

## Preface

The improvement of our health follows the developments of medicine and science. In the past several centuries human endeavor in science greatly promoted our knowledge and capability of the medicine in material approach. However, there still exist a number of limits in modern medicine. We all expect to have a more holistic medicine that can protect our health in a better way. Luckily, the electrodermal screening test (EDST), suggested by German doctor Reinhold Voll in 1950's, is the beginning of this possibility. The scientific bases embedded in such test were well explored by Professor Kuo-Gen Chen since 1989. Some essential electric properties of the meridian systems were found experimentally, which explained the physiological significance of the systems and the mechanisms of the screening. It was also found that the medicine testing is based rather on information transfer than the transportation of matters. Therefore, Chen used "information medicine" to connote the emergence of this new medical development. He also pointed out that the principles of the EDST can be applied to many fields to improve our lives. This booklet is the outlines of his study in this field, particularly in the clinical application of the EDST.

# Electrodermal Screening Test

## The Future of Information Medicine

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## 1. Introduction

The meridians and acupuncture points (points along the meridians of traditional Chinese medicine (TCM) have been used to treat patients for thousands years. TCM meridian treatments include the use of thin needles to puncture points on the skin (acupuncture) and burning herbs near points on the skin to heat them (moxibustion). There is a connection between the points on the skin and the internal organ systems, which explained (albeit "unscientifically") the effect of acupuncture. In fact, the traditional definition of "meridians" includes both the lines of acupuncture points and the internal organs or systems that are associated with the points and lines. In the following we will refer this broader definition (meridian lines, acupuncture points, and associated internal organs) as "meridian systems." We will refer to the lines along the skin where most of the acupuncture points are located as "meridians."

Acupuncture points and meridians were not understood scientifically until the 1950's, when Nakatani discovered their electrical conductance properties. Voll was the first to measure the electric response of points on the meridians and use this information to diagnose patients. The clinical method developed by Voll has proven the more useful and powerful, and it is now called the electrodermal screening test (EDST, Fig.1, the apparatus). According to Voll's measurement point classification system, meridians are located along both sides of each finger and toe, and their distribution is anatomically

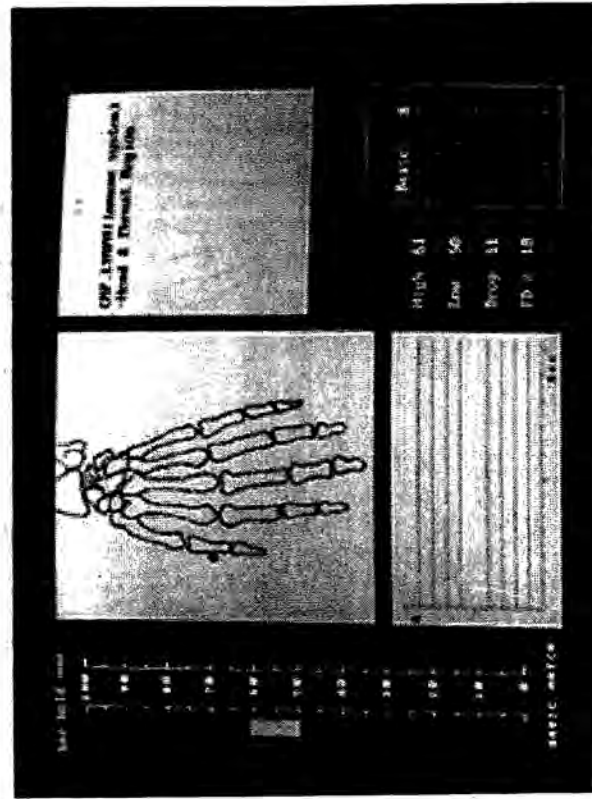
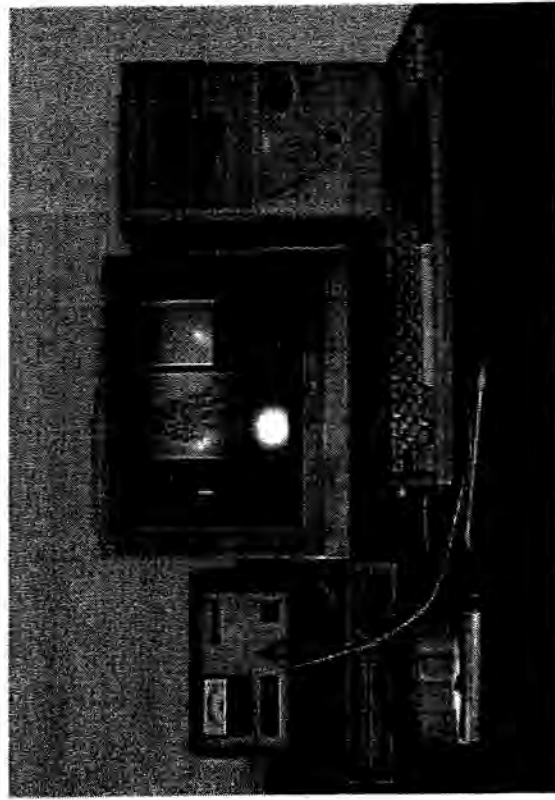


