

Traditional Chinese Medicine—a beginner's guide

In the year 2000, I took a leap of faith to study Traditional Chinese Medicine (TCM). 'You aren't quitting medicine, are you?' my father said with a concerned look. 'Haven't you got better subjects to learn?' my clinical mentor said, staring at me intently. Ten years of general practice had revealed a long list of medical problems that Western medicine struggled to deal with. I wanted to consider other approaches. Being Chinese, it was logical for me to explore what TCM had to offer. I spent the next 6 years in Hong Kong and Guangzhou, China, studying for a bachelor degree course in Chinese Medicine.

TCM is a major stream of Complementary and Alternative Medicines (CAM). In the UK, up to 25% of the general population use CAM whether GPs are aware of it or not (Leung, 2009). A recent study shows that concurrent use of TCM and Western medicine is common among Chinese population in London (Rochelle and Marks, 2009). What follows is the first of a series of three articles on TCM, looking at the basic theory and principles of practice. Getting a grasp of these principles will also help you understand the practice of acupuncture and Chinese Herbal Medicine (CHM), which will be presented in more details in the second and third article of the series. Where appropriate, terminology in Chinese characters and *pin-yin* (phonetics) have been added to help familiarize readers with these terms.

A brief history of TCM

TCM emerged as a healthcare paradigm as early as 10 000 BC (see history of acupuncture in second article). It comprises three main modalities: CHM, acupuncture and physical therapies (*qi-gong*, *tu-na* and *tai-chi*). CHM refers to the systems of cure with prescriptions of herbs and related substances. Acupuncture treats diseases by inserting sharpened objects into specific points (called *acupoints*) along specific routes (called *meridians*) in the body. Physical therapy includes all branches of manipulative treatment where parts of the patient's body are moved either passively (*Tui-na*) or actively (*qi-gong* and *tai-chi*) in a systematic way to elicit therapeutic effects.

The concept of overall balance

TCM is built upon philosophical concepts drawn from the human body and the external environment. In contrast to

Western medicine, TCM is more of a philosophy than science. Inside the human body, TCM will tell you that there are internal organs (*Zhongs-Fus*) but they are not synonymous with the human organs as described by distinguished Renaissance anatomists such as Leonardo da Vinci or Vesalius. The definitions of *acupoints* and *meridians* are equally conceptual and they do not correlate with known anatomical landmarks or conduits, such as the lymphatic systems as understood by Western medicine. Due to Chinese beliefs of Taoism and Buddhism, it is a forbidden to dissect a human body and hence TCM is not based on internal human anatomy. The meaning of health in TCM is synonymous with the functional interactions between entities inside the body in response to the natural forces of the environment. It is the overall dynamic equilibrium between the *Yin–Yang*, *Qi–Xue* and *Zhongs-Fus* that a TCM practitioner wants to achieve in order to re-establish health, not a treatment of any entity in isolation.

Yin (陰)–Yang (陽)

Yin and Yang are probably the two key principles that underlie TCM. In the broadest sense, *Yin* and *Yang* are two opposing entities that coexist in a dynamic equilibrium within the universe. In any system or space, there is *Yin* and *Yang*. *Yang* represents light, uprising, heat, mobility, the sun and the male gender. *Yin* represents the opposite: darkness, down-going, cold, rest, the moon and the female gender. Due to their opposing nature, *Yin* and *Yang* cancel each other out in any system when either entity exceeds a certain level. In extremis, they can interconvert, i.e. *Yin* becomes *Yang* and *Yang* becomes *Yin*. *Yang* cannot exist on its own and has to be rooted with *Yin* and vice versa. Inside a living body, any functioning organ or tissue, there is, by definition, a coexistence of *Yin* and *Yang* in dynamic equilibrium. Their dynamic interactions define life and their degree of interplay reflects the state of health. When there is imbalance, health deteriorates; when *Yin–Yang* decouples, death ensues.

