

The Past, Present, and Future of the Electrodermal Screening System (EDSS)

Julia J. Tsuei, MD, FACOG

ABSTRACT: The author presents the past, present, and possible future of the Electrodermal Screening System (EDSS), EDS Test (EDST), and EDS Device (EDSD), and relates them to procedures that preceded them: traditional acupuncture based on meridian theory and electro-acupuncture according to Voll. The author and others have produced a body of scientific data and literature that demonstrate efficacy of the EDSS and offers plausible mechanisms of action. Use of the EDSS and EDSD for diagnostic screening and their possible integration into a modern health care system are reported.

Introduction

Safe and inexpensive diagnosis by skin level measurements may be superior to present imaging techniques which give limited information. An instrument is needed that can be expected to do this reliably and effectively (1), a role that is filled by the EDSD. Its acceptance will not come easily and requires adequate research evidence.

The EDST, is a testing process in which measurements are taken

Dr. Julia J. Tsuei received her medical education in China, Taiwan and the United States, and is a diplomate of the American College of Obstetrics and Gynecology. She has participated in family planning and maternal-child health activities in the WHO and USAID and is a past professor at the University of New York and the University of Hawaii. She currently is at National Yangming University, Taiwan, where she established the Graduate Institute of Traditional Medicine in the School of Medicine. She established the foundations for East-West Medicine in Taipei and Honolulu in 1989, to research the integration of traditional and contemporary medicine.

Julia J. Tsuei, MD, FACOG, National Yangming University, School of Medicine, Graduate Institute of Traditional Medicine, #155 Li-Noon Rd., Sec. 2 Shihpai, Taipei, Taiwan, R.O.C.

the energy is
on for the rea-

he article pur-
modern labora-
hen she states
ument the va-
ensible, using
towards a new
aw, the biggest
s of the "body
re described in
goal.

rodiagnosis: Clin-

with the EDS. Together they form the EDSS, a general term that stands for all the components. The device, the test procedure and the system are integrally related and cannot be separated. They must be understood together.

The EDSS is theoretically based upon bioenergy (chi) and traditional meridians which represent the paths of flow of this energy. The obvious way to prove that such energy exists is by using a device which measures it. This is what the EDS can do. This article reviews the history, methodology and the current state of modern research in this field of investigation.

History

Biological energy, known as "chi" in traditional Chinese medicine, is generated in internal organs and flows through channels near the skin surface, known as meridians. Acupuncture points, generally located on meridians, are where the flow of the energy can be manipulated. The stimulation at these points by various means affects the energy circulation, thus producing secondary effects in connected organs and systems (2).

The use of the word "systems" as used hereon refers to the source areas of bio-energy in body organs and systems. It is not to be confused with the the "meridian system" which refers to the complete network of meridians. A meridian, which includes the structure of the system of origin, the function of that system, the electro-magnetic pathway and its emotional/vibrational interaction, can be conceived individually or as part of an intricate network. The synergistic totality of the meridian system is fundamental.

Although various mechanisms to explain acupuncture are offered, the electro-magnetic model fits best. Analogically the systems can be compared with energy fields connected by wiring. A small "dose" of electro-magnetic energy introduced through an acupuncture point flows to the connected system and affects it. Anything that alters system function or structure changes the energy flow through the "wiring" and the EDS measures the resistance and polarization at the affected acupuncture points. It thus provides a picture of the balance of related systems that are interconnected through the "wiring."

Voll (3) was an early investigator who applied low voltage currents to acupuncture points in humans. His device was called the Diatherapuncteur, but the Dermatron (Pitterling Electronics, Munich) has re-

placed it. Voll's original goal was therapeutic electroacupuncture but he noted that the low voltage emitted by his device caused a response at the acupuncture point which reflected the condition of the associated system. Thus, it could be used in diagnosis and monitoring of a patient's health status and became known as electroacupuncture according to Voll (EAV). This was the revolutionary aspect of EAV which has led to development of EDST.