Fig. 1

symmetric. All together there are forty meridians belonging to twenty meridian systems. These systems include the lymphatic, lung, large intestine, nerve, circulation, allergic, organ degeneration, and endocrine systems etc. Each meridian has a control measurement point (CMP), which shows the general condition for the entire meridian. (Fig. 2 and 3)

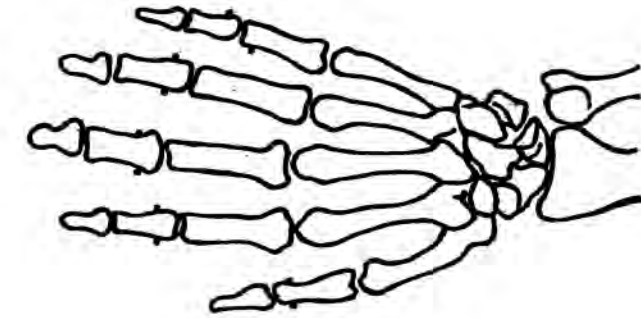


Fig. 2

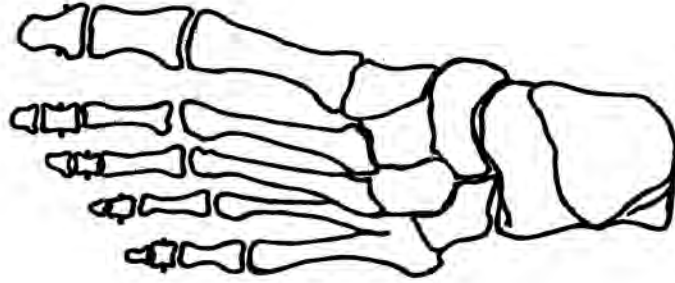


Fig. 3

A Voll-type measurement device has a reading meter divided into 100 units, which we now refer to as "volls." EDST readings are usually recorded using two numbers, the first being the initial or peak reading, and the second measuring any change from the peak reading. When the peak reading, which reflects metabolic power, is at or near 50 volls, the metabolism of the measured meridian system is normal. If the reading is well above 50 volls, then it is irritated or inflamed. If the reading is well below 50 volls, then the meridian system is in a state of "hypofunction." Changes from the peak response may indicate pathological degeneration existing in the measured meridian and biological system.

