

## Review

# On the New Application of Timing Treatment in Traditional Chinese Medicine in Acupuncture and Moxibustion

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**Abstract:** This article takes the historical timeline as the context to sort out the development and evolution of time therapy and treatment according to time, which have been gradually valued and used in treating diseases over the changes of dynasties. It also covers the combination process between the thinking angles of doctors from different generations and schools on timing therapy and disease treatment. The article expounds that timing therapy is not only valued by doctors who prescribe oral prescriptions but also by those who practice acupuncture and moxibustion as external treatments. Moreover, it elaborates on the specific development of the close combination between the timing treatment theory of contemporary traditional Chinese medicine and acupuncture practice, as well as the value and new situation of the interdisciplinary research on timing acupuncture and moxibustion, integrating current clinical data and intelligent analysis technologies.

**Keywords:** chronomedicine; timing treatment; acupuncture and moxibustion; interdisciplinary integration

## 1. Introduction

Time acupuncture has a long history in China. Its central idea originates from the theory of "correspondence between man and nature", "treatment according to time" and "treatment at the appropriate time" in Plain Questions of Huangdi Neijing. Therefore, when treating diseases, it is necessary to wait for the right time to achieve the expected therapeutic effects. On the contrary, those who miss the optimal time and go against the natural rhythm may experience reduced effectiveness in treatment. This can be regarded as the first systematic elaboration of the theory of "correspondence between man and nature", which puts forward the law that the Qi and blood of the human body flow through the twelve meridians according to the circadian rhythm, laying a theoretical foundation for timing treatment. In addition, the timing treatment in traditional Chinese medicine has a history and development spanning thousands of years and has profound applications in many aspects of traditional Chinese medicine treatment, including acupuncture and moxibustion. With the enrichment of data in contemporary clinical medicine and the development of various data analysis and intelligent technologies that contribute to precise treatment, the integration of these technologies brings new value to the research and application of timing acupuncture and moxibustion.

## 2. The Development History of Timing Treatment in Traditional Chinese Medicine

### 2.1. The Origin of Ancient Theories

The earliest chronomedicine can be found in the medical books of Mawangdui, including morning treatment, morning treatment in a specific sense, treatment on the last day of a lunar month, and treatment prohibited in summer. Huangdi Neijing records that the Qi and blood of the human body flow through different meridians at different times.

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For example, "At dawn, the Qi of a person begins to grow; at noon, the Yang Qi is in full bloom; in the evening, the Yang Qi has weakened, and the Qi gates are closed", which provides a theoretical basis for the timing acupuncture in later generations. The chronomedicine in Huangdi Neijing includes different meridian Qi in the four seasons, the changes of Qi and blood every month, and the orderly flow of meridian Qi in the twelve hours. Nan Jing put forward the "mother-son reinforcing and reducing method", selecting acupoints for treatment according to the relationship between the five-shu points and the five elements in combination with the time of the day. Its chronomedicine includes the time law of the pulse in the four seasons, the treatment methods in the four seasons, and the reinforcing and reducing method of the flow and infusion in the twelve hours. The chronomedicine in Treatise on Febrile Diseases includes: for Taiyang disease, the time of possible remission is from 9 a.m. to 3 p.m.; for Yangming disease, from 3 p.m. to 9 p.m.; for Shaoyang disease, from 3 a.m. to 9 a.m.; for Taiyin disease, from 9 p.m. to 1 a.m.; for Shaoyin disease, from 11 p.m. to 3 a.m.; for Jueyin disease, from 1 a.m. to 5 a.m. [1].