Most written material on EAV is devoted to location of measuring points and how measurements are made and interpreted (3-12). They generally lack appropriate referencing and are difficult to locate. Voll used EAV in conjunction with homeopathy, thus increasing the scientific credibility gap. We are perfectly well aware of such shortcomings and intend to address them. Voll was also well aware that research was needed (13).

The Device and Method

All EDSDs share the same basic design and functional use. The core is an ohm meter which delivers 10-12 microamperes of direct current at 1-1.25 volts. Since the ionization potential of hydrogen atoms is 1.36 volts, this is perfectly safe. In most devices the meter is calibrated to read from 0 to 100 so that the standard skin resistance of 100 kilo-ohms reads 50. Zero represents infinite resistance and 100 indicates zero resistance at this electrical potential. Some devices read from 0 to 200 and 100 indicates normal skin resistance (14,15).

The testing probe is an insulated body with a tip of brass or silver connected to the positive side of the circuit. This, held by the operator, is pressed firmly on the patient's skin at the measurement point. A brass hand electrode is held by the patient and connected to the negative side of the circuit. A metal plate, for medicine testing, is inserted between the EDSD and the patient's hand electrode (Figure 1).

Training in the use of the probe is essential (3). Point location must be accurate, and the probe must be applied at the correct angle. Appropriate pressure must be applied during measurement which may take as long as 60 seconds. This pressure can be from 600 to 2000 PSI depending on tip design and may create a temporary dimple. It may be slightly uncomfortable but should not be painful. Moistening the probe tip and the hand electrode ensures good electrical contact. Repeated measurements, the time taken for each and the time between them affects readings (16) (Figures 2 and 3).

