

ACUPUNCTURE

Veterinary acupuncture has a long history and is closely associated with human acupuncture. It is believed that it originated in China but there is some evidence that its elementary practice began in India or Tibet and spread from there to China. There is also evidence that Veterinary acupuncture was practised during the Zang and Chow Dynasties around 2000 - 3000 BC.

Traditional Chinese medicine (TCM) is a coherent and independent system of thought and practice that has been developed over many centuries. It is based on ancient texts, the result of a continuous process of critical thinking as well as extensive clinical observation and testing. It represents a thorough formulation and reformulation of material by respected clinicians and theoreticians. It is also, however, rooted in the philosophy, logic sensibility and habits of a civilisation entirely foreign to our own. It has therefore developed its own perception of the body and of health and disease.

In contrast to Western Medicine, acupuncture employs a systems view of health. The systems are integrated wholes, the properties of which cannot be reduced to the parts. It looks at the whole in terms of relationships to discover how all the parts are integrated, emphasising the process rather than the product, and what leads to the manifestation of disease rather than the disease itself. The skill in TCM is not to detect isolated signs and causes, but "to train the mind to see patterns." In TCM the dialectical way in thinking about energy imbalance subsumes the cause; the recognition of the complex interrelationships involved in the manifestation of disease being more important than a specific causal factor. Many Westerners have strange notions about Chinese medicine. Some see it as the product of primitive thinking. If a patient is cured by herbs or acupuncture, they see only two

possibilities; either the cure is psychosomatic or it was an accident. Other Westerners have a more favourable but equally erroneous view. Often justifiably disturbed by many of the products of Western science and culture, they assume that the Chinese system, because it is felt to be more ancient, more spiritual or more holistic, is also better than Western Medicine. This attitude is likely to turn Chinese medicine into a religious faith system. Both attitudes mystify the subject, one by arrogantly undervaluing it, the other by setting it on a pedestal.

TCM uses the concepts of Yin and Yang to portray and attempt to simplify an understanding of the dynamic nature of life in all its interrelationships. The basic principle of the Yin-Yang theory is that Yin and Yang constantly interact with and react to each other in order to achieve a balance; thus one cannot exist without the other and each constantly affects the other. According to the theory, the Universe is always in a dynamic state, trying to achieve equilibrium between Yin and Yang. The interactions and reactions of all the organs and functions are thought of in the same way.

The Yin-Yang theory separates organs in the body into the categories of zang and fu. The zang organs are Yin and the fu organs are Yang. Each organ of the body and its functions interact with and react to other organs to maintain a balance. According to TCM, diseases occur when the Yin-Yang balance is upset. Chinese medicine, therefore, attempts to cure the disease by re-establishing the natural balance of Yin and Yang in the body.

Chinese medicine sees the working of the body and mind as the result of the interaction of certain vital substances. These substances manifest in varying degrees, so that some of them are very rarefied and some totally non-material. All together they constitute the ancient Chinese concept of the body-mind. At the basis of all is Qi (CHI), all the other vital substances are but manifestations of Qi in varying degrees of materiality, from completely material such as body fluids to the totally immaterial such as the mind (Shen). These vital

substances are Qi, Blood, Essence (Jing), and Body Fluids. The concept of Qi is used to understand the functions it performs in the body. Several different types of Qi are described, both normal and abnormal. Qi refers to the sum total of patterns or physiological changes that function to keep the body operating as a smooth whole and in this sense is not a substance but an idea or principle of the interaction of these bio-rhythms within the body. It presents a synthesis of functions of the body, in contrast to Western preoccupation with analysis.

Health and disease are perceived differently by Western medicine and TCM. Western medicine has a narrow and specific definition of disease as a definite morbid process, often with a characteristic train of symptoms: therefore there are innumerable diseases. Traditional Chinese philosophy has, on the other hand, a holistic concept of

health. It regards good health as the ideal state in which there is total harmony and equilibrium within the body, and of the body with the environment. When Yin and Yang are in balance the vitalities and spirits will be in a well ordered state (Gunn 1977). This concept of health agrees with the view held by modern epidemiologists that illness is caused by the loss of equilibrium in the simultaneous interaction of host, agent and environment (Itoh & Lee 1971). It also agrees with the World Health Organisation's definition of health as a "state of complete physical, mental and social well being and not merely the absence of disease and infirmity." (WHO 1964)

In illness TCM seeks to restore equilibrium in the body and rebalance the 'Yin and Yang'. Rebalancing the Yin and Yang could mean, in a modern sense, re-establishing normal biological values. However when the equilibrium is upset by an over-powering agent such as a bacterial infection, then TCM is inferior to modern methods, but when the dis-equilibrium is the result of the lowering of the host's resistance, or a dysfunction in the host, TCM stimulates the homeostatic power or 'wisdom' of the body (Cannon 1963) to regain normal balance.