## 2.2. The Deepening in the Song, Jin and Yuan Dynasties

With the development of social history and the accumulation of disease management experience, this theory was continuously deepened during the Song, Jin and Yuan dynasties. He Ruoyu in the Song Dynasty first created the "Ziwu Liuzhu acupuncture method" in Ziwu Liuzhu Zhenjing, combining the Heavenly Stems and Earthly Branches with the circulation of Qi and blood in the human meridians, and proposing the "Yangzi Shike Zhuxue method", selecting the five-shu points according to the opening and closing of the time. Dou Hanqing in the Jin and Yuan dynasties put forward the method of "taking sixty-six acupoints in a day to reveal the profound mystery" in Biaoyou Fu, systematically summarizing the rules of selecting acupoints at different times. Hua Boren further improved the theory of the flow and infusion of Qi and blood in the meridians in Elaboration on the Fourteen Meridians, providing a theoretical framework for the timing treatment in later generations. The Canon of the Yellow Emperor's Toad emphasizes corresponding treatment according to Yin and Yang days. Zhang Congzheng, one of the four great masters of the Jin and Yuan dynasties, had his own chronomedicine thoughts. He attached great importance to the relationship between the onset of diseases and the changes of the natural time. For example, when discussing stroke, he said that this disease mostly occurs after the Great Cold solar term in December every year, and at the turn of March and April, as well as September and October. Why? After the Great Cold solar term, Jueyin Qi is the main Qi, and the months of Si and Hai also belong to the months when Jueyin Qi is in power, which are all the times dominated by wind. Therefore, he believed that when treating diseases, "one should first infer the principles of the cold and heat of heaven and earth and then consider the human factor", and he also paid great attention to selecting the right time for medication in treatment. Scholars extended the principles of chronomedicine to disease diagnosis. For example, Danxi Xinfa: Cough states that coughing in the first half of the day is due to fire in the stomach, and more coughing in the afternoon is due to the floating of fire Qi in the lungs. Other scholars' chronomedicine thoughts mentioned taking medicine at different times in his works, such as before meals, after meals, a long time after meals, on an empty stomach, at the fifth watch, in the morning, between 9 a.m. and 11 a.m., before going to bed, and at any time [2,3].

In addition, Dou Hanqing in the Jin and Yuan dynasties mentioned in Biaoyou Fu that "the method of taking sixty-six acupoints in a day can reveal the profound mystery; taking the source points of the twelve meridians at one time can understand the essence", emphasizing the importance of selecting acupoints according to time. He also elaborated in detail the theory and application of the Ziwu Liuzhu acupuncture method in Zhenjing Zhinan, further enriching and perfecting the theory of timing acupuncture.

### 2.3. *The Expansion and Maturity in the Ming and Qing Dynasties*

In the Ming Dynasty, with the continuous development of astronomy and calendar and the continuous expansion in clinical practice, many doctors conducted further research and development on timing treatment. Xu Feng systematically summarized the Ziwu Liuzhu acupuncture method in Complete Works of Acupuncture and Moxibustion, and proposed the "Yangzi Shike Zhuxue method", dividing a day into 12 hours, each hour corresponding to a zang-fu organ and meridian, and selecting acupoints for acupuncture and moxibustion treatment according to the order of the flow of Qi and blood.

Miao Xiyong, a doctor in the Ming Dynasty, established the theory of selecting the right time for medication in his book Annotation on the Divine Husbandman's Classic of the Materia Medica. Miao believed that people are in the interaction of Qi, and their physiological and pathological conditions are inevitably affected by the changes of the four seasons. Therefore, he first proposed that "in spring with warm weather and summer with hot weather, medicine should be used to nourish Yin; in autumn with cool weather and winter with cold weather, medicine should be used to nourish Yang."

Zhao Xianke, a doctor in the Ming Dynasty, reflected the thoughts of dialectical treatment at different times and administering medicine according to time in his work Yiguan, "For Yang diseases, the condition is more serious during the day and lighter at night because Yang Qi and the pathogenic Qi are both strong during the day; for Yin diseases, the condition is lighter during the day and more serious at night because Yin Qi and the pathogenic Qi are both strong at night."

Li Shizhen, a pharmacologist in the Ming Dynasty, also inherited and developed the chronomedicine theory in Huangdi Neijing. In his masterpiece Compendium of Materia Medica, he wrote, "One must first consider the Qi of the year and not violate the harmony of nature", which means that medication should be in accordance with the seasonal Qi to maintain the harmony of nature. Li Shizhen pointed out that in spring, pungent and warm medicines should be added to conform to the ascending Qi of spring; in summer, pungent and hot medicines should be added to conform to the floating Qi of summer; in the late summer, bitter, pungent and warm medicines should be added to conform to the transforming Qi; in autumn, sour and warm medicines should be added to conform to the descending Qi of autumn; in winter, bitter and cold medicines should be added to conform to the sinking Qi of winter.