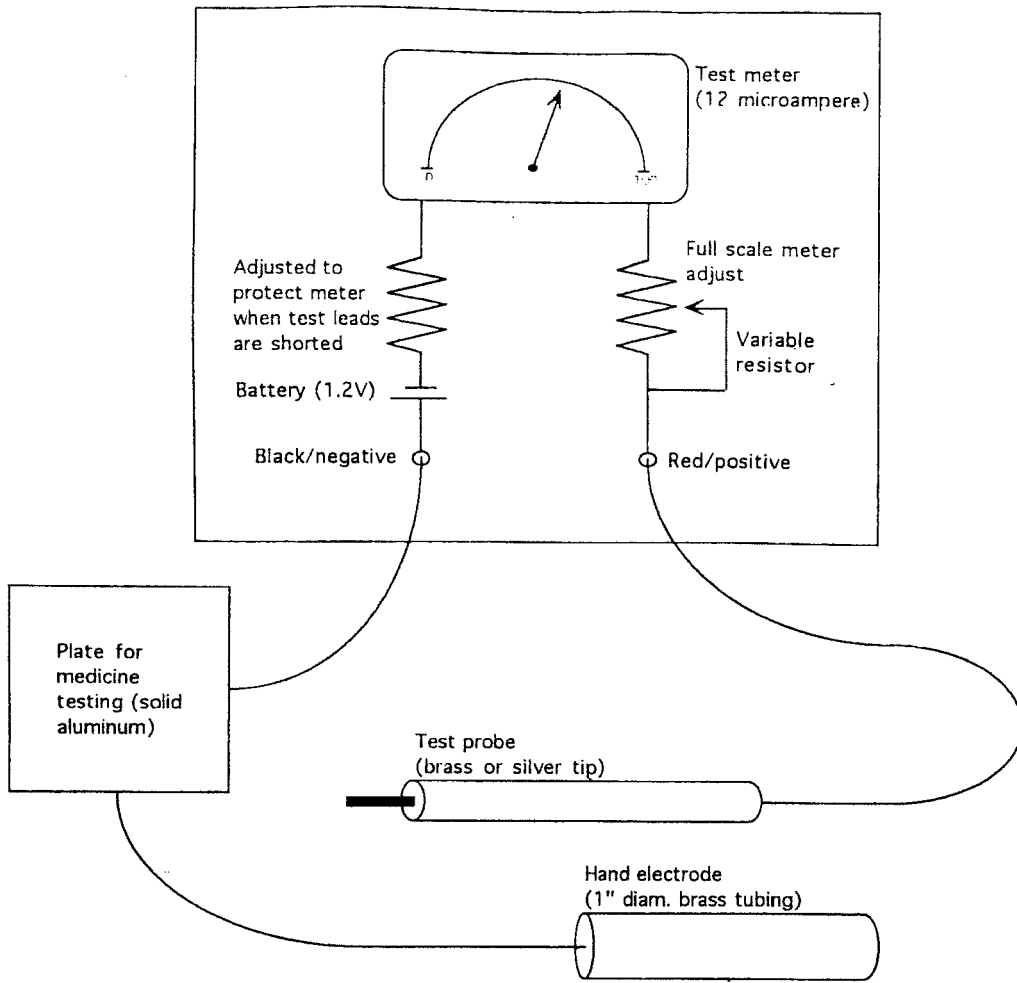


FIGURE 1

A simple schematic diagram of an EDSD.

Measuring involves two components, the initial reading, which is generally the highest, and what is known as the indicator drop (ID), a gradual fall in the original reading. An initial reading of approximately 50, followed by little or no ID is considered to be "balanced." Initial readings over 60 may indicate inflammation of the connected system. Readings below 45 may indicate degeneration. When an ID is present it is considered to provide the most important information as an indicator of system disease. Using "medicine testing," the ID can be used to define the cause of imbalance (Figure 4).

S
e
n
f
r
"
r
s
f
k
a
c
t

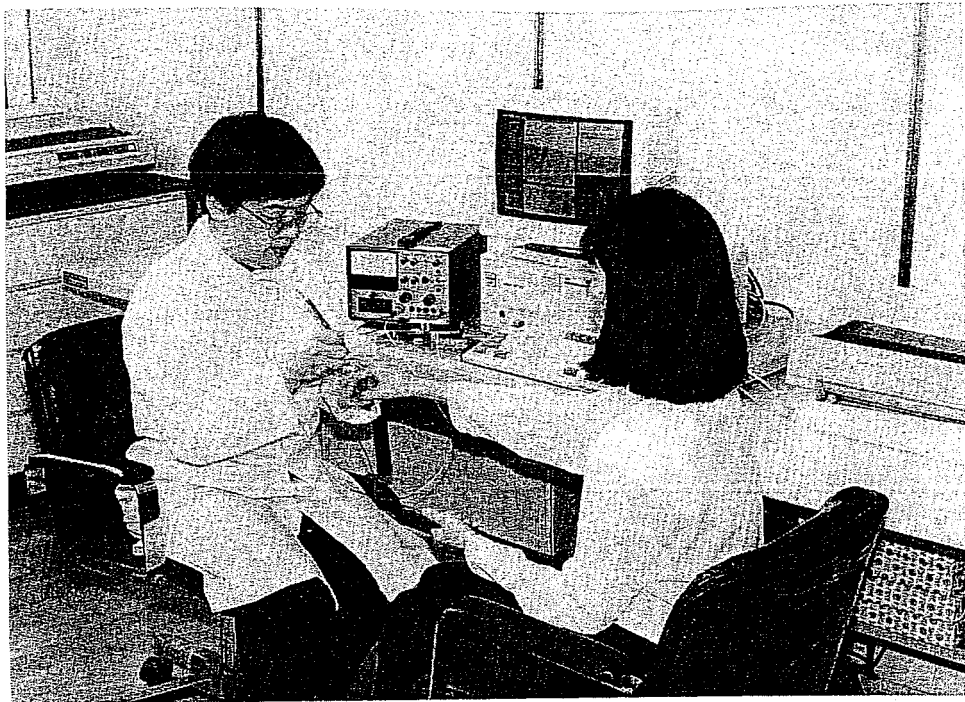


FIGURE 2

Photograph of a point measurement.

