

ESSAY

# The Yin–Yang Principle in Asian Philosophy and Medicine: An Essay with Experimental Insights from the Apparatus for Meridian Identification (AMI)

**Federico E. Miraglia**

California Institute for Human Science, Encinitas, CA, USA  
fmiraglia@cihs.edu

## ABSTRACT

The relationship between Yin and Yang is the foundation of Asian philosophy and medicine: The nature, change, and interplay of these two cosmic polarities have been investigated in the East since ancient times. Today, modern science can shed light on the mystery of the Yin–Yang principle, revealing the secrets and dynamics of this universal balance. In a previous work, the Apparatus for Meridian Identification (AMI), which is an acupoint electrodermal device, was used to assess the energy state of the Yin and Yang meridians of 100 healthy subjects. The results confirmed traditional Asian knowledge, according to which health is characterized by a higher energy activity of the Yin meridians compared with their Yang partners. This essay synthesizes classical and contemporary literature on the Yin–Yang principle in Asian culture, integrating past theoretical knowledge with modern empirical findings. Drawing from traditional Chinese, Taoist, and Japanese texts, as well as from modern interpretations, this article demonstrates that the AMI measurements from a previous experiment align with longstanding concepts of a relative energy predominance of Yin over Yang. This and other asymmetries seem to be inherent in the structure of the Universe, a premise for the development of life, and a prerequisite for the maintenance of health. In conclusion, the bioelectricity of acupuncture points appears to reflect the intrinsic order of the Universe.

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## KEYWORDS

Yin–Yang, TCM, Taoism, TJM, nature asymmetries, AMI.

## INTRODUCTION

The relationship between Yin and Yang remains one of the most intriguing mysteries of all time: Considered by Asian traditions to be the foundation of all existence, it continues to elude full theoretical understanding and scientific explanation. In a previous work (Miraglia, 2024a, 2024b), 100 healthy subjects were tested with the

Apparatus for Meridian Identification (AMI), an electrodermal device that was invented by Japanese scientist Hiroshi Motoyama and that measures the response of acupuncture points (acupoints). Specifically, this device stimulates the Sei (Jing-Well) points with a low voltage, analyzes their electrical reaction, and correlates it with the health status of the organism. The 28 Sei points are located on the tips of fingers

and toes, correspond to the beginning or end of Traditional Chinese Medicine (TCM) meridians, and are thought to reflect the overall bioenergetic state of the meridians they belong to.

Interestingly, it was found that the AMI could correctly detect the Chi energy relationship of Yin–Yang meridian pairs in healthy subjects, in whom every Yin meridian has higher Chi energy than its Yang partner. Among the parameters returned by the AMI, the acupoint before polarization (BP) current, presumably correlated with Chi energy activity, appears to best reflect this relationship. The tables and histograms of these results are reported in Appendix A: The AMI calculates four parameters of the acupoint response current, related to Chi energy (BP), autonomic nervous system (AP), immune system (IQ), and reaction time (TC) of the organism; the Yin > Yang meridian relationships are stronger for BP, as shown by their *p*-values and effect sizes.

The present essay connects ancient philosophical and medical doctrines with modern empirical data: It builds on previous findings with the AMI and synthesizes key interpretations from classical texts of TCM, Taoism, and Traditional Japanese Medicine (TJM), in order to evaluate whether Yin meridians energetically predominate over Yang meridians, in conditions of health. How the Yin–Yang principle and other asymmetries manifest in the human body, nature, and the Universe will be explored, from the microcosm to the macrocosm, bridging ancient knowledge and modern science.

## YIN-YANG IN TCM

According to *The Yellow Emperor's Classic of Medicine (Neijing)*, the most important treatise on TCM, Yin and Yang are the basis of all existence and should be in balance within the human body; otherwise, disharmony and disease will occur:

The law of yin and yang is the natural order of the universe, the foundation of all things, mother of all changes, the root of life and death. In healing, one must grasp the root of the disharmony, which is always subject to the law of yin and yang. . . . The yin and yang in the body should be in balance with one another. If the yang qi dominates, the yin will be deprived, and vice versa. (Ni, 1995, pp. 17–18)

However, when discussing the nature and manifestation of these two cosmic polarities, it is specified that Yang is the energy, the vital force, and the potential,

while Yin is the substance, the foundation, and the mother of this potential (Ni, 1995, p. 17); this suggests that Yin ontologically precedes, actualizes, and gives rise to Yang.

Moreover, body aging and deterioration seem to be associated with a depletion of Yin energy, whose level should thus be maintained high: By the age of forty, people have exhausted half of their Yin Chi, which continues to diminish as age progresses, weakening their vitality and causing health conditions (Ni, 1995, p. 22). Therefore, the *Neijing* advises understanding the Tao and mastering the Yin–Yang balance, in order to remain strong and healthy.

Consistently, the *Neijing* also teaches that Yin is the essence of the organs and the fountain of Chi energy (Ni, 1995, p. 11), and that disease of the five Zang organs (lungs, heart, spleen, liver, and kidneys), associated with Yin meridians, causes disintegration of the spirit and death (Ni, 1995, p. 84);<sup>1</sup> this suggests their greater importance, for physical and spiritual survival, compared with the six Fu organs (large intestine, triple heater, small intestine, stomach, gallbladder, and bladder), associated with Yang meridians.

