



Acupuncture Helps in Treating Medical Problems

Civil aviation medical specialists in the West say that the medical procedure, developed in China more than 2,500 years ago, has been administered to many people, including pilots, to relieve pain without the side effects that accompany some medications.

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Stanley R. Mohler, M.D.

Acupuncture, one of the world's oldest medical procedures, involves the use of thin needles to pierce specified points on the body to treat illness and relieve associated discomfort.

Acupuncture was first used in China more than 2,500 years ago (probably much earlier, according to archaeologists who discovered acupuncture-like needles that they believe were used during the Stone Age or before)¹ and was introduced to other Asian countries about 1,500 years ago and to Europe about 500 years ago. In other parts of the world, the use of acupuncture has become more frequent in the past few decades.²

Today, acupuncture is practiced worldwide with techniques not only from China but also from Japan, Korea and other countries. Some forms involve manual manipulation of the needles or electrical stimulation of the needles. Variations of acupuncture include acupressure, in which the fingers are used instead of needles to apply pressure.³ Another variation is moxibustion, in which a stick or cone of the herb mugwort is placed on an acupuncture point and burned; the herb is removed before the skin is burned. Moxibustion often is used in combination with needles.⁴

Acupuncture is based on a theory of traditional Chinese medicine that an energy force (qi, pronounced "chee") circulates within the body and over the body's surface and regulates spiritual, emotional, mental and physical balance. That balance is influenced by two opposing forces (yin and yang), which also must remain balanced for the body to be in good health. The energy force is conducted through the



body by 12 main pathways (meridians) and eight secondary pathways. A disruption of the flow of energy along the meridians is believed to result in disease. The meridians connect with hundreds of acupuncture points on the body, and acupuncture — the insertion of needles at those points — is intended to balance and to improve the flow of energy and restore health.

The American Academy of Medical Acupuncture explains the process this way:

[M]eridians are like rivers flowing through the body to irrigate and nourish the tissues. An obstruction in the movement of [one or more of] these energy rivers is like a dam that [causes an undesired backup].

The meridians can be influenced by needling [inserting needles in] the acupuncture points. The acupuncture needles unblock the obstructions at the dams and re-establish the regular flow through the meridians. Acupuncture treatments can therefore help the body's internal organs to correct imbalances in their digestion, absorption and energy-production activities and in the circulation of their energy through the meridians.

The modern scientific explanation is that needling the acupuncture points stimulates the nervous system to release chemicals in the muscles, spinal cord and brain. These chemicals will either change the experience of pain, or they will trigger the release of other chemicals and hormones [that] influence the body's own internal regulating system.⁵

The U.S. National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH) said that not all medical specialists agree with the theories upon which acupuncture is based.

“Western scientists have found meridians hard to identify because meridians do not directly correspond to nerve [pathways] or blood circulation pathways,” NCCAM said. “Some researchers believe that meridians are located throughout the body’s connective tissue; others do not believe that qi exists at all. Such differences of opinion have made acupuncture an area of scientific controversy.”⁶

Nevertheless, NCCAM said that studies have documented the effects of acupuncture but have not led to an explanation “within the framework of the Western system of medicine” of how acupuncture achieves those effects.

The United Nations World Health Organization (WHO) has said that acupuncture is effective in treating dozens of medical problems, including headaches, neck pain, tendonitis, lower back pain, osteoarthritis, gastritis, constipation, diarrhea, nausea, sinusitis, asthma, urinary problems, menstrual problems and reproductive problems.⁷

In its 1979 *Viewpoint on Acupuncture*, WHO said, “There has been ... a convergence of modern international science with traditional Chinese medicine. For example, in more than 600 cases of coronary heart disease, the effectiveness of acupuncture in relieving the symptoms was over 80 percent. In 645 cases of acute bacillary dysentery, 90 percent of the patients were cured within 10 days. ... The technique is also comparatively effective in controlling fever, inflammation and pain.

“From the viewpoint of modern medicine, the principal action of acupuncture (and of moxibustion) is to regulate the function of the human body and to increase its resistance by enhancing the immune system and the antiphlogistic [anti-inflammatory], analgesic [pain-reducing], antispastic, antishock and antiparalytic abilities of the body.”