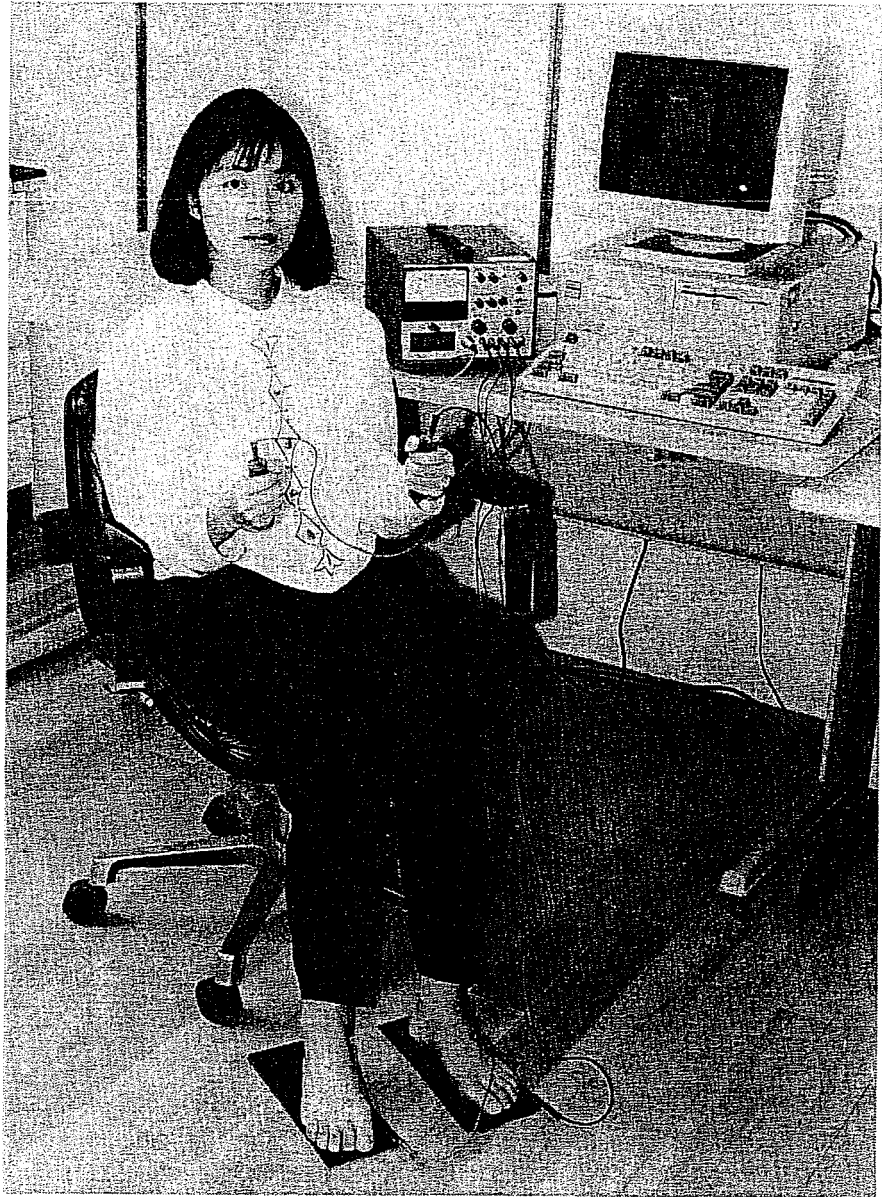
There are 850 measurement points (4) on the body, but most measurements use points along 40 meridians on the hands and feet, generally located between the diaphysis and capitulum of the phalanx, metacarpal or metatarsal bones (Figure 5).

Voll discovered new meridians, new measuring points and new functions of existing points, although his understanding and use of meridians was generally in agreement with Chinese tradition. His "new" meridians relate to joints, skin, fibrous and fatty tissues, serous membranes, pyramidal and autonomic nervous systems, lymph system, capillary circulation and allergic reactions.