The anatomical and physiological terminology of TCM are vastly different from those in Western Medicine. For example Spleen in TCM regulates the digestive system, Lung does not relate to diseases of the respiratory system but to skin diseases. Kidney is not concerned with the urinary tract but with the genital system. There is even an organ called the Triple Heater (Liao 1973, Lu & Needham 1980), which does not exist in modern anatomy.

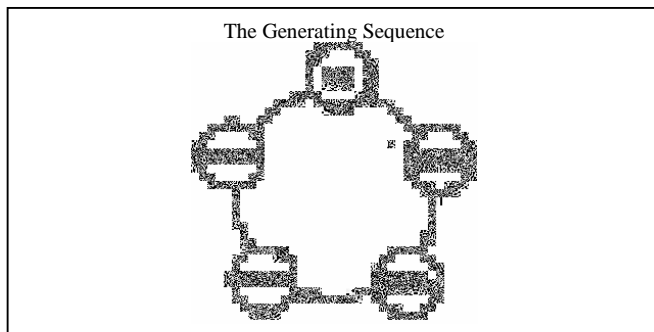
TCM identifies classical acupuncture points as situated on the skin (Chapman & Gunn 1980, Sivin 1987). Acupuncture points are nearly always situated close to known neuro-anatomic entities, such as muscle motor points or musculo-tendinous junctions (Gunn et al 1976). Meridians are lines created when strategic sequences of classical points are linked and named according to the internal organ with which they are associated. The Meridians connect the interior of the body with the exterior. This is the basis of acupuncture theory, that working with points on the surface of the body will affect what goes on inside the body because it affects the activity of the substances that are travelling through the Meridians.

The Meridian system is made up of regular Meridians that correspond to each of the six Yin and six Yang organs. There are also eight extra meridians, only two of which, the Governing vessel and the Conception vessel are considered major Meridians. Meridian theory assumes that disorder within a Meridian generates derangement in the pathway and creates disharmony of the Meridians connecting organ. An understanding of the interconnections between Substances, Organs and Meridians decides the practice of acupuncture and herbalism. These are the two main forms of treatment used in Chinese medicine, and Meridian theory allows the physician to apply them to a particular patient.

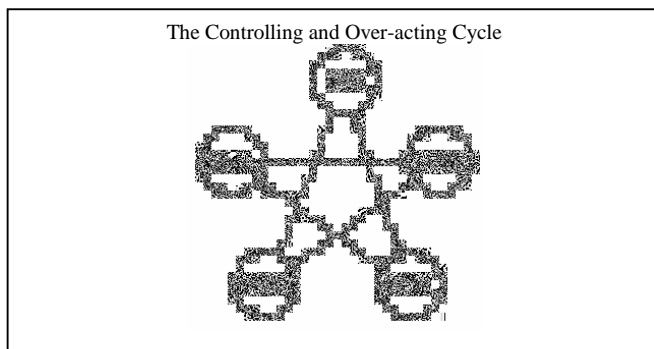
The theory of the 5 phases was developed by the "Yin-Yang" school, sometimes called the "Naturalist School. It is an attempt to classify phenomena in terms of five quintessential processes, represented by Wood, Fire, Earth, Metal and Water. The theory has many facets,

representing five different qualities of natural phenomena, five movements and five phases in the cycle of seasons. It also symbolises five different directions in the movement of natural phenomena. Wood represents expansive outward movement in all directions, Metal represents contractive inward movement, Water represents downward movement, Fire represents upward movement and Earth represents neutrality or stability. The theory of the five phases basically explains the inter-promoting, inter-acting, over-acting and counter-acting relationship among them. Its application to TCM is in classifying into different categories natural phenomena plus the tissues and organs of the human body and the human emotions and interpreting the relationship between the physiology and pathology of the human body and the natural environment with the law of the inter-promoting, interacting, overacting and counteracting of the five phases.