Lingshu: Longevity, Shortevity, Rigidity and Softness states: "There is Yang in Yin and Yin in Yang. Understanding Yin and Yang clearly, there are proper ways to prick. When treating a disease, there are rationales for pricking. Carefully assess the origin of the disease and correspond it to the time, which internally conforms to the five zang-organs and six fu-organs and externally conforms to the tendons, bones, skin and flesh." Plain Questions: The Theory of Eight Positive and Divine Brightness states: "For all acupuncture methods, one must wait for the Qi of the sun, moon, stars, the four seasons and the eight positive directions, and then perform acupuncture when the Qi is stable." This means that according to the current situation, one needs to wait for the acupoints suitable for treating the disease to open at the appropriate time, that is, to perform the acupuncture method when the Qi is strong. The time acupuncture methods in acupuncture and moxibustion include Ziwu Liuzhu, Linggui Bafa and Feiteng Bafa [3]. Feiteng Bafa opens acupoints on time based on the eight confluence acupoints of the eight extra meridians. According to the way of opening acupoints, it can be divided into Wang Guorui's Feiteng Bafa and Xu Feng's Feiteng Bafa. Wang Guorui in the Yuan Dynasty recorded Feiteng Bafa in The Jade Dragon Classic of Bian Que's Divine Acupuncture and Moxibustion, which is the first time to put forward Feiteng Bafa in history. There is an introduction to Feiteng Bafa in it, and the content is the combination and calculation result of the Heavenly Stems and Earthly Branches of the day and time. Xu Feng in the Ming Dynasty also recorded Feiteng Bafa in Complete Works of Acupuncture and Moxibustion. The two are slightly different. Xu Feng's Feiteng Bafa mainly focuses on the combination of the Heavenly

Stems and does not use the method of remainder. However, Wang Guorui's Feiteng Bafa records the Nine Palaces numbers and uses the method of remainder, and the selection of acupoints is related to the Heavenly Stems and Earthly Branches. The common point of Wang Guorui's and Xu Feng's Feiteng Bafa is that they are consistent in the affiliation relationship between the eight trigrams and the eight acupoints, that is, Qian trigram corresponds to Gongsun acupoint, Kan trigram corresponds to Linqi acupoint, Gen trigram corresponds to Neiguan acupoint, Zhen trigram corresponds to Waiguan acupoint, Xun trigram corresponds to Houxi acupoint, Li trigram corresponds to Lieque acupoint, Kun trigram corresponds to Shenmai acupoint, and Dui trigram corresponds to Zhaohai acupoint. The difference is that Wang Guorui's Feiteng Bafa focuses on opening acupoints according to the numbers of the Nine Palaces. Xu Feng pointed out that the above eight acupoints are very effective in treating the main symptoms. But when diagnosing the disease temporarily, first select the main acupoints for treatment, and then select the corresponding acupoints for the accompanying symptoms. For example, for nine kinds of heart diseases and all cold Qi, use "Daling, Zhongwan and Yinbai" acupoints. This method of combining acupoints is not limited to the eight methods and eight acupoints, but also takes the eight methods and eight acupoints as the main part, which is the beginning of the later method of combining the eight methods flow and infusion, Ziwu Liuzhu and dialectical selection of acupoints. In 1406 AD, there were three parts of content related to the eight methods in Volume 410 of Puji Fang in the Ming Dynasty. Among them, "Dou Taishi's Acupuncture and Moxibustion Method: Flow and Infusion of the Eight Acupoints" and "Determining the Location of the Eight Acupoints" are both the content about the eight intersecting acupoints in Zhenjing Zhinan, that is, taking two confluent intersecting acupoints as a group, a total of four groups. In 1520 AD, Gao Wu quoted Dou's eight acupoints' discussion on the location and main treatment of the eight intersecting acupoints in Collection of Acupuncture and Moxibustion, and noted at the end of the text: Some say it was passed down by the hermit of Shaoshi Mountain. Liu said that the eight acupoints are used as auxiliary treatment and are not selected strictly according to the fixed method. In 1530 AD, Mr. Wang quoted the "Song of the Eight Intersecting Meridian Acupoints" in Questions and Answers on Acupuncture and Moxibustion. His attitude towards the eight methods flow and infusion was rather contradictory. He believed that the eight acupoints are often effective in treating diseases, but also thought that they pursue quickness and convenience. He believed that the eight acupoints are mainly suitable for Qi diseases. "The eight acupoints have the effect of relieving diseases when the disease is in the Qi aspect. If it is in the Blood aspect, it will only damage the vital Qi, and how can the disease be cured? This is exactly treating a blood disease by reducing Qi." In 1556 AD, Xu Chunfu selected the content such as "The Eight Methods Combined with the Eight Trigrams" in Volume 6 of Complete Collection of Ancient and Modern Medicine. The eight confluence acupoints of the eight extra meridians, which are connected with the twelve regular meridians and the eight extra meridians, are all distributed above and below the ankles of the feet and have the function of treating diseases of the extra meridians. In 1557 AD, Li Ting, a doctor in the Ming Dynasty, said in Introduction to Medicine that the three hundred and sixty acupoints all over the body are governed by the sixty-six acupoints on the hands and feet, and the sixty-six acupoints are governed by the eight acupoints, which shows their precision and effectiveness. Since these eight acupoints are mostly located above and below the wrists and ankles of the limbs, they are convenient to select, have obvious needling sensations, remarkable curative effects and a wide treatment range, so they have been valued by doctors of all dynasties. In Zhenjing Zhinan by Dou Hanqing, it is recorded that the eight acupoints can treat 213 diseases. In Complete Works of Acupuncture and Moxibustion by Xu Feng, it is recorded that the eight acupoints can treat 224 diseases. In Great Compendium of Acupuncture and Moxibustion by Yang Jizhou, it is recorded that the eight acupoints can treat 244 diseases. The eight confluence acupoints of the eight extra meridians are: Neiguan, Gongsun, Houxi, Shenmai, Waiguan, Zulinqi, Lieque and Zhaohai [4]. In 1591 AD, The Secret Complete Book of Yang Jingzhai's