Qi (氣)–Xue (血)

Both are conceptual materials circulating inside the *meridians* and the main internal organs (*Zhongs and Fus*). *Qi* refers to the intangible energy inside the human body and constitutes the essence of life. *Qi* is contained inside the 12 *meridians* that are sequentially connected in a grand circle ramifying through

different parts of the body including the *Zhongs* and *Fus*. *Qi* is also compartmentalized in each organ for its normal functions. *Qi* cycles through our body 50 times a day. *Qi* is categorized as a *Yang* entity and best kept in incessant flow. When *Qi* is deficient, the meridian or organ will be weakened and malfunction or increase susceptibility of the body to attacks by the six pathogens (see below). Symptomatically, *Qi* deficiency is recognized by fatigue, malaise, shortness of breath, low voice, pale complexion, pale tongue and a thread-like pulse. When the level of *Qi* is normal but its flow is sluggish, it results in a stagnation syndrome where internal organs maybe bloated or pain will develop at sites where *Qi* cannot flow through the meridians. In these situations, acupuncture achieves its therapeutic effect by activating the flow of *Qi* in the affected meridians and unblocking the acupuncture points.

Xue is a *Yin* entity that coexists with *Qi* and is driven through the meridians by *Qi*. While *Qi* energizes an organ or bodily part for normal functioning, *Xue* provides the building blocks that form the organs or bodily parts (see below). As a word, *Xue* is translated as 'blood' but is not synonymous with the anatomical entity as in Western medicine. Deficiency syndrome of *Xue* leads to multiple diffuse aches, pale complexion, irregular or scanty periods in females, pale tongue and a narrow pulse. Like *Qi*, when flow of *Xue* is blocked or sluggish, it results in a stagnation syndrome, which is recognized by sharp nocturnal pain at fixed areas of the body, a dark-purple tongue and an irregular pulse.

Zhong (臟)–Fu (腑)

Zhong and Fu are conceptual correlates of the major internal organs inside the body. There are five *Zhongs* (heart, liver, spleen, lungs and kidneys) and six *Fus* (bladder, gall bladder, stomach, small intestine, large intestine and pericardium). The *Zhongs* are considered solid entities (see how this concept deviates from the anatomy from Western medicine, where heart and lungs are not entirely hollow) and hence correlate with the *Yin*, while the *Fus* are considered hollow entities and correlated with the *Yang*. For a *Zhong* to be in its optimal state, it has to be filled with *Qi* or *Xue*, failure to do so results in a Deficiency Syndrome. On the contrary, a *Fu* needs to be emptied and drained constantly to maintain its hollow state, failure to do so will lead to a blockage or stagnation syndrome. The best example is constipation where the larger intestine, a *Fu*, is not emptied properly and hence the blockage presents with pain and bloatedness. Moreover, each *Zhong* or *Fu* is associated with a meridian ramifying a different part of the body. A *Zhong* and a *Fu* pair up as a functional dual. The five *Zhongs* correlate with the five elements of nature (see Table 1) and promote/suppress each other to achieve equilibrium.

The Five Elements (五行)

The concept of the Five Elements originates from the earliest archives of Chinese philosophy, *Yi-Jing*, or 'Book of Changes' in 300 BC. In our nature and environment, it is believed that there are five main elements that interact and constitute everything as we know it: Earth (土), Wood (木), Water (水),

Table 1. The Zhong–Fu pairing and their designation with the Five Elements

Zhong	Fu	Member of Five Elements
Liver	Gall bladder	Wood
Heart	Small intestine	Fire
Spleen	Stomach	Earth
Lung	Large intestine	Metal
Kidney	Bladder	Water

Fire (火) and Metal (金). Between them there exists a mutual promotion–suppression relationship that keeps them in equilibrium. The five elements promote each other in the following way: Earth → Metal → Water → Wood → Fire → Earth. Conversely, they suppress each other also in this particular manner: Earth → Water → Fire → Metal → Wood → Earth. So in a way, there exist an intricate pull–push dynamics among all five elements that form the basis of clinical diagnosis and therapy in TCM.

