

Supplemental Appendix 1: Descriptions of complementary health approaches

The term “acupuncture” describes a family of procedures involving the stimulation of points on the body using a variety of techniques. The acupuncture technique that has been most often studied scientifically involves penetrating the skin with thin, solid, metallic needles that are manipulated by the hands or by electrical stimulation. Practiced in China and other Asian countries for thousands of years, acupuncture is one of the key components of traditional Chinese medicine.

Biofeedback techniques measure body functions and give you information about them so that you can learn to control them. Biofeedback-assisted relaxation uses electronic devices to teach you to produce changes in your body that are associated with relaxation, such as reduced muscle tension.

Glucosamine and chondroitin sulfate are natural substances found in and around the cells of cartilage. Glucosamine is an amino sugar that the body produces and distributes in cartilage and other connective tissue, and chondroitin sulfate is a complex carbohydrate that helps cartilage retain water. In the United States, glucosamine and chondroitin sulfate are sold as dietary supplements, which are regulated as foods rather than drugs.

Massage therapy encompasses many different techniques. In general, therapists press, rub, and otherwise manipulate the muscles and other soft tissues of the body. They most often use their hands and fingers, but may use their forearms, elbows, or feet.

Meditation is a mind and body practice. There are many types of meditation, most of which originated in ancient religious and spiritual traditions. Some forms of meditation instruct the practitioner to become mindful of thoughts, feelings, and sensations and to observe them in a nonjudgmental way.

Methylsulfonylmethane (MSM) is dietary supplement a chemically related to Dimethyl sulfoxide (DMSO). MSM is sold as a dietary supplement, either alone or in combination with other ingredients such as glucosamine.

Relaxation techniques include a number of practices such as progressive relaxation, guided imagery, biofeedback, meditation, self-hypnosis, and deep breathing exercises. The goal is similar in all: to produce the body's natural relaxation response, characterized by slower breathing, lower blood pressure, and a feeling of increased well-being.

S-Adenosyl-L-methionine (also called S-adenosyl methionine, S-adenosylmethionine, SAME, or SAM-e in the United States or ademetionine in Europe, and also often abbreviated as SAM and AdoMet) is a chemical that is found naturally in the body. SAME is sold in the United States as a dietary supplement.

Spinal manipulation—sometimes called “spinal manipulative therapy”—is practiced by health care professionals such as chiropractors, osteopathic physicians, naturopathic physicians, physical therapists, and some medical doctors. Practitioners perform spinal manipulation by using their hands or a device to apply a controlled force to a joint of the spine. The amount of force applied depends on the form of manipulation used. The goal of the treatment is to relieve pain and improve physical functioning.

Tai chi and qi gong are centuries-old, related mind and body practices. They involve certain postures and gentle movements with mental focus, breathing, and relaxation. In contrast to qi gong, tai chi movements, if practiced quickly, can be a form of combat or self-defense.

Yoga is a mind and body practice with origins in ancient Indian philosophy. The various styles of yoga typically combine physical postures, breathing techniques, and meditation or relaxation. There are numerous schools of yoga. Hatha yoga, the most commonly practiced in the United States and Europe, emphasizes postures (*asanas*) and breathing exercises (*pranayama*). Some of the major styles of hatha yoga are Iyengar, Ashtanga, Vini, Kundalini, and Bikram yoga.

SUPPLEMENTAL APPENDIX 2: Systematic Review Search Strategy

We searched PUBMED (through March, 2016) for relevant clinical trials and systematic reviews using the following search strategy:

("Clinical Trial" [Publication Type] OR "Clinical Trials as Topic"[Mesh] OR "Controlled Clinical Trial" [Publication Type] OR "Pragmatic Clinical Trial" [Publication Type] OR "Clinical Trial, Phase IV" [Publication Type] OR "Clinical Trial, Phase III" [Publication Type] OR "Clinical Trial, Phase II" [Publication Type] OR "Clinical Trial, Phase I" [Publication Type] OR "clinical trial" OR "trial")

AND

("United States/epidemiology"[Mesh] OR "United States/statistics and numerical data"[Mesh] OR "United States")

AND

("Acupuncture"[Mesh] OR "Acupuncture Therapy"[Mesh] OR "Acupuncture, Ear"[Mesh] OR Acupuncture OR "Chiropractic"[Mesh] OR "Manipulation, Chiropractic"[Mesh] OR "chiropractic" OR "Spinal manipulation" OR "manipulation" OR "Massage"[Mesh] OR MASSAGE OR "Yoga"[Mesh] OR YOGA OR "Tai Ji"[Mesh] OR TAI CHI OR "Herbal Medicine"[Mesh] OR "Dietary Supplements"[Mesh] OR Glucosamine OR Chondroitin OR "Placebo Effect"[Mesh] OR "Relaxation Therapy"[Mesh] OR "Mind-Body Therapies"[Mesh])

AND

("Neck Pain"[Mesh] OR "Back Pain"[Mesh] OR "Low Back Pain"[Mesh] OR "back pain" OR "Arthralgia"[Mesh] OR "Arthritis"[Mesh] OR "Osteoarthritis"[Mesh] OR JOINT PAIN OR "Fibromyalgia"[Mesh] OR "Headache"[Mesh] OR "Headache Disorders"[Mesh] OR "Tension-Type Headache"[Mesh] OR "Cluster Headache"[Mesh] OR "Migraine Disorders"[Mesh] OR "Migraine with Aura"[Mesh] OR "Vascular Headaches"[Mesh] OR "Headache Disorders, Secondary"[Mesh])