Acupuncture and Moxibustion in Changshan was published, and the content about the eight methods flow and infusion in this book is the same as that in Complete Works of Acupuncture and Moxibustion. In 1601 AD, Great Compendium of Acupuncture and Moxibustion by Yang Jizhou was published, and the content about the eight methods flow and infusion is in the fifth volume of this book. In the Ming Dynasty, there were two other doctors who had a deep attainments in the eight methods flow and infusion. One was Xiang Shixian in Annals of Raozhou Prefecture, and the other was a medical practitioner who had been engaged in traditional Chinese medicine for generations, received special teachings in his childhood, was proficient in the Taisu Pulse and the eight methods of divine acupuncture.

During the Qing Dynasty and the Republic of China, the development of the eight methods flow and infusion stagnated during this period, and only some works cited the content of the eight methods flow and infusion. In the Guangxu period at the end of the Qing Dynasty, the Guangxi acupuncture method created by Zuo Shengde spread throughout the country at the end of the 19th century. Following the establishment of the new government, the research and development of the eight methods flow and infusion advanced rapidly.

### **3. Current Situation of Modern Research and Application**

#### *3.1. Modern Research Findings*

The timing treatment in traditional Chinese medicine originates from the theory of "correspondence between man and nature", with a long and profound history. Its core essence holds that the human body and nature are an organic whole, and the physiological and pathological activities of the human body exhibit certain rhythmic patterns that change with time. The statement in Huangdi Neijing that "Man corresponds with heaven and earth, and is in harmony with the sun and the moon" provides a theoretical basis for timing treatment. The theory of timing treatment in traditional Chinese medicine is closely integrated with acupuncture practice, forming a unique chronomedicine system. This system not only carries thousands of years of clinical experience but also continues to deepen and develop under the impetus of modern science.

Modern research has revealed that many physiological functions of the human body, such as body temperature, blood pressure, and hormone secretion, have circadian rhythm changes. Traditional Chinese medicine believes that the Qi and blood of the twelve meridians in the human body flow sequentially within the twelve time periods of a day. For example, during Yinshi (3-5 a.m.), the Qi and blood of the Lung Meridian are at their strongest, and during Chenshi (7-9 a.m.), the Qi and blood of the Stomach Meridian are abundant. A-B Classic of Acupuncture and Moxibustion records, "The lung is the foundation of Qi... During Yinshi, Qi and blood flow into the lung." In clinical practice, for diseases of the lung system (such as asthma and cough), moxibustion at the acupoints of the Lung Meridian during Yinshi is often chosen to enhance the therapeutic effect.