Further confirmation comes from the role and function of the Zang organs, which seem to be more essential and energetic than the Fu ones, because they store instead of transporting. In fact, the Zang organs store the essence of Chi and do not transport, while the Fu organs receive the food, digest it, and transport it on, without storing it—storage would be in opposition to their nature and consequently disease would manifest. The *Neijing* reports the say that the six Fu organs are full but never filled, while the five Zang organs are filled but never full (Ni, 1995, p. 46). Therefore, in normal conditions, Yin organs and meridians accumulate, while Yang organs and meridians do not, which may suggest a higher energy activity of the former over the latter.

It is also explained that there are five types of excess and five types of deficiency that are born from the five Zang organs, which must all work together to create a functional human being (Ni, 1995, p. 215); this highlights their superiority over the Fu organs. This concept is emphasized when the Zang organs are interpreted as a manifestation in the human body of the five elemental phases, which represent, together with Yin and Yang, a governing law of the Universe (Ni, 1995, p. 235). This law governs all polarities, the beginning of all transformations, the growth, development, and destruction of all things in the Universe.

In modern books on TCM and acupuncture, the doctrinal relationship between health and Yin–Yang balance is



discussed (Bing & Hongcai, 2010; Connelly, 1994; Kaptchuk, 2000; Lightbody, 2014); however, the philosophical knowledge and clinical experience of these authors provide further insights into the predominance of Yin over Yang. For example, Bing and Hongcai (2010) describe the interaction between Yin and Yang as follows:

Yin and Yang are opposite in nature, yet control and restrain one another. The opposition of Yin and Yang is mainly manifested in their intercontrolling and consuming-supporting relationship. Only when Yin and Yang are not only in opposition, but also in unity, can a relative balance between Yin and Yang be maintained to ensure change and development in nature. If this balance is out of kilter, disease will be the result. . . . The balance between Yin and Yang is neither fixed nor absolute. The relative equilibrium is maintained through their mutual consuming-supporting relation in which the consumption of Yin leads to the gaining of Yang, and the consumption of Yang leads to the gaining of Yin within certain limitations and over a period of time. The consuming-supporting relationship between Yin and Yang is absolute, while their balance is relative. Under conditions where the consuming-supporting relationship results in relative balance between Yin and Yang, normal life activities keep on going. If the consuming-supporting relationship exceeds normal physiological limits, then the relative balance of Yin and Yang will not be maintained, resulting in excess or deficiency of either Yin or Yang and therefore the occurrence of diseases. (pp. 24–25)

According to these authors, Yin and Yang are in an antagonistic-cooperative relationship and their interplay is characterized by a relative balance, within certain limits that should not be surpassed, otherwise disease will occur. This conclusion appears to be consistent with the results of the AMI experiment in which, in healthy subjects: Yin and Yang meridians have comparable energies, i.e., they are in balance, but Yin tends to predominate over Yang, i.e., their balance is relative, albeit to a limited extent, i.e., the relative difference between Yin and Yang is less than 10%. Bing and Hongcai (2010) also emphasize the importance of the five Zang (Yin) organs, which are the core of the human body; they correspond to the five elements, which explains the relationship between the body and the external environment; and they are connected with spiritual emotions and conscious activity (pp. 36, 43).

Confirmation of this reasoning can be found in Kaptchuk (2000), according to whom harmony implies that the proportions of Yin and Yang are relatively balanced (p. 12). However, from a psychological and spiritual perspective, the Yin will is seen as a deeper, more persistent, and more mysterious human intention, compared with the more superficial Yang will (p. 62); human emotions are correlated with the Yin organs and their health status, which highlights their psychophysiological relevance (p. 158); medically, the Yin organs are considered to be deeper inside the body, compared with the Yang ones: Inner and outer should be interpreted more as significance than place—the interior being more important than the exterior (p. 106).

According to Kaptchuk (2000), the Yang organs are related to impure substances, such as untransformed food, urine, and excrement; therefore, they are thought of as less internal than the Yin organs, which are instead related to the pure and fundamental textures of Chi, blood, essence, and spirit (p. 315). This is why the Yang organs have a less crucial role in health and therapy, compared with the Yin organs, which are more important in medical theory and practice (p. 78). However, in acupuncture, the Yang meridians are as important as the Yin meridians (p. 315). Finally, Kaptchuk (2000) states that the Yang organs are related to excess patterns, while the Yin organs are related to deficiency patterns, although there are exceptions (p. 316). This suggests the importance of tonifying and increasing the energy of the Yin meridians, as well as of dispersing and decreasing the energy of the Yang meridians, in order to restore health.

