther Health Med* 7:57-66, 68-72, 74-6.
- Lan X and Jiang Y (2003). The therapeutic effects of the radiotherapy plus TCM treatment observed in senile non-parvicellular lung cancer patients at the late stage. *J Tradit Chin Med* 23:32-4.
- Lee MM, Lin SS, Wrensch MR, Adler SR, Eisenberg D. (2000). Alternative therapies used by women with breast cancer in four ethnic populations. *Journal of the National Cancer Institute*, 92:42-7.
- Li QS, Cao SH, Xie GM, Gan YH, Ma HJ, Lu JZ, Zhang ZH (1994). Combined traditional Chinese medicine and Western medicine. Relieving effects of Chinese herbs, ear-acupuncture and epidural morphine on postoperative pain in liver cancer. *Chin Med J (Engl)* 107:289-94.
- McClure MW (2002). An overview of holistic medicine and complementary and alternative medicine for the prevention and treatment of BPH, prostatitis, and prostate cancer. *World J Urol* 20:273-84.
- Molassiotis A, Yung HP, Yam BM, Chan FY, Mok TS (2002). The effectiveness of progressive muscle relaxation training in managing chemotherapy-induced nausea and vomiting in Chinese breast cancer patients: a randomized controlled trial. *Support Care Cancer* 10:237-46.
- Mori K, Kondo T, Kamiyama Y, Kano Y, Tominaga K. (2003). Preventive effect of Kamyo medicine (Hangeshashin-to) against irinotecan-induced diarrhea in advanced non-small-cell lung cancer. *Cancer Chemother Pharmacol* 51:403-6.
- Petersen RW and Quinlivan JA (2002). Preventing anxiety and depression in gynaecological cancer: a randomised controlled trial. *BJOG* 109:386-94.
- Post-White J, Kinney ME, Savik K, Gau JB, Wilcox C, Lerner I (2003). Therapeutic massage and healing touch improve symptoms in cancer. *Integr Cancer Ther* 2:332-44.
- Rakel, D., editor (2003), *Integrative Medicine*, Philadelphia, PA: Saunders, 507-514.
- Shen J, Wenger N, Glaspy J, Hays RD, Albert PS, Choi C, Shekelle PG. (2000) Electroacupuncture for control of myeloablative chemotherapy-induced emesis: A randomized controlled trial. *JAMA* 284:2755-61.
- Sloman R. (2002). Relaxation and imagery for anxiety and depression control in community patients with advanced cancer. *Cancer Nurs* 25:432-5.
- Smith M and Boon HS (1999). Counseling cancer patients about herbal medicine. *Patient Education and Counseling* 38:109-120.
- Specia M, Carlson LE, Goodey E, Angen M (2000). A randomized, wait-list controlled clinical trial: the effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients. *Psychosom Med* 62:613-22.
- Tacon AM (2003). Meditation as a complementary therapy in cancer. *Fam Community Health* 26:64-73.
- Vickers AJ and Cassileth BR. (2001). Unconventional therapies for cancer and cancer-related symptoms. *Lancet Oncology*, 2:226-32.
- Treatment for Cardiovascular Disease**
1. Stys T, Stys A, Kelly P, Lawson W. Trends in use of herbal and nutritional supplements in cardiovascular patients. *Clin Cardiol*. 2004;27(2):87-90.
 2. Lin MC, Nahin R, Gershwin ME, Longhurst JC, Wu KK. State of complementary and alternative medicine in cardiovascular, lung, and blood research: executive summary of a workshop. *Circulation*. 2001;103(16):2038-41.
 3. Lin MC, Nahin R, Gershwin ME, Longhurst JC, Wu KK. State of complementary and alternative medicine in cardiovascular, lung, and blood research: executive summary of a workshop. *Circulation*. 2001;103(16):2038-41.
 4. Sarter B. Coenzyme Q10 and cardiovascular disease: a review. *J Cardiovasc Nurs*. 2002;16(4):9-20.
 5. P. Langsjoen, R. Willis et al., Treatment of essential hypertension with coenzyme Q10. *Mol Aspects Med* 15 Suppl 1994; S265-272.
 6. Maris Vevers, Egon Koch, and Shyam S. Chatterjee. Grataegus special extract WS® 1442 improves cardiac function and reduces infarct size in a rat model of prolonged coronary ischemia and reperfusion. *Life Sciences* 2004;74(15):1945-1955.