Human beings are part of nature and in the theory of TCM, the internal organs are believed to correlate with the Five Elements according to their behaviours and functions in the body: Earth–spleen (spleen digest all crops harvested from earth); Wood–liver (liver likes to spread and extend the *Qi* like branches of the tree); Fire–heart (heart governs the blood which is red like fire); Water–kidneys (kidneys governs the waterworks); Metal–lungs (lungs maintains the cleanliness like pure metal). So translating to *Zhongs* (the solid organs in TCM), the same promoting relationships exists: spleen → lungs → kidneys → liver → heart → spleen, and the suppressive relationships are seen: spleen → kidneys → heart → lungs → liver → spleen. A schematic diagram showing the promotion–suppression relationships of the Five Elements is given in Fig. 1. These inter relationships help to understand the aetiology of disease and the formulation of treatment. For example, in Excess Syndrome of the liver, the spleen will be weakened as Earth is suppressed by Wood under the Five-Elements rule, and hence the treatment strategy is to abate the Wood (liver) and support the Earth (spleen), possibly via strengthening of the Fire (heart) as Fire promotes Earth.

In Western medicine, we do have the concept of homeostasis within organ systems but we often emphasize the 'single disease–single organ–single treatment' dictum wherever possible. We do not need to consider cross-systems homeostasis unless in dire situations of multi-organ systems failure. This illustrates how TCM differs from Western medicine where multiple interacting factors and organ systems have to be considered in every diagnosis for achieving an overall balance of health for that particular individual. This TCM paradigm maybe valuable especially at times of deadly epidemics that baffle Western medicine, a good example will be the severe acute respiratory distress syndrome (SARS) in 2002 (see Box 1).

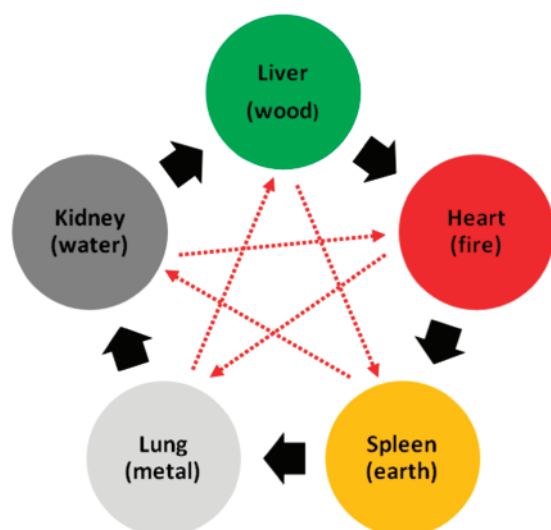


Figure 1. The promotion (black solid arrows) versus suppression (red broken arrows) relationships of the five Zhongs and Five Elements.

Causes of diseases: the six external agents and seven internal emotions

The six agents (六淫)

Just as nature is susceptible to seasonal change, TCM believes that the human body is equally susceptible. Six agents are identified: Wind (風), Cold (寒), Heat (暑), Dampness (濕), Dryness (燥) and Fire (火), which are predominant in different seasons of the year (see Table 2). *Per se*, they are natural stages of the four seasons that all humans are subject to, and they only cause diseases when they appear too soon, last too long or come in far excess. Equally, if there is already an imbalance (of the *Yin–Yang*, *Qi–Xue* or *Zhong–Fus*) inside the body, there is increased susceptibility to these external agents. These six agents can affect the human body in isolation or in combination as the seasons go round. In addition, pandemics and plagues were explained in the ancient TCM archives as unexpected excess of these natural agents—this maybe the very first reference

Table 2. Six agents and their properties

Agent	Predominant season of the year	Nature
Wind (風)	Spring, autumn, winter	Yang
Cold (寒)	Winter	Yin
Heat (暑)	Summer	Yang
Dampness (濕)	Spring, summer	Yin
Dryness (燥)	Autumn	Yang
Fire (火)	Mid-summer	Yang

to abrupt changes in seasons leading to spread of air-borne pathogens.

