

Veterinary Acupuncture is reaching the Point Of Acceptance: Arising from TCM, this age-old technique is proving to have applications in conjunction with conventional Western veterinary practices

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Introduction: In October 1985, North Carolina veterinarian William Martin signed up for a class offered by IVAS, the International Veterinary Acupuncture Society. It consisted of a four-day course once a month for four months and a certification test at the end. The first part of the course covered the Chinese history and theory of acupuncture (AP), including yin and yang, the different meridians and alarm points. He explains: "This did not relate at all to veterinary medicine that I had learned in the Western world."

It was so foreign, in fact, that while traveling home after that first session, Martin decided he would drop out of the course. Upon his return, he learned that his 5-year-old Miniature Dachshund had been paralyzed for five days with an intervertebral disc problem. His associate had tried the typical Western treatment, but the dog's condition had not improved.

"I immediately thought I would really test the AP stuff, so I called one of the teachers that I had met at the school," Martin relates. "Over the telephone we did some hands-on diagnostics. He told me where and how to insert regular hypodermic needles in AP points". Within four hours, the Dachshund was standing. Martin calls it his first miracle of AP. "I immediately decided to continue with the course," he says.

Martin's story is just one in a substantial collection of anecdotes attesting to AP's effectiveness and leading to the growing popularity of this ancient practice in the Western world.

In the following we will consider the philosophies of traditional Chinese medicine (TCM), how and why many veterinarians now are using AP, the illnesses commonly treated with the technique and the competing scientific theories that attempt to explain it.

An Ancient Art: In the narrowest sense, AP is the application of small-gauge needles to various points on the body for the purpose of eliciting physiological responses in the treatment of almost any disease or condition, and it seems especially useful for relieving pain. In a broader sense, AP is an ancient procedure used in TCM for the treatment of whole-body conditions.

No one really knows when or where it started, but it has ancient roots. A primitive AP-like therapy was practiced in India some 7,000 years ago, and Stone Age humans used fishbone needles in China 5,000 years ago¹. A large body of written information about the practice has survived the ages and grown with time².

One of the earliest records of veterinary AP was some 3000 years ago in India for the treatment of elephants; however, the father of veterinary AP generally is considered to be Shun Yang (480 BC) from China. The earliest American medical journal reference the authors could find to AP's use in human medicine was in 1836; however, European writers of the late 1600s had published on the subject earlier^{3,4}.

Interestingly, Sir William Osler, who taught at Harvard and Yale and who gave the world its current residency system of medical education, wrote of AP in 1892⁵. The procedure did not make it into the *New England Journal of Medicine* until 1926, but these references were positive, indicating that AP could be an appropriate and useful medical technique.

The procedure had been used for a variety of illnesses, but it began to fall into obscurity in the 1940s in the United States as people turned to newly emerging, potent, increasingly ailment-specific antibiotics to treat their health problems.

In 1973, The American Medical Association Council of Scientific Affairs declared AP an experimental medical procedure. The increased interest was due in no small part to Richard Nixon's efforts to improve relations with China, where AP was and still is a common practice. In fact, James Reston, a member of Nixon's press corps in China, had surgery using AP as an anesthesia, which later was widely reported in the press. By 1983, the American Osteopathic Association endorsed the use of AP as a part of medical practice.

Although AP terminology still is largely based on philosophy, it has become apparent that the scientific method has crept into the practice with the result that the Western veterinary and medical establishments are less able to discount AP as a pastime of shamans.

Along with AP's increased use in human medicine, veterinary AP has moved closer to mainstream practices. It also might be said that the mainstream has moved closer to AP, given that chapters on AP now are standard in many major veterinary texts. In addition, AP has become a big business worldwide. Today nearly 3 million veterinary and medical practitioners, assistants and pharmacists are trained in AP. Of this number it is estimated that 150,000 are veterinarians and 700,000 are paraveterinary

assistants.

The IVAS has become the primary professional society for veterinary acupuncturists in the United States, complete with a newsletter, a journal and a World Wide Web site (see the sidebar).

An Eastern Perspective: To understand the basics of AP it is important to comprehend the tradition out of which it developed. Animals and humans are viewed in TCM as tiny parts of an infinite universe, subject to laws that govern all living and nonliving things. The fundamental concept is that an animal or person who follows these general laws of nature will reap the benefits of good health.

