Complementary and Alternative Medicine Part II

This course has been awarded six (6) contact hours. This course expires on October 31, 2019

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**Purpose**

The purpose of this second six hour presentation on complementary and alternative medical practices is to provide the healthcare professional with a high-level overview of available CAM therapies to promote and maintain optimal well-being.

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**Learning Objectives**

After successful completion of this continuing education course, participants will be able to:

1. Discuss current research findings for each of the complementary and alternative medical practices described in this course.
2. Describe at least five alternative whole medical systems and their approach to health.
3. Outline the concept of manipulative and body-based therapies and detail two modalities.
4. Discuss the different types of energy therapies used in CAM.
5. Describe the use, benefits, and side effects on the use of chiropractic in the U.S. today.
6. Discuss other types of therapies such as applied kinesiology and chelation therapy.
More Than the Absence of Disease

Wellness is defined in many ways, but all agree that it is more than the absence of disease.

The rise in interest in Complementary and Alternative Medicine (CAM) and in wellness and prevention presents many new and exciting opportunities for our healthcare system.

What is CAM?
Complementary and Alternative Medicine (CAM) is an arrangement of activities and interventions that focus on the physical, mental, spiritual, and emotional aspects of one's life. CAM focuses on whole wellness and quality of life.

☑ Where health is enriched by knowledge and practice, both ancient and modern.
☑ Where the most advanced medical science and compassion meet mind, body and spirit.
☑ Where the ultimate goal is wellness, vitality, and quality of life.

CAM versus Conventional Medicine
CAM is as a group of diverse medical and healthcare systems, practices, and products that are not generally considered part of conventional medicine. The approach to the utilization of CAM therapies can vary.

The complementary approach utilizes CAM and conventional medicine alongside each other in the treatment of disease and ill health, while the alternative approach uses CAM in place of conventional medicine. The integrative approach is still morphing and currently is defined as the utilization of CAM and conventional medicine together in a plan of care for which there is high-quality evidence of safety and effectiveness to do so.
Challenges with Integration

Today there exists many challenges in integrating CAM and conventional medicine. Many CAM approaches still lack an adequate scientific basis. Additionally, the delivery of CAM in a conventional healthcare setting often requires substantial redesign of the way both the conventional and CAM healthcare services are structured, conceptualized, and delivered. Many CAM practitioners believe they would have to dramatically alter or water down their approach to practice in order to adapt to a physician-dominated system. Finally, some CAM professions prefer not to integrate if it means giving up their identity and independence.

Reflection:
What challenges do you see for integrative medicine?

System Similarities

While each CAM modality or system has its own distinctive therapies and theories. All share a common philosophy based upon the following principles:

- Natural healing supports and stimulates the body’s own innate healing power.
- Holistic care attends to the mental, emotional, and spiritual elements of illness as well as the physical components of disease.
- Practice is rooted in clinical experience.

(Cuellar, 2006)

Despite the diversity between conventional medicine and CAM, there are many common threads as well:

- Whole systems
- The promotion of self-care
- The stimulation of self-healing processes
- The integration of mind and body
- The spiritual nature of illness and healing
- The prevention of illness by enhancing the vital energy or subtle forces in the body
Common CAM

The following list comprises the most commonly used CAM therapies identified in the 2007 National Health Interview Survey:

<table>
<thead>
<tr>
<th>Acupuncture*</th>
<th>Energy healing therapy/Reiki*</th>
<th>Natural products (herbs and other products from plants, enzymes, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayurveda*</td>
<td>Guided imagery</td>
<td>Naturopathy*</td>
</tr>
<tr>
<td>Biofeedback*</td>
<td>Homeopathy*</td>
<td>Progressive relaxation</td>
</tr>
<tr>
<td>Chelation therapy*</td>
<td>Hypnosis*</td>
<td>Qigong</td>
</tr>
<tr>
<td>Chiropractic or osteopathic manipulation*</td>
<td>Massage*</td>
<td>Tai chi</td>
</tr>
<tr>
<td>Deep breathing exercises</td>
<td>Meditation</td>
<td>Traditional healers*</td>
</tr>
<tr>
<td>Diet-based therapies</td>
<td>Movement therapies</td>
<td>Yoga</td>
</tr>
</tbody>
</table>

(*Indicates a practitioner-based therapy)

Type of CAM Therapies

This course will cover the following CAM therapies:

<table>
<thead>
<tr>
<th>Alternative Whole Medical Systems</th>
<th>Manipulative Body-Based Therapies</th>
<th>Energy Therapies</th>
<th>Other Therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeopathic medicine</td>
<td>Chiropractic</td>
<td>Reiki</td>
<td>Applied kinesiology</td>
</tr>
<tr>
<td>Traditional Chinese medicine</td>
<td>Massage</td>
<td>Therapeutic touch</td>
<td>Chelation therapy</td>
</tr>
<tr>
<td>Ayurvedic medicine</td>
<td></td>
<td>Bioelectromagnetic-based therapy</td>
<td>Art therapy</td>
</tr>
<tr>
<td>Naturopathic medicine</td>
<td></td>
<td></td>
<td>Sound and music therapy</td>
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<tr>
<td>Japanese medicine</td>
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</tbody>
</table>
Alternative Whole Medical Systems

Throughout the world many people rely for their healthcare on alternative whole medical systems that are based on precepts and principles distinctly different from the conventional (allopathic) system that is standard in the United States. For example, according to the World Health Organization, up to 80% of people living in Africa use alternative whole medical systems, while in China between 30-50% of all medicines consumed are traditional herbal preparations. Many of these alternative systems have ancient roots, schools of learning, and extensive scholarly documentation. Traditional Chinese medicine (TCM) in written form dates back to the third century B.C., and variations of it have spread to Korea, Southeast Asian countries, and Japan. However, these and other Asian countries have incorporated their own traditional diagnostics, disease categories, and treatments, so as to constitute independent whole medical systems.

Research and Whole Medical Systems
Conducting research on these systems is challenging for a number of reasons. They are complex whole systems, which often employ individualized approaches that are tailored to the practitioner’s perceived needs of each patient. Furthermore, they are often multimodal and may employ various combinations of medicines (plant, animal, or mineral based), physical manipulation, exercise, diet, and assorted mind-body practices, along with modalities unique to the system, such as acupuncture, or techniques of breathing and meditation.

Application of Research Findings
To date, research on practices that are prevalent in these whole medical systems has tended to single out particular interventions for study. This has led to some interesting and important findings. For example, studies of *Artemisia annua*, a traditional Chinese herb used to treat fevers successfully, has, over the past two decades, led to the development of semisynthetic artemisinin drugs for malaria based on an extract of the herb. Similarly, acupuncture has been studied outside the context of TCM.
Comprehending an Opera

Based off patient reports of effectiveness and the mere growing utilization of alternative care, it is clear that the whole medical systems merit study in their totality. Conducting research on whole medical systems is not an easy matter. It has been likened to comprehending an opera:

“It cannot be teased apart into this or that melodic line, chorus, plot progression, or climax, but must be seen as a whole, working synergistically together—orchestral harmonies, mythic plot, majestic chorus, heroic characters—interacting seamlessly to create an esthetically rich and intellectually satisfying musical experience (NCCAM Strategic Plan, 2004).”

A Multidisciplinary Approach to Whole Medical Systems
Applying the same sweeping approach to the study of whole medical systems means engaging members of a multidisciplinary team. It may also mean observing the operations of a traditional system in the field, in India or China or other countries where the system is the standard for healthcare. Research on whole medical systems needs to enlist scholars from other fields, including cell and molecular biologists, geneticists, CAM and conventional practitioners, behavioral and social scientists (including ethnographers and medical anthropologists), epidemiologists, and biostatisticians, systems biologists, and clinical trialists.

Test Yourself

Based off patient reports of effectiveness and the mere growing utilization of alternative care, it is clear that the whole medical systems merit study in their totality. Conducting research on whole medical systems is not an easy matter. It has been likened to comprehending:

A. An opera
B. Sanskrit text
C. Foreign films

The correct answer is an opera.
Homeopathy: What a Substance Can Cause, It Can Cure

The word "homeopathic" is derived from the Greek words homeos meaning "similar" and pathos meaning "disease" or "suffering." It is a system of medicine based on a natural law that “like cures like” or the Law of Similars. This means that a medicine can cure a sick person if it can cause similar sickness or symptoms in a healthy person. For instance, if you peel an onion, your eyes burn, itch and water. You might also have a runny nose and begin to sneeze. If you had similar symptoms during a cold or allergy attack, such as a runny nose, watery eyes and sneezing, a homeopathic micro-dose of the remedy Allium cepa (red onion) would help.

Other Examples of Similars
- Apis (made from bee sting) helps angry red, hot swellings
- Coffea (coffee) helps over-excitement and sleeplessness
- Lachesis (snake venom) helps blood poisoning

Contraries and Similars
2,000 years ago, Hippocrates identified that there were two distinct approaches to medicine; the use of contraries or similars. Contraries use the opposite suffering to restore well being, otherwise known as antipathy.

Examples of Contraries
- An antacid makes stomach acid more alkaline
- An anti-inflammatory combats inflammation
- A sleeping pill overcomes insomnia
- A laxative eases constipation

Hippocrates noted that, over time, contraries make the original problem worse and so more and more of the opposite medicine had to be given to get the same result. Hippocrates was a fan of the use of similars. They already had a long and successful history in traditional, herbal medicine.

(Aspinwall, 2011)
The Law of Similars

The Law of Similars has been known since at least the time of Hippocrates (ca. 400 B.C.), but it was Samuel Hahnemann who fully stated the ideas of homeopathy in the early 1800's. He was a doctor and a chemist in Germany who lived from 1755-1843. He discovered the truth of the Law of Similars by testing small doses of medicine on himself.

Less is More

Hahnemann was curious to know why quinine protected people against malaria. He took some quinine himself and found that he got all the symptoms of malaria. He realized that quinine was able to cure malaria because it was capable of producing malaria-like symptoms, similar suffering, in a healthy person.

He diluted the substances to avoid the risk of side effects and found that by a process of both diluting and succussing (shaking and striking) he was able to make substances deeper acting and more potent. He called this remedy preparation method potentization. In this system, medicines are diluted in a series of dilutions. The end result is a non-toxic medicine which retains its ability to cure if it is homeopathically indicated.
The Law of Minimum Dose

In homeopathy, the Law of the Minimum Dose means using potentized medicines and administering them according to the same principle. It also means that the best results are obtained by giving the minimum amount of medicinal stimulus required to get a reaction from the individual’s own healing powers. A single dose of the medicine is given and then its action is assessed some time later. If it is working, no more medicine is given unless the improvements experienced either stop completely or are reversed. In homeopathy, less is more.

(Aspinwall, 2011)

The Proof is in the Proving

Hahnemann continued to test substances found in nature by conducting a series of experiments called provings. During a proving, a group of healthy volunteers would take small doses of a substance on a daily basis. The volunteers kept journals of all symptoms they experienced in the course of the study. In this way, an accurate and consistent picture of the effects of the substance on human health could be obtained. Hahnemann was interested in the effects of medicines on the whole person. Therefore, subjects in the provings recorded not only their physical symptoms in great detail, but also information on sleep, appetite, thirst, sensations, heat, cold, emotions, desires, thoughts, and the like.

The response of people to the substances used in provings was immediately known, even the effects on human emotions and thinking. Anything that can cause symptoms can be studied in this way. Substances that have been studied in provings can then be used as medicines in homeopathy. In the course of homeopathic history, things as varied as herbs, minerals, poisons, foods, and bacteria have been studied and are used today as non-toxic medicines (Maiti, 2013). The work of discovering what symptoms different substances can produce continues to this day with thousands of substances already tested and new ones being introduced all the time.

(Dooley, 1995)
How Does Homeopathy Work?

To answer this question, we must first understand the basic causes of disease. In general, one can assert that disease is a state of imbalance resulting from the combination of several factors. These factors include external influences such as lifestyle (diet, exercise, and mental hygiene), environmental exposures, microbes (bacteria and viruses), as well as physical and emotional trauma.

However, in order for these external factors to actually cause a disease, the individual must also possess some internal, intrinsic, constitutional susceptibility to certain types of illness. This susceptibility or sensitivity represents a disturbance or imbalance in an individual’s general state of health. If the person’s overall state of health is weak and/or imbalanced, he or she is more susceptible to many of these external factors and diseases, and generally does a poor job of healing.

For example, consider a group of passengers flying on an airplane in the middle of the cold and flu season. Obviously, there is a very high concentration of bacteria and viruses circulating through the air, to which all of the passengers are exposed. Over the next several days, some of the passengers will develop a cold, flu, or bacterial infection, but many will not. Each individual’s unique, intrinsic, constitutional predisposition, as well as the overall strength and balance of the individual’s state of health at that time are the explanation for this phenomenon. Some people are simply more susceptible to developing colds than others. Other people may be prone to developing a cold but only when “off-balance” (under extreme stress, during a period of inadequate sleep, etc.).

Susceptibility and State of Health

Careful observation reveals that these factors of susceptibility and state of health seem to be more important than the mere exposure to a germ, in determining who will actually get sick. This concept of constitutional susceptibility and state of health also explains why it is so that when some people are exposed to physical or emotional stressors they feel fine or recover easily, while others will, for example, develop a headache. Yet still others exposed to the same stressors will develop a completely different pattern of symptoms or a disease that they are more uniquely susceptible to, including, for example: asthma, hay fever, insomnia, depression and anxiety, irritable bowel syndrome, chronic pain, fatigue, etc.
The Purpose of Symptoms

Symptoms of disease are evidence that the body is trying to overcome the disease, but that it is not fully able to do so on its own. Homeopathy works by triggering a reaction of the body to correct the imbalance (the disease state), enabling the organism to re-balance itself globally so that the susceptibility to sickness is greatly decreased and the body’s ability to heal is dramatically enhanced, allowing for a true cure. This healing reaction is triggered by the homeopathic remedy, according to the law of similars. The disease pattern of the patient and the disease pattern of a similar remedy will result in the obliteration of the patient’s disease pattern.

The Vital Force

Homeopathy’s conception of the body’s healing energy is called the vital force, which is similar to the traditional Chinese medicine concept of qi (pronounced “chee”), the Indian medicine/yoga concept of prana, and the chiropractic concept of the body’s innate intelligence.

Clearly, under optimal circumstances, the body does indeed have the ability to heal itself, as evidenced by the healing of a cut or wound on the skin, or the body’s ability to fight off or resist infections. Because of this ability, homeopathy focuses on treating the patient, rather than the disease.
Homeopathy versus Herbal Medicine

By 1900, about 20% of doctors in the United States were homeopaths. But due to various political and social changes, homeopathy became relatively unknown in the USA until recently. There is wider acceptance of homeopathy in such countries as France, Germany, Mexico, Argentina, India, and Great Britain. In fact, the family doctor to England's Queen Elizabeth is a homeopathic physician.

Homeopathy should not be confused with herbal medicine. These two systems of medicine are very different. Herbal medicine uses tinctures of botanical substances, whereas homeopaths use ultra dilute "micro" doses made from not only plants, but minerals or any other substance found in nature. Unusual as it sounds, these very small amounts of remedies act very strongly when used properly. Also, because the remedies are very diluted, they are extremely safe. The clinical positive experience of homeopathic patients indicates that the micro-dose is effective in treating symptoms in all forms, from comatose people to infants and animals.

Small, Strong, and Safe
Homeopathic remedies are dispensed in different strengths referred to as potencies. The potency of the remedy is indicated by the number and the letter which follow the name of the medicine. For example, Pulsatilla 30C is made from the herb Pulsatilla nigricans. It has been diluted 30 times with a dilution factor of 1/100 each time (C means centesimal). It has also been succussed between each dilution. The larger the number following the name of the medicine, the more times it has been diluted and shaken. Since these higher dilutions generally act longer and deeper than the lower dilutions, they are referred to as high potencies. This is quite different from allopathic or conventional medicines, where a high potency usually means a larger dose of medicine rather than a more diluted medicine.