## YIN-YANG IN TAOISM

The nature of and relationship between Yin and Yang constitute a fundamental part of Taoism, an ancient doctrine that embraces the essence of Chinese philosophy, spirituality, culture, and tradition (Lao Tzu, 2011; Wang, 2012; Wong, 1997, 2011). Wang (2012) notes:

Although yang is the obvious, it cannot thrive without attention to yin. This interdependence appears in traditional Chinese medical texts, where the surge of *yangqi* 陽氣 depends on the regeneration of the *yinqi* 陰氣 of the five internal organs. Without the *yinqi* of the organs, there will be no a surge of *yangqi* or its extension outward. (p. 9)

She also adds that, since generation in nature is associated with femininity, the Yin forces are a priority (Wang,

2012, p. 56). Therefore, femininity is considered to be a greater power of unlimited resource, the root of heaven and earth, and ultimately the Tao (Dao) itself:

The spontaneous potency of the *Dao* is associated with the female body, which is a common metaphor for *Dao* in the *Daodejing*. It reveals not just the importance of yin and its generative force, but also designates a yin origin that is hidden, implicit, or empty. . . . It is not a mere nothing but is the undifferentiated source of potency and growth that lets things function . . . . The aspects of yang might represent the explicated order, whereas the aspects of yin relate to the enfolded hidden implicated order.<sup>2</sup> (Wang, 2012, pp. 55, 57)

The concept of implicated and explicated order, represented by Yin and Yang, is further elaborated by Wang (2012): If the manifest world is Yang, i.e., the unfolded explicit order, it is always regulated by Yin, i.e., the enfolded implicit order, which is the background; Yin is the variable that determines the event that takes place (p. 146).

The ontological precedence of Yin over Yang also appears in the *Yuejueshu*, a Chinese historical text, reported by Wang (2012): The Tao generates Chi, which in turn generates Yin, which generates Yang, which ultimately generates heaven and earth, and thus all existence (p. 126). Additionally, Wang (2012) cites the *Guanzi*, a Chinese political and philosophical text, in which it is reported: The ruler of men stands in the Yin, which is quiescent, and is able to control the Yang, which is activity (p. 132). This shows that, by occupying the Yin, one is able to control the Yang, which highlights the power of Yin over Yang. Wang (2012) also includes the observations of Taoist scholars Catherine Despeux and Livia Kohn: In Taoist thought, women are seen as an expression of the cosmic Yin force, which is equal and, for some schools, superior to Yang (p. 100). Therefore, in Taoism, the philosophical and spiritual predominance of Yin over Yang can be repeatedly found and seems to be rooted in its precepts.

## YIN-YANG IN TJM

In modern books on TJM and acupuncture, new insights into the Yin-Yang principle can be found (Birch & Ida, 1998; Shudō, 2011; Society of Traditional Japanese Medicine, 2003). When summarizing its clinical principles, developed over a 50-year experience, the Society of

Traditional Japanese Medicine (STJM) (2003) states that current diseases are associated with deficiency patterns and that the focus of acupuncture should be on Yin meridian (channel) deficiencies (p. 6); this seems to be consistent with the findings of the AMI experiment, in which (in reverse) health appeared to be characterized by Yin meridian's higher energy activity. The STJM (2003) also reports that the founders of meridian therapy used to say "yin leads, yang follows" (p. 25). This dictum expresses the notion that disease results from a deficiency of Yin, which should thus be the practitioner's first concern. The concept of Yin Chi (Ki) deficiency, in pathological conditions, is further specified:

In all cases there is no doubt that because the disease starts with essential ki deficiency, the practitioner's first attention should be given to finding and tonifying the deficient yin channel, which will allow for the simultaneous tonification of insufficient ki, blood, and fluids. Beyond that, one only needs to determine whether or not any dispersion is necessary. (STJM, 2003, p. 38)

If necessary, the STJM (2003) recommends dispersing the Yang meridians, because they often become excessive when their Yin partner is deficient, while the opposite is discouraged. In fact, since illness begins from a Yin deficiency, dispersing a Yin meridian must be handled with extreme care, because it can be risky. Interestingly, the STJM suggests that, when treating a pathology, dispersion should not be performed on the Kidney or Heart meridians—which, in agreement with this author and Motoyama's experiments, show a smaller energy difference with their Yang partners (together with the Pericardium) and can present occasional inversions. Moreover, the STJM shares that, in its experience, the Yin meridians that can be used for dispersion are the Liver and Lung—which, in agreement with this author and Motoyama's experiments, show a larger energy difference with their Yang partners (together with the Spleen) (pp. 292–294).

Therefore, traditional clinical experience seems to coincide with modern scientific findings. In fact, acupuncturists may have noticed that there were no beneficial effects or there were potentially adverse ones, when dispersing the energy of those Yin meridians that have a smaller energy difference with their Yang partners, as measured with the AMI—since we can hypothesize that a Yin-Yang meridian inversion may have occurred in



the patients' bioenergy system. Instead, these negative events did not happen when treating those meridian pairs that have a larger energy difference, as measured with the AMI—since a Yin–Yang meridian inversion may not have occurred.

Finally, the STJM (2003) summarizes and concludes that tonification is used mainly on Yin meridians for Yin diseases, which involve deficiency patterns, while dispersion is used mainly on Yang meridians for Yang diseases, which involve excess patterns. It also clarifies that Yin excess and Yang deficiency are not considered normal illnesses; therefore, they should be treated differently. The STJM adds that, even in Yang diseases, the tonification of the Yin meridians should be performed first, followed by the dispersion of the Yang ones. This underlines the importance of working first on Yin meridians, even in Yang conditions, to immediately restore their higher energy activity compared with their partners (pp. 312–313). This therapeutic approach is confirmed by Birch and Ida (1998), when they discuss the practice of Japanese acupuncturist Kōdō Fukushima, developed over his 50-year experience: While Fukushima's method was not clearly defined in its structure, the first part of the treatment involved supplementing the most vacuous Yin meridian (p. 29).