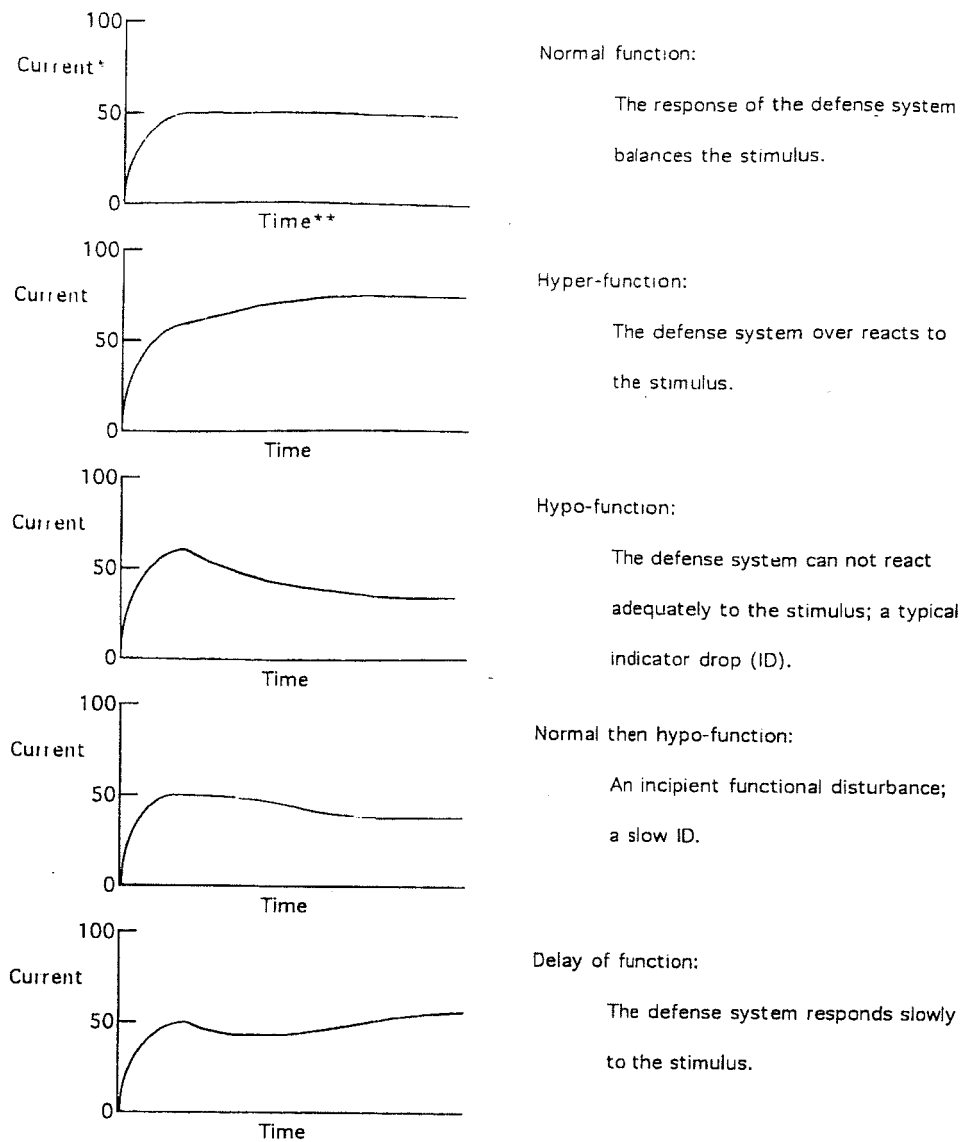
Branch points, many of which were discovered by Voll, help in pinpointing the exact location of abnormal function. For example, the branch points on the two heart meridians, one on each hand, include all the heart valves, the conduction system and coronary arteries. By combining readings from different points, a more exact definition of the affected tissue is possible.

The EDST begins with examination of whole-body energy levels

which is
op (ID), a
proximately
l." Initial
d system.
s present
s an indi-
1 be used



Photograph of a patient during a four quadrants measurement.



*0-100 represents the meter reading (i.e. relative conductance).

**Total measurement time is between 10 and 60 seconds.

FIGURE 4

Five examples of typical readings taken with the EDS.