(Dooley, 1995)

Homeopathic Improvements
Homeopathy has its roots in traditional herbal medicine, but with three major improvements:
1. The original substance is only used in a potentized form so there are no side effects.
2. Any substance, not only plants, can be used.
3. All substances are tested on human volunteers to see what symptoms they produce and the results recorded (often on searchable software).

“Above all do no harm” is an ancient medical principle which is followed in homeopathy.
The Frequently Asked Questions (FAQs)

Who uses homeopathy? According to the 2007 National health Interview Survey, which included a comprehensive survey of complementary and alternative medicine (CAM) used by Americans, an estimated 3.9 million U.S. adults and approximately 900,000 children used homeopathy in the previous year.

Is there evidence that homeopathy works? There are hundreds of high quality, published basic science, pre- and clinical studies reporting positive effects or unique physical and chemical properties of homeopathic remedies. However, homeopathy is difficult to study using current scientific methods because highly diluted substances cannot be readily measured, making it difficult to design or replicate studies. Additionally, the homeopathic treatments are highly individualized and there are no uniform prescribing standards.

There are thousands of different homeopathic remedies which can be prescribed in a variety of different dilutions to treat thousands of symptoms. However, the overwhelming observational and anecdotal evidence that homeopathy works brings patients to try it, repeat it, and use it for primary healthcare. The principles of homeopathy are founded on empirical observations. Homeopathic provings and cured cases have created a large amount of data, based on the experience of homeopaths, provers, and patients.

What to expect during a visit to a homeopathic practitioner? You will be asked to describe all your problems in detail as well as a complete description of everything that characterizes you, especially your feelings, sensations, sensitivity, psyche, and all that concerns your organism in terms of energy, sleep, appetite, digestion, etc. This thorough and initial interview requires approximately 1 ½-2 ½ hours. The better the homeopath understands the patient and his or her problems, the better they can individualize to find the specific and most similar remedy for the patient’s condition.

Which diseases can be treated with homeopathy? In homeopathy it is not the disease that is treated, but the person who is sick. Whether a person has a chronic or an acute disease, all of their symptoms, whether physical, mental, or emotional form a whole representing a state of imbalance very specific to this individual. The goal of the homeopathy is to recognize through the unique expression of symptoms of a patient the pattern of disturbed energy and identify among the great number of remedies available the one most homeopathic, or most similar to, the patient's disease. Therefore, treatments are individualized or tailored to each person. Four people may have the same disease and receive four different remedies.

“It is the whole person who is affected by disease and it is the whole person who responds to medicines” (Dooley, 1995).
More FAQs

Can a pregnant woman or a newborn baby benefit from homeopathy? Since homeopathic remedies are devoid of all chemical toxicity, homeopathy is the ideal system of medicine for people of all ages, even the most sensitive like an expectant mother or a newborn baby. Difficulties during pregnancy and the delivery or its aftermath as well as all the problems experienced by the newborn can be dealt with very efficiently and without side effects with homeopathy.

How do you find a qualified homeopath? Homeopathy is practiced by a wide variety of health-care practitioners, including medical doctors, osteopaths, naturopathic physicians, nurse practitioners, physician assistants, dentists, veterinarians, chiropractors, acupuncturists, nurse midwives, and podiatrists, as well as by professional homeopaths, who practice only homeopathy and are unlicensed in any other discipline. The problem for the consumer is that the practitioner's level of competence in homeopathy often has little to do with his or her type of licensure. The best test of qualifications is whether they have been certified in homeopathy.

The following are widely recognized credentials in classical homeopathy:
- CCH (Certified Classical Homeopath)
- DHt (Diplomate in Homeotherapeutics, available for MDs and DOs)
- DHANP (Diplomate of the Homeopathic Academy of Naturopathic Physicians, available for naturopathic physicians). Another recognized certification is the DNBHE -- Diplomate of the National Board of Homeopathic Examiners. For veterinarians, the credential CVH indicates that they are a Certified Veterinary Homeopath.

How does homeopathy address patients with infectious diseases? Homeopathic treatment is ideal to optimize the body's natural defenses against microbes. During past great epidemics such as diphtheria, scarlet fever, typhoid, cholera, yellow fever, malaria, etc., homeopathy decreased mortality by 10-30 times versus conventional medicine. During the infamous Spanish flu epidemic of 1918-19, it has been estimated that 25-50 million people died worldwide. In the United States alone, 550,000 died, approximately 10% of the people afflicted with the flu. Homeopathic physicians documented then more than 62,000 patients treated with homeopathy resulting in a mortality of 0.7%. For people who were sick enough to be hospitalized, conventional medicine had a mortality of 30% while with 27,000 documented hospitalized cases, homeopathy was reporting a mortality of 1.05%.
Brain Injury, Insomnia, and Nanostructures

Homeopathy and Brain Injury
A 2009 study showed homeopathy stimulated significant improvement in people with traumatic brain injury even when that injury was of many years duration. Patients entered the study after struggling with persistent problems such as short attention span, slowed thinking, reduced ability to learn and process information, headaches, fatigue, sleep disturbances, impatience, frustration, confusion, poor judgment, depression, mood swings, blurred vision, vomiting, and other symptoms common to brain injury. They were classified as having mild traumatic brain injury.

The treatment group reported significant improvement especially in being able to understand technical or work-related information, follow instructions, read newspapers or novels, do housework, and socialize in small and large groups. Some who had been unable to work for years, were able to return to work.

The researchers noted that limitations of the study, such as a restricted number of remedies and potencies, and the short duration of treatment, may have resulted in an underestimation of the improvements possible (Chapman, 1999).

Homeopathy and Sleep Patterns
Young adults with a history of coffee-related insomnia, who also demonstrated cynical hostility or anxiety sensitivity on personality tests, were enrolled in a sleep study to assess if homeopathic remedies affected their quality of sleep. Electrodes were attached to their bodies to record on a polysomnograph, their brain waves, eye and limb movements and heart rate. Only two remedies were used in the study. Participants also kept a written record of their progress. The study showed that compared to placebo, NREM (non rapid eye movement) and total sleep time was significantly increased with the use of the homeopathic remedies (Bell, 2011).

Homeopathy Nanostructures
French virologist, Luc Montagnier, winner of the Nobel prize for his co-discovery of the link between HIV and AIDS, recently presented a quasi-homeopathic method of detecting viral infection to scientists at a prestigious international conference. Montagnier told the conference that solutions containing the DNA of pathogenic bacteria and viruses, including HIV, “could emit low frequency radio waves” that induced surrounding water molecules to become arranged into “nanostructures”. These water molecules, he said, could also emit radio waves.” He also suggested that water could retain electrochemical properties even when the solution was massively diluted. This supports one of the key doctrines of homeopathy that the potency of a substance is increased with dilution as long as the liquid is successsed (vigorously agitated), and that highly diluted substances can and do have biological effects.
What the Science Says

- 65 osteoarthritis (O.A.) patients were split into two groups, and through a double blinding process were given either a homoeopathic medicine or Acetaminophen, a commonly prescribed drug for pain relief in OA. Researchers found that homoeopathy provided a level of pain relief that was superior to acetaminophen, and produced no adverse reactions (Shealy, Thomlinson, Cox, Bormeyer, 1998).
- In a well-controlled trial, individualized homeopathic prescriptions were compared to placebo in 79 people suffering from chronic fatigue syndrome (as determined by the Oxford criteria for CFS). The trial was carried out over a six month period with monthly observations used to determine clinical progress according to the Multidimensional Fatigue Inventory (MFI) as a primary measure and the Fatigue Impact Scale and Functional Limitations Profile as secondary measures. On the primary MFI measure, those using the individualized homeopathy had significant improvement over placebo (Weatherley-Jones, et al., 2004).
- 53 people suffering from fibromyalgia were assessed by practitioners for the levels of tender points, tender point pain, quality of life, mood and general health. Three months after commencing treatment, all parameters were found to be improved by the use of homoeopathy when compared to placebo (Bell et al., 2004).
- 50 people breathing spontaneously with continuous positive airway pressure were randomly assigned to receive either five globules twice daily of Kalium bichromicum 30C or the same dose and frequency of placebo globules. The study results were assessed using the amount of tracheal secretions from day two of the study, the amount of time spent by the subjects in the ICU and the time until successful extubation. After the results were assessed, it was found that those who’d been given the Kalium bichromicum produced less tracheal secretions than those on placebo; their stay in the ICU was shorter than those on placebo as was their time to successful extubation (Frass, Dielacher, Linkesch, 2005).
- In an observational cohort study, 485 people with symptoms of mild viral infection (fever, headache, myalgia, cough or sore throat), were treated either via conventional medical means or with a homeopathic combination product. On a practitioner evaluation basis, at the end of the treatment period, the homeopathic combination provided a successful outcome in 78% of cases and conventional treatment in 52% of cases (Rabe, Weiser, Klein, 2004).
What the Science Says

- 125 people suffering from various musculoskeletal injuries were treated either with the homeopathic combination Traumeel or conventional medicine. At the end of the trial period, the 59.4% of the group receiving the homeopathic combination had complete resolution compared with 57.8% of the group treated with conventional medicine. 6.3% of the latter group experienced adverse reactions to the treatment and none of those on the homeopathic combination experienced side effects (Schneider, Hanisch, Van Haselen, 2008).

- In a replication of work by Jacques Benveniste published in 1988, researchers used homeopathic dilutions of histamine to inhibit the activation of human basophils exposed to an inflammatory mediator. The study was carried out blind in four separate laboratories. Histamine dilutions equivalent to 30X and 38X were found to inhibit basophil activation and subsequent histamine release (Belon et al., 2004).

Case Study: Homeopathic Medicine and Teething

Joseph is eight months, and he is teething and having a very difficult time. One cheek is red and the other cheek is pale. He wants to be carried. Everything he points to is given to him, to which he gets angry and throws it on the floor. The symptoms are studied and Chamomilla is recommended. Within 15 minutes of taking the Chamomilla, Joseph calms down and goes back to sleep for his nap. According to the laws of “like cures like” in homeopathy, what caused the symptoms to improve?

A. Chamomilla taken by a healthy person causes one red cheek, anger, desire to be carried, and pain. Thus, Chamomilla cures the same symptoms in a sick person.

B. Chamomilla taken by a sick person causes one red cheek, anger, desire to be carried, and pain. Thus, Chamomilla improves the symptoms.

C. Chamomilla improves the symptoms when taken within 24 hrs of onset.

The correct answer is A.
Case Study: Homeopathic Medicine and Migraines

Tiffany has had severe migraines 2-3 times a month for ten years. Her migraines would prevent her from all daily activities and were accompanied by vomiting. Once triggered it would continue for days with no relief even by painkillers. Tiffany was also experiencing sadness, irritability, and lack of thirst. After taking Lachesis 200c one time as recommended by her homeopath, the frequency and intensity of her migraines reduced with each follow-up assessment. Now one year after taking the homeopathic remedy only one time, she is migraine free for eight months. The homeopath used the law of minimum dose. How is this demonstrated in this case study?

A. All symptoms are assessed.
B. A single dose of the medicine is given and then its action is assessed.
C. Symptoms over time decrease in frequency and intensity.

The correct answer is B.
Traditional Chinese Medicine

Traditional Chinese medicine (TCM) is rooted in the ancient philosophy of Taoism and dates back more than 5,000 years to ancient China. TCM practitioners use a variety of therapies in an effort to promote health and treat disease. The most commonly used are Chinese herbal medicine and acupuncture.

Chinese herbal medicine
- The Chinese *materia medica* (a pharmacological reference book used by TCM practitioners) contains hundreds of medicinal substances classified by their perceived action in the body. Different parts of plants such as the leaves, roots, stems, flowers, and seeds are used. Usually, herbs are combined in formulas and given as teas, capsules, tinctures, or powders.

Acupuncture
- By stimulating specific points on the body, most often by inserting thin metal needles through the skin, practitioners seek to remove blockages in the flow of qi (pronounced “chee”) or the “life force”.

Other TCM therapies include:
- Moxibustion: Burning moxa which is a cone or stick of dried herb (usually mugwort) on or near the skin, sometimes in conjunction with acupuncture.
- Cupping: Applying a heated cup to the skin to create a slight suction
- Chinese massage
- Mind-body therapies such as qigong and tai chi
- Dietary therapy
TCM: Usage in the USA

Traditional Chinese Medicine (TCM) is widely used in the United States. According to the 2007 National Health Interview Survey, which included questions on the use of various CAM therapies, an estimated 3.1 million U.S. adults had used acupuncture in the previous year. In another survey, more than one-third of the patients at six large acupuncture clinics said they also received Chinese herbal treatments at the clinics. Both acupuncture and Chinese herbal medicine have been used and studied for a wide range of conditions. A few examples are:

<table>
<thead>
<tr>
<th>Acupuncture</th>
<th>Chinese Herbal Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back pain</td>
<td>Cancer</td>
</tr>
<tr>
<td>Chemotherapy-induced nausea</td>
<td>Heart disease</td>
</tr>
<tr>
<td>Depression</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>HIV/AIDS</td>
</tr>
</tbody>
</table>

Microcosms of the Universe

Underlying the practice of TCM is a unique view of the world and the human body that is different from Western medicine concepts. This view is based on the ancient Chinese perception of humans as microcosms of the larger, surrounding universe. Humans are interconnected with nature and subject to its forces. The human body is regarded as an organic entity in which the various organs, tissues, and other parts have distinct functions but are all interdependent. In this view, health and disease relate to balance of the functions.
Theoretical Concepts of TCM

The theoretical framework of TCM has a number of key components:

- **Yin-yang theory**: The concept of two opposing, yet complementary, forces that shape the world and all life is central to TCM.
- **In the TCM view**, a vital energy or life force called qi circulates in the body through a system of pathways called meridians. Health is an ongoing process of maintaining balance and harmony in the circulation of qi.
- **The TCM approach uses eight principles** to analyze symptoms and categorize conditions: cold/heat, interior/exterior, excess/deficiency, and yin/yang. TCM also uses the theory of five elements—fire, earth, metal, water, and wood to explain how the body works. These elements correspond to particular organs and tissues in the body.

Focus on Individualized Care

TCM emphasizes individualized treatment. Practitioners traditionally used four methods to evaluate a patient’s condition: observing (especially the tongue), hearing/smelling, asking/interviewing, and touching/palpating (especially the pulse).

In spite of the widespread use of TCM in China and its use in the west, scientific evidence of its effectiveness is limited. TCM’s complexity and underlying conceptual foundations present challenges for researchers seeking evidence on whether and how it works. Most research has focused on specific modalities, primarily acupuncture, and Chinese herbal remedies.

Research and TCM

Acupuncture research has produced a large body of scientific evidence. Studies suggest that it may be useful for a number of different conditions, but additional research is still needed.

Chinese herbal medicine has also been studied for a wide range of conditions. Most of the research has been done in China. Although there is evidence that herbs may be effective for some conditions, most studies have been methodologically flawed, and additional, better designed research is needed before any conclusions can be drawn.
Contamination of Chinese Herbal Therapies

The U.S. Food and Drug Administration (FDA) regulations for dietary supplements (including manufactured herbal products) are not the same as those for prescription or over-the-counter drugs. In general, the regulations for dietary supplements are less strict. Some Chinese herbal treatments may be safe, but others may not be.

There have been reports of products being contaminated with drugs, toxins, or heavy metals or not containing the listed ingredients. Some of the herbs are very powerful, can interact with drugs, and may have serious side effects. For example, the Chinese herb ephedra (ma huang) has been linked to serious health complications, including heart attack and stroke. In 2004, the FDA banned the sale of ephedra-containing dietary supplements used for weight loss and performance enhancement, but the ban does not apply to TCM remedies or to herbal teas. Acupuncture is considered safe when performed by an experienced practitioner using sterile needles.