The seven emotions (七情)

According to the theory of TCM, there are seven emotions recognized in the humans and when in excess can cause diseases and illness. They are Joy (喜), Anger (怒), Worry (憂), Contemplation (思), Sorrow (悲), Fear (恐) and Shock (驚). In brief, they affect the movement of *Qi* and *Xue* in different ways (see Table 3). One must avoid getting into

Table 3. Seven emotions and their effects on *Qi* and *Xue*

Emotions	Effect on <i>Qi</i> and <i>Xue</i>
Joy (喜)	Slows
Anger (怒)	Upsurges
Worry (憂)	Blockade
Contemplation (思)	Interruption
Sorrow (悲)	Stagnation
Fear (恐)	Sinking
Shock (驚)	Disarray

Box 1. TCM for SARS prevention and treatment

Did you know TCM was used during the severe acute respiratory distress syndrome (SARS) epidemic in Hong Kong? In 2002 when severe acute respiratory distress syndrome (SARS) took the world by terror, a TCM herbal formula was created and consumed among front-line hospital workers who were at risk (Lau *et al.*, 2005b). The symptoms and signs of SARS with its rapidity of spread and high mortality fell into the category of the disease called *Wan Bing* (溫病). A prospective cohort trial was conducted during the peak of the SARS epidemic, where a TCM formula tailored for *Wan Bing* was consumed for 2 weeks by 1063 hospital workers in the treatment cohort, and their SARS attack rate was compared to that of 36111 cohorts in the non-treatment group. None of the treatment cohort developed SARS as compared to 0.4% in the non-treatment cohort ($P < 0.014$). Adverse effects were reported in less than 2% of treatment cohorts. The author concluded that TCM has potential as a prophylaxis for acute epidemic outbreaks (Lau *et al.*, 2005a). Studies from Beijing also reported that concurrent TCM treatment during the acute phase of SARS reduced glucocorticoid requirement, hospital stay and overall mortality of patients (Liu *et al.*, 2005), while using TCM during rehab stage also improves the quality of life and psychological scores (Bian *et al.*, 2003).

extreme swings of emotions, nor should one dwell in any particular type for too long, otherwise our health will be jeopardized. Crude as it seems, these references may well count as the earliest descriptions of psychosomatic symptoms and illnesses in humans as described in present day Western medicine.

Four pillars of TCM diagnosis

Observation (望)

Like Western medicine, TCM diagnosis starts with general observation of the patient. TCM stresses on the assessment of 'spirit' of the patient that is exhibited by the general demeanour, physical agility, facial complexion, skin hues, speech clarity and rate of breathing. In brief, good spirit means a robust flow of *Qi* and *Xue* with dynamic equilibria among their *Zhongs* and *Fus* as seen in good health. Disease of any *Zhong* or *Fu* often manifest as a particular facial skin hue of the corresponding member of the Five Elements. For example, a heart problem often shows up with a red hue (Heart → Fire = Red), lung problem with a white pale hue (Lung → Metal = White), kidney problem with a dark hue (Kidney → Water = Black), spleen problem with a sallow hue (Spleen → Earth = Yellow) and liver problem with a green hue (Liver → Wood = Green). The other main observation is of the tongue. TCM places a lot of emphasis on tongue diagnosis and in the diagnostic indicators that are listed in Table 4. A few examples of tongue diagnoses are given as below (see Figs. 2–5).