The predominance of Yin over Yang, in philosophy and medicine, is discussed and emphasized by Shudō (2011), who writes:

This brings us to the reason why yin comes first in the term yin-yang. It is yin which first gives rise to yang. Yin and yang originally denoted shade and light respectively. Therefore yin implies something in the dark which lies hidden while yang is something in the light which is apparent. That which is hidden gives rise to that which is visible when light is cast on it. What is visible is always a small portion of everything that lies hidden. For this reason yin can be conceived as enveloping yang instead of simply being in opposition to it. Thus yang is a portion of the whole which is yin. This leads to an extremely important dictum in meridian therapy, i.e., that yin leads and yang follows. This principle has a major influence on the way meridian therapy is performed. Turning one's attention to the yin aspect, or the whole picture, is given precedence over consideration of apparent problems or symptoms, which are yang. (p. 17)

Shudō (2011) further specifies that Yin deficiency is the root of all imbalances and diseases; thus, tonifying the Yin meridians is a priority in therapy:

The assumption which underlies meridian therapy is that all imbalances, no matter how complex, initially begin with deficiency in one of the yin organs that is reflected in its corresponding meridian. Thus, Qi deficiency in a yin organ and meridian is considered to lie at the root of all imbalances. . . . In order to perform meridian therapy, it is necessary to determine the basic pattern, i.e., to arrive at a diagnosis of deficiency originating in a single yin organ and meridian. . . . Traditionally, all diseases are assumed to have an underlying internal cause, and this is why tonification of the yin meridians is given more emphasis in meridian therapy. (pp. 137, 139)

Shudō (2011) also shares that, in his clinical practice, he has never treated a pattern of Yin meridian excess, which is unusual, but instead he has regularly treated the pattern of Yin meridian deficiency, which is common in disease (p. 196). In fact, deficiency in one of the Yin meridians can be assumed in all pathological conditions and it is always the fundamental imbalance that needs to be corrected. In his opinion, the vast majority of diseases originate from a deterioration in the function of a Yin organ and meridian; thus, in meridian therapy the emphasis should be on tonifying the Yin meridians. Excess in a Yin meridian may occur as a result of a deficiency in another Yin meridian and can be corrected by tonifying the deficient Yin meridian. Therefore, based on his extensive experience, Shudō (2011) suggests that pulse diagnosis should begin by finding the most deficient Yin meridian, which should be tonified first as part of the root treatment (p. 57).

Finally, referring to a possible imbalance in a Yin–Yang meridian pair, Shudō (2011) repeats that the deficient Yin meridian should be tonified first and that this treatment may already be sufficient to rebalance the inverted pair. If this intervention is not sufficient, the Yang meridian should be lightly dispersed (pp. 76, 140). Shudō's clinical experience with Yin and Yang meridians thus corroborates the AMI findings of this author and Motoyama, as well as the conclusions of other scholars, physicians, and acupuncturists.

It should be specified that Oriental acupuncture is characterized by schools and currents, which have similarities

and dissimilarities. This may explain why the superiority of Yin over Yang, although it is recognized in both traditions because they share a common ground,<sup>3</sup> seems to be more emphasized in TJM than in TCM, both philosophically and medically. Additional evidence to support this thesis can be found in the articles of two Japanese acupuncturists, in which the predominance of Yin over Yang is explicitly mentioned with the expression “陰主陽從” (Nakamura, 2019, p. 36; Suho, 2015, p. 149), which in both Japanese and Chinese means “Yin dominates, Yang follows.” An example of a Chinese physician who emphasized the treatment of Yin meridians is Zhu Danxi, with his school of nourishing Yin, based on the principle that the human body tends to have excessive Yang and deficient Yin (Bing & Hongcai, 2010, p. 17).

### YIN-YANG IN MOTOYAMA’S STUDIES

Motoyama (2008) also concluded that meridian therapy should focus on treating Yin meridians. In fact, he observed that, when there is an inversion in a Yin–Yang meridian pair, a reversal of the Chi energy flow tends to occur in the Yin meridian, but not in the Yang one, which suggests that the former should be treated. In other words, when the Chi energy of the Yin meridian is lower than that of its Yang partner (unhealthy condition), its Chi energy is likely to flow from top to bottom (another unhealthy condition); instead, this reversal is not found in the Yang meridian, whose Chi energy always tends to flow from top to bottom (healthy condition). Motoyama explained that, by treating the Yu (Shu) and Bo (Mu) acupoints of the Yin meridian, it is possible to reestablish the healthy condition—in which the Chi energy of the Yin meridian is higher than that of its Yang partner and flows from bottom to top—resolving illnesses and pathologies.

Therefore, it can be concluded that health is characterized by higher energy in Yin meridians and lower energy in Yang meridians, a pattern that rarely leads to disease, unless the relative difference between the two is excessive; instead, the opposite pattern leads to disease and thus requires correction. The scientific findings with the AMI validate the Yin–Yang balance, interpreted as a relative balance in which the slight superiority of Yin over Yang represents the optimal case.