A 1997 NIH consensus statement (one in a series of papers prepared by “non-advocate” panels of medical specialists) on acupuncture said that data in support of acupuncture “are as strong as those for many accepted Western medical therapies.

“One of the advantages of acupuncture is that the incidence of adverse effects is substantially lower than that of many drugs or other accepted medical procedures used for the same conditions. As an example, musculoskeletal conditions, such as fibromyalgia [and] myofascial pain [disorders characterized by aches and stiffness in muscles, tendons and ligaments], and tennis elbow, or epicondylitis, are conditions for which acupuncture may be beneficial. These painful conditions are often treated with, among other things, anti-inflammatory medications (aspirin, ibuprofen, etc.) or with steroid injections. Both medical interventions have a potential for deleterious side effects but are still widely used and are

considered acceptable treatments. The evidence supporting these therapies is no better than that for acupuncture.”⁸

David Bryman, D.O. (doctor of osteopathy; osteopathy is a system of medical practice based on correcting mechanical imbalances between muscles, bones, organs and other structures of the body) — who is also a medical acupuncturist and a U.S. Federal Aviation Administration (FAA) senior aviation medical examiner — said that he has used acupuncture to treat a variety of medical conditions in pilots.⁹

“The ones I ... treat with acupuncture usually are complaining of back [pain] or neck pain,” Bryman said. “I have had excellent results on these patients. Pilots are more likely to try alternative treatment, as the risks are very small compared to the risks of medicine and surgery.”

He said that when a pilot requests acupuncture, he performs a thorough examination and considers which elements of both Western medicine and Eastern medicine would constitute the most effective treatment.

“If the condition needs an MRI [magnetic resonance imaging] or further workup, then that’s what they get,” Bryman said. “Alternative treatment is just that. It is an alternative.”

The acupuncture treatment — and the medical condition that prompted the treatment — must be reported during the pilot’s next FAA medical examination, Bryman said.

FAA has no restrictions on acupuncture treatments for pilots, but the underlying medical condition may be cause for concern, said Warren Silberman, D.O., M.P.H., manager of the FAA Civil Aerospace Medical Institute Aerospace Medical Certification Division.¹⁰

“It depends what it’s being used for,” Silberman said. “We’d have to get some real details about that.”

Jarnail Singh, MBBS (bachelor of science and bachelor of surgery), chairman of the Civil Aviation Medical Board of the Civil Aviation Authority of Singapore (CAAS), said that the CAAS makes decisions on a pilot’s medical condition “based on the medical standards set out in the Singapore Air Navigation Order, as well as established norms, including evidence in the medical literature.”

“Acupuncture ... is not mentioned in the civil aviation regulations,” Singh said. “However, ... there is a clause in the rules whereby pilots are not to fly if they have reason to consider that a condition that they have or treatment (and its possible side effects) that they may be receiving ... may have an adverse effect on their performance. These pilots can then return to flying when they satisfy the medical examiner that their medical fitness has been restored to the standard commensurate with the license being held.”¹¹

Claus Curdt-Christiansen, M.D., chief of aviation medicine for the International Civil Aviation Organization, said that he

is unaware of any civil aviation authority that restricts the use of acupuncture.¹²

Capt. Samson Yeh, vice president for safety and security at China Airlines, said that the airline has no specific rules about the use of acupuncture by pilots, “although acupuncture is a recommended treatment for more than 48 specific conditions ... by the WHO.”¹³

Quay Snyder, M.D., associate aeromedical adviser to the Air Line Pilots Association, International (ALPA), said that the organization “does not make any recommendations for or against this modality, but ... [we] consider it one of many acceptable treatment options for a variety of conditions.”¹⁴

Acupuncture treatments differ, depending on the condition being treated and variations in the type of acupuncture being performed. Typically, an acupuncturist uses sterilized stainless steel needles (either re-usable needles or needles that are discarded after a single use) and places the needles in appropriate locations in the body. Sometimes, the acupuncturist manipulates the needles after they have been inserted, often by rotating them or by using lifting and thrusting motions; other treatments require no further movement of the needles until they are removed — sometimes after a few minutes and sometimes after 20 minutes or longer.

