

Current Research in Complementary & Alternative Medicine

Xu T and Wang Q. Curr Res Complement Altern Med: CRCAM-132.

DOI:10.29011/2577-2201/100032

Review Article

New Development of Chinese Medicine by Integrating Traditional Chinese Medicine with Western Medicine

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Citation: Xu T, Wang Q (2018) New Development of Chinese Medicine by Integrating Traditional Chinese Medicine with Western Medicine. Curr Res Complement Altern Med: CRCAM-132. DOI:10.29011/2577-2201/100032

Received Date: 08 August, 2018; **Accepted Date:** 28 August, 2018; **Published Date:** 05 September, 2018

Abstract

Based on more than 20 years' research and clinical practice as well as based on the Traditional Chinese Medicine (TCM) theory, the author developed new concepts on TCM. These new concepts include:

- The Yin-Yang and Five-element theory is updated to Yin-Yang and Six-element theory. Under this new theory, wood, fire, earth, metal, water, the traditional five elements in the TCM theory has been extended to six elements by adding the new element of Qi, which is called the new Wood-Fire-Earth-Metal-Water-Qi theory.
- Heart, liver, spleen, lung, kidney, the traditional Five-Zang¹ theory is extended to the Six-Zang theory by adding the organ of pancreas, which is named as the new Heart-Liver-Spleen-Lung-Kidney- Pancreas theory.
- Changing the relationship between “elements” and “Zang-Fu²” in the TCM theory and the relationship of subjugation and reverse restriction in the five elements; and analyzing the evolution of meridian (main and collateral channels) system and twelve meridians lingers; creatively proposing the distribution and movement model of the five Qi elements
- The description on pericardium in the TCM theory is replaced by spleen. The author also proposed the hypothesis that formation of extraordinary organs³ (Qi-Heng-Zhi-Fu) was the results of generation and transformation between Six-Zang organs and Six-Fu organs.
- By comparing the triple-energizer system in the TCM with the lymph system in western medicine, the author proposed the concept of new triple-energizer system, which are helpful for us to understand the TCM in the way of the western medicine system.
- By using the digital technology to explain the meridian system and their movement patterns in human body, the author explained the concept of acupoint. The adoption of digital technology in meridian system have made a full integration of the TCM and western medicine.

These new concepts not only improved and developed the TCM theory, promoted its integration with western medicine, but also explored a new theory and method for development of the TCM theory, disease prevention and treatment. Under the direction of the new concepts, the cure rate of common diseases was significantly increased, cure cycle was shortened, and the curative effect on the patients with complicated diseases was very remarkable, leading to over 85% of an average cure rate.

Note: ¹A collective term for the heart, liver, spleen, lung and kidney.

²A collective term for all internal organs, including zang organs, fu organs, and extra fu organs.

³A collective term for the brain, marrow, bones, blood vessels, gallbladder and uterus. They are so called because their physiological properties are different from both ordinary zang and fu organs.

Keywords: Digital science of acupuncture; Five-Zang organs; Meridian system; Six-Zang organs; Triple-energizer theory; Yin-Yang⁴ and the five elements; Yin-Yang and the six elements

Introduction

As an asset of China, the TCM, which is extensive and profound with a long history, has made a great contribution to the Chinese health. However, it has been improved and developed constantly because of its reliable effects and contributions to the flourishing of Chinese people. With the introduction of western medicine into China and its fast development, TCM is facing new opportunities and challenges. Nowadays, medical sciences are advancing rapidly, TCM science needs to be further developed by improving its diagnostic level and treatment effect. Hence, it is very important that the TCM theory should be made more scientifically, and the advantage of TCM should be fully utilized along with the combination of disease diagnosis and syndrome differentiation, macro and micro. Comparing with the rapid development of western medicine, however, TCM has very slow development over past many years. The reason is that people neither paid attentions to TCM, nor understood the TCM well. On the other hand, the TCM theory has its limitation in application, which restricted doctors' imagination and innovation. As a result, some complicated diseases could not be explained scientifically and sometimes it is far-fetched in disease diagnosis and syndrome differentiation as well as treatment. Therefore, it is essential to develop new concepts to adapt to the needs of the development of medical science and to guide our medical work. TCM should be advanced with the times and advance of science and technology.

Investigations of the Changes from Five Elements to Six Elements, and From Five-Zang Organs to Six-Zang Organs

In the beginning, the Yin-Yang and five elements were regarded as concepts in people life, which was materialistic and played a positive role in the human being's health in the history. It is a plain materialism and spontaneous dialectics, acknowledging that the world is physical. Everything in the universe is interrelated, and composed of Yin and Yang, and they are both interdependency and contradictory. Based on this theory, TCM played an important and positive role in both the development of Chinese medicine and the practice of diseases prevention and treatment in the long history. However, a weakness of TCM is that it can only make a rough explanation on the complicated internal conflicts of human body by a general observation, instead of giving a precise and accurate explanation based on modern anatomy and scientific analysis. Yin-Yang and the Five-element theory recognize the interrelation between the internal and external environments of human body.

Being limited by historical condition, however, it could not reveal the essence of the interrelation. Therefore, the TCM theory should be further developed [1].

Note: ⁴The two fundamental principles or properties in the universe, ever opposing and complementing each other, the ceaseless motion of which gives rise to all the changes in the world-an ancient philosophical concept used in traditional Chinese medicine for indicating various antitheses in anatomy, physiology, pathology, diagnosis and treatment, and for explaining the health and disease processes.

The five elements changed to six elements by adding the element of Qi

In ancient China, the people thought that the world was composed of five elements, wood, fire, earth, metal and water. There exists a kind of generation and restriction relationship⁵ among the five elements (Figure 1.1). The Five-element theory refers to the change of the movement of the above five elements. In China, the Five-element theory has a long history, which could be found in the classical book of Hongfan Chapter of Shangshu [2].

The Five-element property of everything is not simply equal to the real image of wood, fire, earth, metal and water, but provides an interesting linkage between the similarity of abstract characteristics among different things. For instance, if something has the same abstract characteristic as the wood, it could be classified into wood element, so do others. By comparing the Five-Zang theory and the Five-element theory, the main function of liver is relevant with people's emotional ascension, like the growth of trees. So, the liver is classified into wood element. Similarly, the heart is like the engine of human body and could provide energy, and then it is classified into fire element. Because the spleen oversees transportation and transformation, then it is classified into earth element. The lung keeps emotional descending and pertains to mental. The kidney regulates water metabolism in the body, so it is classified into water element [3].