- Pancreas control measurement point (CMP)
- Branch points on the pancreas meridian
- ⊗ Othe control measurement points

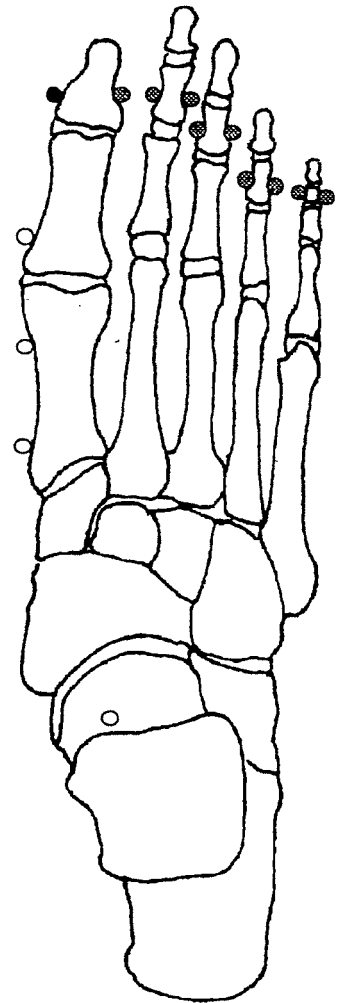


FIGURE 5

Examples of measurement point locations on the right foot.

represented in 4 quadrants, hand-to-hand, foot-to-foot, right hand-to-foot and left hand-to-foot, using brass tube hand and brass plate foot electrodes. The probe is then used at the control measurement points (CMP) to determine the general condition of a meridian. Branch points are checked if there is a positive reading at the CMP or if symptoms suggest it, regardless of CMP readings. When an ID occurs, various reagents can be tested by placing them one by one on the test plate in the circuit in an effort to restore balance by abolishing the ID. Each reagent sample is sealed in a glass container.

Selection of test reagents is based on medical knowledge and experience and may require a combination. Reagents that abolish the ID may be found to be appropriate as a medication or as a nutritional supplement. No change suggests ineffective choice, while an increased ID suggests that the choice would be harmful. For example, in a diabetic, a proper dose of insulin would improve or abolish the ID, whereas refined sugar would increase it.

Medicine testing is controversial but may be the most promising aspect of the EDSS (12,13,17). Voll, who discovered the phenomenon, used it in conjunction with homeopathy and its effectiveness in testing homeopathic remedies has been published (16,18). They are particularly useful reagents since they are prepared in various dilutions which increases the likelihood of finding an appropriate "resonance," to be discussed below.

This kind of procedure has been shown to be effective in testing herbal and allopathic drugs (18,19) and is successful in testing for allergy (20,21), the presence of environmental xenobiotics like insecticides (22) and the effect of biologically active substances.

Theoretical Basis and Holistic Approach

The EDSS is based on electro-magnetic physics and quantum mechanics and this is well documented (23-25). Bio-energy, bio-information and harmonic resonance represent the biophysical foundation of its use. All living creatures generate energy containing biological information which flows in specific tracks throughout the organism. The cell mass in a given organ creates informational energy when the organ functions, giving rise to resonance. There is therefore a direct relationship between quality of organ function and the energy generated.

The initial reading in the EDST measures the energy generated by the connected system. The form and time elapsed in the ID and its manipulation through medicine testing represent the information contained. If system function is normal there will be electrical equilibrium between the EDSD generated voltage and the system. There will be no ID. On the other hand, if the system cannot maintain equilibrium, resistance will increase and there will be an ID. During medicine testing, it is the informational energy in the reagent that causes equilibrium to be established, thus abolishing the ID.

Bio-energy and its relationship with acupuncture points and meridians has been confirmed (26-28). Areas of increased electrical conduc-



foot.

and-to-
ate foot
: points
Branch
P or if
ID oc-
one on
abolish-

tivity on the skin are known to correspond with them (29-32) and scintillation scanning of radioactive tracers injected at acupuncture points reveals patterns of energy flow separate from blood and lymph circulation (33). A definite relationship has been shown to exist between a meridian and its associated system and other bio-energetic relationships have been found to exist between the exterior and interior of the body (34-38).

