

# Acupuncture meridians

## Abstract

This article explains what acupuncture meridian is, when the acupuncture meridians are formed, and what determines the direction of the acupuncture meridians. It reveals that each acupuncture treatment of a point from the meridian generates an electric impulse and a wave, which propagate in the direction of the meridian.

**Keywords:** acupuncture meridians, formation, directions, electric impulse generated at acupuncture treatment, wave generated at acupuncture treatment

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## The electric body

The book of the author: M Kuman, *Modern Aspects of Ancient Acupuncture*<sup>1</sup> explains why the acupuncture meridians have the directions they have. Modern physics teaches that the atmosphere is positively charged and the Earth negatively charged.<sup>2</sup> It is also a well-known fact that the head of the human body is always positively charged and the feet negatively charged.<sup>3</sup> Why is this so? If the human body were a conductor, it wouldn't be possible to measure a potential difference between the head and the feet. Since such potential difference exists, the human body is not exactly a conductor.

If the human body were a dielectric, the positively charged atmosphere would induce negative electric charges on the head and the negatively charged earth - positive electric charges on the feet. However, the head is always positively charged and the feet negatively charged. Therefore, the human body is not exactly a dielectric.

The head is always positively charged and the feet negatively charged because of the processes inside the body. Therefore, active ionic exchange through the skin keeps the head always positively charged and the feet negatively charged (see next section).

We are going to prove in section 4 that it is not incidental that the positively charged head is in the upper part of the body, while the negatively charged legs are in the lower part of the body. In this way they are in harmony with the positively charged atmosphere and the negatively charged Earth.

## Acupuncture and electric body

In our book *Modern Aspects of Ancient Acupuncture*, we explained that each acupuncture point is a conducting ellipse imbedded in the semiconducting skin tissue of the body. Each acupuncture meridian is a line of such conducting ellipses (acupuncture points) oriented with their long axes along the line. To be able to explain the direction of the acupuncture meridians, we need to discuss the gradients of the electrical charges in the human body. For details see the author's book *Modern Aspects of Ancient Acupuncture*.<sup>1</sup>

## Active ionic exchange through the Skin

The human body is an open system that exchanges through the skin ions, water, gases, and some molecules,<sup>4</sup> most of which are electrically charged (ions). Subject of this section will be the exchange of ions, which are essential for the body metabolism.

While the processes in the body are ruled and regulated by

hormones, the processes in each cell are ruled and regulated by enzymes. Both hormones and enzymes are activated by ions. This makes the ions (or the intake of minerals which dissociate in the body into ions) very important for the body metabolism.

The metabolism and the ionic exchange are tissue specific, which means that different tissues, such as liver, brain, etc., metabolize with different rates and exchange different ions through the skin. The higher the metabolic rate of a tissue, the higher the ionic exchange through the skin, and the greater the amount of ions measured on the skin surface.

Let us take as an example the brain. The brain consumes 20 to 40% of the body oxygen, but is only 2% of the body weight.<sup>5</sup> Hence the consumption of oxygen in the brain is much higher than in the rest of the body, which makes the speed of oxidative processes in the brain much higher.

According to the Krebs' cycle, the higher the speed of oxidative processes, the higher the consumption of electrons, and the higher the amount of protons H<sup>+</sup> emitted as side products.<sup>6</sup> Therefore, the brain's higher consumption of oxygen would mean more positive electric charges measured on the head's surface.

Indeed, the head's surface is positively charged.<sup>3</sup> The back surface covering the backbone marrow is also positively charged<sup>3</sup> because the rate of oxidative processes in the bone marrow of the backbone is also higher, just as it is in the brain. Let us see what ancient sources say about this.

## Yang means active and positive, Yin- passive and negative

In one of the oldest books on acupuncture Huang Ti Nei Ching Sue Wen<sup>7</sup> on p. 115 it is written: "Heaven was created by accumulation of Yang; Earth was created by accumulation of Yin." Modern physics says<sup>2</sup> that the atmosphere is positively charged and the Earth is negatively charged. Therefore, Yang mean positive electric charges and Yin negative electric charges.