However, to reveal the true value of the TCM, the five elements (wood, fire, earth, metal and water) in Yin-yang and Five-elements theory should be upgraded into Six-elements theory (wood, fire, earth, metal, water and Qi). In the traditional theory, the internal relationship among the five elements is in a single way and on the same level surface. After the five elements upgraded into six elements with adding the Qi element, the original five elements and Qi element would be connected and affected mutually. Therefore, as the Qi element was introduced into the traditional theory, a three-dimension space relationship was established revolutionarily. That means the original relationship of five elements was a kind of two-dimensional space relationship, but the relationship of six elements is a kind of three-dimensional space relationship (Figure 1).

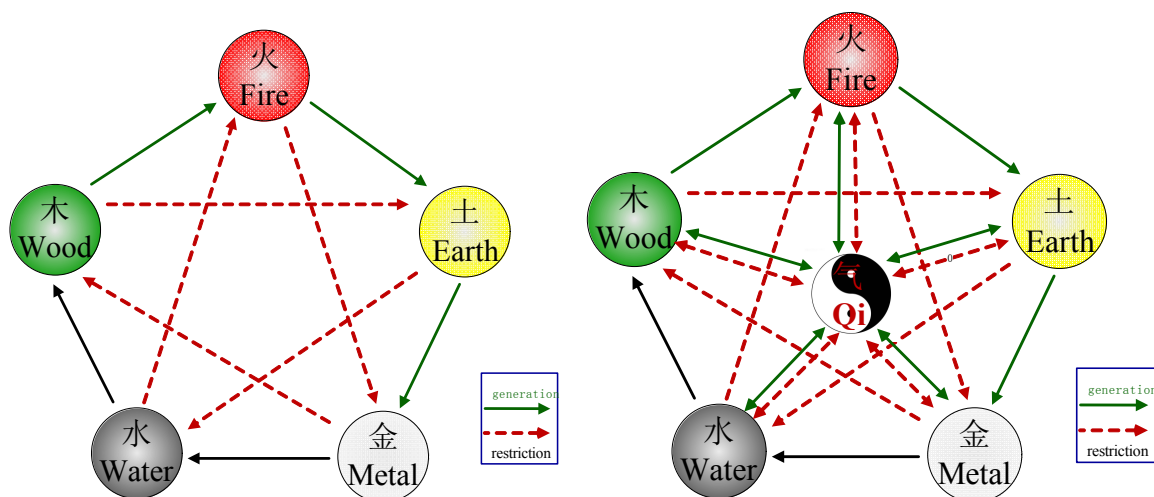


Figure 1: Generation and Restriction Relationship among the Five Elements (1.1) and the Six Elements (1.2).

Why “Qi” should be regarded as one element? In the original TCM theory, the Qi was mentioned everywhere, for example, original Qi, liver Qi, blood Qi etc. Qi is a special term in the TCM theory. There are so many things from the universe to life activities which can be explained with Qi. TCM theory indicates that Qi is the intrinsic driven force for production and transformation [4]. But it always made very mysterious, hard to understand. As we know, a life, from its beginning to its end, will experience birth, growing, getting mature, becoming old, and death. The whole process of a human life, influenced by some external factors, such as light and force is the process of the production, circulation and transformation of Qi. With Qi, human body has life producing essence, blood, and body fluid, and vitality and mind. The whole process of human life from birth to death not only needs Qi, but also relies on its movement to promote life activities. The movement of Qi is called

Note: ⁵The generating and restricting relationships of the five elements in the following sequence- water, fire, metal, wood and earth-in which each element is conceives as producing or restricting the subsequent one, i.e., wood generates fire, and fire restricts metal, and so forth.

“Qi Ji”, which can be presented by the four patterns, ascending, descending, exiting and entering. It does not only push and promote physiological functions of human body, but also is manifested by the functions and activities of Zang-Fu organs and meridian system. Qi has the five main physiological functions, promoting, warming, protecting, controlling and transformation, and they are not only different from each other, but also cooperate, coordinate and support each other, to maintain normal physiological activities. That is why Qi is one element. Since human life is originated from Qi, the human brain, so called the extraordinary Fu-organ, and the genital organ are probably the most advanced

products after the movement of Qi on the other five elements. Therefore, Qi is the most important element in the six elements. The relationship between Qi and other five elements is generation, restriction, subjugation and reverse restriction [5].

Five-Zang organs changed to Six - Zang organs by adding pancreas

The concept of Zang-Fu is a general idea used by TCM to describe internal organs of human body. In Five-element Theory, the heart, liver, spleen, lung and kidney are called “Five- Zang organs” [6], while the stomach, bile, the triple-energizer (Sanjiao), bladder, colon and small intestine are called “Six-Fu organs”. However, in the classic doctrine of TCM, named Shan Han Zhi Ge (also named Typhoid Fever), a theoretical framework of “Six-Zang organs” was proposed by adding the organ of the pericardium. This book argues that the above method to define Zang-Fu organs is not very convincing and tries to propose a new thinking in reasonable way. The Six-Zang organs should be changed as the heart, liver, spleen, lung, kidney and pancreas, while the Six-Fu organs will be the same as mentioned above. The reason lies in two parts. One is that the role of pancreas has been ignored for a long time in TCM, the other is that the role of pericardium was misunderstood.

As we know, the pancreas is one of the most important digestion organs in anatomy science. In the book “Huang Ting Nei Jing Jing”, there is a saying, “the spleen is one Chi long, and is covered by the stomach”, in which “the spleen” means the pancreas in the modern anatomy [7]. In the anatomic physiology, the pancreas is the second largest gland, composed of endocrine gland secretion and exocrine gland secretion. Endocrine gland calls pancreatic islets and they secrete insulin and glucagon. Exocrine gland secretes pancreatic juice, composed of pancreatic protease, pancreatic amylase and pancreatic lipase. These enzymes are not

active and exist in the form of zymogen. Under activation of the bile, they will be transformed into active enzymes, which play a very important role in the digestion of food. Secondly, the pericardium is only an exterior membrane to protect the heart, while the common physiological functions of Zang organs produce and store essence. Obviously, the pericardium does not have the function. Additionally, both the kidney and lung also are protected by an exterior membrane, but it is seldom mentioned. If the pericardium is listed as one of Zang organs, it will lead to misunderstanding and could not describe its correct function. Based on this argument, this paper proposed that the Five-Zang theory should be upgraded to Six-Zang theory by adding pancreas [8].