Licensing of TCM Practitioners

Most states license acupuncture, but states vary in their inclusion of other TCM components (e.g., herbal medicine) in the licenses they issue. The federally recognized Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM) accredits schools that teach acupuncture and TCM, and about one-third of the states that license acupuncture require graduation from an ACAOM-accredited school. The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) offers separate certification programs in acupuncture, Chinese herbology, and Oriental bodywork. Almost all licensing states require completion of NCCAOM’s national written exam and some states also require a practical exam.
Test Yourself

Chinese herbal medicine has also been studied for a wide range of conditions. Although there is evidence that herbs may be effective for some conditions, most studies have been methodologically flawed, and additional, better designed research is needed before any conclusions can be drawn.

Most of the research on Chinese herbal medicine has been done in:
   A. China
   B. United States
   C. Germany

The correct answer is China.

Acupuncture

Acupuncture is among the oldest healing practices in the world. The term "acupuncture" describes a family of procedures involving the stimulation of anatomical points on the body using a variety of techniques. Acupuncture is based on the concept that disease results from disruption in the flow of qi (vital energy) and imbalance in the forces of yin and yang. This imbalance leads to blockages in the flow of qi. The vital energy regulates a person’s spiritual, emotional, mental, and physical health and is influenced by the opposing forces of yin and yang along pathways known as meridians. Qi can be unblocked by using acupuncture at certain points on the body that connect with meridians. Meridians are pathways in the body that conduct energy and connect acupuncture points with the organs. Sources vary on the number of meridians, with numbers ranging from 14-20.
Acupuncture Technique

One commonly cited source describes meridians as 14 main channels “connecting the body in a web-like interconnecting matrix” of at least 2,000 acupuncture points.

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. A growing body of evidence suggests that acupuncture treatment effects changes in the peripheral and/or central nervous system that influence pain pathways and perhaps regulatory control over temperature and other involuntary functions.

Needles to Ease Pain

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. The report from a Consensus Development Conference on Acupuncture held at the National Institutes of Health (NIH) in 1997 stated that acupuncture is being "widely" practiced by thousands of physicians, dentists, acupuncturists, and other practitioners for relief or prevention of pain and for various other health conditions.

Acupuncture in the US

According to the 2007 National Health Interview Survey, which included a comprehensive survey of CAM use by Americans, an estimated 3.1 million U.S. adults and 150,000 children had used acupuncture in the previous year. Between the 2002 and 2007 NHIS, acupuncture use among adults increased by approximately one million people. A special analysis of acupuncture data from an earlier NHIS found that pain or musculoskeletal complaints accounted for seven of the top ten conditions for which people use acupuncture. Back pain is the most commonly reported use, followed by joint pain, neck pain, and headache.
Complications of Acupuncture

Relatively few complications from the use of acupuncture have been reported to the FDA, in light of the millions of people treated each year and the number of acupuncture needles used. Still, complications have resulted from inadequate sterilization of needles and from improper delivery of treatments. Practitioners should use a new set of disposable needles taken from a sealed package for each patient and should swab treatment sites with alcohol or another disinfectant before inserting needles. When not delivered properly, acupuncture can cause serious adverse effects, including infections and punctured organs.

The U.S. Food and Drug Administration (FDA) regulates acupuncture needles for use by licensed practitioners, requiring that needles be manufactured and labeled according to certain standards. For example, the FDA requires that needles be sterile, nontoxic, and labeled for single use by qualified practitioners only.

Complex Research

Overall, it can be very difficult to compare acupuncture research results from study to study and to draw conclusions from the cumulative body of evidence. This is because studies may use different acupuncture techniques (e.g., electrical vs. manual), controls (comparison groups), and outcome measures.

One particularly complex factor in acupuncture research is choosing the controls for a clinical trial. The choice depends in part on whether the researchers want to study a particular aspect of acupuncture (e.g., effects on the brain) or to determine whether acupuncture is useful compared with other forms of care. Examples of control groups include study participants who receive no acupuncture, simulated acupuncture (procedures that mimic acupuncture, sometimes also referred to as "placebo" or "sham"), or other treatments (in addition to or in place of acupuncture or simulated acupuncture).
The Role of Placebo

An emerging theme in acupuncture research is the role of the placebo. For example, a 2009 systematic review of research on the pain-relieving effects of acupuncture compared with placebo (simulated) or no acupuncture was inconclusive. The reviewers found a small difference between acupuncture and placebo and a moderate difference between placebo and no acupuncture; the effect of placebo acupuncture varied considerably, and the effect of acupuncture appeared unrelated to the specific kind of placebo procedure used. All of the study participants received standard care, typically consisting of analgesic drugs and physical therapy.

Attitudes and Acupuncture

The NCCAM funds clinical trials to evaluate acupuncture’s efficacy in alleviating various kinds of pain, as well as research aimed at understanding the body’s response to acupuncture and how acupuncture might work. The following are examples of current projects:

- Women’s health studies, including acupuncture for pelvic pain, menstrual pain (vitamin K injections at acupuncture points), and pain associated with advanced ovarian cancer.
- Several studies using MRI technology to study brain activity during acupuncture, including in people with pain conditions such as fibromyalgia and osteoarthritis.

There is evidence that people’s attitudes about acupuncture can affect outcomes. In a 2007 study, researchers analyzed data from four clinical trials of acupuncture for various types of chronic pain. Participants had been asked whether they expected acupuncture to help their pain. In all four trials, those with positive expectations reported significantly greater pain relief.
Acupuncture Specifics

Pain:
According to the clinical practice guidelines issued by the American Pain Society and the American College of Physicians in 2007, acupuncture is one of several CAM therapies physicians should consider with chronic low back pain that does not respond to conventional treatment. A large rigorously designed clinical trial reported in May 2009 found that actual acupuncture and simulated acupuncture were equally effective and both were more effective than conventional treatment for relieving chronic low back pain. Literature reviews have identified acupuncture as a promising treatment for dental pain, especially pain following tooth extraction. For example, a 1999 study of 39 dental surgery patients found that acupuncture was superior to placebo (simulated acupuncture) in preventing postoperative pain. Recent reviews have found strong evidence that acupuncture provides short-term pain relief for lateral epicondyle pain (tennis elbow). There are promising findings for knee pain caused by osteoarthritis. Acupuncture has also been studied for a variety of other pain conditions, including arm and shoulder pain, pregnancy-related pelvic and back pain and temporomandibular joint (jaw) dysfunction. Although some studies have produced some positive results, more evidence is needed to determine the efficacy of acupuncture for any of these conditions. Additionally, research to test scientific theories about how acupuncture might work to relieve pain is under way.

Carpal Tunnel Syndrome:
Although a 1997 NIH consensus statement on acupuncture concluded that acupuncture was promising for carpal tunnel syndrome, additional research confirming acupuncture’s efficacy for this condition is scant.

Fibromyalgia:
Evidence on acupuncture for fibromyalgia is mixed. Some reviews of the scientific literature have found the evidence promising, however, another review that focused on the few rigorous randomized controlled trials on acupuncture as an adjunct therapy for fibromyalgia did not find a benefit. Additionally, a 2003 assessment concluded that the evidence was insufficient and the beneficial effects of acupuncture for fibromyalgia could not be determined.

Headache/Migraine:
Study results on acupuncture for headache are conflicting. Some literature reviews found evidence to support the use of acupuncture for headache, but others noted that most of the studies were of poor quality. A 2008 review of randomized trials highlighted a few well-designed trials whose finding indicate that acupuncture reduces migraine symptoms and is as effective as headache medications. In addition, a 2009 review found that acupuncture may help relieve tension headaches. However two large trials for migraines found no difference between actual and simulated acupuncture, both of which were equal to conventional care or superior to no treatment.
Acupuncture Specifics

Menstrual Cramps:
Two literature reviews have suggested that acupuncture may help with pain from menstrual cramps, but the research is limited.

Qualified Expectations

Healthcare providers can be a resource for referral to acupuncturists, and some conventional medical practitioners, including physicians and dentists, practice acupuncture. It is important to check a practitioner's credentials and most states require a license to practice acupuncture. However, education and training standards and requirements for obtaining a license to practice vary from state to state. Although a license does not ensure quality of care, it does indicate that the practitioner meets certain standards regarding the knowledge and use of acupuncture. Do not rely on a diagnosis of disease by an acupuncture practitioner who does not have substantial conventional medical training.

Acupuncture Therapy

During the first office visit, the practitioner may ask at length about the patient’s health condition, lifestyle, and behavior. The practitioner will want to obtain a complete picture of treatment needs and behaviors that may contribute to the condition. Patients need to inform the acupuncturist about all treatments or medications they are taking and all medical conditions they have.

Acupuncture needles are metallic, solid, and hair-thin. People experience acupuncture differently, but most feel no or minimal pain as the needles are inserted. Some people feel energized by treatment, while others feel relaxed. Improper needle placement, movement of the patient, or a defect in the needle can cause soreness and pain during treatment. This is why it is important to seek treatment from a qualified acupuncture practitioner. Treatment may take place over a period of several weeks or more.
Test Yourself

Acupuncture is being "widely" practiced by thousands of physicians, dentists, acupuncturists, and other practitioners for relief or prevention of pain and for various other health conditions. According to the 2007 National Health Interview Survey, which included a comprehensive survey of CAM use by Americans, an estimated 3.1 million U.S. adults and 150,000 children had used acupuncture in the previous year. Between the 2002 and 2007 National Health Interview Survey (NHIS), acupuncture use among adults increased by approximately:

A. One million people
B. One billion people
C. 100,000 people

The correct answer is one million people.

Ayurvedic Medicine: The Science of Life

Ayurvedic medicine, also called Ayurveda, originated in India over thousands of years ago and is considered by many scholars to be the oldest healing science. Many therapies used in Ayurvedic medicine are also used on their own as CAM—for example, herbs, massage, and specialized diets. The term “Ayurveda” combines the Sanskrit words ayur (life) and veda (science or knowledge). Thus, Ayurveda means “the science of life.” Ayurvedic medicine’s goal is to integrate and balance the body, mind, and spirit. From this respect, some view it as holistic. This balance is believed to lead to happiness and health, and to help prevent illness. Ayurvedic medicine also treats specific physical and mental health problems. A chief intention of Ayurvedic practices is to cleanse the body of substances that can cause disease, thus helping to reestablish harmony and balance.
Branches of Ayurvedic Medicine

As possibly the oldest healing medicine, the practices of Ayurvedic medicine predate written records and were handed down by word of mouth. Two ancient books, the *Caraka Samhita* and the *Sushruta Samhita*, were written in Sanskrit more than 2,000 years ago and are considered the main texts on Ayurvedic medicine. The texts describe eight branches of Ayurvedic medicine:

1. Internal medicine
2. Surgery
3. Treatment of head and neck disease
4. Gynecology, obstetrics, and pediatrics
5. Toxicology
6. Psychiatry
7. Care of the elderly and rejuvenation
8. Sexual vitality

Prevalence of Ayurvedic Medicine

Ayurvedic medicine continues to be practiced in India, where nearly 80% of the population uses it exclusively or combined with conventional (Western) medicine. It is also practiced in Bangladesh, Sri Lanka, Nepal, and Pakistan. Most major cities in India have an Ayurvedic college and hospital. The Indian government began systematic research on Ayurvedic practices in 1969, and that work continues. According to the 2007 National Health Interview Survey, which included a comprehensive survey of CAM use by Americans, more than 200,000 U.S. adults had used Ayurvedic medicine in the previous year.
Test Yourself

Two ancient books, the *Caraka Samhita* and the *Sushruta Samhita*, were written in Sanskrit more than 2,000 years ago and are considered the main texts on Ayurvedic medicine. The texts describe eight branches of Ayurvedic medicine, including which one of the following:

A. Removal of foreign objects  
B. Treatment of broken bones  
C. Gynecology, obstetrics, and pediatrics  
D. Leprosy  
E. Care of the dying  
F. Skin disorders

The correct answer is gynecology, obstetrics, and pediatrics.

The Ayurvedic Constitution

Ayurvedic medicine has several key foundations that pertain to health and disease. These concepts have to do with universal interconnectedness, the body’s constitution (*prakriti*), and life forces (*doshas*).

**Interconnectedness:**

Ideas about the relationships among people, their health, and the universe form the basis for how Ayurvedic practitioners think about problems that affect health. Ayurvedic medicine holds that:

- All things in the universe (both living and nonliving) are joined together.
- Every human being contains elements that can be found in the universe.
- Health will be good if one’s mind and body are in harmony, and one’s interaction with the universe is natural and wholesome.
- Disease arises when a person is out of harmony with the universe. Disruptions can be physical, emotional, spiritual, or a combination of these.

**Constitution (*Prakriti*):**

Ayurvedic medicine also has specific beliefs about the body’s constitution. Constitution refers to a person’s general health, the likelihood of becoming out of balance, and the ability to resist and recover from disease or other health problems. The constitution is called the *prakriti*. The *prakriti* is a person’s unique combination of physical and psychological characteristics and the way the body functions to maintain health. It is influenced by such factors as digestion and how the body deals with waste products. The *prakriti* is believed to be unchanged over a person’s lifetime.
The Ayurvedic Constitution

Life Forces (Doshas):
Important characteristics of the Prakriti (constitution) are the three life forces or energies called doshas, which control the activities of the body. Just as everyone has a unique fingerprint, according to Ayurvedic beliefs, each person has a distinct pattern of energy – a specific combination of physical, mental, and emotional characteristics. It is also believed that there are three basic doshas, present in every person.

Ayurvedic Medicine and Doshas

A person’s chances of developing certain types of diseases are thought to be related to the way doshas are balanced, the state of the physical body, and mental or lifestyle factors.

Ayurvedic medicine holds the following beliefs about the three doshas:

- Each dosha is made up of two of five basic elements: ether (the upper regions of space), air, fire, water, and earth.
- Each dosha has a particular relationship to bodily functions and can be upset for different reasons.
- Each person has a unique combination of the three doshas, although one dosha is usually prominent. Doshas are constantly being formed and reformed by food, activity, and bodily processes.
- Each dosha has its own physical and psychological characteristics.
- An imbalance of a dosha will produce symptoms that are unique to that dosha. Imbalances may be caused by a person’s age, unhealthy lifestyle, or diet; too much or too little mental and physical exertion; the seasons; or inadequate protection from the weather, chemicals, or germs.
**Test Yourself**

Constitution refers to a person’s general health, the likelihood of becoming out of balance, and the ability to resist and recover from disease or other health problems. In Ayurvedic medicine, this constitution is called the:

A. Prakriti  
B. Doshas  
C. Similimum

The correct answer is prakriti.

**The Doshas**

The *doshas* are known by their original Sanskrit names: *vata, pitta, and kapha*.

The *vata dosha* combines the elements ether and air. It is considered the most powerful *dosha* because it controls very basic body processes such as cell division, the heart, breathing, discharge of waste, and the mind. *Vata* can be aggravated by, for example, fear, grief, staying up late at night, eating dry fruit, or eating before the previous meal is digested. People with *vata* as their main *dosha* are thought to be especially susceptible to skin and neurological conditions, rheumatoid arthritis, heart disease, anxiety, and insomnia.

The *pitta dosha* represents the elements fire and water. *Pitta* controls hormones and the digestive system. A person with a *pitta* imbalance may experience negative emotions such as anger and may have physical symptoms such as heartburn within two or three hours of eating. *Pitta* is upset by, for example, eating spicy or sour food, fatigue, or spending too much time in the sun. People with a predominantly *pitta* constitution are thought to be susceptible to hypertension, heart disease, infectious diseases, and digestive conditions such as Crohn’s disease.
The Doshas

The *kapha dosha* combines the elements water and earth. *Kapha* helps to maintain strength and immunity and to control growth. An imbalance of the *kapha dosha* may cause nausea immediately after eating. *Kapha* is aggravated by, for example, greed, sleeping during the daytime, eating too many sweet foods, eating after one is full, and eating and drinking foods and beverages with too much salt and water (especially in the springtime). Those with a predominant *kapha dosha* are thought to be vulnerable to diabetes, cancer, obesity, and respiratory illnesses such as asthma.