Promoting implies growth, and in this cycle the order is that wood promotes fire, fire promotes earth, earth promotes metal, metal promotes water and water in turn promotes wood. In this relationship each of the five phases is in the position of “being promoted” and “promoting”, the promoting phase being thought of as the “mother” and the promoted phase as the “son”, forming what is known as the “mother - son” relationship. Wood, for example, is promoted by water, which is the “mother” of wood while fire is the “son” of wood being promoted by wood.



Neither the promotion of growth, nor its control is dispensable. Without promotion of growth there would be no birth and development; without control excessive growth would result in harm. For instance, wood promotes fire and also acts on earth, while earth in turn promotes metal and acts on water. In the promotion of growth there thus resides control and in control there exists promotion of growth. They are in opposition and also in co-operation and so a relative balance is maintained.



The theory is used to explain the changes, aetiology and mechanisms of disease. Analysed according to the theory of the five phases, the complete changes that occur in disease all come under the following four conditions: overacting, counteracting, disorder of the mother affecting the son and vice versa.

In summary, the theories of Yin - Yang and the five phases are two outlooks on nature in ancient China, both encompassing rudimentary concepts of materialism and dialectics and to some extent reflecting the objective laws of things. They are of practical significance in

explaining physiological activities and pathological changes acting as a guide to the practice of medicine.

In human acupuncture diagnosis, reading of the pulses plays an important part in assessing the patient. The pulse is taken at the radial artery on the wrist on which there are twelve positions, six on each wrist of which three are superficial and three deep, corresponding to the internal organs. The pulse is assessed for shape, strength, length, rate and quality. Historically the pulse has been evaluated in animals, the site varying between species.

Methods of Acupuncture

In traditional acupuncture needles are inserted in accordance with the traditional, theoretical framework of TCM, using Yin-Yang polarity, Qi, meridian theory, five-phase theory, pulses and appearance of the tongue. In this version the location of the points is considered to be important and much attention is paid to locating them precisely.

Neo-classical methods which have arisen over the last few decades such as ear acupuncture and Ryodoraku bear some relation to the traditional system but most tend to use concepts of 'energy balancing' and may use electrically based diagnostic methods. 'Cookbook' acupuncture refers to numerous books containing list of points to try in various disorders. Their advantage is that they may give confidence to beginners, their main disadvantages are that they do not afford any insight into the principles of practice and may tend to encourage a mechanical approach to acupuncture.

Trigger point acupuncture is based on identifying tender points on the body by palpation and other criteria such as the radiation of pain from the site, flinching when the trigger point is pressed, muscle twitching on pressure, and in the human, changes in overlying skin. Other methods include the application of a thermal stimulus to various sites using Moxa; which is a dried fibre obtained from plants of the genus *Artemisia*. Injection techniques are sometimes used in the West to treat musculo-skeletal diseases using saline, vitamins and even sterile water.

Laser therapy has received much attention in recent years. There are obvious attractions in using laser in that there is no risk of infection and the treatment is pain free. However the equipment is expensive and clinical trials have given mixed results. To date it is not clear that the effect of laser is different from that produced by non-laser light.

Electro - acupuncture (EA) is used most frequently for chronic pain and clinically it appears to have benefits that outlast the temporary analgesic effect. Four neurotransmitters have so far been discovered to have a role in acupuncture analgesia: serotonin, β -endorphin, met-enkephalin and the dynorphins. Serotonin is involved in

descending inhibitory control; β -endorphin and met-enkephalin also inhibit pain whereas the effect of the dynorphins may be inhibitory or facilitatory depending on the background activity of the CNS.

The release of different transmitters depends to an extent on the frequency of stimulation. Low frequency EA releases β -endorphin in the brainstem and hypothalamus and met-enkephalin and dynorphins in the spinal cord; high frequency EA releases dynorphins and serotonin. Prolonged electrical stimulation also releases antagonists to these opioid peptides, such as cholecystokinin (CCK8). Other stimuli include low frequency T.E.N.S that has some similarities to EA although it has been shown to produce different clinical responses (Thomas et al 1995). Noxious stimuli can cause profound analgesia over wide regions of the body through a mechanism known as diffuse noxious inhibitory control (DNIC). Terror can produce a similar effect in animals (Berig, Villanueva & LeBars 1991).