The occasional inversion of the Yin–Yang balance, which has been experimentally detected with the AMI, primarily in the PC–TE meridian pair, seems to confirm the dynamic and antagonistic relationship between these two cosmic polarities. According to Motoyama’s (1997, pp. 45–54;

2008) studies, such events are often associated with seasonal change, which is consistent with what is reported in the *Neijing* regarding the Yin–Yang seasonal variations and the interrelationship between human beings and nature: Throughout the four seasons, the transformation of Yin and Yang determines the growth and destruction of life (Ni, 1995, p. 7); heaven and humankind are interconnected, and thus, the Yin and Yang within the human body are related to natural phenomena (Ni, 1995, pp. 23–24).

The interaction between Yin and Yang seems to be dynamic. Thus, one may wonder whether, in the future of the Universe and humankind, there will be an inversion, in which the new equilibrium will be characterized by the predominance of Yang over Yin, which will become the new healthy balance. According to Asian philosophies and medical systems, all things in the Universe are cyclical and the macrocosm is reflected in the microcosm. Therefore, it is possible that, in the next ages, a new balance between these two cosmic forces will be reached, in nature and within human beings, which may once again reverse itself. What we currently know is that the optimal Yin–Yang balance has remained unchanged since the ancient texts were written thousands of years ago.

However, as embodied consciousness on a path of evolution and self-realization, we may not yet be able to fully comprehend the secrets of Yin and Yang, and we may only glimpse the truth, as the wisdom from the past teaches: The mystery of Yin and Yang is not easy to grasp, because within this principle there is an intelligence that is difficult to know. Certainly, the Universe potentiates change, allowing all things to express themselves with unlimited energy (Ni, 1995, p. 235).

### ASYMMETRIES IN NATURE

The asymmetry between Yin and Yang, which is considered the foundation of all existence, seems to be consistent with the observation that asymmetries are at the basis of the Universe and life. For example, our physical Universe originated after the Big Bang, because of an asymmetry between mutually-annihilating matter and antimatter, the former being slightly more abundant than the latter, thus creating stars, planets, and other celestial bodies (Girish, 2019; Sather, 1996). It has been estimated that the difference between the two was very small: For every billion particle-antiparticle pairs, there was only one extra particle. Had the amounts of matter and antimatter been perfectly equal, they would have canceled each other out and the Universe as we know it would not have formed.



Similarly, moving from physics to biology, it appears that life on Earth could begin and develop because of an asymmetry in the amino-acid and sugar molecules, which show a specific chirality or homochirality—a chiral molecule exists in two non-superimposable mirror-image forms (Blackmond, 2010, 2011, 2019; Cronin & Reisse, 2005; Devínsky, 2021). Left-handed amino acids and right-handed sugars, which are the building blocks of living organisms and are involved in their life functions, predominate in biochemistry. Had this molecular asymmetry not existed, terrestrial biology might never have developed. In fact, the chirality of a molecule determines its behavior and function within living organisms, which might not have formed and evolved from molecules with opposite chirality. Life as we know it thus relies on a left-right asymmetry, which is embedded in its texture, incorporated in its vital activities, and considered its unique signature.

Moreover, asymmetries can be found in the morphology, function, and behavior of many plants and animals, whose features are influenced by and coupled with the environment, which is rich in asymmetries as well (Abrash & Bergmann, 2009; Bisazza et al., 1998; Blum & Ott, 2018; Frasnelli et al., 2012; Gerendai & Halász, 2001; Hudson, 2000; Li & Bowerman, 2010; Miletto Petrazzini et al., 2020; Muñoz-Nortes et al., 2014; Okumura et al., 2008; Palmer, 2009; Petricka et al., 2009; Toga & Thompson, 2003; Valortigara et al., 2011). Asymmetric systems are so common in nature that a paradigm shift is occurring toward mathematical and physical theories, which are based on asymmetries, in order to reach a better understanding of natural phenomena (Baianu, 2012).

Therefore, symmetry breaking or asymmetry appears to be intrinsic to the structure of the Universe, a fundamental premise for its existence, and a necessary condition for the development of life. This conclusion is supported by the Yin-Yang Chi-energy asymmetry, which is at the core of our species' health and life.

## DISCUSSION AND CONCLUSIONS

This essay discussed the conceptual and empirical importance of the Yin-Yang principle, which is a foundational paradigm in Asian philosophy and medicine. In a previous study with the AMI, the bioenergetic relationship between Yin and Yang meridians was assessed, revealing a higher Chi energy activity of the former over the latter, in healthy people. The convergence of textual interpretation, clinical practice, and bioelectrical

measurement via the AMI supports the view that the Yin-Yang principle is characterized by an asymmetry, with the superiority of Yin over Yang, which is a marker of health. The interplay between Yin and Yang, as well as asymmetric systems in general, appears to lie at the basis of life and the Universe, from the microcosm to the macrocosm. Theoretical and experimental studies on the Yin-Yang principle, evaluating its manifestations and dynamics, can lead to important diagnostic applications for human health, as well as to a greater understanding of our cosmos.

The degree of asymmetry should also be investigated, because it appears to be different depending on the natural system that is analyzed. The energy difference of the Yin-Yang meridian pairs varies in degree and seems to be an intrinsic characteristic of the human bioenergy system. According to TCM, the human body is a microcosm reflecting the macrocosm; therefore, the origin of the meridian balance could be traced back to the natural world and elements, of which each meridian is an expression. Similarly, the degree of asymmetry that can be found in nature varies, and the reasons may still have to be discovered and understood.