 7. Mahady GB. Ginkgo biloba for the prevention and treatment of cardiovascular disease: a review of the literature. *J Cardiovasc Nurs*. 2002;16(4):21-32.
 8. Lin SJ, Yang TH, Chen YH, Chen JW, Kwok CF, Shiao MS, Chen YL. Effects of Ginkgo biloba extract on the proliferation of vascular smooth muscle cells in vitro and on intimal thickening and interleukin-1beta expression after balloon injury in cholesterol-fed rabbits in vivo. *J Cell Biochem*. 2002;85(3):572-82.
 9. W. Abebe Herbal medication: potential for adverse interactions with analgesic drugs. *J. of Clinical Pharm & Therapeutics* 2002;27(6):391.
 10. Natural Standard www.naturalstandard.com, retrieved April 14, 2006.
- Burke BE, Neuenschwander R, Olson RD. Randomized, double-blind, placebo-controlled trial of coenzyme Q10 in isolated systolic hypertension. *South Med J*. 2001;94(11):1112-7.
- Combs AB, Porter TH, and Folkers K. Anticoagulant activity of naphthoquinone analog of vitamin K and an inhibitor of coenzyme Q10-enzyme systems. *Res Commun Chem Pathol Pharmacol* 1976;13:109-114.
- Landbo C and Almdal TP. Interaction between warfarin and coenzyme Q10. *Ugeskr Laeger* 1998;160: 3226-3227.
- Treatment for HIV**
- Fact Sheet: HIV/AIDS and Alternative Therapy*. National Institute of Health, Office of Alternative Medicine. June, 1994.
- Jason Tokumoto, M.D., Assistant Clinical Professor, UCSF, personal communication, April 4, 2004.
- National Center for Complementary and Alternative Medicine. <http://nccam.nih.gov>, retrieved April 5, 2006.
- Almuetz V. Herbal Therapy in Patients with HIV. *Medscape Pharmacists* 3(2), 2002.
- Antoni MH. Stress management effects on psychological, endocrinological, and immune functioning in men with HIV infection: empirical support for a psychoneuroimmunological model. *Stress*, 2003 Sep;6(3):173-88.
- De Clercq E. Current Lead Natural Products for the Chemotherapy of Human Immunodeficiency Virus (HIV) Infection. *Med Res Rep*, 20, No. 5, 323-349, 2000.
- de Visser R. et al. Alternative or Complementary? Non-allopathic Therapies for HIV/AIDS. *Alternative Therapies*, 2000 Sep, Vol. 6, No. 5
- Hsiao A. et al. Complementary and Alternative Medicine Use and Substitution for Conventional Therapy by HIV-Infected Patients. *J AIDS*. 33:157-165, 2003.
- Piscitelli S. Use of Complementary Medicine by Patients With HIV: Full Sail Into Uncharted Waters. (2000) *Medscape HIV/AIDS eJournal* 6(3).
- Pregnancy**
1. Wang, S. M., Dezinno, P., Maranets, I., Berman, M. R., Caldwell-Andrews, A. A., & Kain, Z. N. (2004). Low back pain during pregnancy: prevalence, risk factors, and outcomes. *Obstet Gynecol*, 104(1), 65-70.
 2. Perkins, J., Hammer, R. L., & Loubert, P. V. (1998). Identification and management of pregnancy-related low back pain. *J Nurse Midwifery*, 43(5), 331-340.
 3. To, W. W., & Wong, M. W. (2003). Factors associated with back pain symptoms in pregnancy and the persistence of pain 2 years after pregnancy. *Acta Obstet Gynecol Scand*, 82(12), 1086-1091.
 4. Fast, A., & Hertz, G. (1992). Nocturnal low back pain in pregnancy: polysomnographic correlates. *Am J Reprod Immunol*, 28(3-4), 251-253.
 5. To, W.
 6. Johanson, R., Chapman, G., Murray, D., Johnson, I., & Cox, J. (2000). The North Staffordshire Maternity Hospital prospective study of pregnancy-associated depression. *Journal of Psychosomatic Obstetrics and Gynecology*, 21(2), 93-97.
 7. Evans, J., Heron, J., Francomb, H., Oke, S., & Golding, J. (2001). Cohort study of depressed mood during pregnancy and after childbirth. *BMJ*, 323(7307), 257-260.