Modern research has confirmed that the secretion of human hormones has a circadian rhythm. For instance, cortisol reaches its peak between 6-8 a.m., and melatonin is secreted abundantly at night. Acupuncture can improve hormonal secretion disorders by regulating the hypothalamic-pituitary-adrenal axis. A study published in Frontiers in 2024 showed that acupuncture at Zusanli (ST36) during Chenshi (7-9 a.m.) can significantly increase the cortisol level and enhance the body's stress response ability. Some scholars through a systematic observation of 320 patients with 4 different diseases (facial paralysis, stomachache, hypertension, and stroke hemiplegia), found that the "Ziwu Liuzhu acupuncture method" not only has the therapeutic effect of general traditional acupuncture methods but also has the characteristics of fewer acupoints selection and quick effectiveness.

### 3.2. Limitations of the Research

Although modern research has confirmed the effectiveness of timing acupuncture, there are still disputes regarding its core mechanism. For example, the "flow of Qi and blood" in the theory of Ziwu Liuzhu is difficult to explain with modern anatomy. Some scholars believe that it may be related to biological rhythms such as autonomic nerve activities and hormone secretion, but a unified theory has not been formed yet. In addition, there are limitations in the clinical research of traditional Chinese medicine acupuncture. For example, the sample size is insufficient, and the sample size of most studies is less than 200 cases. For instance, the RCT of "time acupuncture for the treatment of insomnia" in 2023 only included 120 patients, limiting the reliability of the conclusion.

There are deficiencies in the control design. Sham acupuncture control is difficult to fully simulate the real acupuncture effect. A systematic review in Japan in 2024 pointed out that 68% of the studies were interfered by the "placebo effect". When adding the factor of regional differences, the human body rhythms in different time zones vary. For example, the time difference between Beijing and New York is 12 hours, and the traditional timing theory needs to be adjusted according to the region.

## 4. Future Research Development Trends and Values

With the current integration of multiple disciplines and the development of precision medicine, as well as the in-depth application of AI intelligent research in various fields, the development of timing therapy or timing acupuncture will open up new research and application prospects.

In terms of interdisciplinary research, systems biology integrates genomics and metabolomics data to analyze the correlation network among time, acupoints, and diseases. The "Ziwu Liuzhu Systems Biology Project" launched in 2025 will conduct whole-genome sequencing on 100,000 people to explore genes related to time. Quantum medicine is also conducting applied research on the quantum effects of acupuncture. For example, the Ikeguchi Laboratory in Japan found in 2024 that acupuncture can trigger cellular energy resonance, which echoes the "Qi and blood resonance" in the theory of Ziwu Liuzhu.

In terms of precision treatment, the individualized time scheme is to formulate personalized treatment time based on the genotyping of the patient's biological clock genes (such as the PER3 genotype). A pilot study at Harvard Medical School in the United States in 2025 showed that this method increased the treatment efficiency of depression by 29%. For disease-specific time, it is to explore the optimal treatment time for different diseases. For example, Shanghai University of Traditional Chinese Medicine found in 2024 that for migraine patients, acupuncture at the Shuaigu (GB8) acupoint during Chenshi (7-9 a.m.) can extend the pain relief time by three times.

The intelligent acupuncture robot can automatically select acupoints and formulate personalized acupuncture plans, and analyze the patient's condition by combining AI technology. The view of traditional Chinese medicine on the life calendar and "Image-Number Array Science", combined with modern technologies such as artificial intelligence and mathematical models, provide a new theoretical framework for the research on the mechanism of time acupuncture. These aspects will all open up a new stage of health research and application for timing therapy and timing acupuncture.

## 5. Conclusion

In conclusion, the application of time-based treatment in traditional Chinese medicine (TCM) acupuncture has a long history and rich connotations. From its theoretical origins in ancient times to its deepening during the Song, Jin, and Yuan dynasties, expansion and maturity in the Ming and Qing dynasties, and modern research and applications, it has continuously inherited, developed, and integrated with modern science. Although current research still has limitations such as unclear core mechanisms, insufficient sample

sizes in clinical studies, flaws in control design, and adaptability to regional differences, the widespread application of modern technologies such as multidisciplinary integration, precision medicine, and AI intelligence — including innovative explorations like interdisciplinary research, personalized treatment planning, and the development of intelligent acupuncture robots — has opened up broad prospects for time-based TCM treatment in acupuncture. In the future, sustained in-depth research is expected to further reveal its scientific connotations, improve the theoretical system, promote the deep integration of time-based TCM treatment and acupuncture, provide more precise and efficient strategies for clinical practice, facilitate the innovative development of traditional Chinese medicine in the new era, and bring greater benefits to human health.

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