A possible explanation for the presence of asymmetries in nature, which seem to be widespread and encoded in its fabric, may be that this Universe is an imperfect copy of an ideal Universe, characterized by perfect symmetry. This concept dates back to Plato's theory of forms, which has become a fundamental doctrine of classical Western philosophy and metaphysics (Piyong, 2013; Rahaman, 2023). In the fourth century BC, the Greek philosopher hypothesized that the forms in our physical world participate in, imitate, and resemble the archetypes, called *ideas*, of a perfect world, called *hyperuranion*. These non-physical, immutable, eternal, and absolute ideas would represent the model, substance, and essence of all physical things, which would be a blurred reflection or shadow of the hyperuranion. Physical, metaphysical, and philosophical investigations into natural asymmetries may reveal important aspects of our reality and of subtle dimensions that may give rise to it.

## END NOTES

- <sup>1</sup> The pericardium is sometimes considered the sixth Zang (Yin) organ (Kaptchuk, 2000, p. 78).
- <sup>2</sup> *Daodejing* is a traditional name for Lao Tzu's (2011) *Tao Te Ching*.



<sup>3</sup> Acupuncture originated in China over 2000 years ago and spread to Japan over 1400 years ago, where it developed its own traditions of practice, which have been passed down from master to disciple throughout history (Birch & Ida, 1998; Kobayashi et al., 2010; Shudō, 2011; STJM, 2003).

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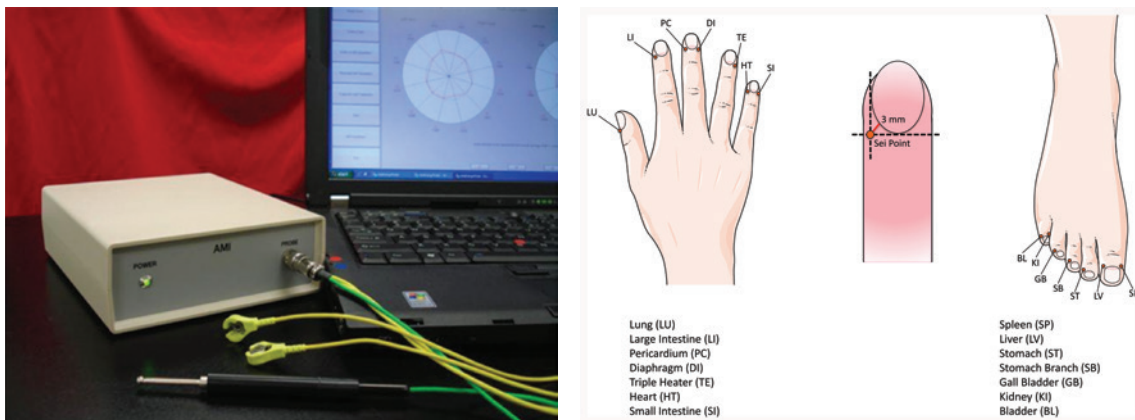
APPENDIX A

YIN-YANG MERIDIAN ANALYSIS

The present essay is supported by data from a previous experiment (Miraglia, 2024a, 2024b), in which 100 healthy participants were measured five times with the AMI in the same psychophysical state. An in-depth investigation was carried out to evaluate the reliability, biophysical meaning, and clinical utility of the AMI parameters, with successful results. The statistical analysis of the Yin-Yang meridian pairs allowed this author to determine the energy

predominance of Yin over Yang and which AMI parameter is more reflective of Chi energy activity.

Figure A1 shows the AMI and the Sei points; Tables A1-A4 present the Yin-Yang meridian relationships for each AMI parameter—BP (Chi energy), AP (autonomic nervous system), IQ (immune system), and TC (reaction time); while Figure A2 shows the BP distributions of the Yin-Yang meridian pairs. The *p*-values and effect sizes (ESs) prove that the Yin > Yang meridian relationships are stronger for BP, compared with the other AMI parameters, revealing and confirming its connection with Chi energy activity, for which this trend is expected.



**Figure A1.** On the Left the AMI, on the Right the Sei Points. In the AMI measurement process, the two yellow cables are connected to the reference electrodes, attached to the forearm of the testee, while the probe is placed by the experimenter on the active electrodes, attached to each Sei point. The *Sei* points (in Japanese), *Jing* (in Chinese), and *Well* (in English) are considered special acupoints: They are located bilaterally on the tips of fingers and toes, where Traditional Chinese Medicine (TCM) meridians begin or end, and are thought to reflect the overall energy state of the meridians they belong to. The AMI measures the 12 regular TCM meridians and two extra meridians (diaphragm and stomach branch). For the Yin-Yang analysis, only the regular meridians were considered, paired in the traditional Yin-Yang pairs. The picture of the AMI was kindly provided by the California Institute for Human Science, while the figure of the Sei points was partly generated using Servier Medical Art, provided by Servier, licensed under a Creative Commons Attribution 3.0 Unported License.