In the 1960's Voll discovered an amazing phenomenon while teaching a class in the EDST. He noticed that when a patient with a medical condition was in contact with an appropriate medicine for his condition (in this case, a homeopathic remedy in a glass bottle was in the patient's pocket), the medicine will have a positive effect on the EDST reading. When Voll took the remedy away from the patient, the distinctive, bad reading for the patient's condition came back. Voll tested this phenomenon repeatedly and found that any substance that could affect the body, positively or negatively, would have a corresponding effect on EDST measurements. Voll then added this "medicine testing" to the EDST, greatly increasing its versatility and specificity. In particular, he found that by doing medicine testing with nosodes (homeopathically

prepared diseased tissue samples), he could determine the specific cause of viral and bacterial infections.

We now have four decades of experience in applying the EDST, and volumes of useful clinical information have been collected. Nonetheless, the EDST is quite different from conventional approaches and can be difficult for practitioners to learn. Although it is obvious that the meridian systems is the basis of the EDST, Nakatani's and Voll's explanations were not complete or conclusive enough to convince the scientific community, and this further hampered further development and wider use of the EDST. In recent years, the Physicist Kuo-Gen Chen has constructed a new model to better describe the electric responses of the meridians. Using his model we can now scientifically explain and understand all EDST clinical data. Chen also developed a hypothesis based on an extension of quantum field theory that scientifically explains medicine testing.

## **2. Electric Properties of Meridians and the Physiological Significance of the Meridian Systems**

In the spring of 1989 Chen successfully constructed a new model which can properly describes the electric response of a human body when it is stimulated by a small dc voltage. This model includes three types of responses: electric conduction, cellular polarization and defense regulation.

As soon as a small dc voltage is applied to an acupuncture

point on the skin, the charged particles, particularly the electrons, will pass through the patient's body. The measured current intensity thus reflects body conductance. At the same time, the cells under the driving force of the external electric field will be polarized and form tiny dipoles. These dipoles are aligned along the field to produce an internal potential that opposes the external one. This induced potential will in turn trigger millions of biochemical reactions taking place within the cells. As a result of these reactions, some chemical energy stored within the cells is transformed into electrical energy. This energy supplies the cellular charge needed to set up a gradient distribution which defends the cells from being polarized. This defensive self-regulation of the cells produces an electromotive force which Chen calls "life potential."

Using these three responses, Chen derived a formula for a typical EDST response current. The theoretical curves calculated by this formula were very close to actual readings, as shown in Fig. 4. The peak current reflects the conductance of the measured meridian. The drop from the peak results from the competition between life potential and the polarization potential. The extent of the drop represents the net polarization potential relative to the applied voltage. Using these two indicators Chen studied the electric properties of meridian systems. He found that all meridians exhibit current conduction better than surrounding tissue, wave propagation better than surrounding tissue, and preferential direction. Because they possess these

