What is Acupuncture?

The intent of acupuncture therapy is to promote health and alleviate pain and suffering. The method by which this is accomplished, though it may seem strange and mysterious to many, has been time tested over thousands of years and continues to be validated today. The perspective from which an acupuncturist views health and sickness hinges on concepts of "vital energy," "energetic balance" and "energetic imbalance." Just as the Western medical doctor monitors the blood flowing through blood vessels and the messages traveling via the nervous system, the acupuncturist assesses the flow and distribution of this "vital energy" within its pathways, known as "meridians and channels".

The acupuncturist is able to influence health and sickness by stimulating certain areas along these "meridians". Traditionally these areas or "acupoints" were stimulated by fine, slender needles. Today, many additional forms of stimulation are incorporated, including herbs, electricity, magnets and lasers. Still, the aim remains the same - adjust the "vital energy" so the proper amount reaches the proper place at the proper time. This helps your body heal itself.

Acupuncture is just one form of therapy used within the coherent system of healing known as Oriental Medicine. Oriental Medicine includes herbology, physical therapy, dietetics and special exercises (such as Tai Chi and Qi Gong), and is a complete medical system unto itself and is not another branch of modern Western medicine. Acupuncture evolved from principles and philosophies unique to Oriental thinking and Oriental Medicine, and is most effectively applied when done in accordance with those principles.

Acupuncture Modern Views

When the human body was finally described in terms of cells, biochemicals, and specific structures (most of this accomplished less than 150 years ago), the Chinese method of acupuncture and its underlying concepts were evaluated in these new terms. As a first effort, researchers sought out physical pathways that might correspond to the meridians, and even a fluid substance that might correspond to qi. Neither of these were found. Nonetheless, the action of performing acupuncture was shown to have effects on the body that required some detailed explanation.

From the modern perspective, diseases and injuries are resolved by a complex set of responses; the responses are coordinated by several signaling systems. The signaling systems mainly involve peptides and other small biochemicals that are released at one site, travel to other sites, interact with cells, and stimulate various biologically programmed responses. Rather than blockages of circulation described in the old Chinese dogma, diseases are understood to be caused by microorganisms, metabolic failures, changes in DNA structure or signaling, or breakdown of the immune system. Some of these disorders are resolved by the cellular functions that are designed for healing, while others become chronic diseases because the pathological factors involved have either defeated the body's normalizing mechanisms or because something else has weakened the body's responses to the point that they are ineffective. For example, poor nutrition, unhealthy habits, and

high stress can weaken the responses to disease.

Modern studies have revealed that acupuncture stimulates one or more of the signaling systems, which can, under certain circumstances, increase the rate of healing response. This may be sufficient to cure a disease, or it might only reduce its impact (alleviate some symptoms). These findings can explain most of the clinical effects of acupuncture therapy.

According to current understanding, the primary signaling system affected by acupuncture is the nervous system, which not only transmits signals along the nerves that comprise it, but also emits a variety of biochemicals that influence other cells of the body. The nervous system, with over 30 peptides involved in transmitting signals, is connected to the hormonal system via the adrenal gland, and it makes connections to every cell and system of the body.

In a review article, Acupuncture and the Nervous System (American Journal of Chinese Medicine 1992; 20(3–4): 331–337), Cai Wuying at the Department of Neurology, Loyola University of Chicago, describes some of the studies that implicate nervous system involvement. According to a report of the Shanghai Medical University, cranial nerves, spinal nerves, and their terminals were dispersed in the area surrounding the acupuncture points for about 5 millimeters. They also found that the nervous distribution of the Bladder Meridian points (which run along the spine) was in the same area of the spine as that of the corresponding viscera. In Japanese research, it was reported that when acupuncture points were needled, certain neurotransmitters appeared at the site. In laboratory-animal acupuncture studies, it was reported that two such transmitters, substance P and calcitonin gene-related peptide, were released from primary sensory neurons. Acupuncture analgesia appears to be mediated by release of enkephalin and beta-endorphins, with regulation of prostaglandin synthesis: all these have an effect on pain perception. One of the dominant areas of research into acupuncture mechanisms has been its effect on endorphins. Endorphins are one of several neuropeptides; these have been shown to alleviate pain, and have been described as the body's own "opiates." One reason for the focus on these biochemicals is that they were identified in 1977, just as acupuncture was becoming popular in the West, and they are involved in two areas that have been the focus of acupuncture therapy in the West: treatment of chronic pain and treatment of drug addiction.

According to traditional Chinese doctors, one of the key elements of a successful acupuncture treatment is having the person who is being treated experience what is called the "needling sensation." This sensation may vary with the treatment, but it has been described as a numbness, tingling, warmth, or other experience that is not simple pain (pain is not an expected or desired response to acupuncture treatment, though it is recognized that needling certain points may involve a painful response). Sometimes the needling sensation is experienced as propagating from the point of needling to another part of the body. The acupuncturist, while handling the needle should experience a response called "getting qi." In this case, the needle seems to get pulled by the body, and this may be understood in modern terms as the result of muscle responses secondary to the local nervous system interaction.