Listening and smell (聞)

TCM practitioners will listen to the intensity and the tone/pitch of a patient's voice. They also assess the patient's way of breathing and cough as an assessment of *Qi/Xue* and the state of the *Zhong/Fus*. Furthermore, any particular smell or odour, from the patient's body or excrement, is a diagnostic indicator for syndromes relating to an imbalance of the *Zhong/Fus*. For example, foul-smelling diarrhoea often indicates stagnation of the large bowel with excess of heat, whilst odourless diarrhoea means excess of dampness and cold in the stomach.

Taking a history (問)

TCM emphasizes a good history taken from the patient based on the 'Song of Ten Questions' (十問歌) regarding:

- head and body
- degree and timing of sweating
- feeling of hot or cold
- urination and bowel movement
- appetite and diet
- breathing cough and chest (breast)
- hearing
- thirst
- previous illness and their causes
- gynaecological, obstetrical and paediatric infections.

TCM archives have records of ancient practitioners specializing in women's health, paediatrics and infectious

Table 4. Some common tongue signs and their diagnoses

Tongue sign	Diagnosis
Pale tongue	Xue deficiency
Red tongue	Normal variant; heat excess
Purple tongue	Blood stagnation
Purple tongue with dark spots on underside	Extreme blood stagnation with 'clots'
Thin and narrow tongue body	Yin deficiency
Thick tongue body	Qi deficiency
Thick tongue body with teeth marks along border	Deficiency of spleen
Thin white tongue coating	Normal health
Thick white tongue coating	Excess of cold
Thick yellow tongue coating	Excess of moisture and heat
Thick black tongue coating (moist)	Excess of dampness and cold
Thick black tongue coating (dry)	Excess of heat
No tongue coating, glossy tongue	Stomach Yin deficiency
Patchy coating	Stomach Qi deficiency



Figure 2. Fat swollen tongue with thin white coatings and teeth marks on the side, signifying weakness of spleen with excess of water and moisture.

diseases, hence the coverage of these areas in the history taking. Arguably, this could be interpreted as the earliest model of history taking as taught today in Western medicine.



Figure 3. Tongue with normal body but yellow coating, signifying excess of moisture and heat.



Figure 4. Tongue from a 13-year-old male with redness at tips and prominent taste buds, signifying heat of the heart meridian (this child has mild insomnia).



Figure 5. Tongue of an 8-year-old male with normal looking body but lack of tongue coating, signifying weakness of stomach. He has low appetite for food.

Taking the pulse (切)

TCM practitioners place three fingers (index, middle and ring) along the radial artery of the patient to feel for the intensity, rate, rhythm, wave characteristic and resilience of the pulse (See Fig. 6). Up to 28 types of pulses have been described in the ancient archives of TCM like the *Su Wen* of the Yellow Emperor's Internal Classic in 260 BC (Lu, 1985) and the *Mai Jing* (脉经) in 280 AD (Zheng, 2002). Despite fewer pulses being recognized in most day-to-day practice, taking the patient's pulse is considered a mandatory diagnostic step, together with tongue inspection. There have been attempts to scientifically analyse the dynamic behind the various pulses but so far they have not been successful. An editorial regarding the evaluation of conduit artery function mentions some similarities with the TCM pulse diagnosis but they are hardly comparable (Oparil and Izzo, 2006). Pulse taking remains a diagnostic skill that has to be acquired through good apprenticeship and is refined during years of clinical practice.



Figure 6. Taking the pulse in the TCM manner. Note the standard positioning of the index, middle and ring fingers of the TCM practitioner over the radial artery of the patient in that order.