In the same ancient book<sup>7</sup> on p. 125, it is written: "It is said that the Sun represents Yang (active) and the Moon represents Yin (passive)." Thus, Yang also means active, and Yin passive. Therefore, Yang means active and positive electric charges; Yin means passive and negative electric charges. This seems to perfectly fit our previous statements.

Whenever the oxidative processes under the skin are active (Yang), positive electric charges (Yang) are registered on the skin surface.

Thus, the surface of the head and back are positively charged because the processes in the brain and in the bone marrow of the backbone run faster. The surface of an inflamed wound always feels hot because its temperature is higher. This means active (Yang) processes of repair are going on and this makes the surface positively (Yang) charged.

Whenever the oxidative processes under the skin are passive (Yin), negative electric charges (Yin) are registered on the skin surface. Thus, the electrical charges on the surface of arms and legs are negative (Yin) because the metabolic processes in the extremities are slower (passive) or Yin. The surface of a place with chronic pain always feels cooler because its temperature is lower. This means that the processes under the skin are passive (Yin), i.e. their speed is lower than what it should be, and this makes the places of chronic pain negatively (Yin) charged.

Let us put all facts together. Modern science claims that the atmosphere is positively charge. The head is also positively charged because the metabolic processes in the brain are more active. The Earth is negatively charged<sup>2</sup> and so are the legs because the metabolic processes in the legs are less active. This is in full agreement with the ancient books on acupuncture<sup>7</sup> stating that the Heaven is Yang (positively charged) and the head is Yang (positively charged) because the processes in the brain are more active (Yang). The electric charges on the surface on the Earth are Yin (negative) and the electric charges on the surface of the legs are Yin (negative) because the processes in the legs are Yin (passive).

So, it might not be incidental that the active (Yang) brain is in the upper part of the body, which makes the positively (Yang) charged head in harmony with the positively (Yang) charged atmosphere. On the other side, the negatively (Yin) charged legs and feet are in harmony with the negatively (Yin) charged Earth.

The ancient acupuncture book<sup>7</sup> says on p. 125: “Yang supplies that which is upright, while Yin, the Earth, acts as a ruler of Yang”. Since we said that in the body the oxidative processes, which are the basis of our life, are transfers of electrons (negative charges or Yin) and positive (Yang) charges are emitted as side products (Krebs’ cycle),<sup>6</sup> our modern science says the same: “Yin acts as a ruler of Yang.”

At the same time, the active processes in the brain (Yang) “supply that which is upright”, i.e. the positive electric charges (Yang) on the surface of the head. On p.126 of <sup>7</sup> it is written: “The Great Yin (negative charges) is located within the soil and it is the lesser Yin. When the Lesser Yin rises above the Earth, it comes under the influence of Yang”.

## Direction of the Meridians

According to contemporary source,<sup>3</sup> negatively charged are: the surface of the Earth, the front of the body, and the inner (medial) surface of legs, arms, feet, and palms. In the ancient acupuncture book,<sup>7</sup> they are all Yin. If the legs are negatively charged and the Earth is negatively charged, one can expect repulsive forces between the two sets of negative electric charges to initiate electric currents in front running upward. These direct electric currents determine the upward direction of the acupuncture meridians in front.

When the arms are up and the legs open outward, the whole front of the body is negatively charged (Yin) and has electric currents running upward. These direct electric currents determine the upward direction of the acupuncture meridians on the inner side of the arms when the arms are up, on the inner side of legs when open outward, and on the front of the torso.