- **Vata**: Energy that controls bodily functions associated with motion, including blood circulation, breathing, blinking, and heartbeat. When vata energy is balanced, there is creativity and vitality. Out of balance, vata produces fear and anxiety.
- **Pitta**: Energy that controls the body's metabolic systems, including digestion, absorption, nutrition, and temperature. In balance, pitta leads to contentment and intelligence. Out of balance, pitta can cause ulcers and arouse anger.
- **Kapha**: Energy that controls growth in the body. It supplies water to all body parts, moisturizes the skin, and maintains the immune system. In balance, kapha is expressed as love and forgiveness. Out of balance, kapha leads to insecurity and envy.

Everyone has vata, pitta, and kapha, but usually one or two are dominant in a particular person. Many things can disturb the energy balance, such as stress, an unhealthy diet, the weather, and strained family relationships. The disturbance shows up as disease. Ayurvedic practitioners prescribe treatments to bring the doshas back into balance.

Test Yourself

Important characteristics of the *Prakriti* (constitution) are the three life forces or energies called *doshas*, which control the activities of the body. The *doshas* are known by their original Sanskrit names: *vata, pitta, and kapha*. The *pitta dosha* represents the elements:

A. Air and water  
B. Fire and air  
C. Fire and water

The correct answer is fire and water.
Tailored to the Constitution

Ayurvedic treatment is tailored to each person’s constitution. Practitioners expect patients to be active participants because many Ayurvedic treatments require changes in diet, lifestyle, and habits. The Ayurvedic treatment process contains the two following key components:

The Patient’s Dosha Balance:
Ayurvedic practitioners first determine the patient’s primary dosha and the balance among the three doshas by:

- Asking about diet, behavior, lifestyle practices, recent illnesses (including reasons and symptoms), and resilience (ability to recover quickly from illness or setbacks)
- Observing such physical characteristics as teeth and tongue, skin, eyes, weight, and overall appearance
- Checking the patient’s urine, stool, speech and voice, and pulse (each dosha is thought to make a particular kind of pulse)

Treatment Practices:
Ayurvedic treatment goals include eliminating impurities, reducing symptoms, increasing resistance to disease, and reducing worry and increasing harmony in the patient’s life. The practitioner uses a variety of methods to achieve these goals:

- Eliminating impurities: A process called panchakarma is intended to cleanse the body by eliminating ama. Ama is described as an undigested food that sticks to tissues, interferes with normal functioning of the body, and leads to disease. Panchakarma focuses on eliminating ama through the digestive tract and the respiratory system. Enemas, massage, medical oils administered in a nasal spray, and other methods may be used.
- Reducing symptoms: The practitioner may suggest various options, including physical exercises, stretching, breathing exercises, meditation, massage, lying in the sun, and changing the diet. The patient may take certain herbs—often with honey, to make them easier to digest. Sometimes diets are restricted to certain foods. Very small amounts of metal and mineral preparations, such as gold or iron, also may be given.
- Increasing resistance to disease: The practitioner may combine several herbs, proteins, minerals, and vitamins in tonics to improve digestion and increase appetite and immunity. These tonics are based on formulas from ancient texts.
- Reducing worry and increasing harmony: Ayurvedic medicine emphasizes mental nurturing and spiritual healing. Practitioners may recommend avoiding situations that cause worry and using techniques that promote release of negative emotions.
Restoring the Balance

Ayurvedic treatments rely heavily on herbs and other plants—including oils and common spices. Currently, more than 600 herbal formulas and 250 single plant drugs are included in the “pharmacy” of Ayurvedic treatments. Historically, Ayurvedic medicine has grouped plant compounds into categories according to their effects (for example, healing, promoting vitality, or relieving pain). The compounds are described in texts issued by national medical agencies in India. Sometimes, botanicals are mixed with metals or other naturally occurring substances to make formulas prepared according to specific Ayurvedic text procedures. Such preparations involve several herbs and herbal extracts and precise heat treatment.

Commonly Prescribed Ayurvedic Therapies

Ayurvedic treatment focuses on rebalancing the doshas. On the first visit, the practitioner will take a detailed medical history, check the pulse, feel the abdomen, examine the tongue, eyes, nails, and skin, and listen to the tone of the voice. The practitioner will also ask questions about general health, paying special attention to lifestyle, diet, habits, and surroundings. The practitioner will then recommend ways to restore the natural dosha balance, which almost always includes changes in lifestyle, especially diet. Practitioners draw from more than 20 types of treatment, but the most commonly prescribed include:

- **Pranayama**: Breathing exercises. Practicing pranayama helps you feel calm.
- **Abhyanga**: Rubbing the skin with herbal oil to increase blood circulation and draw toxins out of the body through the skin.
- **Rasayana**: Using mantras (repeated words or phrases) during meditation combined with certain herbs to rejuvenate a person.
- **Yoga**: Combining pranayama, movement, and meditation. Yoga has been shown to improve circulation and digestion, and to reduce blood pressure, cholesterol levels, anxiety, and chronic pain.
- **Pancha karma**: Cleansing the body to purify it and reduce cholesterol. Practitioners use methods that cause sweat, bowel movements, and even vomit to cleanse the body of toxins.
- **Herbal medicines**: Prescribing herbs to restore dosha balance.
**Ayurvedic Medicine Reduces Heart Disease**

The goal of Ayurvedic medicine is to prevent diseases. Studies have suggested that Ayurveda may be effective at reducing the risk of heart disease. For example, one study found that Ayurveda helped reduce plaque and reverse the thickening of artery walls known as atherosclerosis in both healthy adults, as well as adults at high risk for heart disease. Atherosclerosis is a slow, complex disease in which cholesterol, fats, and other substances build up in the inner lining of an artery. This build-up, known as plaque, can lead to heart attack and stroke. Combining yoga with a certain Ayurvedic herbal remedy may reduce pain and disability in people with arthritis.

**Other Ayurvedic Remedies**

A number of Ayurvedic herbal remedies have been examined, though sometimes high quality studies are lacking. For example, guggul (*Commiphora mukul*), a traditional Ayurvedic medication used to treat high cholesterol, is widely used in India. It appears to block production of cholesterol in the liver, lowering cholesterol levels. Fenugreek (*Trigonella foenum graecum*) seeds can lower LDL cholesterol and triglycerides, and raise HDL cholesterol levels. Its effects seem to come from its ability to lower the absorption of cholesterol in the intestine, and may be related to the high fiber content of the seed. The high fiber content of fenugreek seeds may also help control blood sugar in diabetes.

**Ayurvedic Herbs**

Other Ayurvedic herbs are being studied as treatments for Alzheimer's disease, anxiety, asthma, cancer, dementia, dysmenorrhea (painful menstruation), herpes, high blood pressure, Parkinson's disease, perimenopausal problems, and premenstrual syndrome, among many other conditions. Ayurvedic herbs combined with conventional medications may also be helpful for acne, chronic constipation, chronic fatigue syndrome, irritable bowel syndrome, obesity, and uterine fibroids.
Research and Ayurvedic Medicine
Examples of NCCAM-supported research on therapies used in Ayurvedic medicine include studies of:

- Herbal therapies, including curcuminoids (substances found in turmeric), used for cardiovascular conditions
- A compound from the cowhage plant (*Mucuna pruriens*), used to prevent or lessen side effects from Parkinson’s disease drugs
- Three botanicals (ginger, turmeric, and boswellia) used to treat inflammatory disorders such as arthritis and asthma
- Gotu kola (*Centella asiatica*), an herb used to treat Alzheimer’s disease

Ayurvedic Training

Many practitioners study in India, where there are more than 150 undergraduate and 30 postgraduate colleges for Ayurvedic medicine. Training can take five years or longer. Students who receive their Ayurvedic training in India can earn either a bachelor’s degree (Bachelor of Ayurvedic Medicine and Surgery, BAMS) or doctoral degree (Doctor of Ayurvedic Medicine and Surgery, DAMS) there. After graduation, some Ayurvedic practitioners choose to provide services in the United States or other countries. The United States has no national standard for training or certifying Ayurvedic practitioners, although a few states have approved Ayurvedic schools as educational institutions.

Properly trained Ayurvedic medicine practitioners are taught the importance of using carefully prepared plant, metal and mineral preparations to protect their patients. However, some Ayurvedic medications have been found to be adulterated with undesired materials and have the potential to be toxic.

Note! Most Ayurvedic therapies, such as pranayama and rasayana, are unlikely to have bad side effects. Ayurvedic herbs, however, may interact with medications, and like all herbs, they are not right for every person.
Toxicity Concerns

Health officials in India and other countries have taken steps to address some concerns about these medications. Concerns relate to toxicity, formulations, interactions, and scientific evidence.

Keep in mind, it is better to use Ayurvedic remedies under the supervision of an Ayurvedic medicine practitioner than to try to treat yourself.

Toxicity:
Ayurvedic medications have the potential to be toxic. Many materials used in them have not been thoroughly studied in either Western or Indian research. In the United States, Ayurvedic medications are regulated as dietary supplements. As such, they are not required to meet the safety and efficacy standards for conventional medicines. An NCCAM-funded study published in 2004 found that of 70 Ayurvedic remedies purchased over-the-counter (all manufactured in South Asia), 14 contained lead, mercury, and/or arsenic at levels that could be harmful. Also in 2004, the Centers for Disease Control and Prevention reported that 12 cases of lead poisoning occurring over a recent three year period were linked to the use of Ayurvedic medications.

Formulations:
Most Ayurvedic medications consist of combinations of herbs and other medicines. It can be challenging to know which components are having an effect and why.

Interactions:
Whenever two or more medications are used, there is the potential for them to interact with each other. As a result, the effectiveness of at least one may increase or decrease in the body. For example, an Ayurvedic medication called guggul lipid may increase the activity of aspirin in the body, which could lead to bleeding problems.

Scientific Evidence:
Most clinical trials of Ayurvedic approaches have been small, had problems with research designs, lacked appropriate control groups, or had other issues that affected how meaningful the results were. Therefore, scientific evidence for the effectiveness of Ayurvedic practices varies, and more rigorous research is needed to determine which practices are safe and effective.

It is better to use Ayurvedic remedies under the supervision of an Ayurvedic medicine practitioner than to try to treat yourself.
Naturopathic Medicine: The Healing Power of Nature

Naturopathic medicine or naturopathy, is a distinct system of primary healthcare. It is an art, science, philosophy and practice of diagnosis, treatment and prevention of illness based on the healing power of nature. Naturopathy is a holistic system, meaning that naturopathic doctors (N.D.s) or naturopathic medical doctors (N.M.D.s) strive to find the cause of disease by understanding the body, mind, and spirit of the person. Naturopathic physicians work in private practices, hospitals, clinics and community health centers.

There are two areas of focus in naturopathy. One of those areas is supporting the body's own healing abilities, and the other area is empowering people to make lifestyle changes necessary for the best possible health. While naturopathic doctors treat both short periods of illness and chronic conditions, their emphasis is on preventing disease and educating patients.

Modern Naturopathy
The modern form of naturopathy can be traced to 18th and 19th century natural healing systems. Such systems include hydrotherapy (water therapy), which was popular in Germany and nature cure, developed in Austria, based on the use of food, air, light, water, and herbs to treat illness. Benjamin Lust, a German immigrant, first introduced naturopathy to the United States in 1902 when he founded the American School of Naturopathy. The school emphasized the use of natural cures, proper bowel habits, and good hygiene as the tools for health. This was the first time that principles of a healthy diet, like increasing fiber intake and reducing saturated fats, became popular. In the mid 1920s to 1940, the use of naturopathic medicine declined. It was not until the 1960’s that naturopathic-style holistic medicine became popular again. Today, naturopaths are licensed care providers in many states. They offer a variety of natural therapies, including homeopathy, vitamin and mineral supplements, traditional Chinese medicine, relaxation techniques, and herbal remedies.
Distinguished Principles

Naturopathic medicine is distinguished by the principles which underlie and determine its practice. These principles are based upon the objective observation of the nature of health and disease. The following principles are the foundation for the practice of naturopathic medicine:

The Healing Power of Nature:
The healing power of nature is the inherent self-organizing and healing process of living systems which establishes, maintains, and restores health. Naturopathic medicine recognizes this healing process to be ordered and intelligent. It is the naturopathic physician's role to support, facilitate, and augment this process by identifying and removing obstacles to health and recovery, and by supporting the creation of a healthy internal and external environment.

Identify and Treat the Causes:
Illness does not occur without cause. Underlying causes of illness and disease must be identified and removed before complete recovery can occur. Symptoms can be expressions of the body's attempt to defend itself, to adapt and recover, to heal itself, or may be results of the causes of disease. The naturopathic physician seeks to treat the causes of disease, rather than to merely eliminate or suppress symptoms.

First Do No Harm:
Naturopathic physicians follow three precepts to avoid harming the patient:
1. To utilize methods and medicinal substances which minimize the risk of harmful effects, and apply the least possible force or intervention necessary to diagnose illness and restore health.
2. To avoid the suppression of symptoms as this interferes with the healing process.
3. To respect and work with the healing power of nature in diagnosis, treatment and counseling, for if this self-healing process is not respected the patient may be harmed.

Doctor as Teacher:
The original meaning of the word "doctor" is teacher. A principle objective of naturopathic medicine is to educate the patient and emphasize self-responsibility for health. Naturopathic physicians also recognize and employ the therapeutic potential of the doctor-patient relationship.

Treat the Whole Person:
Health and disease result from a complex of physical, mental, emotional, genetic, environmental, social, and other factors. Since total health also includes spiritual health, naturopathic physicians encourage individuals to pursue their personal spiritual development. Naturopathic medicine recognizes the harmonious functioning of all aspects of the individual as being essential to health.
Distinguished Principles

Prevention:
The prevention of disease and the attainment of optimal health in patients are primary objectives of naturopathic medicine. In practice, these objectives are accomplished through education and the promotion of healthy ways of living. Naturopathic physicians assess risk factors, heredity and susceptibility to disease, and make appropriate interventions in partnership with their patients to prevent illness. Naturopathic medicine asserts that one cannot be healthy in an unhealthy environment and is committed to the creation of a world in which humanity may thrive.

Naturopathic Treatments

Some of the more common treatments used by a naturopath include:

- Nutritional counseling
- Herbal medicine
- Homeopathic medicine
- Acupuncture
- Hydrotherapy (water therapy): These therapies include drinking natural spring water, taking baths, alternating hot and cold applications, and water exercise. All of which are thought to stimulate healing and strengthen the immune system.
- Physical medicine: This natural approach to healing involves using touch, hot and cold compresses, electric currents, and sound waves to manipulate the muscles, bones, and spine.
- Detoxification: This therapy removes toxins from the body by fasting, using enemas, and drinking lots of water.
- Spirituality: Personal spiritual development is encouraged as part of an overall health program.
- Lifestyle and psychological counseling: An N.D. may use hypnosis, guided imagery, or other counseling methods as part of a treatment plan.