Why was pancreas not mentioned in TCM? The main reasons are as follows

- The position of pancreas is very close to the posterior abdominal wall and across the front side of waist one and waist two vertebral body. The head of pancreas is circled by the duodenum and the tail of pancreas is close to the hilus of spleen. Pancreas locates at back side of stomach and belongs to the retroperitoneal organs, just like the retroperitoneal fat. In the ancient times, Chinese doctors rarely dissected corpses. It is difficult for them to find the existence of pancreas only by general observation. So, pancreas has been neglected for a long time.
- The shape of pancreas is quite different from that of liver, lung, kidney and spleen, which had an obvious entrance for duct to exit and enter. The pancreatic duct runs through the long axis of pancreas. It converges with the common bile duct, and pass through duodenal wall, opening at major duodenal papilla. If pancreas is not dissected, we will not find the interior pipeline inside. The ancients could not speculate that its functions are related to food digestion, which belongs to stomach.
- Some people think that the reason for not mention of pancreas in TCM is since pancreas can secrete a variety of digestive enzymes. When people died, the pancreas can be digested by itself and then disappeared. The author does not agree with them. If patients died for acute necrotizing pancreatitis, it is possible not to find pancreas when the body was dissected. However, this kind of cases is always a minority. In most of dissection cases, pancreas could be found.
- Due to poor observations, pancreas was mistaken for spleen. As indicated in TCM, classic work named *Huang Ting Nei Jing Jing* “the spleen is one Chi long and is covered by the stomach”. The tail of pancreas is close to spleen. Splenic artery gives off branches to the pancreas, to the spleen. They are connected with spleen artery. So, the ancient Chinese doctors thought that pancreas is part of spleen.
- In TCM, there are groups of Yin-Yang relationships among Zang and Fu organs, such as the liver and bile associated with each other by biliary tract; the kidney and bladder connected by the ureter; the heart and small intestine which are related with nutrient absorption and transport; the lung and the large intestine which are related with respiratory, production and exclusion of foul smell. They all have Yin-Yang relationships. The spleen and stomach locate at the left hypochondriac region. As closely neighbors, they are connected by spleen and stomach ligament. The ancients mistook they associate with each other closely, and they are Yin-Yang relationships, they are not.

In the Chapter of Plain Questions- Six Section of *Zang Xiang* in classic book “*Huang Di Nei Jing*”, the concept of *Zang Xiang*, also called Visceral Manifestation, was proposed first. This concept tells us that the outward manifestation of internal organs through which physiological functions as well as pathological changes can be detected, and the state of health judged. After the Five-Zang theory upgraded to Six-Zang theory, the visceral manifestation is given in Table 1.

Visceral Manifestation	Five-Zang theory	Six-Zang theory
The heart	The heart controls blood circulation, oversees mental activities, is related with joy and sweat, is functionally connected with the vein, and opens into the tongue.	The heart controls blood circulation, oversees mental activities, is related with joy and sweat, is functionally connected with the vein, and opens into the tongue.
The lung	The lung governs the Qi, performs respiration, houses corporeal soul, has a diffusing and disseminating function, has a cleansing and down-bringing function, regulates the water course, faces all blood vessels, is related with grief, is related with snivel, is functionally connected with skin, is manifested in the body hair, and opens into the nose.	The lung governs the Qi, performs respiration, houses corporeal soul, has a diffusing and disseminating function, has a cleansing and down-bringing function, regulates the water course, faces all blood vessels, is related with grief, is related with snivel, is functionally connected with skin, is manifested in the body hair, and opens into the nose.
The pancreas	Not included	The pancreas oversees transportation and transformation, provides the material basis of the acquired constitution, sends clarity upward, is related with pensiveness and the slobber, is functionally connected with the muscle, and opens into the mouth.
The spleen	Used to be misunderstood as: The spleen oversees transportation and transformation, provides the material basis of the acquired constitution, sends clarity upward, related with pensiveness, the slobber, functionally connected with the muscle, and opens into the mouth.	After corrected: The spleen oversees nutrients and sanitation, has a cleansing function, keeps the blood within the vessels, is related with surprise, is related with pus, is functionally connected with the lymph, and opens into the tonsil.
The liver	The liver ensures the free movement of Qi, keeps Qi free, improves the transportation and transformation function of the pancreas and the stomach, adjusts mentality, stores blood, houses the ethereal soul, is related with anger, is related with tears, is functionally connected with the tendon, is manifested the nails, and opens into the eyes.	The liver ensures the free movement of Qi, keeps Qi free, improves the transportation and transformation function of the pancreas and the stomach, adjusts mentality, stores blood, houses the ethereal soul, is related with anger, is related with tears, is functionally connected with the tendon, is manifested the nails, and opens into the eyes.
The kidney	The kidney stores essence, governs water, controls the reception of Qi, is related with fear, is related with urine, is functionally connected with the bones, supplies the bones with marrow, is manifested in the hair of the head, and opens into the ears, the uro-genital orifice and the anus.	The kidney stores essence, governs water, controls the reception of Qi, is related with fear, is related with urine, is functionally connected with the bones, supplies the bones with marrow, is manifested in the hair of the head, and opens into the ears, the uro-genital orifice and the anus.

Table 1: Visceral Manifestation Corresponding to the Five-Zang Theory and the Six-Zang Theory.

With regards to the Four-examination and Eight-principle Syndrome Differentiationas well as to drug’s meridian entry, some changes should also be made accordingly. We are not going to further discuss this issue here.

Corresponding relations between six elements and Zang-Fu organs

As seen in the (Figure 2.1), in the Five-elements theory, the corresponding relation between the five elements and Zang-Fu organs should be: the wood element corresponds with liver and gallbladder; the fire element corresponds with heart and small intestine; the fire element also corresponds with the pericardium and the triple-energizer (according to Plain Questions-Tian Yuan Ji Big Theory, the fire element has two kinds of forms, king fire

(dominating fire) and ministerial fire (supporting fire). The king fire element corresponds with heart and small intestine; the ministerial fire element corresponds with the pericardium and the triple-energizer; the earth element corresponds with the spleen and stomach; the mental element corresponds with the lung and the large intestine; the water element corresponds with the kidney and the bladder. There exists kind of generation and restriction relationship. Based on this judgment, the theory framework of Six-Zang organs and Six-Fu organs was proposed. That means: Six-Zang organs include the heart, liver, spleen, lung and kidney and pericardium; Six-Fu organs include the stomach, bile, the triple-energizer (Sanjiao), bladder, colon and small intestine. This kind of classification method could be found in the ancient book of “Shang Han Zhi Ge”, written by Ge Yong in Yu Dynasty of China [9].