This is in full agreement with the following statement on p. 127 of the ancient book:<sup>7</sup> “On the outside there is Yang, but within it is Yin, that is active. Yin is active in the interior and effective below.” Thus, contemporary knowledge and ancient sources on acupuncture give direction upward for the meridians in front and on the inner side of legs and arms when the arms are up and the legs open outward. As said, the head and back are positively charged. Then attractive forces between the negative (Yin) electric charges of Earth and positive (Yang) electric charges of the back will initiate electric currents on the back running downward. These direct electric currents determine the directions of the acupuncture meridians on the back - downward. When the arms are up and the legs open outward, the whole back of the body is positively (Yang) charged and its electric currents run downward. These direct electric currents determine the downward direction of the acupuncture meridians on the back and on the outer side of our legs and arms when the arms are up and the legs open outward. Thus, contemporary knowledge and the ancient book on acupuncture<sup>7</sup> say the same about the direction of the acupuncture meridians.

Adjacent meridians on the outer and inner sides of arms, legs, and body, which run in opposite direction, form closed circles. They are called coupled meridians, and they belong to functionally coupled organs. Such are: Liver (LR)-Gall Bladder (GB); Spleen (SP) - Stomach (ST); Heart (HT)-Small Intestine (SI); Lungs (LU)-Large Intestine (LI); Kidney (KI)-Bladder (BL). They obey the law of five elements in the ancient theory of acupuncture, which will be subject of another article (see also the author’s book *Modern Aspect of Ancient Acupuncture*.<sup>1</sup>

## When were the meridians formed?

If the direction of acupuncture meridians is determined by electric gradients on the skin surface, which result from different ionic exchange through the skin of different organs, the acupuncture meridians should be expected to appear on the skin surface when the organs are formed. Indeed, it was found by Korean researchers<sup>8</sup> that the acupuncture meridians appear on the skin surface of a chicken embryo when the organs are formed or the cells differentiate into tissue-specific cells of liver, spleen, kidneys, lungs, etc.

It was also found that the first biorhythm of a human embryo appears at the beginning of the third month, when the organs are formed [9]. This is the rhythm of electrical skin resistance, which is the only rhythm the child will be born with. The rest of the rhythms will be formed later on. This emphasizes the important leading role, which the electrical charges play in the human development and the regulation of the processes in the body.

## Energy (Chi) runs along the acupuncture meridians

### Ancient approach

The ancients believed that energy (Chi) circulate along the meridians. “The meridians in the human body are the pathways of circulation and transformation of Chi in the solid and hollow organs”.<sup>7</sup> Chi also provides energy for the circulation of blood, assimilation of food, sweating, urinating, and nourishes the skin, flesh, and bones.

The ancients claimed that the 14 acupuncture meridians on the surface of the body are like 14 rivers, but along them energy (Chi) runs, instead of water. In the way the rivers flow into seas, the 14 acupuncture meridians flow into six energy seas, which are spinning

energy centers. They are called in the ancient Hindu literature 'chakras', which means 'spinning wheel' in Sanskrit. Such energy center is the chakra of the Solar Plexus.

"The front of the body is the Great Yin which is illuminated by the 'Sunlight' of the Solar Plexus. The "Sunlight" (Solar Plexus) is the foundation of everything, it permeates everything and it is known as Yang within Yin."

### Modern approach - energy (Chi) also circulates in the form of waves

The author of this article reported a nonlinear mathematical model of one acupuncture meridian at the VIII<sup>th</sup> World Congress on Acupuncture in 1983.<sup>10</sup> Each acupuncture meridian is a string of acupuncture points, which are conducting ellipses imbedded in the semiconducting skin tissue of the body. Since, only nonlinear equations could describe such inhomogeneous media and nonlinear equations have more than one solution, my nonlinear mathematical model had two types of solutions: electric impulse and wave. This means that each acupuncture treatment generates electric impulse and wave.

Chinese scientists have already measured electric impulses, propagating from the treated acupuncture point in the direction of the acupuncture meridian. These measurements explained the sensation of some sensitive patients during acupuncture treatment - they felt electric current running from the treated acupuncture point in the direction of the meridian.<sup>11</sup>

Waves: When the acupuncture mathematical model was reported, waves were not yet measured. But I insisted waves should propagate from the treated acupuncture point in the direction of the meridian. The Hungarians were very interested in my wave prediction and invited me to give a talk at the Hungarian Academy of Sciences.