**Table A1.** Yin-Yang Meridian Relationships of the AMI BP Parameter, Which is Related to Chi Energy Activity.

Yin-Yang Meridian Pair	Yin vs Yang BP Mean [0.95 CI] (µA)	p-value	ES [0.95 CI]	Trend	
Hand	LU-LI	2249 [2184, 2302] vs 1833 [1781, 1879]	4.33 E <sup>-18</sup>	1.5 [1.1, 1.9]	Yin > Yang
	PC-TE	1744 [1693, 1790] vs 1760 [1713, 1803]	2.81 E <sup>-01</sup>	0.067 [-0.0043, 0.15]	Yin < Yang
	HT-SI	1807 [1757, 1852] vs 1761 [1715, 1804]	1.85 E <sup>-10</sup>	0.19 [0.12, 0.26]	Yin > Yang
Foot	SP-ST	1962 [1906, 2012] vs 1671 [1624, 1713]	5.51 E <sup>-18</sup>	1.2 [0.84, 1.4]	Yin > Yang
	LV-GB	1935 [1878, 1985] vs 1726 [1672, 1775]	3.81 E <sup>-17</sup>	0.78 [0.55, 0.95]	Yin > Yang
	KI-BL	1740 [1687, 1789] vs 1603 [1545, 1655]	5.82 E <sup>-11</sup>	0.50 [0.35, 0.65]	Yin > Yang

For each meridian pair of hands and feet, the *p*-value is reported, as well as the means and effect size (ES) with their 95% confidence intervals (CIs). For BP, the relative difference between the means of Yin and Yang meridians, calculated as (Yin - Yang)/Yin, is 9.47.



**Table A2.** Yin–Yang Meridian Relationships of the AMI AP Parameter, Which is Related to the Autonomic Nervous System Activity.

Yin–Yang Meridian Pair	Yin vs Yang AP Mean [0.95 CI] ( $\mu\text{A}$ )	<i>p</i> -value	ES [0.95 CI]	Trend	
Hand	LU–LI	10.9 [10.1, 12.0] vs 10.5 [9.78, 11.2]	9.34 E <sup>-01</sup>	0.098 [–0.031, 0.26]	Yin > Yang
	PC–TE	9.44 [8.89, 10.1] vs 8.64 [8.05, 9.32]	7.03 E <sup>-08</sup>	0.26 [0.16, 0.36]	Yin > Yang
	HT–SI	11.0 [8.35, 22.6] vs 9.09 [8.43, 9.81]	2.62 E <sup>-04</sup>	0.11 [–0.20, 0.32]	Yin > Yang
Foot	SP–ST	10.1 [9.49, 10.8] vs 9.54 [8.84, 10.7]	2.64 E <sup>-06</sup>	0.14 [–0.13, 0.30]	Yin > Yang
	LV–GB	11.5 [10.1, 15.8] vs 9.70 [9.08, 10.5]	4.99 E <sup>-05</sup>	0.21 [0.053, 0.31]	Yin > Yang
	KI–BL	9.82 [9.38, 10.3] vs 9.41 [8.91, 9.95]	1.96 E <sup>-02</sup>	0.16 [8.1 E <sup>-04</sup> , 0.31]	Yin > Yang

For each meridian pair of hands and feet, the *p*-value is reported, as well as the means and effect size (ES) with their 95% confidence intervals (CIs). The large CIs of some means are due to outliers. For AP, the relative difference between the means of Yin and Yang meridians, calculated as (Yin – Yang)/Yin, is 9.30.