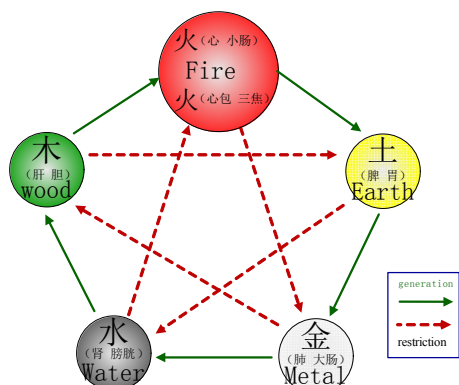


Figure 2.1: Relationship between five elements and Zang-Fu organs. Previous corresponding relation.

From the prospect of modern medicine science, the above corresponding relation is not correct to some extent. For example, in the Yin-Yang and Five-element theory of TCM, the lung is dominating purification and descent, which has some similarities as the metal's clearance and convergence. So, it concludes that the function of lung should correspond with the metal element. Another example, the spleen is the source of growth and development, and the earth is the basis of everything. So, the TCM concludes that the spleen should correspond with the earth element. This kind of categorizing method is quite far-fetched. This article makes some slight adjustments to some pair of relationship from the perspective of anatomical physiology and based on the physiological functions of lung, spleen and pancreas. After the adjustment, the corresponding relation could reflect more scientific nature and the advantage of TCM's holistic view (Figure 2.2).

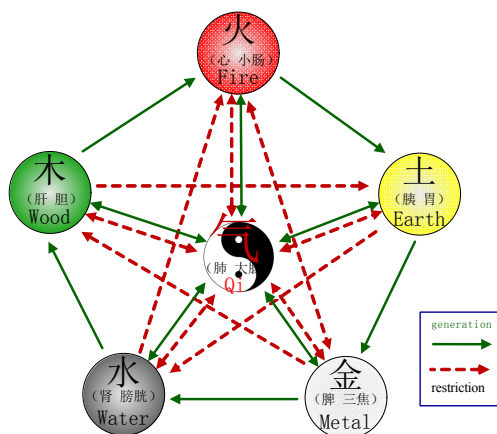


Figure 2.2: Current Corresponding Relationship Between Six Elements and Zang-Fu.

According to the research, after the five elements being upgraded to six elements, the corresponding relation between the wood, fire and water and related Zang-Fu organs will not be

changed. The main changes include:

- The newly adding Qi element corresponds to lung and large intestine.
- The metal element is adjusted and corresponded with spleen and triple-energizer.
- The earth is adjusted and corresponded with pancreas and stomach.
- The changes of concerning Zang-Fu organs are:
- Lung (from metal to Qi), large intestine (from metal to Qi).
- Spleen (corresponding from earth to mental), triple-energizer (corresponding from earth to metal).
- The newly adding pancreas (corresponding with earth).
- pericardium (removed).

The basis of these adjustments can be described as follows:

- Lung is the largest organ of the human body. Its basic function is for gas exchanging, which means to inhale oxygen from the air and discharge waste carbon dioxide back to the air. In TCM, it is said that the lung connects all vessels, which means all blood in human body vessels move through the lung and complete the process of inhaling clear and discharging dirty cycle. So, this paper maintains that the lung should correspond with the Qi element. TCM holds that the lung keeps spirit, and the lung and large intestine are interior-exteriorly related⁶. The anus is also called the spirit outdoor in TCM. In addition to the function of getting out stool, the anus also has the function of exhaust gas. So, this paper holds that the large intestine should correspond with Qi element.

Note: ⁶Parts of the body, the exterior referring to the skin and body hair, subcutaneous tissues, muscles and superficial meridians, and the interior referring to internal organs and bone marrow. An exogenous affliction only involving the exterior is usually milder than that penetrating the interior.

- The spleen is the largest lymphoid organ of the body and belongs to immune organs. The modern medicine demonstrates that the spleen function is to preserve all kinds of lymphocytes, and a main place for filtering blood. So, the spleen does not have direct relation with a digest system. TCM indicated that the spleen dominates blood, invigorates Qi and nourishes blood, transport eczema and regulate water. This is like the function of the lymphatic system in modern medicine. The triple-energizer's main function is to keep Qi. It oversees Qi movement and transportation, provides channel for liquid movement and has the function of clearing channel and moving liquid. It is the main channel for liquid to ascend,

descend, exit and enter. The spleen and triple-energizer have a kind of mutual Yin-Yang relation and establish a kind of defensive system together. So, it is more reasonable that the spleen and triple-energizer should correspond with the metal element which will be discussed later.

- In Yin-Yang and Five-elements theory, the spleen oversees transportation and transformation and has a function of providing the material basis of the acquired constitution, sending clarity upward, relating to people's thoughts and functionally connecting with the human body muscle. However, all the functions above belong to the pancreas in the anatomical physiology. The pancreas is the second largest glands of human body and can secrete insulin and pancreatic juice, which is an important digestive organ. The stomach, one of the Six-Fu organs, has the main function of receiving and keeping (receive and digest food) and has the mutual promotion relation with pancreas. So, it is more reasonable that the pancreas and stomach should correspond with the earth element.
- In Five-element theory, the pericardium together with the heart, liver, spleen, lung and kidney are called Six-Zang organs. The pericardium and the triple-energizer have a kind of interior and exterior relationship. It also maintains the pericardium to defend harm and protect the heart. In modern anatomy physiology, it is demonstrated that the pericardium cannot be classified to the same category with other five organs. So, the pericardium is removed from the newly established system about the relation between the Five-elements and concerning Zang-Fu organs.