I did, and as a result grant money was designated for research to find the waves. Two years later (in 1985) the Hungarian scientist, Dr. A. Eory<sup>12</sup> reported that they had measured waves propagating from the treated acupuncture point in the direction of the meridian. The Hungarians also found that waves propagate along the meridians all the time. When an acupuncture point is treated, a wave is generated that modulates the waves constantly running along the meridian.

The ancients claimed energy (Chi) propagates along the acupuncture meridians and contemporary study specifies electromagnetic waves propagate along the meridians. The waves will revolutionize our thinking about the way acupuncture works. Waves could easily explain the quick response to acupuncture treatments, as well as the human ability to respond quickly – for example, for a split second to figure out where the tennis ball will be and be there to hit it.

This cannot be explained with propagation of nerve impulses, which are very slow, but it could be explained with fast propagating waves. Since stressors can endanger our life, quick response reaction to stressors means survival. The propagation of nerve impulses is slow and should our life depend only on them, we would be dead by now. If we have survived and prosper, it is because our body has waves running along the acupuncture meridians, and this quick communication system allows quick response.

Why did nobody think about the existence of a quicker communication system? Such a system must exist. Only quick communication system could explain facts, such as the following described in the book of Yoshio Manaka, Kazuko Itaya, and Stephen Birch, *Chasing the Dragon's Tail*.<sup>13</sup>

"A professional baseball player is able to hit a ball traveling with a very high speed with incredible precision. The rate at which the ball travels is of the order of ten times faster than the speed of the nerve signal that must occur for the player to hit the ball." Unfortunately, these authors couldn't quite explain how the quick response works. According to them, the behavior requiring quick response is ruled by 'software laws' that apply to emergent phenomena, and "cannot logically be derived from the underlying 'hardware laws' that are the traditional subject matter of fundamental physics..."

Fine, but naming unknown events with popular modern names like software and hardware does not make the subject clearer. The authors Manaka, Itaya, and Birch<sup>13</sup> have taken this explanation from the book *The Cosmic Blueprint* of Paul Davis, which does not seem to help them much because they misnamed the 'hardware laws' as 'software laws' and vice-versa. Let us explain the quick response:

First, the falling object may not be a ball, but something that can kill us. Then the quick response turns into an emergency response. This quick response is ruled by instincts, and specific area of the brain called the Subconscious is their birthplace.

Second, in our book *A Guide to the Mind's Secrets*,<sup>14</sup> it is explained that from hypnosis, which puts the conscious to sleep leaving the Subconscious active, we know that the Subconscious (located in deep areas of the brain) operates much quicker than the Conscious (located in the surface (cortex) area of the brain). This is a good reason to believe that the Subconscious rules the quick response.

Third, as indicated in our book, the Conscious (located on the surface of the brain) deals with laws of logic, but since we taught the Conscious these laws of logic, they are 'software laws' (not 'hardware laws' as these authors claim). The laws of physics, which describe the objective real world and are created on the basis of laws of logic are 'software laws' (not 'hardware laws' as these authors claim).

The Subconscious, which is buried in deep areas of the brain, is the place where our emotional brain (Limbic system) is and where our instincts originate. Since we don't have control on our instincts and thus cannot change them, our instincts obey 'hardware laws'. The emergency response, being related to the Subconscious, should obey the 'hardware laws' of the Subconscious (not 'software laws' as these authors claim).

Presently, the Subconscious is not studied much, but I firmly believe that we have reached a point of our development, when our emotional response cannot be ignored any more because it was found at molecular level that emotions facilitate memorizing. Neither can our emergency response to stressors be ignored, which is based on instincts and related to the Subconscious. Our response to acupuncture treatments, which are mild stressors, is also related to the Subconscious, and so is our intuitive creativity.<sup>14</sup>

Our internal organs are also subordinated to the Subconscious. That is why we are not consciously aware of their work. It is purposely done because information about the functioning of our internal organs shouldn't interfere with the information coming from our external senses because this would impair our quick emergency response.