Categorization into eight syndromes

In the language of TCM, health is based upon a dynamic balance between opposing (e.g. *Yin–Yang*) and interacting entities (*Zhong–Fus* and *Qi–Xue*) that coexist inside the human body. Any disease state can be categorized by one or a combination of the Eight Syndromes, each of which carry specific signs and symptoms:

- (i) *Yang Syndrome*—Yang symbolizes activity, motion, uplift and intensity. Patient presents with fever, excessive movements, nervousness, excessive speech/thoughts, rapid bouncy pulse, insatiable appetite, increased libido, red complexion, red tongue with dry and thick coating.
- (ii) *Yin Syndrome*—Yin symbolizes quiescence, inactivity, downturn and weakness. Patient looks pale, easily fatigued, hypothermic, feeble speech, paucity of thoughts, slow thread-like pulse, loss of appetite, decreased libido, pale narrow tongue with thin wet coating.

- (iii) *Superficial Syndrome*—Usually refers to the early stage of diseases due to invasion from the six external agents when they are still contained at the superficial domains of the bodies (surface meridians and the skin). Prognosis for superficial syndrome is good and full recovery is expected with or without treatment.
- (iv) *Deep Syndrome*—Refers to diseases that affect the *Zhong-Fus* or deeper meridians of the body, either due to deterioration of the *Zhong-Fus* or progression of the superficial syndrome due to delayed or inappropriate treatment. Prognosis is generally worse compared to superficial syndrome and if the patient escapes death chronic ill health is expected.
- (v) *Cold Syndrome*—Occurs when Yin is in excess or the body is afflicted by external agents like the Cold and the Dampness. Patient presents with hypothermia, fatigue, pallor, nocturnal pains, fear of cold, watery stool, clear urine, pale tongue with thick moist coating and a slow thread-like pulse.
- (vi) *Heat Syndrome*—Occurs when Yang is in excess or body is afflicted by external agents like Fire or Summer Heat. Patient often has a fever, craving for cold drinks, red face, constipation, dark/yellow urine, red tongue with yellow/black greasy coating.
- (vii) *Deficiency Syndrome*—Often used to specify the deficiency of a particular category (e.g. Yin/Yang) or of a particular *Zhong*. (*Fu* is never deficient as *Fu* is hollow in its natural state.) Symptoms and signs are analogous to those of Yin or Cold Syndrome where the patient looks pale, lethargic, shortness of breath with pale tongue and slow pulse.
- (viii) *Excess Syndrome*—The reverse of Deficiency Syndrome and refers to excess of a particular category or of a particular *Fu* (when it is congested or with stagnation of *Qi/Xue*). Symptoms and signs are similar to that described for Yang or Hot Syndrome: fever, thirst, hyperactivity, abdominal fullness, constipation, rapid bouncy pulse and a red coated tongue.

This system of categorization forms the essential algorithm upon which a TCM practitioner reaches a diagnosis and initiates treatment for the patient at a particular time. Such categorization often changes over time as the illness progresses, e.g. a patient with SARS can be categorized with a Yang-Superficial-Heat-Excess syndrome at the initial acute febrile stage but can lapse into Yin-Deep-Cold-Deficiency syndrome when patient goes into shock with multi-organ failure despite treatment.

TCM and systems biology

I hope I have demonstrated that TCM is best understood within a framework of systems biology where different sets of variables coexist and interact dynamically with each other. There is no absolute definition of health except for a best possible balance of these variables that act in predefined relative antagonism. There are many analogies between TCM

and other scientific ways of understanding the world. For example, for every action there is a reaction (Newton); for every particle of matter there exists a mirror particle of anti-matter (Quantum Physics); the more precise you become with one measurement, the less precise you become with another (Heisenberg) and that time and space are not absolute entities but a blended continuum (Einstein). TCM describes a push-pull relationship for Yin-Yang and a mirror relationship between *Zhong* and *Fu*. Equally, there is uncertainty about the behaviour of a TCM element in isolation, and the coexistence of Yin/Yang/Qi/Xue/Five Elements is best understood as a continuum. A broad frame of mind is required to appreciate the true scope and dimension of TCM. I believe that TCM is better viewed as a philosophy as opposed to a hard science. In the next article, we shall apply these principles to understanding acupuncture.

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