AP is not a stand-alone procedure in this framework; rather, it is a part of a much larger medical system encompassing AP, moxibustion (the burning of moxa, a soft downy material, on the skin in the treatment of various disorders), massage, breathing exercises, nutrition, herbal medicine and even philosophy of life⁶.

The goal of TCM is to diagnose imbalances in the life force (Qi), determine their causes (aetiology of the disease) and subsequently remove those causes from the patient's environment (treatment). TCM views disease as an imbalance between two polarities of Qi, yin (-) and yang (+). Within this conceptual framework, AP is used to "communicate" with body organs and tissues through special channels or meridians. (There is no known physiological equivalent to these energy pathways.) Health and healing in this context is the integration and restoration of balance or harmony of Qi. This view has been validated most recently by the discovery of the relationship between brain chemistry and the immune system.

Some critics assert that Western medicine has a mechanistic view of health, reducing disease and illness to specific cellular and molecular systems. Outstanding medical advances have been made using this reductionist system, but, according to the Eastern tradition, the sum of the whole body still is greater than its parts⁶.

The effectiveness of many traditional AP points has been determined experimentally. Some 670 of them have survived the test of time. In her book, "Between Heaven and Earth," Harriet Beinfield proposed an analogy: "comparing an acupuncturist with a Western veterinary or medical practitioner is similar to comparing a gardener and a mechanic"⁷. The gardener considers the totality of his or her plants' environment (sunlight, density of planting, types and amounts of fertilizer, temperature, water, etc.), whereas the mechanic searches to replace or repair a dysfunctional component.

Theories In Practice: To illustrate the differences between the Eastern and Western philosophies as they relate to veterinary medicine, let us follow a hypothetical canine patient while she is being examined by a Western-trained clinician and compare this to the procedures used by a practitioner of TCM.

An owner makes an appointment because her previously houstrained female dog recently has started having "accidents" in the house, and she wants to rule out a medical basis for the problem before she addresses it as a behavioral issue. Both practitioners would be presented with the same symptoms, but how they arrive at their diagnoses would be completely different.

At the traditional vet's office, the dog is placed on the examining table, and the vet asks questions about the frequency and quantity of urination. While the owner is talking, the vet takes the dog's temperature, and then begins to perform a physical exam that includes listening to the heart and bowel sounds and palpating the abdomen to check for any masses. The vet suggests several lab tests to rule out a urinary tract infection and other more serious diseases such as diabetes mellitus and diabetes insipidus. The total focus of the appointment is to address the clinical symptoms.

In contrast, the vet trained in TCM asks questions about the dog's behaviour and previous history, which may be similar to the questions that the traditional vet asked, such as: "Does the dog drink small or large amounts of water at one time?" "When did the behaviour start to occur?" and "How often does it happen?"

The practitioner then goes on to ask what may seem to be unrelated questions. Does it happen more frequently at a particular time of the day? Does your pet choose to sleep in the sun, or does she seek out a cool, shady spot? Does she like to lie on a soft surface, or does she prefer to sleep on a firm supportive surface?

By now the owner may become impatient with answering detailed questions that do not appear to have anything to do with the problem. But to a practitioner of TCM, these questions are all valid because the patient is not simply a weak bladder but an individual made up of physical, mental and emotional aspects. Questions are asked about the dog's environment, her diet and favourite foods, stressors and behavioural tendencies in an attempt to consider the "whole," just as the gardener considers the totality of his or her environment.

While the owner is relating this information, the TCM practitioner observes the animal's behaviour in the exam room, checking

her tongue, looking at the dog's body shape and examining her skin and coat. The next part of the exam includes listening to the chest with a stethoscope and taking note of the breathing sounds and the character of her bark.

Just like the Western clinician, the TCM practitioner then palpates the abdomen and limbs. In addition he or she will check the dog's pulse (which provides information about organ systems and their locations on energy pathways) and also will assess specific areas along the back, sides and abdomen. In this tradition these diagnostic points correspond to specific internal organs.

Finally, the TCM practitioner smells for specific odours emanating from the eyes, nose, ears and mouth, which all play a part in the diagnostic process.