According to this interpretation, acupuncture is seen as a stimulus directed to certain responsive parts of the nervous system, producing the needling sensation and setting off a biochemical cascade which enhances healing. Some acupuncture points are very

frequently used and their applications are quite varied: needling at these points may stimulate a “global” healing response that can affect many diseases. Other points have only limited applications; needling at those points may affect only one of the signaling systems. It is common for acupuncturists to combine the broad-spectrum points and the specific points for each treatment. Some acupuncturists come to rely on a few of these broad-spectrum points as treatments for virtually all common ailments.

This modern explanation of how acupuncture works does not explain why the acupuncture points are arrayed along the traditional meridian lines. At this time, no one has identified—from the modern viewpoint—a clear series of neural connections that would correspond to the meridians. However, acupuncturists have identified other sets of points, such as those in the outer ear, which seem to be mapped to the whole body. The description, in the case of the ear, is of a layout of the body in the form of a “homunculus” (a miniature humanoid form). Such patterns might be understood more easily than the meridian lines, because the brain, which is adjacent to the ear, also has a homunculus pattern of neurological stimulus that has been identified by modern research. Similarly, acupuncturists have identified zones of treatment (for example, on the scalp or on the hand) that correspond to large areas of the body, and this may also be more easily explained because there are connections from the spinal column to various parts of the body which might have secondary branches elsewhere. In fact, acupuncture by zones, homunculi, “ashi” points (places on the body that are tender and indicate a blockage of qi circulation), and “trigger” points (spots that are associated with muscle groups) is becoming a dominant theme, as the emphasis on treating meridians fades (for some practitioners). The new focus is on finding effective points for various disorders and for getting biochemical responses (rather than regulating qi, though there is no doubt some overlap between the two concepts).

During this modern period (since the 1970’s) an increasing number of ways to stimulate the healing response at various body points have been advocated, confirming that needling is not a unique method (the idea that the needle would produce a hole through which pathogenic forces could escape has long been fading). In the past, the main procedures for affecting acupuncture points were needling and application of heat (moxibustion). Now, there is increasing reliance on electrical stimulation (with or without needling), and laser stimulation. Since the basic idea of acupuncture therapy is gaining popularity throughout the world while the practice of needling is restricted to certain health professions and is not always convenient, other methods are also becoming widely used. Lay persons and practitioners with limited training are applying finger pressure (acupressure), tiny metal balls held to the to the skin by tape, magnets (with or without tiny needles attached), piezoelectric stimulus (a brief electric discharge), and low energy electrical pulsing (such as the TENS unit provides with electrical stimulus applied to the skin surface by taped electrodes). Some of these methods may have limited effectiveness, but it appears that if an appropriate body site is stimulated properly, then the healing response is generated.

For many nervous system functions, timing is very important, and this is the case for acupuncture. The duration of therapy usually needs to be kept within certain limits (too short and no effect, too long and the person may feel exhausted), and the stimulation of the point is often carried out with a repetitive activity (maintained for a minute or two by manual stimulation—usually slight thrusting, slight withdrawing, or twirling—or throughout treatment with electro-stimulation). It has been shown in laboratory experiments that certain frequencies of stimulus work better than others: this might be expected for nervous system responses, but is not expected for simple chemical release from other cells.

Ancient Acupuncture Theories

The understanding of how acupuncture works has evolved with its practice, but the descriptions set down a thousand years ago have largely been retained. The dominant function of acupuncture is to regulate the circulation of qi (vital energy) and blood. Approximately 2,000 years ago, the pre-eminent acupuncture text, Huangdi Neijing (Yellow Emperor's Classic on Internal Medicine), was written. In it, acupuncture was described as a means of letting out excess qi or blood by making holes in the body along certain pathways, called jingluo (meridians). For some of these meridians, it was advised to acupuncture in such a way as to let out the blood but not the qi; for others, to let out the qi, but not the blood. Many diseases were thought to enter the body through the skin, and then penetrate inward through muscle, internal organs, and, if not cured in timely fashion, to the marrow of the bone. By inserting a needle to the appropriate depth—to correspond with the degree of disease penetration—the disease could be let out.

Prior to the time when there were microscopes by which people could envision individual cells and before autopsies revealed the intricate structures within the body, doctors and scholars projected the internal workings of the body from what they could actually experience, which was the world outside the body. On this basis, the workings of the body were described in terms similar to those used to describe the visible world. One of the critical aspects of nature for humans living a thousand years ago, when Chinese civilization was well developed, was the system of water courses, which included tiny streams, huge rivers, man-made canals and irrigation systems, and the ocean. It was envisioned that the body had a similar system of moving, life-giving fluid. This fluid was the qi, and the pathways through which it flowed were the meridians.

Instead of discussing acupuncture in terms of letting something out of the body, physicians began describing it in terms of regulating something within the body. The flow of qi through the meridians, just like the flow of water through a stream, could be blocked off by an obstruction—a dam across the waterway. In the streams, this might be a fallen tree or a mud slide; in humans, it might be caused by something striking the body, the influence of bad weather, or ingestion of improper foods. When a stream is blocked, it floods above the blockage, and below the blockage it dries up. If one goes to the point of blockage and clears it away, then the stream can resume its natural course. In a like manner, if the qi in the meridian becomes blocked, the condition of the body becomes disordered like the flooding and dryness; if one could remove the blockage from the flow of qi within a meridian, the natural flow could be restored.