On the one hand, all internal organs are subordinated to the subconscious. On the other hand, each internal organ is represented on the skin surface by an acupuncture meridian. Therefore, the system of acupuncture meridians should be subordinated to the Subconscious. The fast operational rate of the Subconscious (see author's book: *M. Kuman, A Guide to the Mind's Secrets*)<sup>14</sup> could explain the



instantaneous response of the system of acupuncture meridians to magnets, sounds, different colors of light, etc. (see author's book: M. Kuman, *Modern Aspects of Ancient Acupuncture*,<sup>1</sup> Chapter 5).

## Can persistent dreams be used for diagnosis and why?

Our sleep is a constant alternative switch between light and deep sleep. During light sleep, dreams are registered as activity of the Conscious. During deep sleep, galvanic (electric) skin changes are registered, which are specific for emotional reactions and the emotional brain is located in Subconscious areas. Therefore, the Subconscious is obviously accessed during deep sleep.<sup>14</sup>

This means that the constant alternative switches between light and deep sleep are switches between the Conscious and the Subconscious. During these alternating switches, we can expect subconscious information about the functioning of our internal organs to be brought to the Conscious and appear in our dreams.

From ancient books on acupuncture, we are learning that in ancient times persistent dreams were used for diagnosis. According to these ancient books, persistent dreams of fire signal heart trouble, persistent dreams of water kidney trouble, etc. Maybe even for that reason in the ancient acupuncture books the heart is considered the element of fire, the kidneys the element of water, etc.

## Why series of acupuncture treatments for cure of chronic diseases?

I published an article in *Deutsche Zeitschrift für Akupunktur* in 1985, which shows that all changes observed at acupuncture treatment (electrical, hormonal, etc.) are exactly like the changes observed after any mild stressor.<sup>15</sup> Therefore, acupuncture works as a mild stressor: it mobilizes the body as any other mild stressor does. This mobilization requires a boost of energy (to fight or flight, adapt or resist) and thus has stimulating effect on the body.

In Appendix 2 of my book *Modern Aspects of Ancient Acupuncture*, there is a proof that the energy (Chi) circulating along the meridians is, indeed, mobilization stress energy from the contemporary viewpoint. The hormones (corticosteroids) and neurotransmitters (adrenaline and noradrenaline) emitted during stress and therefore during acupuncture treatment, circulate in the blood for more than 24 hours (2 to 3 days).

When a series of daily acupuncture treatments is done, the substances emitted during each acupuncture treatment accumulate and therefore the effects of the treatments accumulate. Obviously, the cure of diseases with acupuncture is based on accumulation of the stimulation effect of daily acupuncture treatments.

For that reason, cure of chronic diseases with acupuncture can be achieved only with a series of 14 to 20 daily acupuncture treatments (see the author's book *What Everybody Ought to Know about Chronic Pain, Chronic Diseases and Cancer*<sup>16</sup>. Cure of chronic diseases could never be achieved with acupuncture treatments once a week, as some modern acupuncturists in the US practice because of the expense.

## Conclusion

We know that in a state of hypnosis (which puts the Conscious to sleep while leaving the Subconscious active) calculations are done very fast. This means that the Subconscious operates fast.<sup>14</sup> The instant response of the acupuncture meridians to acupuncture treatments indicates that the acupuncture meridians are subordinated to the fast-operating Subconscious, and so is the quick instinctive response to

stressors. Such quick response is possible only if waves propagate along the system of acupuncture meridians, which are part of the fast-operating Subconscious.

Maybe the waves that allow quick emergency stress response should be called stress waves. Prof. Manaka and his coworkers assume that there is a communication system faster than that of the nervous system, but they do not quite know what it is. They call it X-system.<sup>13</sup> For us, this is the system of meridians with waves propagating along them, which is subordinated to the Subconscious and it is part of our nonlinear electromagnetic field (NEMF).

The system of meridians not only communicates through waves, it is sensitive to external waves, such as sound, different colors of light, music, and the waves of herbal and homeopathic remedies.

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## Conflict of interest

Author declare there is no conflicts of interest.

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