 8. Wergeland, E., & Strand, K. (1998). Work pace control and pregnancy health in a population-based sample of employed women in Norway. *Scand J Work Environ Health*, 24(3), 206-212.
 9. Orr, S. T. (2004). Social support and pregnancy outcome: a review of the literature. *Clinical Obstetrics and Gynecology*, 47(4), 842-855; discussion 881-842.
 10. Lee, K. A. (1998). Alterations in sleep during pregnancy and postpartum: a review of 30 years of research. *Sleep Med Rev*, 2(4), 231-242.
 11. Lee, K. A., & Gay, C. L. (2004). Sleep in late pregnancy predicts length of labor and type of delivery. *Am J Obstet Gynecol*, 191(6), 2041-2046.
 12. Guerreiro da Silva, J. B., Nakamura, M. U., Cordeiro, J. A., & Kulay, L., Jr. (2004). Acupuncture for low back pain in pregnancy—a prospective, quasi-randomised, controlled study. *Acupunct Med*, 22(2), 60-67.
 13. Kvorning, N., Holmberg, C., Grennert, L., Aberg, A., & Akeson, J. (2004). Acupuncture relieves pelvic and low-back pain in late pregnancy. *Acta Obstet Gynecol Scand*, 83(3), 246-250.
 14. Ternov, N. K., Grennert, L., Aberg, A., Algotsson, L., & Akeson, J. (2001). Acupuncture for lower back and pelvic pain in late pregnancy: a retrospective report on 167 consecutive cases. *Pain Med*, 2(3), 204-207.
 15. Wedenberg, K., Moen, B., & Norling, A. (2000). A prospective randomized study comparing acupuncture with physiotherapy for low-back and pelvic pain in pregnancy. *Acta Obstet Gynecol Scand*, 79(5), 331-335.
 16. Manber, R., Schnyer, R. N., Allen, J. J., Rush, A. J., & Blasey, C. M. (2004). Acupuncture: a promising treatment for depression during pregnancy. *J Affect Disord*, 83(1), 89-95.
 17. Field, T., Diego, M. A., Hernandez-Reif, M., Schanberg, S., & Kuhn, C. (2004). Massage therapy effects on depressed pregnant women. *Journal of Psychosomatic Obstetrics and Gynecology*, 25(2), 115-122.
 18. Field, T., Hernandez-Reif, M., Hart, S., Theakston, H., Schanberg, S., & Kuhn, C. (1999). Pregnant women benefit from massage therapy. *Journal of Psychosomatic Obstetrics and Gynecology*, 20(1), 31-38.
 19. Kabat-Zinn, M. (1998). *Everyday blessings: The inner work of mindful parenting*. NY: Hyperion.
- Women's Health**
1. *Current Medical Diagnosis & Treatment 2003*, 42nd Edition. ed. by Lawrence M. Tierney Jr., Stephen J. McPhee, Maxine A. Papadakis (New York: McGraw-Hill, 2003), 701.
 2. BMC Women's Health. "Prescribing patterns in premenstrual syndrome." 2002; 2 (1): 4. www.pubmedcentral.nih.gov/articlerender.fcgi?artid=117222. Accessed April 5, 2006.
 3. Thys-Jacobs, S. Micronutrients and the premenstrual syndrome: the case for calcium. *J Am Coll Nutr*. 2000 Apr;19(2):220-7.
 4. Proctor ML, Murphy PA. Herbal dietary therapies for primary and secondary dysmenorrhea (Cochrane Review). The Cochrane Library, Issue 2, 2002. Oxford: Update Software.
 5. Girmán A, Lee R, Kligler B. An integrative medicine approach to premenstrual syndrome. *Am J Obstet Gynecol*. 2003 May;188(5 Suppl):S56-65.
 6. Wuttke W, Jarry H, Christoffel V, Spengler B, Seidlova-Wuttke D. Chaste tree (*Vitex agnus-castus*)—pharmacology and clinical indications. *Phytotherapy*. 2003 May;10(4):348-57.
 7. Schellenberg R. Treatment for the premenstrual syndrome with agnus castus fruit extract: prospective, randomised, placebo controlled study. *BMJ*. 2001 Jan 20;322(7279):134-7.
 8. Duke Health (2006). <http://dukehealth.org/>. Accessed April 5, 2006.