Naturopaths consider patients to be participants in their healthcare, so you may be asked to make lifestyle changes, such as changing your sleeping, eating, and exercise habits.
Test Yourself

The principles of naturopathic medicine are based upon the objective observation of the nature of health and disease. A common treatment used by a naturopath is:

A. Nutritional counseling
B. Muscle stretching
C. Facial rejuvenation

The correct answer is nutritional counseling.
Visits and Conditions

What should be expected from a visit to a naturopath?
A visit to a naturopathic doctor or N.D. is similar to a visit with a family doctor. The first visit may take more than one hour. The doctor will take a very thorough history, asking about diet, lifestyle, stress, and environmental exposures. Next, the N.D. will do a physical examination, which may require laboratory tests. In addition to conventional tests, N.D.s may use unique laboratory techniques, such as the Comprehensive Digestive Stool Analysis (CDSA). This test allows naturopaths to examine the patient’s digestive process, as well as see which nutrients their body is absorbing, among other things. Naturopathic doctors treat the whole person, which means they consider a variety of factors before they diagnose an illness. An N.D. might also look at the patient’s mental, emotional, and spiritual state; their diet; family history; their environment; and their lifestyle before making a diagnosis.

What illnesses and conditions respond well to naturopathy?
Because naturopaths combine so many therapies, it is difficult to single out specific illnesses that respond well to naturopathy. Naturopaths treat both acute and chronic conditions from arthritis to ear infections (otitis media), from HIV to asthma, from congestive heart failure to hepatitis. N.D.s treat the whole person, rather than only treating a disease or its symptoms, aiming to help their patients maintain a balanced state of good health.

Patients should let their medical doctor (M.D.) know about any naturopathic treatment, and let your N.D. know about any conventional medications they are taking. Some treatments can interact with each other, and their health care practitioners will be better able to treat them if they know every therapy they are using. They should not take high doses of nutrients and herbs without their N.D.’s supervision, because of potential toxic effects and drug/herb interactions. Patients should also check with their doctors before any major changes in diet, especially in the very young, the elderly, and those with certain medical conditions, such as diabetes.
Finding a Qualified Practitioner

A licensed naturopathic physician (ND) attends a four-year, graduate-level naturopathic medical school and is educated in all of the same basic sciences as a MD, but also studies holistic and nontoxic approaches to therapy with a strong emphasis on disease prevention and optimizing wellness. In addition to a standard medical curriculum, the naturopathic physician is required to complete training in clinical nutrition, acupuncture, homeopathic medicine, botanical medicine, psychology, and counseling (to encourage people to make lifestyle changes in support of their personal health). A naturopathic physician takes rigorous professional board exams so that he or she may be licensed by a state or jurisdiction as a primary care general practice physician. Licensed naturopathic physicians must fulfill state mandated continuing education requirements each year, and have a specific scope of practice identified by state law.

Naturopathic Training

There are correspondence courses that offer naturopathic degrees, but people who take them have not had the same training as an N.D. In states that do not license naturopathic doctors, people who have taken online courses can call themselves N.D.s. Make sure your naturopathic doctor has graduated from a residential program approved by the American Association of Naturopathic Physicians (AANP): www.naturopathic.org.
**Naturopathic Usage in the US**

Currently, 17 states, the District of Columbia, and the U.S. territories of Puerto Rico and the U.S. Virgin Islands have licensing laws for naturopathic doctors. In these states, naturopathic doctors are required to graduate from a four year, residential naturopathic medical school and pass a postdoctoral board examination (NPLEX) to become licensed.

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**Japanese Medicine**

Kampo medicine is the Japanese study and adaptation of Traditional Chinese Medicine (TCM). The basic works of Chinese Medicine came to Japan between the 7th and 9th centuries. Since then, the Japanese have created their own unique herbal medical system and diagnosis. Kampo uses most of the Chinese medical system including acupuncture and moxibustion, but is primarily concerned with the study of herbs and the practice of Shiatsu. Rather than modifying formulae as in TCM, the Japanese kampo tradition uses fixed combinations of herbs in standardized proportions according to the classical literature of Chinese Medicine.
Shiatsu
A traditional hands-on Japanese healing art, Shiatsu is a massage practice that uses acupressure. Acupressure is based on the Chinese principles of acupuncture. Shiatsu is a therapeutic practice that can support individuals in moving towards greater health and well-being and can be beneficial for back pain, stress, headaches, whiplash injuries, neck stiffness, joint pain, and reduced mobility. Regular sessions help to prevent the buildup of stress.

In Shiatsu massage, the therapist applies varying, rhythmic pressure using the fingers on particular parts of the body. The Japanese word Shiatsu means “finger pressure”. Shiatsu uses few techniques and to the observer it would appear that little is happening. It is purely a still, relaxed pressure at various points on the body with the hand or thumb, an easy leaning of the elbows or a simple rotation of a limb. Underneath the uncomplicated movements much is happening internally to the body’s energy on a subtle level.

Styles of Shiatsu

There are many different styles of Shiatsu. Some concentrate on acupressure points and some emphasize more general work on the body or along the pathways of energy to influence the Ki that flows in them. Others highlight diagnostic systems, such as the “Five Element” system (wood, fire, earth, metal and water) or the macro-biotic approach.

Harmony of Ki

The oriental tradition describes the world in terms of energy. All things are considered to be manifestations of a vital universal force, called Ki by the Japanese. Harmony of Ki within the human body is conceived as being essential to health. All its endeavors are addressed to this end. Westerners think of cause and effect as a linear progression of ideas and events from A, through B to C.
Obstruction of Ki
Eastern philosophy regards events as mutually conditioned, arising together. They are not seen as distinct from the environment in which they occur. The background is as important as the foreground. For example, a headache is not just an event in the head, nor is it merely a pain, or something to be stopped without regard for its origins. Additionally, it should not be treated on the same basis as someone else’s headache. Rather it is an obstruction of Ki, related to the overall energy patterns in the whole body of the particular individual, their circumstances and lifestyle. Treatment might involve work on the arms or legs as well as (or instead of) the head and will bring more lasting and satisfactory changes than will an attempt to block the superficial symptoms.

A Macrobiotic Approach
The macrobiotic approach is based on five principles:
1. Food is the foundation of life, character, constitution, happiness, and health or sickness.
2. Sodium and potassium are the primary antagonistic and complementary elements in food. They most strongly determine its character and must be balanced in its contents of potassium and sodium.
3. For mankind, the main staple food is grain.
4. Food should be unrefined, whole, and natural.
5. Foods are best if they are grown locally and eaten in season.

Shiatsu Caution and Chemotherapy
In the healthy individual, therapy provided by a qualified practitioner has minimal risks associated with it. However, if a patient is undergoing chemotherapy treatment, Shiatsu is not recommended. People undergoing chemotherapy may have a decrease in red and white blood cells. Shiatsu usually involves strong pressure on the body, so there is a risk of bruising. Some chemotherapy can cause bone demineralization and weakening and the strong pressure of Shiatsu may cause a fracture.
**Shiatsu Caution and Radiation Therapy**
Similarly, clients receiving radiation therapy should not have Shiatsu. The skin in the treated area may be sore and irritated and shiatsu may increase skin breakdown in the compromised patient. Clients suffering from lymphedema should not have Shiatsu, as it can worsen the lymphedema.

**Shiatsu Caution and Breast Cancer**
While limited scientific studies have been done on the use of Shiatsu as an adjunct to traditional therapy for cancer and psychological ailments, reports have been made by women with breast cancer, who reported that shiatsu has helped them with relief of:
- Neck, shoulder and back pain
- Stiffness
- Muscle tension
- Headache

An open pilot study is currently underway to study the effect of adding shiatsu treatment to conventional therapy in work with hospitalized schizophrenic patients.

**The Qualified Practitioner**
To find a qualified shiatsu practitioner, refer patients to local organizations or obtain referrals from traditional doctors. Look at the qualifications and experience of the practitioner and remind patients to always provide a full medical history to the practitioner prior to therapy. Shiatsu may be performed on a thick floor mat or on a low massage table. No oils or lotions are used and both the practitioner and client wear loose comfortable clothing.

To learn shiatsu, practitioners attend a school or training program. These educational programs are different in many ways, including length, quality and whether or not they are accredited by a professional organization.
Test Yourself

In Japanese medicine, a massage practice that uses acupressure is called:
A. Bindu
B. Shiatsu
C. Shuma

The correct answer is shiatsu.

Manipulative and Body-Based Therapies

Manipulative and body-based practices encompass a system of therapies that use either manual manipulation or movement of one or more parts of the body to address structural or systematic imbalances of the bones and joints, the soft tissues, and the circulatory and lymphatic systems. Practices include chiropractic and osteopathic manipulation, therapeutic massage, and a variety of other "bodywork" therapies. This course will be covering chiropractic and massage therapies.

Origins of Manipulative and Body-Based Therapies

Some manipulative and body-based therapies were derived from traditional systems of medicine, such as those from China, India, or Egypt, while others were developed within the last 150 years (e.g., chiropractic and osteopathic manipulation). Although many providers have formal training in the anatomy and physiology of humans, there is considerable variation in the training and the approaches of these providers both across and within modalities. For example, osteopathic and chiropractic practitioners, who use primarily manipulations that involve rapid movements, may have a very different treatment approach than massage therapists, whose techniques involve slower applications of force, or than craniosacral therapists.

Note! Craniosacral therapy involves light touches on the bones of the skull (including the face and mouth), spine, and pelvis to release tension and improve body movement.
Common Characteristics

Despite this heterogeneity, manipulative and body-based therapies share some common characteristics. Some shared characteristics include the principles that the human body is self-regulating and has the ability to heal itself and that the parts of the human body are interdependent. Practitioners in all these therapies also tend to tailor their treatments to the specific needs of each patient.

Chiropractic: Structure and Functioning

Chiropractic is a healthcare profession that focuses on the relationship between the body's structure, mainly the spine, and its functioning. Although practitioners may use a variety of treatment approaches, they primarily perform adjustments (manipulations) to the spine or other parts of the body with the goal of correcting alignment problems, alleviating pain, improving function, and supporting the body's natural ability to heal itself.

The term “chiropractic” combines the Greek words cheir (hand) and praxis (practice) to describe a treatment done by hand. Hands-on therapy, especially adjustment of the spine, is central to chiropractic care. Chiropractic is based on the notion that the relationship between the body’s structure and its function (as coordinated by the nervous system) affects health. Spinal manipulation is a core treatment in chiropractic care, but it is not synonymous with chiropractic. Chiropractors commonly use other treatments in addition to spinal manipulation, and other health care providers (e.g., physical therapists or some osteopathic physicians) may use spinal manipulation.

According to the 2007 National Health Interview Survey (NHIS), which included a comprehensive survey of the use of complementary health practices by Americans, about 8% of adults (more than 18 million) and nearly 3% of children (more than two million) had received chiropractic or osteopathic manipulation in the past 12 months. Additionally, an analysis of NHIS cost data found that adults in the United States spent approximately $11.9 billion out-of-pocket on visits to complementary health practitioners, $3.9 billion of which was spent on visits to practitioners for chiropractic or osteopathic manipulation. Many people who seek chiropractic care have lowback pain. People also commonly seek chiropractic care for other kinds of musculoskeletal pain, headaches, and extremity problems.

An analysis of the use of complementary health practices for back pain, based on data from the 2002 NHIS, found that chiropractic was by far the most commonly used therapy. Among survey respondents who had used any of these therapies for their back pain, 74% (approximately four million Americans) had used chiropractic. Among those who had used chiropractic for back pain, 66% perceived “great benefit” from their treatments.
Adjustment, Manipulation, and Stimulation

During the initial visit, chiropractors typically take a health history and perform a physical examination, with a special emphasis on the spine. Other examinations or tests such as x-rays may also be performed. If chiropractic treatment is considered appropriate, a treatment plan will be developed. During follow-up visits, practitioners may perform one or more of the many different types of adjustments and other manual therapies used in chiropractic care. Given mainly to the spine, a chiropractic adjustment involves using the hands or a device to apply a controlled, rapid force to a joint. The goal is to increase the range and quality of motion in the area being treated and to aid in restoring health. Joint mobilization is another type of manual therapy that may be used.

Additional Therapies

Chiropractors may combine the use of spinal adjustments and other manual therapies with several other treatments and approaches such as:

- Heat and ice
- Electrical stimulation
- Relaxation techniques
- Rehabilitative and general exercise
- Counseling about diet, weight loss, and other lifestyle factors
- Dietary supplements

Spinal Manipulation

Spinal manipulation – sometimes called "spinal manipulative therapy" – is practiced by healthcare 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.
**Back Pain and Chiropractic Therapy**

Back pain is one of the most common health complaints, affecting eight out of ten people at some point during their lives. The lower back is the area most often affected. For many people, back pain goes away on its own after a few days or weeks. But for others, the pain becomes chronic and lasts for months or years. Low back pain can be debilitating, and it is a challenging condition to diagnose, treat, and study. The total annual costs of low back pain in the United States, including lost wages and reduced productivity, are more than $100 billion.

**Chiropractic Research**

The National Center for Complementary and Alternative Medicine (NCCAM) supported research on chiropractic care includes projects that have focused on:

- Spinal manipulation for back pain, neck pain, and headache, as well as for other health conditions such as temporomandibular disorders.
- Development of a curriculum to increase the understanding of evidence-informed practice in chiropractic educational institutions.
- Influence of patients’ satisfaction with care on their response to treatment.
- NCCAM also funded establishment of a developmental center for research in chiropractic at the Palmer Center for Chiropractic Research. Investigators at Palmer and at other partnering institutions conduct basic and clinical research on chiropractic treatment approaches, how they might work, and diseases and conditions for which they may be most helpful.
What the Science Says

Researchers have studied spinal manipulation for a number of conditions ranging from back, neck, and shoulder pain to asthma, carpal tunnel syndrome, fibromyalgia, and headaches. Much of the research has focused on low-back pain, and has shown that spinal manipulation appears to benefit some people with this condition.

A 2010 review of scientific evidence on manual therapies for a range of conditions concluded that spinal manipulation/mobilization may be helpful for several conditions in addition to back pain, including migraine and cervicogenic (neck-related) headaches, neck pain, upper and lower extremity joint conditions, and whiplash-associated disorders. The review also identified a number of conditions for which spinal manipulation/mobilization appears not to be helpful (including asthma, hypertension, and menstrual pain) or the evidence is inconclusive (e.g., fibromyalgia, mid-back pain, premenstrual syndrome, sciatica, and temporomandibular joint disorders).

Effectiveness of Spinal Manipulation

Spinal manipulation or home exercise was more effective than medication for treatment of acute to sub-acute neck pain, according to a recent NCCAM-funded study published in the Annals of Internal Medicine. Researchers from Northwestern Health Sciences University and the Minneapolis Medical Research Foundation randomly assigned 272 participants with neck pain, aged 18-65, to receive either spinal manipulation therapy, medication, or home exercise instruction.

In the study, spinal manipulation therapy consisted of various techniques, including spinal adjustments (low amplitude, high velocity) and mobilization (low velocity) of areas of the spine. Participants in the medication group received non-steroidal anti-inflammatory drugs, acetaminophen, or both. Those who did not respond to these medications or could not tolerate them received narcotic medications. Home exercise with instruction focused on gentle self-controlled movement of the neck and shoulder joints, and participants were instructed to do the exercises 6-8 times each day. In addition, participants in this group received two individualized hour-long sessions of one-on-one exercise instruction, as well as written directions for exercise at home.
What the Science Says

The researchers observed significant short-term and long-term improvements in participant-rated pain in the spinal manipulation group compared with those receiving medication. At 12 weeks, 82% of participants in the spinal manipulation group (compared to 69% in the medication group) experienced reductions of pain of at least 50%. Similar findings occurred at 26 and 52 weeks. Additionally, the spinal manipulation group reported greater global improvement, participant satisfaction, and function than the medication group. Home exercise with instruction was just as effective as spinal manipulation at each time point.

Few studies exist to date on the management of neck pain with noninvasive methods, such as spinal manipulation, home exercise, or medications. According to the researchers, the findings from this study suggest that both spinal manipulation and home exercise may be viable treatment options for managing neck pain.