After the corresponding relation among different Zang and Fu organs was adjusted, all Six-Zang organs and Six-Fu organs can be part of the newly established Six-element system and form new corresponding relations between six Zang-Fu organs and six elements. In fact, the new theoretical framework correctly illustrates function of the lung and the large intestine and reflects the important role of the spleen and triple-energizer. It makes the mutual promotion and restriction relationship among different Zang and Fu organs more convincing and complete. It also could reflect more complex changes between the physiology and pathology of human body.

Relationship of subjugation and reverse restriction in the six-elements theory

After five-elements upgraded into six-elements, the generation and restriction relationship are shown in Fig. 1. The relationship between the generation and restriction is inseparable. If there is no generation, things will not begin and grow. If there is no restriction, things will be out of control and hardly maintain the normal coordinating relationship. If the generation or restriction

extends its influence, respectively too heavy or not enough, the normal generation and restriction relationship will be damaged and then the subjugation and reverse restriction appears.

The subjugation and reverse restriction relationship⁷ among the five elements is shown in the (Figure 3.1). The subjugation and reverse restriction relationship among the six elements (after adding Qi element) is shown in the (Figure 3.2).

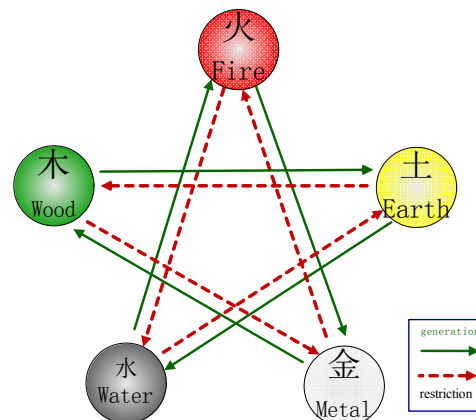


Figure 3.1: Subjugation and Reverse Restriction Relationship Among the Five-Elements.

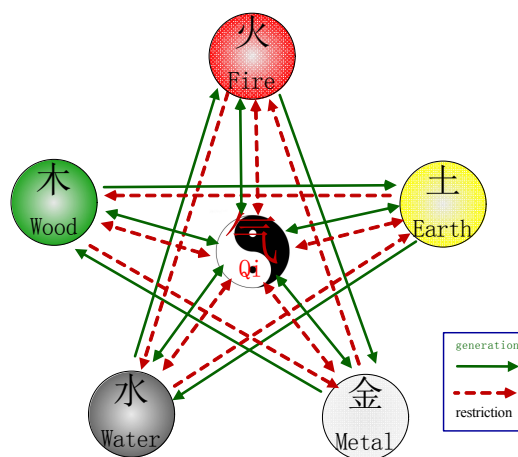


Figure 3.2: Upgraded to that Among the Six-Elements.

Evolutions of meridian (main and collateral channels) system and the twelve meridians streamer in six-elements theory

After five elements upgraded into six elements, the paper proposes that there will be the following evolutions regarding to meridian system:

- Spleen in the five elements should be changed into pancreas in the six elements.
- Pericardium in the five elements should be changed into spleen in the six elements.

- Triple-energizer in the six elements means: the upper energizer should be the lymphatic system above the diaphragm; the middle energizer should be the lymphatic system below the diaphragm and above the pelvis; the lower energizer should be the lymphatic system below the pelvis. Therefore, meridian system should also be adjusted as follows: the pericardium meridian of hand Jueyin of the 12 meridians should be changed into the spleen meridian of hand Jueyin (in blue bold); the spleen meridian of foot Taiyin should be changed into the pancreas meridian of foot Taiyin (in red bold). Evolution of the meridian system in Six-element theory is shown in (Figure 4).