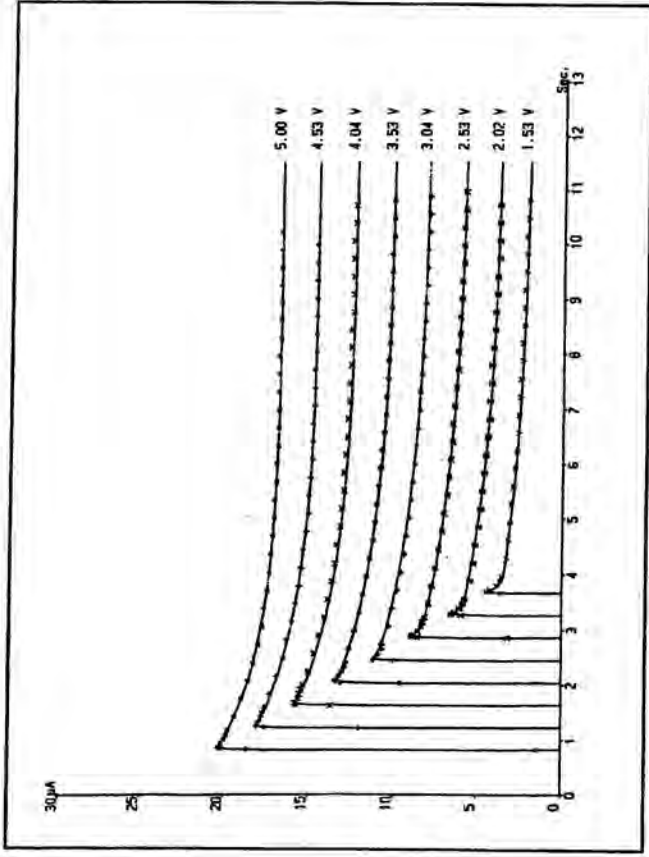


Fig. 4

electrical properties, the meridians can function as a basic network for the communication of biological matter, energy and information in the human body.

There are other systems in the body for communication and the transportation of matter, so why are the meridian systems needed? In the early stages of embryo development, before the circulating and nervous systems appear, cellular integration is achieved by a network of primitive meridians. A fertilized egg, though split into several cells, still forms a living organism. The egg is highly integrated through the communication of biological matter, energy and information between cells. If this does not happen the cells will either die or develop into several

independent living organisms.

However, at a certain critical stage the number of cells in the organism increases to the point that the primitive function of meridians is not adequate to integrate them. It is at this point that new communication systems of a higher functional level appear. The developed systems, including blood vessels to transport matter and nerves to transmit electrical signals, begin to appear and take over or supplement meridian functions. Both meridian and developed systems continue to develop and interweave as the embryo grows. (Fig. 5) When the baby is born, these two types of systems are almost complete. The meridian systems continue to function as an inter-network connecting individual cells and the developed systems. They supplement, compliment and influence one another to guarantee perfect physiological functioning.

Because the meridian system preserves their primitive structure and function, they are the most "tunable" networks in a living organism and their electrical conduction, wave propagation and preferential direction can be influenced by external forces and by the condition of the internal systems. In acupuncture treatment, thin needles are used to affect a meridian. This external force affects the meridians and "adjusts" their communications, which can have a positive effect on the related internal systems. This relationship also works in the opposite direction. Impending disease or infection will disturb the meridians first and then influence the developed systems in the

later stages. The beginnings of disease inside the body will affect the meridians, and these changes in the meridians can be measured as changes in electrical properties at meridian points on the skin. This is the basis of the EDST.

### 3. Scientific Interpretation of EDST Data

When a peak reading of approximately 50 volls is obtained, the measured meridian is known to be in a healthy state and its corresponding resistance is about 100 kΩ. If the reading diverge from 50 volls by more than 10 volls in either direction then there is an abnormality. Changes after the peak reading are also important indicators that may reflect the extent of malignancy of the disease in the patient's body. All together there are six types of possible responses after the peak, and each says something very specific regarding the condition of life potential:

1. The response curve continues to rise and does not drop at all (Fig. 6a). In such a case life potential is overreacting to oppose the induced cellular polarization because the patient's body is excited by some type of stimulus. This type of response is seen very rarely.

2. The peak response holds for the whole time of measurement (Fig. 6b) because life potential can balance the cellular polarization in an optimal way. A reading that combines both balance (a peak reading near 50 volls) and continuity (neither dropping nor rising) is the ultimate criterion of health in the EDST.