Chiropractic Safety Research

Side effects from spinal manipulation can include temporary headaches, tiredness, or discomfort in the parts of the body that were treated. There have been rare reports of serious complications such as stroke, cauda equina syndrome (a condition involving pinched nerves in the lower part of the spinal canal), and worsening of herniated discs, although cause and effect are unclear. Safety remains an important focus of ongoing research:

- A 2007 study of treatment outcomes for 19,722 chiropractic patients in the United Kingdom concluded that minor side effects (such as temporary soreness) after cervical spine manipulation were relatively common, but that the risk of a serious adverse event was “low to very low” immediately or up to seven days after treatment.
- A 2009 study that drew on nine years of hospitalization records for the population of Ontario, Canada analyzed 818 cases of vertebrobasilar artery (VBA) stroke which involves the arteries that supply blood to the back of the brain. The study found an association between visits to a healthcare practitioner and subsequent VBA stroke, but there was no evidence that visiting a chiropractor put people at greater risk than visiting a primary care physician. The researchers attributed the association between healthcare visits and VBA stroke to the likelihood that people with VBA dissection (torn arteries) seek care for related headache and neck pain before their stroke.
The Chiropractor’s Education and Licensure

Chiropractic colleges accredited by the Council on Chiropractic Education (CCE) offer Doctor of Chiropractic (D.C.) degree programs. The CCE is the agency certified by the U.S. Department of Education to accredit chiropractic colleges in the United States. Admission to a chiropractic college requires a minimum of 90 semester hour credits of undergraduate study, mostly in the sciences. Chiropractic training is a four year academic program that includes both classroom work and direct experience caring for patients. Coursework typically includes instruction in the biomedical sciences, as well as in public health and research methods. Some chiropractors pursue a 2-3 year residency for training in specialized fields.

Chiropractic is regulated individually by each state and the District of Columbia. All states require completion of a Doctor of Chiropractic degree program from a CCE-accredited college. Examinations administered by the National Board of Chiropractic Examiners are required for licensing and include a mock patient encounter. Most states require chiropractors to earn annual continuing education credits to maintain their licenses. Chiropractors’ scope of practice varies by state in areas such as the dispensing or selling of dietary supplements and the use of other complementary health practices such as acupuncture or homeopathy.

Case Study: Chiropractic Medicine and Chronic Back Pain

Elizabeth suffered from a motor vehicle accident and sought chiropractic care for her low back pain. Her initial exam and x-rays found several functional issues relating to various subluxation patterns, as well as decreased range of motion and areas of pain.

Her symptoms had disappeared very early into her care and now after five months of care, totaling 45 adjustments, Elizabeth has experienced dramatic improvements. Her x-ray shows that the neck is now dramatically straighter and not curving to the back. The slight scoliosis measuring at a ten degree curve has nearly disappeared and measures ½ degree of curve at most. How did chiropractic medicine help Elizabeth?

A. Disarranged cartilage
B. Provided an outlet of negative energy
C. Realigned her body’s structure and improved functioning

The correct answer is C.
Test Yourself

Chiropractic training is a four year academic program that includes both classroom work and direct experience caring for patients. Coursework typically includes instruction in the biomedical sciences, as well as in public health and research methods. Some chiropractors pursue a 2-3 year residency for training in specialized fields. Admission to a chiropractic college requires a minimum of how many semester hour credits of undergraduate study that are mostly in the sciences?

A. 10 hours
B. 50 hours
C. 90 hours

The correct answer is 90 hours.

Massage

Massage therapy has a long history in cultures around the world. Today, people use many different types of massage therapy for a variety of health-related purposes. In the United States, massage therapy is often considered part of complementary and alternative medicine (CAM), although it does have some conventional uses.

Massage therapy dates back thousands of years. References to massage appear in writings from ancient China, Japan, India, Arabic nations, Egypt, Greece (Hippocrates defined medicine as “the art of rubbing”), and Rome.
History of Massage Therapy
Massage became widely used in Europe during the Renaissance. In the 1850s, two American physicians who had studied in Sweden introduced massage therapy in the United States, where it became popular and was promoted for a variety of health purposes. With scientific and technological advances in medical treatment during the 1930’s and 1940’s, massage fell out of favor in the United States. Interest in massage revived in the 1970’s, especially among athletes.

Use of Massage in the US
According to the 2007 National Health Interview Survey which included a comprehensive survey of CAM use by Americans, an estimated 18 million U.S. adults and 700,000 children had received massage therapy in the previous year. People use massage for a variety of health-related purposes, including to relieve pain, rehabilitate sports injuries, reduce stress, increase relaxation, address anxiety and depression, and aid general wellness.

Note! The term “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.
Choosing Your Massage

In Swedish massage, the therapist uses long strokes, kneading, deep circular movements, vibration, and tapping. Sports massage is similar to Swedish massage, adapted specifically to the needs of athletes. Among the many other examples are deep tissue massage and trigger point massage, which focuses on myofascial trigger points, which are muscle “knots” that are painful when pressed and can cause symptoms elsewhere in the body.

Massage therapists work in a variety of settings, including private offices, hospitals, nursing homes, studios, and sport and fitness facilities. Some also travel to patients’ homes or workplaces. They usually try to provide a calm, soothing environment to induce relaxation.

Therapists usually ask new patients about symptoms, medical history, and desired results. They may also perform an evaluation through touch, to locate painful or tense areas and determine how much pressure to apply.

Typically, the patient lies on a table, either in loose-fitting clothing or undressed (covered with a sheet, except for the area being massaged). The therapist may use oil or lotion to reduce friction on the skin. Sometimes, people receive massage therapy while sitting in a chair. A massage session may be fairly brief, but may also last an hour or even longer.
Research on Massage Therapy

Although scientific research on whether massage therapy works and how is limited, there is evidence that massage may benefit some patients. Conclusions generally cannot yet be drawn about its effectiveness for specific health conditions.

According to one analysis, however, research supports the general conclusion that massage therapy is effective. The studies included in the analysis suggest that a single session of massage therapy can reduce “state anxiety” (a reaction to a particular situation), blood pressure, and heart rate, and multiple sessions can reduce “trait anxiety” (general anxiety-proneness), depression, and pain.

Benefits of Massage Therapy

In addition, recent studies suggest that massage may benefit certain conditions, for example:

- A 2008 review of 13 clinical trials found evidence that massage might be useful for chronic low-back pain. Clinical practice guidelines issued in 2007 by the American Pain Society and the American College of Physicians recommend that physicians consider using certain CAM therapies, including massage (as well as acupuncture, chiropractic, progressive relaxation, and yoga) when patients with chronic low-back pain do not respond to conventional treatment.
- A multisite study of more than 300 hospice patients with advanced cancer concluded that massage may help to relieve pain and improve mood for these patients.
- A study of 64 patients with chronic neck pain found that therapeutic massage was more beneficial than a self-care book, in terms of improving function and relieving symptoms.

Theories About Massage Therapy

There are numerous theories about how massage therapy may affect the body. For example, the “gate control theory” suggests that massage may provide stimulation that helps to block pain signals sent to the brain. Other theories suggest that massage might stimulate the release of certain chemicals in the body, such as serotonin or endorphins, or cause beneficial mechanical changes in the body. However, additional studies are needed to test the various theories.
Recent NCCAM-Funded Research on Massage Therapy

- The effects of massage on chronic neck pain and low-back pain.
- Massage to treat anxiety disorder, alleviate depression in patients with advanced AIDS, and promote recovery in women who were victims of sexual abuse as children.
- Massage to relieve fatigue in cancer patients undergoing chemotherapy, reduce treatment-related swelling of the arms in breast cancer patients, and alleviate pain and distress in cancer patients at the end of life.
- Whether massage improves weight gain and immune system function in preterm infants.
- Whether massage given at home by a trained family member helps reduce pain from sickle cell anemia.

Massage Safety

Massage therapy appears to have few serious risks if it is performed by a properly trained therapist and if appropriate cautions are followed. The number of serious injuries reported is very small. Side effects of massage therapy may include temporary pain or discomfort, bruising, swelling, and a sensitivity or allergy to massage oils.

Risk of Massage Therapy

Cautions about massage therapy include the following:

- Vigorous massage should be avoided by people with bleeding disorders or low blood platelet counts, and by people taking blood-thinning medications such as warfarin.
- Massage should not be done in any area of the body with blood clots, fractures, open or healing wounds, skin infections, or weakened bones (such as from osteoporosis or cancer), or where there has been a recent surgery.
- Although massage therapy appears to be generally safe for cancer patients, they should consult their oncologist before having a massage that involves deep or intense pressure. Any direct pressure over a tumor usually is discouraged. Cancer patients should discuss any concerns about massage therapy with their oncologist.
- Pregnant women should consult their healthcare provider before using massage therapy.
Massage Therapy Training and Regulation

There are approximately 1,500 massage therapy schools and training programs in the United States. In addition to hands-on practice of massage techniques, students generally learn about the body and how it works, business practices, and ethics. Massage training programs generally are approved by a state board. Some may also be accredited by an independent agency, such as the Commission on Massage Therapy Accreditation (COMTA).

As of 2010, 43 states and the District of Columbia had laws regulating massage therapy. In some states, regulation is by town ordinance. The National Certification Board for Therapeutic Massage and Bodywork certifies practitioners who pass a national examination. Increasingly, states that license massage therapists require them to have a minimum of 500 hours of training at an accredited institution, pass a national exam, meet specific continuing education requirements, and carry malpractice insurance. In addition to massage therapists, healthcare providers such as chiropractors and physical therapists may have training in massage.

Licenses or Certifications

Some common licenses or certifications for massage therapists include:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>LMT</td>
<td>Licensed Massage Therapist</td>
</tr>
<tr>
<td>LMP</td>
<td>Licensed Massage Practitioner</td>
</tr>
<tr>
<td>CMT</td>
<td>Certified Massage Therapist</td>
</tr>
<tr>
<td>NCTMB</td>
<td>Has met the credentialing requirements (including passing an exam) of the National Certification Board for Therapeutic Massage and Bodywork, for practicing therapeutic massage and bodywork</td>
</tr>
<tr>
<td>NCTM</td>
<td>Has met the credentialing requirements (including passing an exam) of the National Certification Board for Therapeutic Massage and Bodywork, for practicing therapeutic massage</td>
</tr>
</tbody>
</table>
Case Study: Massage and Deep Tissue Injury

George was referred to massage therapy by his osteopath. George has a curvature and tightness of the spine causing a lot of pain. Massage therapy keeps his musculature in better condition, making it easier to manipulate and to maintain improvements after osteopathic treatment. He receives massage therapy weekly.

George is a laboratory technician at a local hospital and complains that he sits in a draft causing his neck to become tight and immobile. His hobby and great passion is dancing. He attends many dance classes several times a week and attends weekend events, doing dances from Jazz to Hip Hop.

His presenting problem was his lower back which had just been corrected by the osteopath. The facet joint had been re-aligned. The area in need of massage treatment was around the lower and upper back and neck. George’s range of movement was limited in the lower back, but was worse in the neck where he was restricted in turning left and right. Visually his shoulders were raised towards the ears indicating tight trapezius muscles.

The massage therapist’s goal was to release the tension in the muscles of the lower and upper back and neck using palpation to find tight areas and points of micro trauma. Proprioceptive Neuromuscular Facilitation (PNF) muscle energy stretch was used to correct the tightness and to improve the muscle length. This stretch also ensures that the trauma eradication lasts longer and improves the range of movement (ROM) of the joint.

George was very happy with the treatment. He visits regularly so that he can continue with his dancing, avoid injury and prevent his vertebrae from misaligning and tightening. He also visits his osteopath regularly. The osteopath reports that his musculature was in the best condition he had seen.

This case study is an example of which of the following approaches to CAM utilization:

A. Therapeutic touch
B. Integrative medicine
C. Alternative medicine

The correct answer is integrative medicine.
Test Yourself

The term “massage therapy” encompasses many different techniques. Massage therapists most often use their hands and fingers, but may use their forearms, elbows, or feet. Select the words that best represent what is involved in the various techniques:

A. Press
B. Manipulate
C. Muscles
D. Soft tissues
E. Pinching

All of the above are correct, except pinching.
Reiki

Reiki is a Japanese technique for stress reduction and relaxation that also promotes healing. The word Reiki is made of two Japanese words - Rei which means "God's wisdom or the higher power" and Ki which is "life force energy." So Reiki is actually "spiritually guided life force energy." It is administered by "laying on hands" and is based on the idea that this unseen "life force energy" flows through us and is what causes us to be alive. If one's "life force energy" is low, then we are more likely to get sick or feel stress, and if it is high, we are more capable of being happy and healthy.

During a Reiki treatment, the patient either sits or lies down fully clothed while the practitioner places their hands lightly on or just above the person in a series of positions. The goal is to facilitate the person's own healing response. A treatment usually takes an hour and shorter sessions are also beneficial.

According to the 2007 United States National Health Interview Survey, which included a comprehensive survey of the use of complementary health practices by Americans, more than 1.2 million adults had used an energy healing therapy, such as Reiki, in the previous year. Reiki appears to be generally safe, and no serious side effects have been reported.

Reiki Treatments and Usage
There has been limited clinical research on Reiki. Available research has examined the use of Reiki for conditions such as fibromyalgia, pain, cancer, and depression, and for overall well-being. Although some small studies suggest that Reiki may help with symptoms related to these conditions, others have not found any clinical benefits. There is a lack of high-quality research to definitively evaluate Reiki's effectiveness for any therapeutic purpose.

Reiki Training
The ability to use Reiki is not taught in the usual sense, but is transferred to the student during a Reiki class. This ability is passed on during an "attunement" given by a Reiki master which opens the crown, heart, and palm chakras of the student and creates a special link between the student and the Reiki source. This link allows the student to tap into an unlimited supply of "life force energy" to improve health and enhance the quality of life. No licensing, professional standards, or formal regulation exists for the practice of Reiki. There are many different forms of Reiki, and no special background or credentials are needed to receive training.
Test Yourself

Reiki is a Japanese technique for stress reduction and relaxation that also promotes healing. The word Reiki is made of two Japanese words that stand for:

A. “spiritually guided life force energy”
B. “energy guided life force”
C. “physically guided energy”

The correct answer is “spiritually guided life force energy”.

Therapeutic Touch

Therapeutic touch is an energy therapy very similar to Reiki. However in therapeutic touch, there is a curriculum which provides training in a variety of techniques to clear, align & restore balance to the human energy system through touch. It is based on the understanding that human beings are energy in the form of a field. When one is healthy, that energy is freely flowing and balanced. When disease is present, that energy is imbalanced or disordered. The human energy field extends beyond the level of the skin, and the therapeutic touch practitioner attunes him or herself to that energy using the hands as sensors.

Therapeutic Touch Treatment

A therapeutic touch treatment is a process that is always individualized and usually does not exceed twenty minutes in length. The patient can sit in a chair or lie down, whichever is more comfortable for them. It is not necessary to disrobe. Exact methods vary between practitioners, but generally, they will pass their hands over the body from head to toe, front and back, holding them between 2-6 inches from the skin. This is done to assess the condition of the human energy field. They may use rhythmical, sweeping motions with the hands, as if they are smoothing out wrinkles in the energy field. The practitioner may or may not touch the patient physically. The response to treatment is influenced by several factors, such as length of illness, level of symptom interference with lifestyle, and general health status.
The Dynamic and Interactive Phases of the Therapeutic Touch Process

**Centering:**
Bringing the body, mind, emotion to a quiet, focused state of consciousness. Centering is using the breath, imagery, meditation and/or visualizations to open one’s self to find an inner sense of equilibrium to connect with the inner core of wholeness and stillness.

**Assessing:**
Holding the hands between 2-6 inches away from the individual’s body while moving the hands from the head to the feet in a rhythmical, symmetrical manner. Sensory cues such as warmth, coolness, static, blockage, pulling, tingling are described by some practitioners.