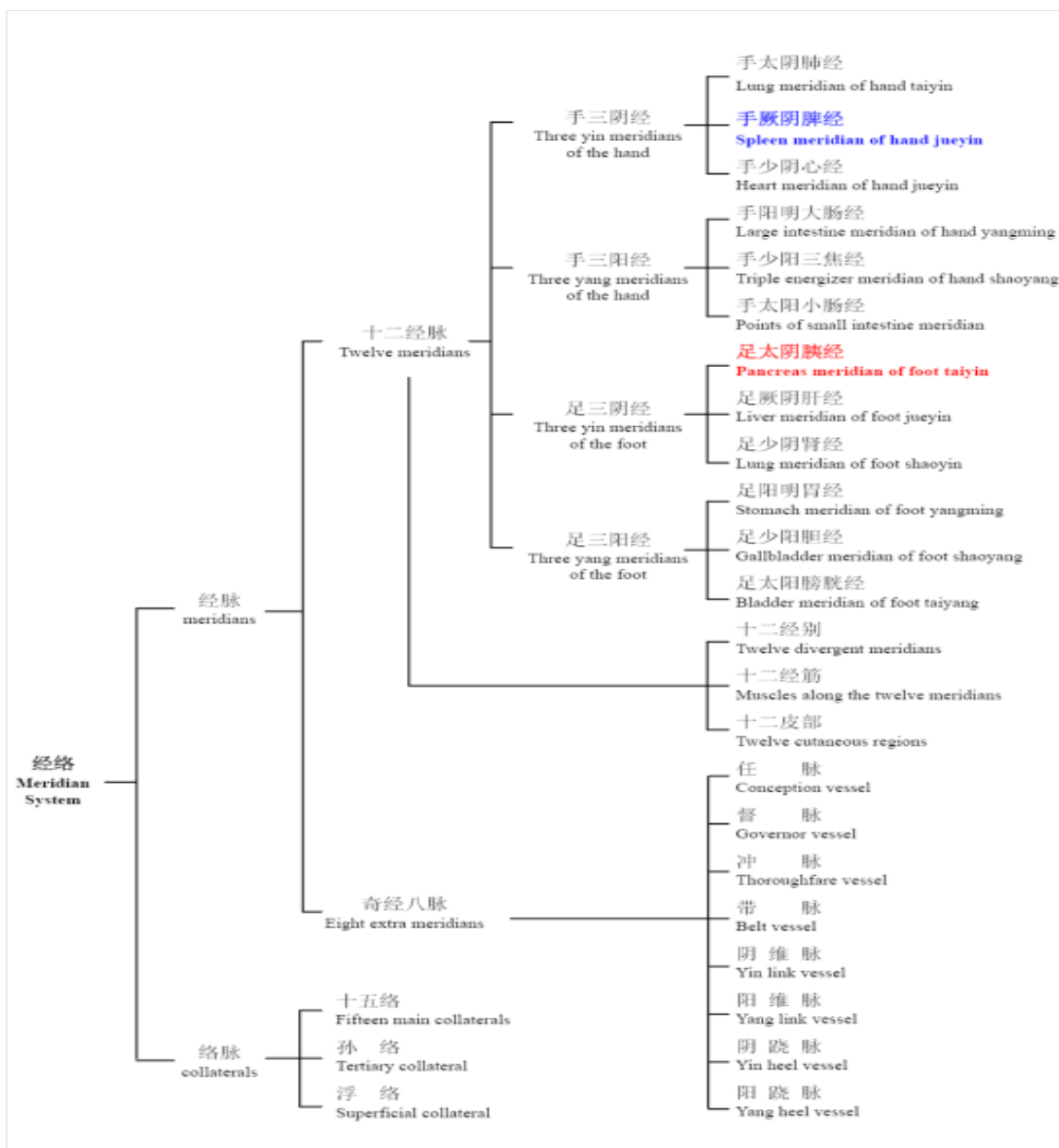


Figure 4: Evolution of Meridian System in Six-Element Theory.

The reasons for the evolution of meridian system is as follows

The spleen is the biggest lymphatic organ in human body. Apart from storing blood, the spleen can produce blood, lymphatic cell, and antibody to participate immune reactions. As previously stated pancreas was not mentioned in the TCM theory, and the role of the pancreas is attributed to the spleen roughly, which is not clear. So, the function of the spleen in Five-element theory should be adjusted to the function of the pancreas in Six-element theory. The spleen meridian of foot Taiyin in the Five-element theory should be changed into the pancreas meridian of foot Taiyin (in red bold) as shown in (Figure 4).

In the description of meridian system in TCM theory, the pericardium is listed same as other Zang and Fu organs, and there is king fire (dominating fire) and ministerial fire (supporting fire), which are obscure. The author does not think so. The pericardium is only an exterior membrane to protect the heart. Why do the exterior membrane of kidney, lung etc are not listed? The pericardium being listed as a Zang-Fu organ will confuse Chinese, let alone foreigners. So, the pericardium meridian of hand Jueyi is changed into the spleen meridian of hand Jueyin, and then the spleen and the triple-energizer are interior-exteriorly related to each other.

According to the above Six-element and Six-Zang-Fu theory, the 12 meridians streamer system should also be changed, which is shown in (Figure 5). The connection between stomach and spleen was changed into between stomach and pancreas (in blue bold); the connection between kidney and pericardium changed into kidney and spleen (in red bold).

Note: ⁷Abnormally severe restriction of the five elements in the same sequence as ordinary restriction, restriction opposite to that of the ordinary restricting sequence of the five elements.

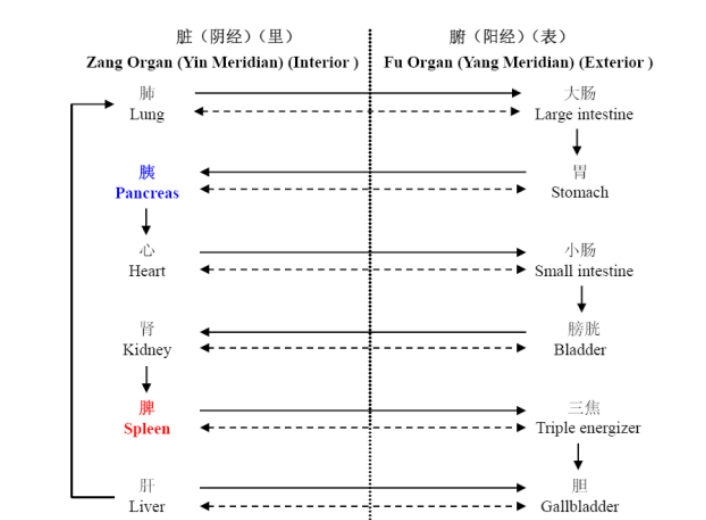


Figure 5: Evolution of the Twelve Meridians in the Theory of Six-Element Theory.

The distribution and movement mode of five Qi

In the TCM theory, there are five kinds of Qi elements to support the human being life. They are Yuan Qi (original Qi), Zong Qi (pectoral Qi), Ying Qi (nutritive Qi), Wei Qi (defensive Qi) and Zhong Qi (middle Qi). Among them, Yuan Qi is the most important element, which is produced by the kidney and plays an impulsion role of human body and life activities [10]. Zong Qi is the element stored in the chest, which is produced by the lung in the process of breath. Ying Qi is the element stored in the blood and moves along with the blood in the human body. Wei Qi is the element surrounding and protecting the blood channel. Zhong Qi is the element produced from the upper abdomen spleen and stomach [11]. However, the distribution and movement model of the above five Qi elements has never been revealed. After many years' research and clinical practice, the author found that the five Qi elements also have their distribution and movement pattern after the Qi is added (Figure 6).

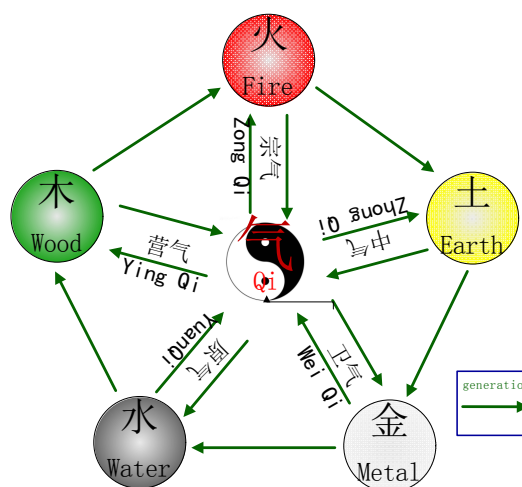


Figure 6: Distribution and movement of five Qi.

Triple-energizer and Lymph Theory

In the TCM theory, triple-energizer was composed of upper energizer, middle energizer and lower energizer and is one of the Six-Fu organs. Triple-energizer and pericardium are interior-exteriorly related through meridians and collaterals [12]. It governs Qi and control its movement and transformation. Triple-energizer is like the lymph node, the spleen, and thymus which produce lymphatic cell and antibody. Triple-energizer is the pathway of body fluid, with the functions of dredging the water course and transporting the body fluid, which is like the lymphatic vessels helping body fluid flow back in the modern Western Medicine.