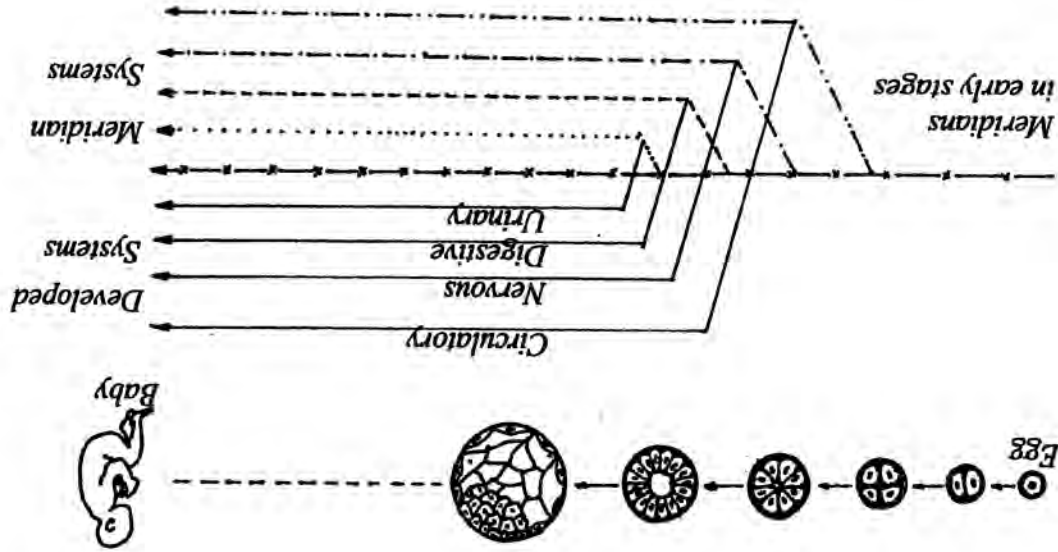


Fig. 5

3. The peak response holds for a short time and then drops (Fig. 6c). This suggests that the strength of life potential is weakened after a short balance. In the other words, it indicates an incipient functional disturbance existing in the generation process of life potential.

4. The response drops steadily from the peak down to a certain asymptotic value (Fig. 6d). This frequently observed pattern is due to the hypofunction of life potential, which cannot completely cancel the cellular polarization. A net disturbance remains, causing the response drop. A steep slope suggests an acute condition, when a slow drop probably indicates a chronic condition.

5. The peak response first drops for a short time and then rises again (Fig. 6e). This indicates functional fatigue, such as when the subject is tired or under stress. There is a retardation of life potential or the defense response.

6. An inconsistent, "wavy" drop from the peak current is the last type (Fig. 6f). In such a case there most likely is a stimulus that irregularly interferes with the function of life potential. Various things can have a random, negative effect on life potential, including cosmetics, the color or material used in the clothing, and devices that emit radiation, such as television sets.