**Intervention:**
Clearing, also called unruffling, facilitates the symmetrical flow of energy through the field. Unruffling is achieved by using hand movements from the midline while continuing to move in a rhythmical and symmetrical manner from the head to the feet.

**Balancing/Rebalancing:**
Projecting, directing, and modulating energy based on the nature of the living field and assisting to reestablish the order in the system. Treatment is accomplished by moving the hands to the areas that seem to need attention. Energy may be transferred where there is a deficit or energy may be mobilized or re-patterned from areas of congestion.

**Evaluation/Closure:**
Finishing the treatment using professional, informed and intuitive judgment to determine when to end the session. Reassessing the field continuously during the treatment to determine balance and eliciting feedback from the individual are cues as to when to end the therapeutic touch treatment.
Mobilizing Healing Energies

Research has shown that therapeutic touch is effective in decreasing anxiety, altering the perception of pain, and mobilizing the individual’s own healing energies to restore balance and order. It can help facilitate the body’s natural healing processes, such as wound healing, mending fractures, and fighting infections. Symptoms that are associated with stress are particularly responsive to therapeutic touch. It is not unusual to see signs of tension release during a treatment, such as perspiration, crying or a slowing and deepening of breathing, relaxation or a decrease in heart rate.

Response to Therapeutic Touch Therapy
Therapeutic touch has been shown to stimulate the body’s immune system, and can decrease the side effects of chemotherapy and radiation. The response to treatment is individualized. Some notice an immediate change, or within hours or even days later. One treatment can be sufficient; however, it is usually helpful to have regular treatments, especially for chronic problems, as the response can be cumulative. Because therapeutic touch facilitates relaxation, it can be useful in health maintenance and is therefore not limited to treatment of an illness.

Test Yourself

Therapeutic touch is based on the understanding that human beings are energy in the form of a:

A. Field
B. Funnel
C. Circle

The correct answer is field.
Biomagnetic-Based Therapy

The application of permanent magnets for treating specific medical problems has steadily increased during the last decade. Data research from the year 2000 reported $350 million in sales of therapeutic magnets in the USA.

A magnet emits a measurable force called a magnetic field. Static magnets have magnetic fields that do not change. Electromagnets generate magnetic fields only when electrical current flows through them. Magnets are usually made from metals, such as iron. There are some made from alloys which are a mixture of metals, or of a metal and a nonmetal.

Understanding Magnets
Magnets come in different strengths, often measured in units called gauss (G) or, alternatively, units called tesla (T; 1 T = 10,000 G). Magnets marketed for pain relief usually claim strengths of 300 to 5,000 G, which is many times stronger than the Earth’s magnetic field (about 0.5 G) but much weaker than the magnets used for MRI machines (approximately 15,000 G or higher).

Magnets are often marketed for many different types of pain, including foot pain and back pain from conditions such as arthritis and fibromyalgia. Various products with magnets in them include shoe insoles, bracelets and other jewelry, mattress pads, and bandages.

Safety of Magnets
Magnets may not be safe for some people, such as those who use pacemakers or insulin pumps, as magnets may interfere with the devices. Otherwise, magnets are generally considered safe when applied to the skin. Reports of side effects or complications have been rare.

Scientific evidence does not support the use of magnets for pain relief. Preliminary studies looking at different types of pain (such as knee, hip, wrist, foot, back, and pelvic pain) have had mixed results. Some of these studies, including a 2007 clinical trial sponsored by the National Institutes of Health that looked at back pain in a small group of people, have suggested a benefit from using magnets. However, many studies have not been of high quality and included a small number of participants, were too short, and/or were inadequately controlled. The majority of rigorous trials have found no effect on pain.
**Test Yourself**

Which of the following statements accurately reflects the strength of the magnetic fields used in biomagnetic based therapies?

A. Magnets marketed for pain relief claim strengths stronger than the magnets used for MRI machines.
B. Magnets marketed for pain relief claim strengths that mirror the surface of the moon.
C. Magnets marketed for pain relief claim strengths much weaker than the magnets used for MRI machines.

The correct answer is C.

**Other Therapies: Kinesiology**

Applied kinesiology uses muscle testing to identify nutritional deficiencies and health problems. It is based on the belief that weakness in certain muscles relates to specific disease states or imbalances in the body. Muscle testing establishes a monitored primary feedback mechanism between the nervous system and the skeletal muscles. An examiner will typically use the straight-arm test (deltoid muscle) to evaluate how well the muscle will resist an externally variable force. If the muscle is capable of resisting, then the examiner can proceed with a second principle called therapy localization to ascertain a deficit. If a deficit is identified, then the muscle will exhibit that same deficiency, manifesting as a weak muscle test.

Kinesiologists may use applied kinesiology to assess organ dysfunction or energy blockage. Applied kinesiology is also sometimes used to identify allergies, such as food and drug. One type of applied kinesiology called edukinesthesia is claimed to be able to detect the cause of learning difficulties and poor concentration. Related terms include kinesitherapy, hydrokinesitherapy, applied kinesiology muscle testing, functional neurologic assessment, and kinesthetic training.
Origins of Kinesiology
Applied kinesiology originated in 1964 when the chiropractor George Goodheart Jr. observed that poor posture is sometimes associated with muscles that are weak. He reported that applied kinesiology strengthened muscles and improved posture.

Note! Applied kinesiology is often practiced by chiropractors, although naturopaths, medical doctors, dentists, nutritionists, physical therapists, massage therapists, nurse practitioners and other health providers may also use these techniques. Applied kinesiology is different from kinesiology, or biomechanics, which is the study of body movement.

Suggested Uses
Applied kinesiology has been suggested for many uses, based on tradition or on scientific theories. However, these uses have not been thoroughly studied in humans, and there is limited scientific evidence about safety or effectiveness. Some of these suggested uses are for conditions that are potentially life-threatening.

<table>
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<tr>
<th>Abdominal pain</th>
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<th>Down syndrome</th>
<th>Learning disabilities</th>
<th>Psychological disorders</th>
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<td>Exercise</td>
<td>Myofascial (muscle tissue) release</td>
<td>Spinal stability</td>
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<td>Food allergy</td>
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<td>Parkinson’s disease</td>
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<td>Diabetes</td>
<td>Functional impairment</td>
<td>Positive thinking</td>
<td>Vertigo</td>
</tr>
<tr>
<td>Child development</td>
<td>Diffuse muscular hypotonia</td>
<td>Nutritional deficiencies</td>
<td>Preclinical disease states</td>
<td></td>
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</tbody>
</table>
Research and Kinesiology

There is limited scientific research on applied kinesiology, and published studies have not established specific links between muscle responses and diseases affecting the organs.

Note! Applied kinesiology is not recommended as a sole diagnostic tool in cases when other tests have been shown to be effective. If applied kinesiology is used alone, there may be a risk that disease will remain undetected and untreated.

Principle Concepts in Applied Kinesiology

The International College of Applied Kinesiology, founded in the 1970’s, has established standards based on the work of Goodheart. Applied kinesiology may include specific joint manipulation or mobilization, myofascial (muscle tissue) therapies, cranial techniques, meridian therapy (in traditional Chinese medicine, the meridians are channels in the body believed to conduct qi), good nutrition, dietary management, and various reflex procedures. The examiner may test for environmental or food sensitivities by determining what weakened a previously strong muscle. A triad of health factors (chemical, mental, structural) may be used to describe a patient’s health status. It has been proposed that an imbalance of one or more of these factors leads to poor health.
What the Science Says

Applied kinesiology is generally believed to be safe in most patients. However, this technique should not be used alone as a diagnostic or therapeutic approach, and it should not delay the time it takes to speak with a qualified healthcare provider about a potentially life-threatening condition. There may be risks involved in relying solely on applied kinesiology for the treatment of learning disabilities in children, diabetes, food allergies, or cancer.

Scientists have studied applied kinesiology for the following use:
- Preliminary studies suggest that applied kinesiology may be an effective and well tolerated treatment for mastalgia (breast pain) in women. Further research is needed to confirm these results.
- Study results are mixed in the area of bronchial asthma. Further research is needed before conclusions can be drawn.
- Preliminary research concludes that kinesthetic training does not improve handwriting or kinesthesia in young children.
- Preliminary research concludes that applied kinesiology cannot be recommended for diagnosing nutritional intolerance or allergy.
- A combination therapy showed some positive results in dyslexic children. However, the effects of applied kinesiology alone cannot be isolated from the other therapies.

Test Yourself

Preliminary studies suggest that applied kinesiology is generally believed to be safe in most patients and may be an effective and well tolerated treatment for:
- A. Mastalgia (breast pain) in women
- B. Broken bones
- C. Appendicitis

The correct answer is mastalgia in women.
Chelation Therapy: Disease of the Heart

Chelation (pronounced key-LAY-shun) therapy is an investigational drug using a man-made amino acid, called EDTA. EDTA is delivered through the veins to the blood where it can bind to excess and/or toxic metals and aid in their release from the body.

Disodium EDTA has been in widespread use since the 1970’s for disease of the heart and arteries. However, the safety of EDTA for treating heart disease has not been established. The most common side effect is a burning sensation at the site where the EDTA is delivered into the vein. Rare side effects can include fever, headache, nausea and vomiting. Even rarer are potentially fatal side effects that can include heart failure, a sudden drop in blood pressure, abnormally low calcium levels in the blood, permanent kidney damage, and bone marrow depression. Other serious side effects can occur if EDTA is not administered by a trained health professional.

Chelation Therapy Studies

Past chelation therapy studies have not shown any benefit, but may have been too small to be conclusive. NCCAM is currently partnering with the National Heart, Lung and Blood Institute in the first large-scale clinical trial of EDTA chelation therapy as a treatment for CAD, the leading cause of death for men and women in the United States. Participation in this study lasts up to five years. Interested candidates should be encouraged to seek the advice of their healthcare providers before participating in a chelation therapy study. Interested parties are referred to the NCAAM website for detailed information on current clinical trials.

Chelation Therapy Usage

Chelation therapy is approved by the U.S. Food and Drug Administration (FDA) for treating lead poisoning and other heavy-metal toxicity. It is not FDA-approved to treat coronary artery disease (CAD), but some physicians and alternative medicine practitioners have recommended it. One estimate states that more than 800,000 visits to receive chelation therapy were made in the United States in 1997 alone. Because of this rate of use and the high death rate from CAD, seeking more clarity on whether EDTA chelation therapy is indeed an effective and safe treatment for CAD is well warranted.
Test Yourself

Chelation therapy is an investigational drug using a man-made amino acid, called EDTA. EDTA aids in the release of toxins by binding to excess and/or toxic metals in the:

A. Intestines  
B. Mouth  
C. Blood

The correct answer is blood.

Art Therapy: Create and Heal

The use of art media, the creative process, and the resulting artwork provides a way for people to come to terms with emotional conflicts, increase self-awareness, and express unspoken and often unconscious concerns about their illness and their lives. Expressive arts therapy or creative arts therapy may also include the use of dance and movement, drama, poetry, and photo therapy, as well as more traditional art methods.

What is a Therapeutic Recreation Specialist?

Therapeutic recreation specialists provide artistic treatment services and recreation activities for individuals with disabilities or illnesses using a variety of techniques, including arts and crafts, animals, sports, and creative games. Therapists improve and maintain the physical, mental, and emotional well-being of their clients. Therapists help individuals:

- Express hidden emotions
- Reduce depression, stress, fear, and anxiety
- Explore a sense of freedom
- Distract from experience of pain
- Recover basic functioning and reasoning abilities
- Build confidence
- Improve reality orientation
- Manage behavior and addictions
Uses of Recreational Therapy

Therapeutic recreation specialists also help individuals socialize effectively so that they can enjoy greater independence and reduce or eliminate the effects of their illness or disability. It is used as a diagnostic tool for those who have trouble talking about painful events or emotions. Art therapists say that often children can express difficult emotions or relay information about traumatic times in their lives more easily through drawings than through conventional therapy. Many art therapists believe that act of creation influences brain wave patterns and the chemicals released by the brain.

Art therapy has been used with bone marrow transplant patients, people with eating disorders, emotionally impaired young people, disabled people, the chronically ill, chemically addicted individuals, sexually abused adolescents, caregivers of cancer patients, and others.

How Does Art Therapy Work?

People are given the tools they need to produce paintings, drawings, sculptures, and many other types of artwork. Art therapists work with patients individually or in groups to help patients express themselves through their creations and to talk to patients about their emotions and concerns as they relate to their art. For example, an art therapist may encourage a person with cancer to create an image of themselves with cancer and in this way express feelings about the disease that may be hard to talk about or may be unconscious.

In another form of art therapy, patients look at pieces of art, often in photographs and then talk with a therapist about what they have seen. A caregiver or family member can also gather artwork in the form of photographs, books, or prints and give the patient a chance to look at and enjoy the art.

Developing Therapeutic Interventions

Recreational therapists assess clients using information from observations, medical records, standardized assessments, the medical staff, the clients’ families and the clients themselves. They then develop and carry out therapeutic interventions consistent with the clients’ needs and interests. For example, they may encourage depressed clients to express their concerns on paper, through different forms of art, or encourage right-handed people with right-side paralysis to use their unaffected left side to write and draw.
Principles and Safety of Art Therapy

Recreational therapists may also instruct patients in relaxation techniques to reduce stress and tension, stretching and limbering exercises, proper body mechanics for participation in recreational activities, pacing and energy conservation techniques, and team activities. As they work, therapists observe and document a patient’s participation, reactions, and progress.

Art therapy is considered safe when conducted by a skilled therapist. It may be useful as a complementary therapy to help people with cancer deal with their emotions. Although uncomfortable feelings may be stirred up at times, this is considered part of the healing process.

Test Yourself

The use of art media, the creative process, and the resulting artwork provides a way for people to come to terms with emotional conflicts, increase self-awareness and express:

A. Negative energy that often results in stress and subsequent illnesses.
B. Unspoken and often unconscious concerns about their illness and their lives.
C. Spoken and conscious concerns about their illness and their lives.

The correct answer is B.
Art Therapy Timeline

- Late 1800’s: The connection between art and mental health recognized
- 1922: The book, *Artistry of the Mentally Ill*, aroused interest, causing the medical community to examine the diagnostic value of patients’ creations. Some practitioners realized that art might be valuable for rehabilitating patients with mental illness.
- 1940’s: Ideas from psychoanalysis and art were combined to develop art as a tool to help patients release unconscious thoughts. Patient’s creations began to be considered as a type of symbolic speech.
- 1958: At the National Institute of Mental Health, an artist named Hana Kwiatkowska translated her knowledge as an artist into the field of family work and introduced methods of evaluation and treatment techniques using art therapy.
- 1969: The American Art Therapy Association was established. The organization now has more than 4,500 members and, along with the Art Therapy Credentials Board, sets standards for art therapists and educates the public about the field.

Artful Settings

Many medical centers and hospitals include art therapy as a part of inpatient care. It can be practiced in many other settings, such as schools, psychiatric centers, drug and alcohol rehabilitation programs, prisons, day care treatment programs, nursing homes, hospices, patient’s homes, and art studios.

Community-based therapist may work in park and recreation departments, special-education programs for school districts, or assisted-living, adult day care and substance abuse rehabilitation centers. In these programs, therapists use interventions to develop specific skills, while providing opportunities for exercise, mental stimulation, creativity and fun. Those who work in schools help counselors, teachers, and parents address the special needs of students, including easing disabled student’s transition into adult life.
Recreational Therapists

Recreational therapists provide services in special activity rooms but also plan activities and prepare documentation in offices. When working with clients during community integration programs, they may travel locally to teach clients how to use public transportation and other public areas, such as parks, playgrounds, swimming pools, restaurants and theaters. Therapists often lift and carry equipment.

The Benefits of Art

Numerous case studies have reported that art therapy benefits patients with both emotional and physical illnesses. Case studies have involved many areas, including burn recovery in adolescents and young children, eating disorders, emotional impairment in young children, reading performance, childhood grief and sexual abuse in adolescents. Studies of adults using art therapy have included adults or families in bereavement, patients and family members dealing with addictions and patients who have undergone bone marrow transplants, among others.