The AP Procedure: The lab tests suggested by the traditional Western vet rule out the serious diseases associated with urinary incontinence, and the diagnosis indicates oestrogen-responsive atrophy of the muscle of the bladder wall. The allopathic vet probably will prescribe dosages of DES (diethylstilbestrol), a synthetic oestrogen, to maintain bladder tone. Although DES is indicated for the treatment of this kind of incontinence, it has many possible side effects, including skin and liver problems and mammary tumours.

The difference between the allopathic system of treatment and the system of TCM boils down to this: In Western medicine, the same disease or condition normally is treated the same way in all patients; in TCM, the same condition may and most probably will be treated differently in different patients because the underlying cause is another type of imbalance.

In TCM, frequent urination or incontinence usually stems from a weakness in the kidney yang, which can cause an overall deficiency in the Qi. Incontinence also is a function of the Qi associated with the spleen, because it is believed the spleen keeps organs functioning properly and can be stimulated to treat herniations, prolapses, etc.

Treatment most likely would consist of using needles to elicit a physiological response by stimulating specific anatomic loci, in this case, along the bladder, kidney and spleen meridians. The size of the animal and the location of the points being treated determine the length of the needles used. A short needle, about 0.5 inch, is used in points located over bony areas such as the head or face. The most common size used is about 1 inch long. For larger dogs or for deeper penetration, there are longer needles available (1.5-2.0 inches). The needles are solid and very flexible, and presterilised disposable ones are an option.

In the hands of a properly trained clinician, the animal does not appear to have any discomfort at all. Inserting the needles to the proper depth and angle, manipulating them during the treatment and removing them all are techniques that can be achieved only through training and extensive practice. This is why it is so important to consult a properly certified veterinary acupuncturist.

In the general treatment of ailments, it may take four to eight sessions to know if AP therapy will be effective, although a response could be seen even after the first treatment, and improvements often are noticed after the third. Treatments may last from 10 seconds to 30 minutes and may be recommended once or twice weekly. The long-term goal always is to fix the number of treatments to the minimum required for effectiveness. This may be every six months for arthritis or could be as often as every two months for other conditions. Both frequency and duration of treatment depend on the animal and the ailment.

What Can Be Treated? In addition to incontinence, AP, in conjunction with TCM or the body of Western medicine, may be considered supportive or adjunct therapy for a vast array of other conditions. Notice of the procedure's versatility was boosted with tests of its effectiveness in humans. The University of California, Los Angeles, conducted the AP Research Project from 1973 to 1980. When the study began it was viewed as little more than a curiosity-until the findings started trickling in.

At the outset, medical opposition was high and resolute, especially from orthopedic surgeons. Public acceptance was more immediate than acceptance by the medical community. Satisfied patients referred friends, and eventually the waiting list was six weeks for an appointment. The UCLA AP Research Project found various forms of AP were effective for pain relief for various orthopedic, obstetric and surgical procedures; treatment of chronic pain; sensorineural hearing loss; compulsive disorders such as obesity and tobacco and drug addiction; and bronchial asthma.

In other studies conducted on both humans and dogs, AP was found to be beneficial in cases in which analgesics and anti-inflammatory medications had been ineffective or had demonstrated side effects and in cases in which surgery was not recommended. For example, many practitioners claim they are pleased with the results of AP in the treatment of arthritis in both humans and canines. One study found that AP enhanced the efficacy of antibiotic treatment for canine otitis crises⁸.

Favorable AP results have been reported in the treatment of many other canine conditions, including the following: cardiovascular disorders⁹, chronic respiratory conditions¹⁰, dermatological disorders¹¹, gastrointestinal disorders¹²,

gynecological disorders¹³, immune-mediated disorders¹⁴, male reproductive disorders¹⁵, musculoskeletal disorders¹⁶, neurological disorders¹⁷, reproductive disorders¹⁸, thoracolumbar and cervical disc disease^{19,20}.

Deciding if your dog should be treated with AP therapy often depends on the dog itself and the condition afflicting it. "My attitude is that with each and every animal with each and every condition, you look at what the best comprehensive integrative approach is and develop a therapeutic plan for that animal," explains Allen Schoen, DVM, co-editor of "Complementary and Alternative Veterinary Medicine: Principles and Practice" (Mosby 1998). "Sometimes AP is used as a last resort; at other times it may be chosen as the first approach [for example] if surgery would have potential complications, and only if AP didn't work would you consider surgery."