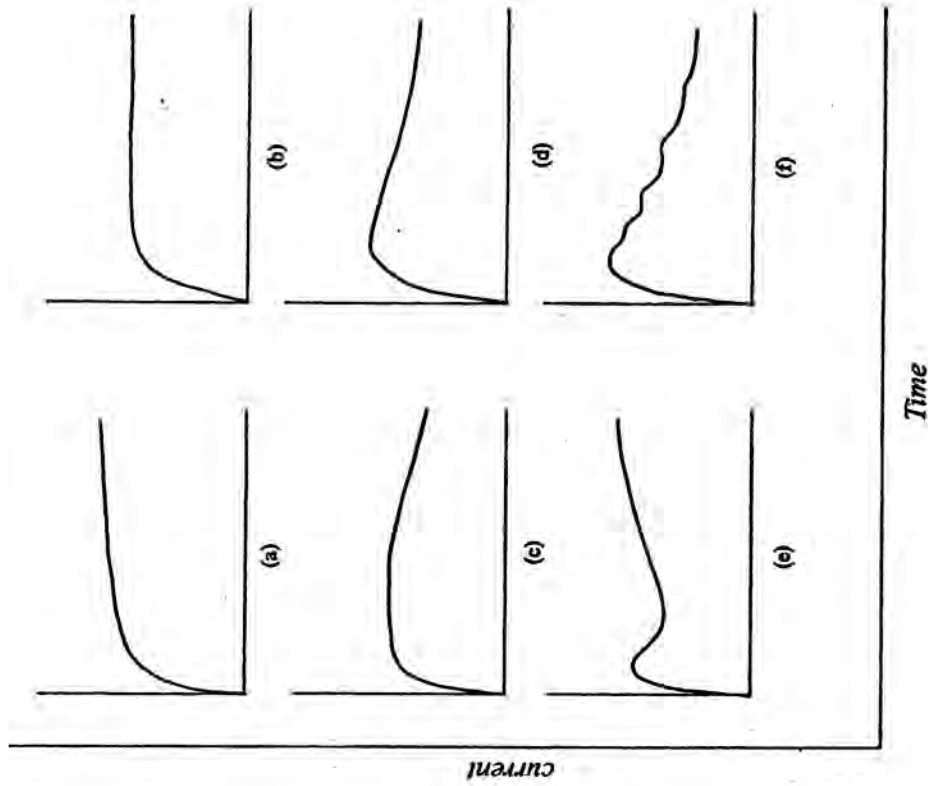


Fig. 6

The EDST has many advantages. It is noninvasive and does absolutely no harm to the patients, and the data is obtained and can be interpreted immediately. EDST data gives the doctor very practical information about the patient as a whole and about individual systems. True preventive medicine, with the earliest possible diagnosis and therapy, becomes a reality when the EDST is used. The EDST creates quantitative data about the functional response of the measured meridians, which allows us to scientifically measure the effect of various traditional and alternative forms of medicine. EDST data can function as a common language that allows doctors from various traditions, both Eastern and Western, to communicate and combine the best that their practices can offer. In other words, the EDST allows us to finally realize a true integrated medicine.

#### **4. Biological Information Carried by Electron Waves**

As mentioned above, the discovery of medicine testing was accidental, but it has since developed into a key element of the EDST. (see Fig. 7) Regretfully, there appeared to be even less of a scientific basis for medicine testing than there was for acupuncture. In 1989 Kuo-Gen Chen offered a hypothesis which gives medicine testing, and the EDST as a whole, a much firmer scientific basis. Chen suggested that the electron waves emitted by the measurement device are phase modulated when they pass through the electromagnetic potential of the medicine. The

medicine can be held by the patient or placed on a special testing plate made of aluminum that is connected to the measurement circuit. The electron waves carry the medicine's information as they pass through the patient's body. These waves are absorbed by specific tissue types, organs or systems, according to their characteristic resonance. This way the informational pattern of the medicine enters the body, and the reaction by the body can be noted, without the patient actually ingesting the medicine.

Physiology and pathology are actually the collective behavior of electrons residing in human tissue, organs, and meridians, and they have their own characteristic wave patterns. If they share certain characteristics, the wave patterns within the body can be affected by the remedy's wave patterns carried by the EDST's dc current. Interference occurs between the waves existing in the body and the waves carried into the body during medicine testing. When they are in phase, constructive interference occurs and the body's electron waves are enhanced. When the two sets of waves are out of phase, destructive interference occurs and certain waves within the body are reduced or eliminated. If the body's waves are "correct" but are not strong enough, they can be strengthened through constructive interference. Incorrect waves (i.e., disease signals) in the body can be suppressed through destructive interference. The required amplitudes of the remedy waves can also be used to determine the necessary dosages of medicine. Therefore, both types of interference can be used in both diagnosis and treatment.



The cause of disease can be determined, an appropriate medicine and dosage can be selected, and supportive therapies that work to encourage natural healing process can be applied, all through with the EDST.

### 5. Further Applications of the EDST

The EDST and medicine testing can be applied in many, diverse fields. Foods can be screened to determine their appropriateness for specific people. It is simply a matter of doing the EDST with a sample of the food on the testing plate. In the same way, cosmetics can be tested for the effect they will have on the skin before they are used.

Another important application of the EDST is detoxification. Today, environmental pollution is so severe that all of us are affected by toxins, which gradually weaken the body's defense systems. The stress of modern life also causes the body to create various "natural" toxins. Various scientific studies and our clinical experience with the EDST have shown that it is possible to rejuvenate the body's defense systems. Using the EDST it is possible to determine what types of toxins a person suffers from most and to select medicines to remedy this. Mostly, we use homeopathic drainage remedies, which work by giving body signals that help it to naturally expel the toxins.