In a blocked stream, just cutting a small hole or crevice in the blockage will often clear the entire stream path, because the force of the water that penetrates the hole will widen it continuously until the normal course is restored. In the human body, inserting a small needle into the blocked meridian will have a similar effect. Just as a stream may have certain points more easily accessed (or more easily blocked), the meridians have certain points which, if treated by needling, will have a significant impact on the flow pattern. Many acupuncture points are named for geological structures: mountains, streams, ponds, and oceans.

Although this description of the basic acupuncture concept is somewhat simplified, it conveys the approach that is taught today to students of traditional acupuncture: locate the areas of disturbance, isolate the main blockage points, and clear the blockage. Of course, many layers of sophistication have been added to this model, so that the needling —which might be carried out in several different ways—can be seen to have subtle and differing effects depending upon the site(s) needled, the depth and direction of needling, and even the chemical composition of the needle (such as gold, silver, or steel). For example, some needling techniques are used for the primary purpose of increasing the flow of qi in a meridian without necessarily removing any blockage; other techniques reduce the flow of qi in the meridians. These tonifying and draining methods, as well as transference methods that help move qi from one meridian to another, are part of the more general aim of balancing the flow of qi in the body.

Ultimately, all the descriptions of acupuncture that are based on the traditional model involve rectifying a disturbance in the flow of qi. If the qi circulation is corrected, the body can eliminate most symptoms and eventually—with proper diet, exercise, and other habits —overcome virtually all disease.

Acupuncture Limits

Oriental Medicine and acupuncture are powerful healing tools, but they are not panaceas nor the solution to every health care problem. Both Western and Oriental Medicine have their respective strengths and weaknesses, which is why in modern China, the two systems are used together. When appropriately combined, the patient is well served.

Generally speaking, acute, life threatening conditions are best handled by Western medical doctors. Routine health problems and chronic conditions, for which drug therapy and surgery have not been effective, often benefit from Acupuncture / Oriental Medicine.

Acupuncture Facts

Acupuncture Mechanisms of Action

Several processes have been proposed to explain acupuncture's effects, primarily those on pain. Acupuncture points are believed to stimulate the central nervous system (the brain and spinal cord) to release chemicals into the muscles, spinal cord, and brain. These chemicals either change the experience of pain or release other chemicals, such as hormones, that influence the body's self-regulating systems. The biochemical changes may stimulate the body's natural healing abilities and promote physical and emotional well-being. There are three main mechanisms:

Conduction of electromagnetic signals: Western scientists have found evidence that acupuncture points are strategic conductors of electromagnetic signals. Stimulating points along these pathways through acupuncture enables electromagnetic signals to be relayed at a greater rate than under normal conditions. These signals may start the flow of pain-killing biochemicals, such as endorphins, and of immune system cells to specific sites in the body that are injured or vulnerable to disease.

Activation of opioid systems: Research has found that several types of opioids may be released into the central nervous system during acupuncture treatment, thereby reducing pain.

Changes in brain chemistry, sensation, and involuntary body functions: Studies have shown that acupuncture may alter brain chemistry by changing the release of neurotransmitters and neurohormones. Acupuncture also has been documented to affect the parts of the central nervous system related to sensation and involuntary body functions, such as immune reactions and processes whereby a person's blood pressure, blood flow, and body temperature are regulated.
Preclinical studies have documented acupuncture's effects, but they have not been able to fully explain how acupuncture works within the framework of the Western system of medicine.

According to the National Institute of Health Consensus Statement on Acupuncture:

"Acupuncture as a therapeutic intervention is widely practiced in the United States. While there have been many studies of its potential usefulness, many of these studies provide equivocal results because of design, sample size, and other factors. The issue is further complicated by inherent difficulties in the use of appropriate controls, such as placebos and sham acupuncture groups. However, promising results have emerged, for example, showing efficacy of acupuncture in adult postoperative and chemotherapy nausea and vomiting and in postoperative dental pain. There are other situations such as addiction, stroke rehabilitation, headache, menstrual cramps, tennis elbow, fibromyalgia, myofascial pain, osteoarthritis, low back pain, carpal tunnel syndrome, and asthma, in which acupuncture may be useful as an adjunct treatment or an acceptable alternative or be included in a comprehensive management program. Further research is likely to uncover additional areas where acupuncture interventions will be useful."

Increasingly, acupuncture is complementing conventional therapies. For example, doctors may combine acupuncture and drugs to control surgery-related pain in their patients. By providing both acupuncture and certain conventional anesthetic drugs, some doctors have found it possible to achieve a state of complete pain relief for some patients. They also have found that using acupuncture lowers the need for conventional pain-killing drugs and thus reduces the risk of side effects for patients who take the drugs

Despite the powerful technology available today, even the modern physicists cannot explain exactly how this ancient healing therapy works. Perhaps in the near future, the actual chemical and electromagnetic events that occur during acupuncture will be described.