According to Schoen, before you decide on any treatment approach, it is important to get a good diagnosis and then look at all the options, including AP and those offered by conventional medicine. He suggests obtaining a traditional veterinarian's opinion and diagnosis before deciding if AP should complement the treatment of veterinary disorders.

Schoen explains there are some situations in which AP may not be effective or should not be used. For example, extremely anxious pets sometimes can be so excitable that the release of their own adrenaline counteracts AP's benefits. Owners also should be aware of specific medical complications. "[AP] normally does not interfere with other conventional approaches," he explains, "but certain medications, such as corticosteroids, can decrease the effectiveness of AP. [In addition,] you want to be exceedingly careful in using AP with cancer because selecting the wrong points can actually accelerate the cancer growth."

Because of this, in Schoen's opinion, only someone who is trained in both veterinary medicine and veterinary AP should treat your pet if you are considering AP as an alternative therapy.

How Does It Work? Now that we've explored the philosophy behind AP and some of those theories in practice, you may be wondering about the science behind the technique and if there is any clinical evidence of efficacy that will withstand modern Western scrutiny. The answer is a qualified "yes."

Some modern practitioners feel that at its most basic level, AP is applied neurophysiology. We may one day be able to explain AP in those terms. Today, Western science still has a poor understanding of its mechanisms. However, the body of anecdotal evidence supporting its effectiveness is overwhelming. One only has to watch surgery under AP anaesthesia to comprehend that something significant and unfamiliar to the Western way of thinking is going on. The World Health Organisation concluded in 1979 that "AP is clearly not a panacea for all ills but sheer weight of evidence demands that AP must be taken seriously as a clinical procedure of considerable value."

AP has had field tests, too. Some 4000 years of application on a sizeable segment of the world's population makes AP arguably the most widely practiced and thoroughly tested medical technique in history²¹.

In 1998 the American Veterinary Medical Association took this position in its "Guidelines for Complementary and Alternative Veterinary Medicine" approved by the American Veterinary Medical Association: "Veterinary AP and acupunctuery are considered an integral part of veterinary medicine. These techniques should be regarded as surgical and/or medical procedures under state veterinary practice acts. It is recommended that educational programs be undertaken by veterinarians before they are considered competent to practice veterinary AP."

Besides AP courses that currently are available, there also are some popular textbooks including "Veterinary AP" by Alan Klide and Shiu Kung²². A more recent book is "Veterinary AP: Ancient Art of Modern Medicine"²³. For a more general, TCM text suitable for the layperson, we suggest "Four Paws, Five Directions" by Cheryl Schwartz²⁴.

Scientific Explanations: To understand how the theories of AP translate to pain relief, it is necessary to know a little about how pain is transmitted and experienced by the body. Pain is a double-edged sword. On one hand it protects us from damage by warning us of harmful situations, but in chronic conditions it is as debilitating as the disease process itself. Abnormal chronic pain states are thought to result from damage within the pain pathway itself, either in the peripheral nerves or the central nervous system.

The normal protective pain mechanism, which warns of impending or actual damage, is activated by mechanical, heat or other noxious stimuli impinging on pain receptors that then transmit the pain impulse to the CNS through afferent nerve fibres. Unlike other sensory input, pain recognition is subjective, and previous experiences can influence one's perception of it. This is true of dogs also; some breeds generally are more stoical than others. Pain perception also is a function of sex as females have shown a much higher pain threshold.

How is this possible? The body has its own pain-suppression mechanisms. This built-in analgesic system depends on the

presence of endogenous opiates, which include endorphins. Most Western theories suggest AP either instigates the production of these opiates or blocks pain transmission.

Not unexpectedly, when East meets West and when philosophy meets science, confusion undoubtedly will occur. Similarly, when old meets new, questions of quackery from both sides will arise. Even in light of this, some Western theories have sought to explain the reported pain-relief benefits of AP. One of those is the gate or inhibition theory, which proposes that pain is blocked by stimulating sensory neurones that travel faster than those that transmit pain²⁵.