Some of the potential uses of art therapy to be researched include reducing anxiety levels, improving recovery times, decreasing hospital stays, improving communication and social function and pain control.

Psychosocial interventions for cancer patients in isolation for bone marrow transplant (BMT) have been advocated in the recent literature. It is not clear what type of interventions would be most appropriate. A study was recently conducted at Memorial Sloan-Kettering Cancer Center (MSKCC), with the intention of testing the feasibility of introducing art therapy as a supportive intervention for adult BMT patients in isolation. During this study, art therapy was used on a small group of BMT patients and an analysis of the artistic creations of the patients showed that the patients did in fact use art therapy effectively. It was found that these patients used art therapy to strengthen their positive feelings, to alleviate distress and to clarify spiritual issues. Another aim of the study was to identify which patients would most benefit from art therapy. The results suggest that art therapy may be especially beneficial for patients who need to deal with emotional conflicts and with feelings about life and death, in a safe setting.
Recreational Therapists versus Registered Art Therapists

Most entry-level recreational therapists need a bachelor’s degree in therapeutic recreation, or in recreation with a concentration in therapeutic recreation. People may qualify for paraprofessional positions with an associate degree in therapeutic recreation or another subject related to healthcare. An associate degree in recreational therapy; training in art, drama, or music therapy; or qualifying work experience may be sufficient for activity director positions in nursing homes.

Registered art therapists must have graduate degree training and a background in studio arts and therapy techniques. The Art Therapy Credentials Board sets standards for art therapists. Some states regulate recreational (art) therapists through licensure, registration, or regulation of titles. Licensure is required in North Carolina, Utah, and New Hampshire. Certification is voluntary and most employers prefer to hire candidates who are certified therapeutic recreation specialists.

Training and Professional Organizations

Therapists can earn certifications in specific areas, such as art therapy. The American Art Therapy Association (AATA) is dedicated to the use of art therapy and the development of professional standards of practice for art therapists and research. The association provides information on association-approved programs of art therapy education and clinical programs.
Functions of the AATA
The AATA also serves as a clearinghouse for information on the field and disseminates publications and audiovisual materials. This organization is comprised of many diverse, engaged, and creative professionals dedicated to the belief that the creative process involved in making art is healing and life enhancing. Their culture is one of inclusion of people from all backgrounds, open to new concepts and artistic expression that continues to expand the effectiveness of art as a healing therapy.

The AATA serves its members and the general public by promoting standards of professional competence and developing and increasing knowledge in the field of art therapy. The association represents more than 36 AATA state and regional chapters that conduct meetings and activities to promote art therapy on the local level. The American Art Therapy Association promotes the therapeutic use of art by:

• Encouraging the highest quality of art therapy services to the public
• Facilitating communication among members and colleagues
• Supporting legislative efforts at the state and federal levels
• Disseminating information to the general public, art therapists, and related mental health professionals
• Recognizing excellence in clinical, professional, educational, and research activities

Case Study: Art Therapy and Loss
Franklin is 16 years old and has suffered the loss of his leg in a MVA. His physical progression has suffered mostly in part due to his severe depression as evidenced by apathy, increased sleeping, decreased intake and withdrawal from his social life. He has asked that his friends no longer visit and he is refusing many activities in physical therapy. His care team is concerned about his growing weakness and his lack of progression and preparedness for his prosthetic leg. His family and friends are concerned about his growing disconnectedness and increased irritability. His doctor recommends art therapy. Art therapy is most likely recommended as a means to:

A. Distract Franklin from his illness.
B. Introduce a new hobby that may decrease his sadness.
C. Bring awareness to unspoken and unconscious feelings about the loss of his leg.

The correct answer is C.
Test Yourself

Registered art therapists must have graduate degree training and a background in studio arts and therapy techniques. The Art Therapy Credentials Board sets standards for art therapists. Some states regulate recreational (art) therapists through licensure, registration, or regulation of titles. Certification is voluntary and most employers:

A. Prefer to hire candidates who are certified therapeutic recreation specialists.
B. Have no preference in hiring candidates who are certified therapeutic recreation specialists.
C. Advocate to the state to mandate licensure for therapeutic recreation specialists.

The correct answer is A.

Sound and Music Therapy

"I would teach children music, physics and philosophy; but most importantly music, for the patterns in music and all the arts are the keys to learning (Plato)".

The idea of music as a healing influence which could affect health and behavior is as least as old as the writings of Aristotle and Plato. The 20th century discipline began after World War I and World War II when community musicians of all types, both amateur and professional, went to veterans hospitals around the country to play for the thousands of veterans suffering both physical and emotional trauma from the wars. The patients’ notable physical and emotional responses to music led the doctors and nurses to request the hiring of musicians by the hospitals. It was soon evident that the hospital musicians needed some prior training before entering the facility and so the demand grew for a college curriculum. Since then sound, as a therapeutic medium, has become more widely employed, and is now used in hospitals, nursing homes, institutions, and other rehabilitative settings.
Sound and Music Practitioners

Sound and music practitioners or music therapists clinically assess patients’ emotional well-being, physical health, social functioning, communication abilities, and cognitive skills through musical responses. They then design music sessions for individuals and groups based on the needs assessed using music improvisation, receptive music listening, song writing, lyric discussion, music and imagery, music performance, and learning through music. Music therapists are a part of the care team and they participate in interdisciplinary treatment planning, ongoing evaluation, and follow up.

Vibrational Frequencies

The human body is equipped to be intricately receptive to sound. The sense of hearing is one of the first senses to develop in utero, and the last to depart before death. In addition to sensing sound through our ears, a recent NIH study shows that we also "hear" the pressure waves of sound through our skin. Our bodies are mostly comprised of water, and water conducts sound at a rate approximately four times faster than air. Our bones also conduct sound, as evidenced by the effectiveness of hearing aids that conduct sound through the skull directly to the cochlea, and through the technique of using a vibrating tuning fork to determine if a bone is fractured.

Our bodies contain antenna like structures, called primary cilia, that respond to vibrational frequencies. These receptor antennas vibrate like tuning forks. If an energy vibration in the environment resonates with the antenna, it will cause the antennas to alter their shape. This proves that biological behavior can be controlled by invisible forces as well as it can be controlled by physical molecules, like penicillin, thus providing the scientific foundation for energy medicine.

Additionally, fluid movement through the cilium may have an important impact on cellular responses. Cilia also have important roles in pressure, touch, and vibration sensation. After receiving vibrational information, cilium may also transmit information about the state of order or disorder within the cell.

The primary cilium is a microtubule-based antenna-like structure that emanates from the surface of virtually all cells in the human body.
Sound and Conventional Medicine

There are essentially two definitions of sound. One definition of sound describes vibrations in the range of human hearing, and the other definition describes vibrations in general:

1. Vibrations transmitted through an elastic solid or a liquid or gas, with frequencies in the approximate range of 20-20,000 Hertz (Hz), capable of being detected by human hearing (audible range).
2. Transmitted vibrations of any frequency. Frequencies above 20,000 Hz are referred to as ultrasonic, and frequencies below 20 Hz are referred to as infrasonic.

Audible Sound and CAM

Resonance and entrainment:
Using the audible range, music therapy has been shown to be effective with Alzheimer's and dementia, autistic spectral disorders, stroke victims, and in prison populations. Alzheimer's patients demonstrate less agitation and confusion when engaged in music exercises, as opposed to being alone watching TV (Darrow, 2004). Autistic children are able to be more expressive and engaging when involved in musical activities (Kim, 2009).

Music therapy is earning more acceptance in conventional medicine. It is used both during surgery and post-op and specifically with end of life care to help people manage pain, stress, anxiety, and other issues. Studies have shown the method of music therapy that works most effectively utilizes the principles of resonance and entrainment.

Entrainment music therapy complements or models the current mood state of the individual and then moves the person in the direction of a more pleasant mood state (Chang, 2012). For example, if a person is initially anxious, music selected will match that anxiety initially (resonance), and then move slowly into a melodic piece that can lead to anxiety reduction (entrainment). This technique has been used successfully in reduction of both pain and anxiety.
Definitions of Sound

Conventional medicine employs sound frequencies in the ultrasonic and infrasonic ranges, while alternative medicine largely employs frequencies in the audible range. While the practice of using these ultrasonic and infrasonic frequencies is well-documented and widely employed in conventional medicine, there has been very little attention given to the use of audible frequencies. Perhaps the best known and most widely employed use of sound in conventional medicine is the use of ultrasound. Most people are familiar with its use as a diagnostic technology, as in the use of sonograms for fetal assessment. The sound waves bounce off the bones and fluid and return the information to a transducer to be translated into a visual image.

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Applications of VST

Vibroacoustic Sound Therapy (VST) incorporates both music therapy and sound frequencies. VST is the transduction of both sound and music through specially designed beds, tables, or chairs, in which the sound currents travel directly through the body. Numerous studies have been conducted on VST and have demonstrated that it is beneficial for a wide range of ailments, from pain and anxiety reduction to reducing problem behavior in autistic adults and children. One study found that negative stereotypical behavior was reduced by 40% in autistic adults (Boyd-Brewer 2003).

VST can be utilized with music only, pulsed sound waves and music, and combined with visual light stimulation. The Tomatis Method and Auditory Integrative Training are other techniques that involve listening to specifically created music through headphones for the purpose of retraining the auditory system and creating symptomatic improvement for issues such as autism, learning disorders, hearing disorders, ADHD, and more. The treatment of autism has been the most studied with these techniques, as they are generally effective at reducing the sound sensitivity so common in the disorder, resulting in improved interaction with their environments.

Sound Healing and Sound Therapy

The use of sound in complementary and alternative medicine is much more broad and deep than conventional uses. Two terms that are often used are sound healing and sound therapy. Sound healing refers to the more general field of therapeutic sound use, including singing, drumming, rattling, toning, etc. Sound therapy refers to practice that is more clinical and structured. In complementary and alternative medicine, sound therapy is a sub-group of sound healing.
Singing, Drumming, Rattling, and Toning

Conscious and intentional use of the human voice in chanting, singing, and toning has been used for millennia, often within a religious or devotional context. Numerous studies have been done to determine what exactly happens when we chant or sing or tone, whether alone or in groups. Neurological imaging has shown changes in blood flow to the brain, in addition to other biological markers of increased well-being, when experienced meditators are engaged in chanting meditation. One study demonstrated a positive emotional effect and immune competence confirmed by the increased presence of secretory immunoglobulin A in saliva swabs after a choir rehearsal, and even more marked increase after a performance.

The process of toning, which has gained some popularity in recent years, is a sort of informal chanting where the individual simply intones extended vowel sounds which are supposed to help release energy blockages from the body. Chanting is said to have a similar result of facilitating the flow of energy through the body (Mckusick).

Acoustic Forks

Acoustic instruments such as tuning forks and crystal or Tibetan bowls are widely used in sound healing. One of the best known tuning fork practices is called Acutonics, a system developed by an acupuncturist that uses vibrating weighted tuning forks on acupuncture points. It works on the same premise as acupuncture in that stimulation of these particular areas unblocks stagnant energy, improving energy flow through the body and supporting the body in healing itself. Acutonics is used in a variety of settings including some hospitals.

Acoustic Bowls

Crystal and Tibetan bowls are struck or rubbed to produce pure, penetrating tones, not very different from tuning forks. Metal bowls have been used in Tibet for centuries as an aid to meditation, while crystal bowls are a relatively recent development but the two are used similarly. Dr. Mitchell Gaynor, an oncologist and author of *The Healing Power of Sound*, began integrating music, vocalization, breathing, bowls, and meditation techniques in his work with patients in 1991, after first being exposed to a Tibetan bowl through one of his patients. He has observed many beneficial outcomes as a result of this integration.

Principles of Acoustic Treatments

The use of tuning forks, bowls and gongs, along with certain types of music appears to stimulate the relaxation response in the body. This may be due in part to the biological process of Nitric Oxide (NO) release in the body in the presence of certain music and sounds. Nitric oxide is an immune, vascular, and neural signaling molecule. It is also an antibacterial, antiviral which down-regulates endothelial and immunocyte activation and adherence, thus performing vital physiological activities including vasodilation (McKusick).
Beats and Tones

Binaural beats are created when two tones are detuned from each other by a small amount. The resulting third oscillation, which is the difference between the two frequencies, will automatically entrain the brain into different brainwave frequencies. For example, if 315 Hz is played into the right ear and 325 Hz played into the left ear, the brain becomes entrained towards the beat frequency of 10 Hz, which is in the Alpha brain wave range. Since the Alpha range is associated with relaxation, this is supposed to have a relaxing effect. Binaural beats are embedded in music, or simply as repeated tones, and listened to through headphones. Studies suggest therapeutic application of binaural beat technologies can be beneficial for anxiety, mood improvement, behavior disorders in developmentally disabled children, and stress reduction in patients with addictions and focus and attention.

BioAcoustic Therapy

BioAcoustic therapy is the use of human voice analysis to provide a representation of a person's state of health. BioAcoustic therapy reads the frequencies present in a person's voice and determines what important frequencies are missing. Once appropriate sound formulas are determined, they are programmed into a frequency generator, allowing an individual to listen privately through headphones. BioAcoustic therapy has had success with sports injuries and structural problems, pain management, nutritional evaluation, and tissue regeneration. The Cyma-1000 is a frequency generating device that emits over 500 different frequencies. Fifty years of research has determined which frequencies and combinations of frequencies treat which ailments. It uses an applicator to deliver precise combinations of frequencies associated with healthy tissue and organ systems, and is registered in the United States with the FDA as an "acoustic massager." Theoretically, these sound waves help to normalize imbalances and synchronize the cell's frequency back to its natural healthy state of vibrational resonance. This technology is primarily used and accepted in the United Kingdom (McKusik).
Test Yourself

Conscious and intentional use of the human voice in chanting, singing, and toning has been used for millennia. When experienced mediators are engaged in chanting meditation, neurological imaging has shown changes in blood flow to the:

A. Heart
B. Brain
C. Lungs

The correct answer is the brain.

Case Study: Cancer and CAM

Phillip was diagnosed with throat cancer. He has intermittent pain which has been well-controlled by current levels of medication. Phillipp’s son, Michael, explains that his father is complaining of increased pain, new onset of extreme anxiety, and an additional weight loss of eight pounds over the past month. Michael asks the doctor about CAM therapies that might help with his father’s pain, anxiety and declining quality of life. He and the rest of the family are willing to do anything to get his father to feel better. Based on scientific research, which of the manipulative and body-based therapies might be helpful to Phillip?

A. Qigong
B. Chiropractic
C. Massage

The correct answer is a massage.
Integration of CAM Therapies

Integration of complementary and alternative medicine therapies (CAM) with conventional medicine in the United States is occurring at a steady pace. Slowly, insurance coverage for CAM is increasing and more health maintenance organizations (HMOs) are covering CAM therapies.

Integrative medical centers and clinics are becoming more common, some with close ties to medical schools and teaching hospitals. The overall goal of this integration is the delivery of comprehensive care that combines the best scientific evidence available with recognition of the patient as a holistic being. This encourages a focus on healing and recognition of the importance of relationship-based care. This holistic approach also promotes the participation of the patient in decision making and promotes choices in care that can include complementary therapies where appropriate.

Conclusion

Numerous approaches to delivering integrative medicine have evolved in the United States, yet research in this field remains limited. There is an urgent need for more scientific research that focuses on complementary and alternative medical practices, so that these therapies can become evidence based practice. Research can also help determine the outcomes of care delivered in these models and whether these models are cost effective when compared to conventional practice settings. Furthermore, alternative and complementary medical therapies need to be incorporated into curriculum that provides further education to health professionals.
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