The Electrodermal Screening System (EDSS)

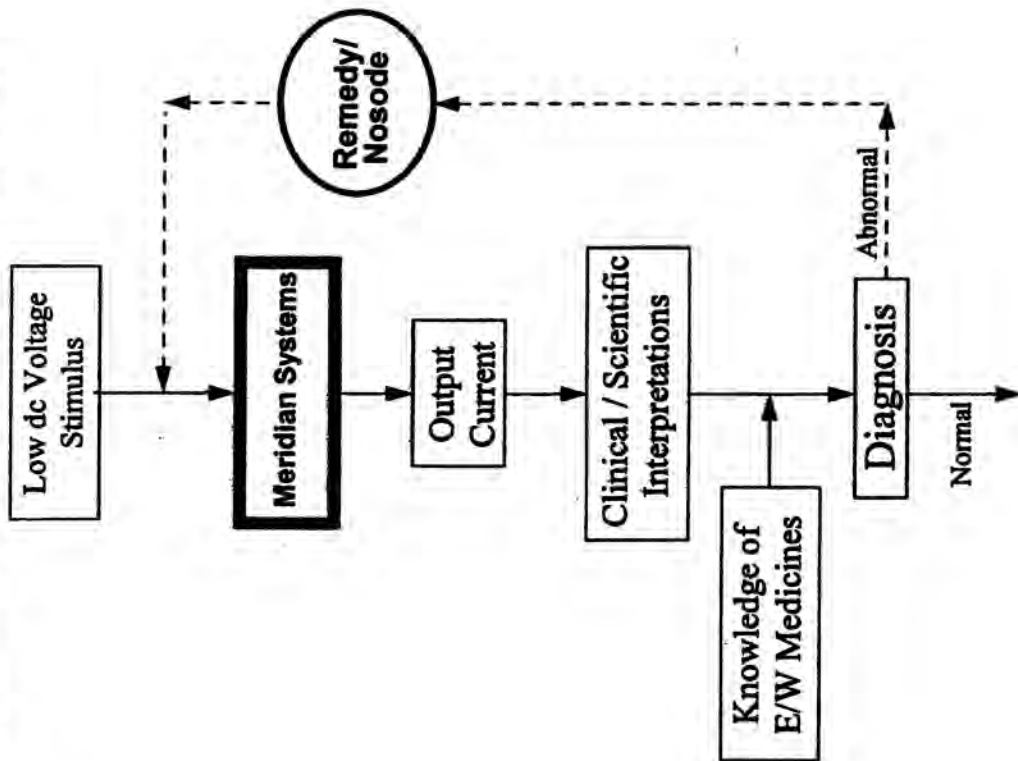


Fig. 7

## 6. Information Medicine and Health Care in the Future

Modern medicine very "materialist" and focused on the physical conditions of the body. But in addition to the physical matter that makes up the body, both energy and information are essential to health. Unluckily, very few people working in conventional medicine recognize the importance of these non-physical aspects. They avoid dealing with them because they think there are no suitable indicators to show their role and importance. The EDST can measure biological energy and information because it is based on the transfer of information rather than the transportation of matter. But the primary source of biological information in the body is the function of internal organs and systems. Therefore, the EDST can "see" the body completely, including matter, energy, and information. The emergence of the EDST is the beginning of modern information medicine. This new, truly holistic approach to understanding the body will not only influence medicine but will have an impact on various facets of society and culture.

Health care in the future must consider the form and consumption of physical matter, the creation and transfer of energy, and the management and communication of information within the body. Only a holistic approach will bring further improvement to health care. The need for change is growing, and luckily for us the development of the EDST coincides with this urgent need. Information medicine, particularly the EDST, can move traditional and conventional medicines into the 21st century.

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