In TCM, the upper energizer refers usually to the part above the diaphragm, including the heart, lungs and head as well [13]. Its physiological function is the ascending and distributing of Qi, which

is not ascending without the descending, but it will descend after reaching the limit. The author describes that the upper energizer resembles the sprayer in Huang Di Nei Jing. The middle energizer refers to the abdominal part between the diaphragm and umbilicus and includes such Zang-Fu organs as the spleen, stomach. Its main physiological functions are the transportation and transformation of the spleen and stomach [14]. So, it discharges the wastes and steams body fluid, and is the pivot of ascending and descending of Qi movement, and the origin of production and transformation of Qi and blood. In Huang Di Nei Jing, the middle energizer is linked to a fermentation tub. The lower energizer refers to the portion located below the stomach. Its physiological function is to discharge food residues and urine. In Huang Di Nei Jing, the lower energizer works like a gutter [15].

This classification is very rough, and the explanation on physiological functions of triple-energizer is too general and mysterious, which is difficult for people to understand. As previously stated, the author's view is that the upper energizer should be the lymphatic system above the diaphragm; the middle energizer should be the lymphatic system below the diaphragm and above the pelvis; and the lower energizer should be the lymphatic system below the pelvic cavity [16].

The spleen is a kind of lymphoid organ, which can generate T and B lymphocytes, involved in the cellular immunity and humoral immunity. The relationship of the spleen and the triple-energizer can be regarded as Yin-Yang and Zang-Fu. They form the body's defense system. So, the defense (Wei) of the Ying-wei-qi-xue theory is truly reflected [17].

The above triple-energizer hypothesis will be helpful for both TCM and western medicine to truly combine and promote each other, and the concept of the heart, liver, spleen, pancreas, lung, kidney, large intestine, small intestine, stomach, bladder, brain, genital organs, and lymphatic system in the anatomy could correspond with Zang-Fu organs in the TCM. Western medicine studies disease from the shape, structure and function, while TCM from the function, integration and syndrome differentiation. The combination of TCM and western medicine could serve human beings better [18].

Positioning Acupoints, Meridian (Main and Collateral Channels) in Digital Method and Digital Science of Acupuncture and Moxibustion

It has been one of the most controversial issues in the medical field of the world about TCM theory that whether there exist channel and collateral together with acupoints in the human body [19]. It is also a substantive issue which has puzzled the TCM theory for a long time. Up to now, there is no theory about

collateral channels, which can convince the world. After 20 years' research, by reference to the research results and methods of other researchers and based on digital concept, the author thinks that two different gender germ cells form a fertilized egg through male and female pronucleus, which has 23 chromosome pairs. Fertilized egg inherits chromosomes from both father (Yang) and mother (Yin), which has strong vitality. Fertilization process is a dynamic process as a new life come into being. The new life then starts to move in accordance with the law of universe celestial body, follows the principle of digital rules, and adheres to the Yin-Yang balance theory. The development of embryo, the whole growth process of the human is subject to the above principles. The western medicine can keep up with the progress of times, the development of science and technology. If digital technology is adopted widely, the TCM could also develop very well.

Positioning Acupoints in Digital Method

The core of the digital technology is to digitalize the continuous information, or to make the information discontinuous [20]. Its characteristics are as follows:

- usually using the binary system. Any element that has two stable states could be presented by the binary system.
- with high anti-interference and precision ability.
- easily being stored in long-term. A lot of valuable information resources could be preserved for a long time.
- High universality.

This paper proposed that the acupoints of human body could be positioned by digital technology. The main reasons are as follows:

- The acupoints have the duality of Yin and Yang.
- Every acupoint belongs to the relevant Zang-Fu organ. When the acupoints are stimulated, their anti-interference ability could be strengthened with high adjustment accuracy.
- The acupoints can store the stimulating signal in a long term.
- Some acupoints have good generality. When one acupoint is acupunctured, many diseases related to different human Zang-Fu organs could be cured.

Positioning Meridian System in Digital Method

Since the acupoints of human body could be positioned by digital technology, how about the meridians system? The common characteristics between the digital technology and human acupoints inspired the author to think deeply about the possible existence of human acupoints and meridians, the similarity between the running rule of celestial bodies and human body meridian.

The running tracks of most celestial bodies in universe are ellipse, which has two foci. Some celestial bodies run in parabola or hyperbola orbits [21]. The organism is a product of nature. No matter the seeds of a plant or the germ cells of an animal, they are all irregular ellipse shapes, just like the shape of the earth [22]. The human body is the most complicated and complete organism in the nature, and the product of nature. The human body main and collateral channels concentrate all the motion laws of the universe. Therefore, main and collateral channels exist and disappear with the existence and disappearance of the biological life [23].

In author's opinion, the running tracks of both Ren channel and Du channel are ellipse, which also has two foci, respectively. One is the heart, the other is genital area (ovary of the female, spermary of the male). The running track is also closed like a full endless circle. Other 12 channels' running tracks are ellipse shapes as well. Their foci are heart and relevant Zang-Fu organs. Similarly, the running track of the Dai channel is also ellipse. The Chong-pulse, Yin-Qiao pulse, Yang-Qiao pulse, Yin-Wei pulse and Yang-Wei pulse all are running in parabola orbits. Therefore, the meridians system of human body could also be digitalized.

Digital Science of Acupuncture and Moxibustion

The similarity between the orbit of celestial body and running track of human body channels inspired the author to think about the definition of human acupoints and channel. The start and process of a disease in fact are reflection of the human body's meridians running on the wrong way. The acupoints are pivots for information exchanging (like modern information exchanging station). The ellipse has two foci. They are $F(C, 0)$ and $F(-C, 0)$. Their functional characteristic could be explained in optics theory. When the light wave from one focal point is projected to any point on the ellipse, it will pass the other focal point after reflection. Therefore, the optical characteristic of the golden ellipse gives us a lot of inspiration. For instance, when the acupoints on the Biao channel are acupunctured, the disease on the Li channel could be cured, and vice versa.