Several types of nerve fibres are involved in pain transmission. As mentioned before, there are three types of pain receptors. Stimuli received from the mechanical and thermal pain receptors are transmitted over large myelinated A-delta fibres at a speed close to 30 meters per second. Impulses received by the other type of receptors travel much more slowly on the C fibres at the rate of 12 meters per second. A-alpha fibres, which are necessary for the proper perception of where we are in three-dimensional space, i.e., where our feet are located, are found in muscles and joints. Alpha-beta neurones are involved in feeling light touch and the bending of hairs. A-alpha and A-beta fibres transmit nerve impulses many times faster than A-delta or C fibres. AP stimulation may induce non-painful sensory information that travels along A-beta fibres. When the information reaches something called the inhibitory interneurons, it shuts a nerve transmission "gate" that blocks the conduction of the slower travelling A-delta and C fibres.

The gate theory may account for some part of the mechanism of AP analgesia, but it does not explain the delayed effects of treatment or the results of cross-circulation studies (studies in which the blood circulation of two animals were connected, and the procedure performed on one produced results in both). These factors are much better explained by the competing humoral theory, which states that AP instigates the release of endogenous (developed from within) opiates that produce a self-induced analgesia²⁶. In other words, AP may work by stimulating specific afferent nerves, which in turn activate a spinal cord centre, a mid-brain centre and the hypothalamus/anterior pituitary unit. All three of these have been shown to block pain transmission by means of endorphins and/or other analgesic neurotransmitters. Some believe that AP's pain relief derives from a combination of the neurological and humoral explanations²⁷.

Another theory suggests AP may have localized vasodilatation effects, which would explain the procedure's benefits specific to musculoskeletal disorders. Dilated blood vessels are better able to eliminate pain-producing substances such as bradykinin (a substance released from blood plasma by some snake venoms and certain other enzymes that lowers blood pressure and triggers pain), prostaglandins and other inflammatory products.

Another explanation is the autonomic theory, which maintains that internal organs can be stimulated by external AP points that selectively excite parasympathetic and sympathetic nerves regulating the autonomic nervous system²⁸.

The bioelectric theory tops off this confusing mix of theories. It suggests AP meridians are like direct current pathways and AP points function as amplifiers. What these theories have in common is the stimulation of AP points via insertion of small needles, application of pressure, cupping (suction) and application of heat through moxibustion (which can be used to raise the temperature of the needles), or infrared, laser or electrical stimulation.

Interpreting Scientific Studies: Although the successes of AP have been tested in practice throughout history and have attracted a following of practitioners and patients, rigorous scientific analysis of AP trials has yielded mixed results.

Unfortunately, there is no tight control of patient suitability/responsiveness or practitioner expertise, and even studies with statistical analyses may be flawed because of inappropriately small or non-random samples. One well-known text used to teach biostatistics to medical and veterinary students maintains that in general, major errors are made in the statistical treatment of data in at least 50 percent of all the papers submitted for peer review in journals²⁹. Significant efforts have been made to improve the validity of statistical inferences drawn in journal articles.

Flaws in the statistical treatment of experimental data especially are damaging in clinical studies. Veterinarians and physicians consider their treatment options (including AP) based on the outcomes of clinical trials. If erroneous conclusions are drawn from experimental data, patients may be exposed to unnecessary risks, discomfort and expense. Worst of all, more efficacious treatment may be delayed or not even attempted.

It is therefore important to read the claims made about AP with a discerning eye. This is not to say the use of statistics is an invalid and unrecognized strategy, but be aware that errors can be made in both the experimental design and in the conclusions drawn, so what you read always must be questioned with those caveats in mind.

Some detractors absolutely are convinced that AP is little more than "nonsense with needles" and hope it will pass from the contemporary scene and fall into disuse like other obsolete treatments such as purging, leeching and bleeding³⁰. A lack of

evidence, however, is not proof that a treatment is not effective. In the words of a colleague, "If there are no benefits derived from the process, AP would have to be categorised as one of the longest playing scams in the history of mankind³¹".

Summary: We have barely scratched the surface of this complex and controversial subject. However, we hope you take away from this article the following:

AP can be a beneficial adjunct therapy, but it has its own set of dangers, not the least of which is the possibility of a lack of diagnosis or misdiagnosis of problems that routinely would be identified in Western veterinary medicine;

Anecdotally, AP works, so if you do choose to take your dog to a veterinary acupuncturist, take it to someone who is having success in treating similar problems;

If Western medicine has failed your dog, there is little to lose in trying AP. But do not expect it to be the miracle cure; it is not a panacea. In the hands of some practitioners, however, it has produced successes that are hard to explain using the principles of our current scientific and medical knowledge.

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