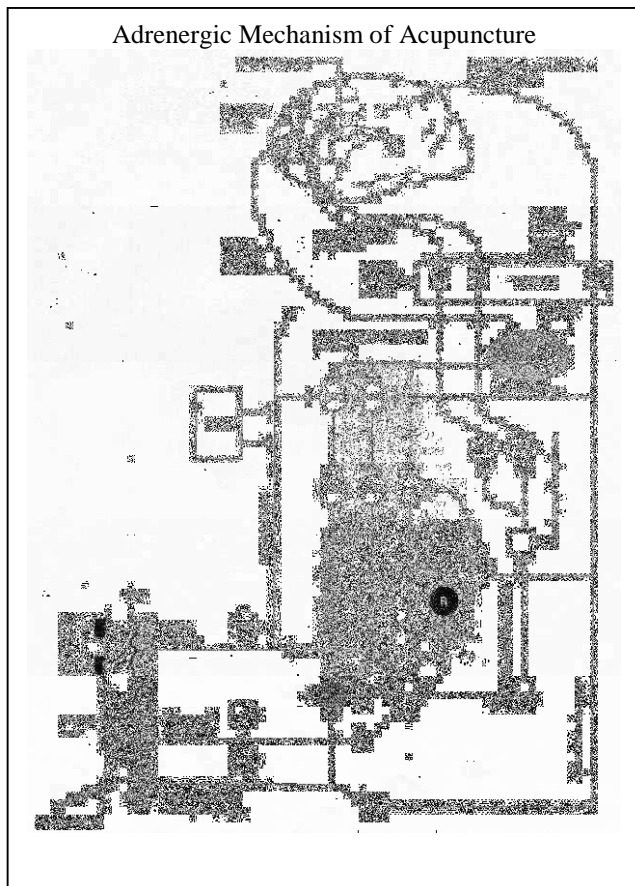
Mechanisms of Acupuncture

It has been shown that the acupuncture effect involves A δ fibres because the adequate stimulus is needleprick, while the response frequency is 2-3 Hz; these are both properties of A δ primary afferents. Wang et al (1985) showed that A δ fibres from muscle conveyed various sensations which Chiang et al (1973) had shown were essential for the acupuncture effect. The soreness effect of acupuncture is the result of stimulating C fibres.

Segmental acupuncture operates through a circuit involving inhibitory enkephalinergic stalked cells in the outer part of lamina II (SG) of the spinal grey matter which are directly contacted by A δ / Group III primary afferents. Heterosegmental acupuncture is brought about by both a generalised neurohormonal mechanism involving the release of free β endorphin and apparently also of met-enkephalin, and by two descending neuronal mechanisms, the first of which is serotonergic and the second adrenergic. A third descending system (DNIC) may also contribute in a minor way to the acupuncture effect. (Hashimoto & Aikawa 1993).

The system is influenced by the pre frontal cortex and descending through the hypothalamus (arcuate nucleus) and periaqueductal grey (PAG) to the nucleus raphe magnus of the medulla oblongata and thence to the spinal cord where enkephalinergic stalked cells are activated. This system has discrete but ill-understood somatotopy which may depend on classical referral of stimuli on viscerosomatic interactions and / or on a somatotopic organization existing within the PAG.

Noradrenergic cells in the lower brainstem are excited both by influences ascending directly from the spinal cord, and also relaying through the nucleus paragigantocellularis and by influences descending from the prefrontal cortex through the hypothalamic arcuate nucleus.



Summary

The art and science of acupuncture has developed through a variety of routes and for a variety of reasons: practical, political, financial and cultural. Initially the theory of acupuncture was firmly observation-based but the Chinese cultural love of symmetry and order caused the nucleus of practically based observation to be filled out and rounded off, so that it is now difficult to determine the laws and theories that have been handed down to us by tradition, where the scientific logic ends and fantasy begins. There has always been a spectrum in the way Chinese masters have interpreted the tradition of acupuncture but throughout it there has run a strongly pragmatic approach to treatment; the theory is to be used only so far as it helps in the selection of effective point prescription. In our modern use of acupuncture, we must take the same line.

It is well worth delving deeply into the traditional and cultural aspects of Chinese acupuncture. This is a fascinating intellectual exercise in itself, but far more importantly it enables us to distinguish what is of therapeutic value out of the beautifully constructed, but artificial symmetry that is the traditional theory of acupuncture.

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