The resulting sensation is different for each patient. NCCAM says that most people feel “no [pain] or minimal pain as the needles are inserted. Some people are energized by treatment, while others feel relaxed.”¹⁵

Most patients experience no side effects, but NCCAM says that in some cases, “as energy is redirected in the body, internal chemicals and hormones are stimulated and healing begins to take place. Occasionally, the original symptoms worsen for a few days, or other general changes in appetite, sleep, bowel [patterns] or urination patterns, or emotional state may be triggered. These should not cause concern, as they are simply indications that the acupuncture is starting to work.”

The British Medical Acupuncture Society says that side effects can include momentary discomfort where needles are inserted, sleepiness, bruising, a temporary worsening of symptoms, faintness and migraine headaches — for patients who tend to experience migraines.¹⁶ Nevertheless, acupuncture treatment does not present the risk of side effects that often result from some medications.

Rarely, more serious problems can result, including an infection in the area where a needle was inserted; an infection (such as those caused by hepatitis B, the AIDS virus and various forms of bacteria) resulting from use of an unsterilized needle; an infection that spreads through the blood system and infects heart valves that previously were damaged; damage to an internal organ because of the needle insertion; and premature labor in pregnancy.¹⁷

Acupuncture often is used to relieve pain. An individual is aware of pain after the brain processes a signal that originates with one of the body’s many pain receptors and is transmitted in the form of electrical impulses that travel along nerves to the spinal cord and then to the brain. The insertion of acupuncture needles at specific acupuncture points increases the rate at which the electrical impulses are transmitted; the result may be that pain-killing biochemicals known as endorphins are released by the brain. Acupuncture also may result in the release of other biochemicals in the opiod category into the central nervous system and may result in changes in the brain chemistry that help block the sensation of pain. Relief from pain also may result in a decrease in associated muscle tension, which may help relieve the underlying cause of the pain.

Some physicians use acupuncture along with medication to control pain after surgery. The combination reduces the need for conventional pain-killing medications and, at the same time, reduces the risk of medication-related side effects.

Some surgeries also are performed with acupuncture used to reduce pain (sometimes in combination with a sedative administered the night before surgery and a narcotic one hour before). Anesthesiologists who use acupuncture typically use needles that also apply electrical stimulation. In these cases, the patients are conscious throughout surgery and able to communicate, and have minimal pain after surgery with few side effects or serious complications. In China, acupuncture’s success rate in relieving pain during surgery has been reported at between 75 percent and 99 percent.¹⁸

Acupuncture also has been used to treat other conditions, including jet lag (circadian desynchronization) and obesity, and in programs to help smokers stop using tobacco.

A report on one study said that five U.S. Air Force crewmembers with jet lag were treated with auricular acupuncture (on the surface of the external ear) instead of medication and that all five said that they then obtained “restful, restorative sleep.”¹⁹

NIH said in its 1997 consensus statement that information is limited on how many people use acupuncture, what conditions are most commonly treated and the variations in experience and techniques used by acupuncturists.²⁰

Education and licensing requirements for acupuncturists differ among countries. For example, in China, acupuncturists must graduate from specialized schools, and in most European countries, acupuncturists must also be medical doctors. In the United States, medical acupuncturists are physicians trained in both Western medicine and in acupuncture; non-physicians with specific training also perform acupuncture. (The requirements vary depending on the state in which the acupuncturist practices.)^{21,22}

As researchers continue to compile data and to study which types of acupuncture can treat which diseases, use of

acupuncture is likely to increase. Some medical specialists expect that doctors eventually will be trained to use either Western medicine or acupuncture and related elements of traditional Chinese medicine — or both— to treat their patients.♦

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Mohler received the 1998 Cecil A. Brownlow Publication Award for journalism that enhances aviation safety awareness.

Further Reading From FSF Publications

Davis, Jeffrey R.; Jennings, Richard T. "Alternative Medicine — Impacts to Flying Safety." In *S₂K: Formula for Safety (Spreading Safety Know-how): Proceedings of the 45th Annual Corporate Aviation Safety Seminar*. Alexandria, Virginia, U.S.: Flight Safety Foundation, 2000.

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