According to the above principles, the definition of acupoints and meridian could be concluded as follows: The acupoints should be a group of cells in body relating to Zang-Fu organs, which can produce, receive and disseminate information among meridian and Zang-Fu organs. The basic human tissues are divided into four big categories, which are epithelial tissue, connective tissue, muscle tissue and nerve tissue. This group of cells also belongs to the above four categories of tissues. They may be one or several categories of tissues, which are special sites of entry and exit for Qi and blood of Zang-Fu, main and collateral channels. Its main function is to walk along the direction of main and collateral channels, receive, deliver and produce information, regulate Yin-Yang, Qi and blood etc. In the treatment, whether acupuncture or moxibustion, they all start from the skin surface and gradually break into the deep of the skin

via different organizations. Because of the difference of tissues, nerve endings and receptors, through the neural pathways to the brain cortical sensory center, different needling sensations will be produced, it is called Deqi in TCM. According to the disease condition, doctors use different acupuncture manipulations, leading to the patients' different needling sensations, regulate Yin-Yang, deficiency and excess, heat and cold, and reinforce, reduce, and finally achieve the purpose of treatment.

Here, I would like to remind physicians that if the patient got a strong needling sensation like an electric shock, which means the thick neural stem has been needled. Usually, some physicians think this is their best practices effect. In author's opinion, it should not be used frequently to increase stimulating patients by repeatedly pulling, piercing, inserting, because the nerve is composed of nerve fibers which can be observed only under a microscope and could be damaged by the needle. The more times acupunctures are used in that way mentioned above, the more damages occurred. The small injury could cause the nerve fiber regeneration or repair difficulty. The heavy injury will cause trans-neuronal degeneration, neuronal apoptosis, because the neurons can't divide and reproduce.

The meridian System is a kind of information running and exchanging track according to the certain rule, which belong to some Zang-Fu acupoints. It is a kind of matter field which exists with living life and disappears along with the loss of the life. It is also a kind of channel to motivate the Qi and blood, to connect Zang-Fu organs, orifices of the body, to link up the interior and exterior of the body and respond and transmit information. Just like any path, the meridian has many similarities with road, river, airway, electromagnetic field, satellite orbit and circuit. Acupuncture is a kind of medical method to adjust the meridian following specific principles to make the body fit and cure the disease. Otherwise, if the method is not correct, it will do harm to the human body.

We can conclude that all meridians and acupoints follow the general changing principles of Yin-Yang, move under the digital rules, and meet the law of gravity and the law of conservation of mass. Galileo Galilei, the ancient Italian scientist in 16-17th century said that the mathematics is the language of the God.

Clinical Effects

In the last three years, under the direction of Six-element theory and its relevant ideas, the digital TCM have already shown good preliminary results. It could achieve quantitative, qualitative, repeatable standards and keep the characteristics of personalized treatment. Here are some clinical cases and their treatment effect of the data:

- The cure rate of some complicated and difficult disease, such as Neurodermatitis, Eczema, Thrombophilia and Nerve-Vascular Headache, has reached 85%. The cure rate of some common joints and soft tissue pain disease, such as

Intervertebral disc herniation and Periarthritis of shoulder has also been dramatically promoted. The cure the treatment cycle has been shortened, and most of patients are satisfied with the cure effect.

- In six cases with cerebral palsy, the acupuncture frequency is one or two times one week. Extrapyramidal system symptoms of four cases have been obviously improved, and the symptoms of the other two were relieved after three months.
- According to the statistical data of acupuncture clinical treatment for 342 cases, 85 cases were cured after one to two treatments, 171 cases were cured after 10 treatments, 73 cases were significantly improved after 20 to 30 treatments. Only 13 cases were ineffective.

Additionally, under the direction of the new ideas discussed in this paper, the author cured three thrombophilia patients, who are from one family. Two of them are sisters, and another one is the son of the elder sister. Their ages are 62, 60 and 30 years old, respectively. The disease of these three patients has strong family tendency.

Both the female patient aged at 62 and male patient aged at 30 got ill in the right leg for 21 years and 11 years, respectively. Before the treatment, the affected legs of the two patients had obvious swollen characteristic with a dark blue color on the surface skin. On the medial malleolus, there is an ulcer with the size of 3 x 4 cm respectively. There are multiple small cankers in the leg of the male patient. The temperature of the affected leg is higher than the normal leg. The patient is obviously limping. The other female patient aged at 60 felt that the affected leg was very heavy. The three patients had received hospital curing for a long time, long-term use of anticoagulant and depending on stretch hose to ease the pain. Their normal life quality was severely affected by the disease. The female patient aged at 62 was also suggested by the hospital to make amputation operation.

On March 28, 2013, the patients started to receive the author's acupuncture treatment under the direction of the Yin-Yang and Six-element theory. During the process, the author emphasized on adjustment of the patients' Qi element, the pancreas meridian and triple-energizer meridian, positioning acupoint with digital meridian system theory. To avoid the iatrogenic infection, author also used the acupuncture needle supporting equipment invented by himself. This method dramatically increased the defensive function of the pancreas organ. After six treatments (10 times/process, one time for two days, 10 days apart between two process), the female patient aged at 62 and the male patient aged 30 at were getting better with the ulcer beginning to heal. The size of deep color on the surface of the affected leg had also been back to normal. After one and half year's treatment, three patients can walk like a healthy person. More importantly, the female patient aged at 62 avoided the suffering of the amputation. Following state

of the patients, disease relapse has not occurred.

Conclusion

After introducing the Qi element, the Five-element (wood, fire, earth, metal, water) theory in the TCM will be generalized to Six-elements (wood, fire, earth, metal, water, Qi) theory. Therefore, the relevant Five-Zang theory will be generalized to Six-Zang theory by adding the pancreas. Another important change is that concept of triple-energizer will be changed as follows: the upper energizer should be the lymphatic system above the diaphragm; the middle energizer should be the lymphatic system below the diaphragm and above the pelvis; and the lower energizer should be the lymphatic system below the pelvis. The new concept of triple-energizer makes triple-energizer in TCM correspond to the lymphatic system in a Western medicine anatomy theory. Thus, TCM theory could be well explained using a Western medicine theory for reference. Following the digital law, we can easily understand the TCM theory with regards to human body, objective nature and existence of meridian, acupoint as well as their moving patterns and rules. The common characteristics between digital technology and acupoint, and the similarity between the running rules of celestial bodies and human body meridians could also be demonstrated by using the digital technology. The correctness and effectiveness of the new ideas have been verified by the clinical practice.

The new ideas presented in this paper not only improved and developed the TCM theory, explored a new theory and method for disease prevention and treatment, but also integrated the TCM with Western medicine to provide better medical services to human being.

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