**Table A3.** Yin–Yang Meridian Relationships of the AMI IQ Parameter, Which is Related to the Immune Function.

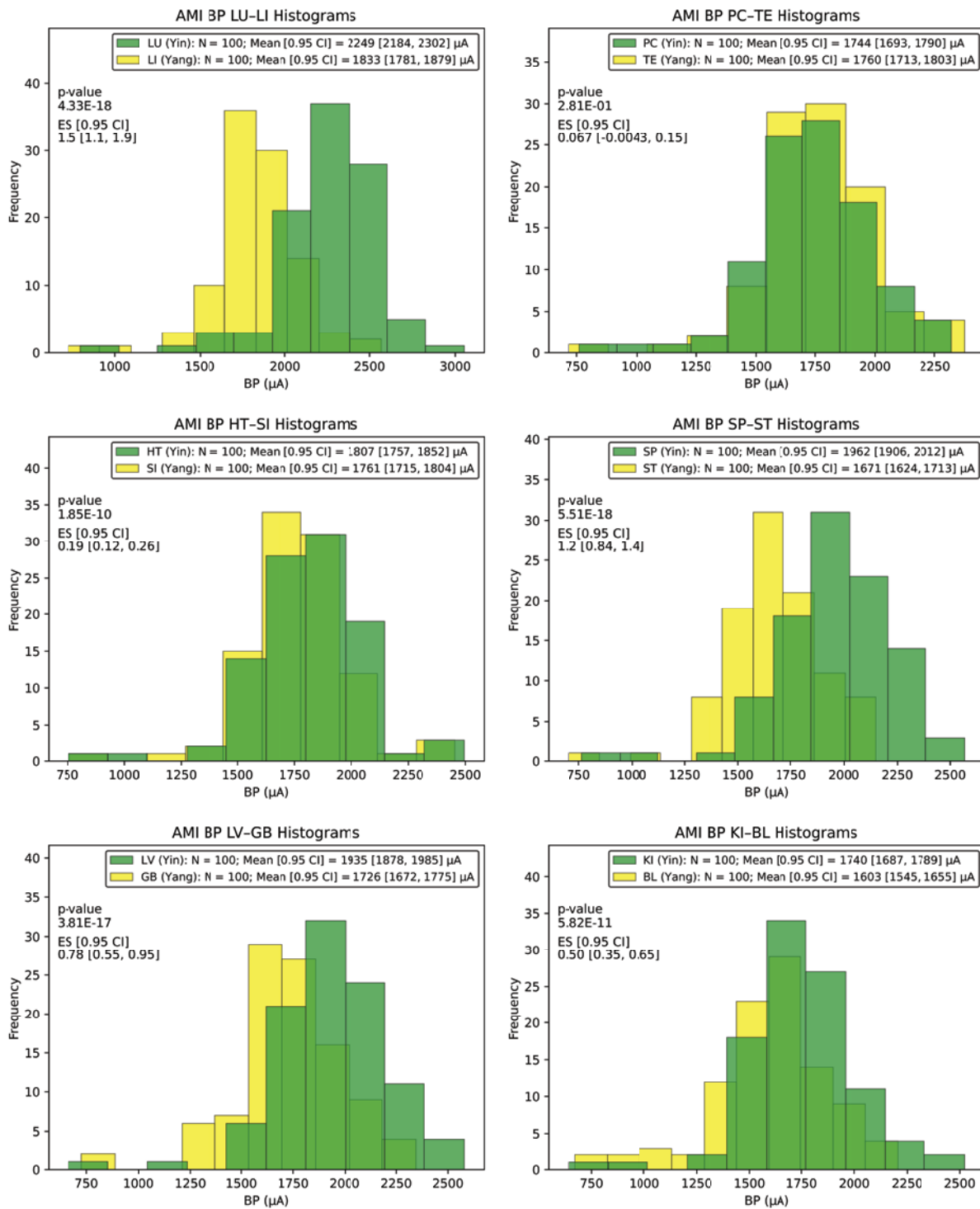
Yin–Yang Meridian Pair	Yin vs Yang IQ Mean [0.95 CI] ( $\mu\text{C}$ )	<i>p</i> -value	ES [0.95 CI]	Trend	
Hand	LU–LI	1160 [1115, 1201] vs 1111 [1069, 1153]	2.73 E <sup>-04</sup>	0.22 [0.093, 0.35]	Yin > Yang
	PC–TE	1095 [1050, 1140] vs 1110 [1061, 1160]	1.92 E <sup>-01</sup>	0.063 [–0.14, 0.26]	Yin < Yang
	HT–SI	1113 [1063, 1162] vs 1059 [1017, 1102]	2.92 E <sup>-06</sup>	0.23 [0.029, 0.43]	Yin > Yang
Foot	SP–ST	1270 [1207, 1333] vs 1124 [1067, 1187]	1.77 E <sup>-11</sup>	0.46 [0.32, 0.60]	Yin > Yang
	LV–GB	1246 [1183, 1309] vs 1138 [1079, 1205]	9.76 E <sup>-08</sup>	0.34 [0.17, 0.48]	Yin > Yang
	KI–BL	1073 [1021, 1129] vs 981 [935, 1027]	1.57 E <sup>-06</sup>	0.36 [0.23, 0.49]	Yin > Yang

For each meridian pair of hands and feet, the *p*-value is reported, as well as the means and effect size (ES) with their 95% confidence intervals (CIs). For IQ, the relative difference between the means of Yin and Yang meridians, calculated as (Yin – Yang)/Yin, is 6.22.

**Table A4.** Yin–Yang Meridian Relationships of the AMI TC Parameter, Which is Related to the Reaction Time.

Yin–Yang Meridian Pair	Yin vs Yang TC Mean [0.95 CI] ( $\mu\text{s}$ )	<i>p</i> -value	ES [0.95 CI]	Trend	
Hand	LU–LI	3.24 [3.16, 3.32] vs 3.67 [3.57, 3.76]	5.05 E <sup>-16</sup>	0.94 [0.73, 1.2]	Yin < Yang
	PC–TE	3.84 [3.73, 3.95] vs 3.93 [3.81, 4.06]	2.25 E <sup>-03</sup>	0.15 [0.040, 0.26]	Yin < Yang
	HT–SI	3.92 [3.80, 4.04] vs 3.77 [3.66, 3.89]	1.32 E <sup>-07</sup>	0.25 [0.16, 0.35]	Yin > Yang
Foot	SP–ST	3.85 [3.71, 3.97] vs 3.99 [3.86, 4.12]	9.54 E <sup>-04</sup>	0.21 [0.082, 0.35]	Yin < Yang
	LV–GB	3.83 [3.72, 3.95] vs 3.97 [3.85, 4.09]	2.61 E <sup>-03</sup>	0.22 [0.078, 0.37]	Yin < Yang
	KI–BL	3.76 [3.65, 3.87] vs 3.55 [3.45, 3.64]	1.01 E <sup>-05</sup>	0.40 [0.24, 0.57]	Yin > Yang

For each meridian pair of hands and feet, the *p*-value is reported, as well as the means and effect size (ES) with their 95% confidence intervals (CIs). For TC, the relative difference between the means of Yin and Yang meridians, calculated as (Yin – Yang)/Yin, is –1.93.



**Figure A2.** Yin-Yang Meridian Distributions of the AMI BP Parameter, Which is Related to Chi Energy Activity. For each meridian pair of hands and feet, the *p*-value is reported, as well as the means and effect size (ES) with their 95% confidence intervals (CIs).