Bio-information research is new, but all matter has its own unique vibratory signal (39). It is possible to record the vibrational information of a given substance in water and use the water for treatment (40,41), information which can also be carried by photon and electron beams (42). Storage and transport of this information is almost certainly biophysical rather than biochemical, though its exact nature is still uncertain. Theories include L-fields (43) and biophoton emission (44). A plausible mechanism for medicine testing has been suggested (45) based upon quasi phase matching, or resonance, between the test system and the reagent. Chen (personal communication) has suggested that all biological systems communicate through similar quantum-mechanical processes.

It has been suggested that resonance energy of this nature is dispersed throughout the body so that resonance of one organ has a profound influence on function of other organs and systems. Thus, every system influences and is influenced by other systems. Any organ dysfunction affects the whole body and this always needs consideration in therapy.

As an analogy, one violinist in a large orchestra playing out of tune will make the whole violin section sound bad. Should the other violinists in the section decide to play out of tune with their colleague, the section will then be in tune with each other, but not with the orchestra, causing maladjustments by musicians in other sections. This generally does not happen in an orchestra because all its musicians know what harmonic values they need to produce in relationship to each other and constantly adjust. Constant adjustment, or "tuning," in the body maintains the harmony of normal function.

Disease is induced by a lack of harmony, and abnormal function in any part of the body affects the whole organism, sometimes resulting in secondary dysfunction. This is particularly true of degenerative diseases such as AIDS and cancer. Mainstream medicine emphasizes structure and function, rarely addressing the electro-chemical mechanisms affecting the whole organism. For this reason it is usually incapable of effectively treating such conditions. The EDSS addresses

whole body function because the bio-information read by the EDSD provides factual data which reflect on the condition of every part of the body. Using a computer, these data can be stored and analyzed, permitting repeated evaluations over time and even across generations.

Current Research

We have completed over 20 studies using the EDSS, 8 of which are translated into English. In the first study, 11 patients receiving treatment in a family practice were observed. Conditions seen included peptic ulcer, appendicitis, chronic chorea, and cancer of the colon, breast and uterus. In every case, readings taken with EDSD matched standard diagnostic tests (46). In another study, allergy symptoms were assessed by standard diagnostic methods. Testing with EDST correlated closely with accepted criteria, particularly the food re-challenge test, considered the most reliable method of testing for food allergies (20).

After further refinement of the EDST and standardization of the EDSD, data from 483 healthy individuals were studied (47). Quadrant measurements, which assess general biologic energy, did relate to age and sex. Point measurement did not, not particularly surprising since they represent energy and balance in a specific system at the time of measurement. Little or no variation due to these two variables would be expected.

We have studied chronic fatigue syndrome (48), and pesticide exposure (22). Measurement readings at points representing circulation improved significantly after half an hour of chi-kung meditation exercise (49). We have reported on two major studies in diabetes mellitus (50,51) and one on hypertension (52). It was clearly shown that it was possible to differentiate normal from abnormal organ and system function by measuring bio-energy at a few specific points.

EDST as a Screening Tool

It is possible to control sensitivity and specificity for screening purposes. In the hypertension study (52), readings were taken on all 428 subjects at the 40 CMPs and 24 branch points. A logistic regression model was used to analyze the measurements. Readings at 10 points

were found to be affected by hypertension much more than the other points, most of which were on the pericardium meridian.

These 10 points were then used to create a screening model for hypertension and the data originally collected were reassessed using this model. If a positive reading were defined as an ID of only 2 or more, more positive tests would indicate screening relatively high sensitivity and low specificity. If only IDs of at least 5 or more were considered positive, screening specificity would increase and sensitivity decrease. The range of possible results of various combinations of screening criteria is defined with a statistical value called the cut-off value. When the cut-off value of the hypertension screening mode is 0.53, the correction rate is 73.42%, sensitivity 47.93%, specificity 89.23% and odd value is 7.62. Any cut-off value, that is any point along the x-axis, could be selected (Figure 6), thus determining specificity and sensitivity.

Although increased specificity results in false negative readings and increased sensitivity increases false positives, the flexibility offered by this system is invaluable, particularly when medical resources are at a minimum.

Integration of Holistic and Modern Medicine

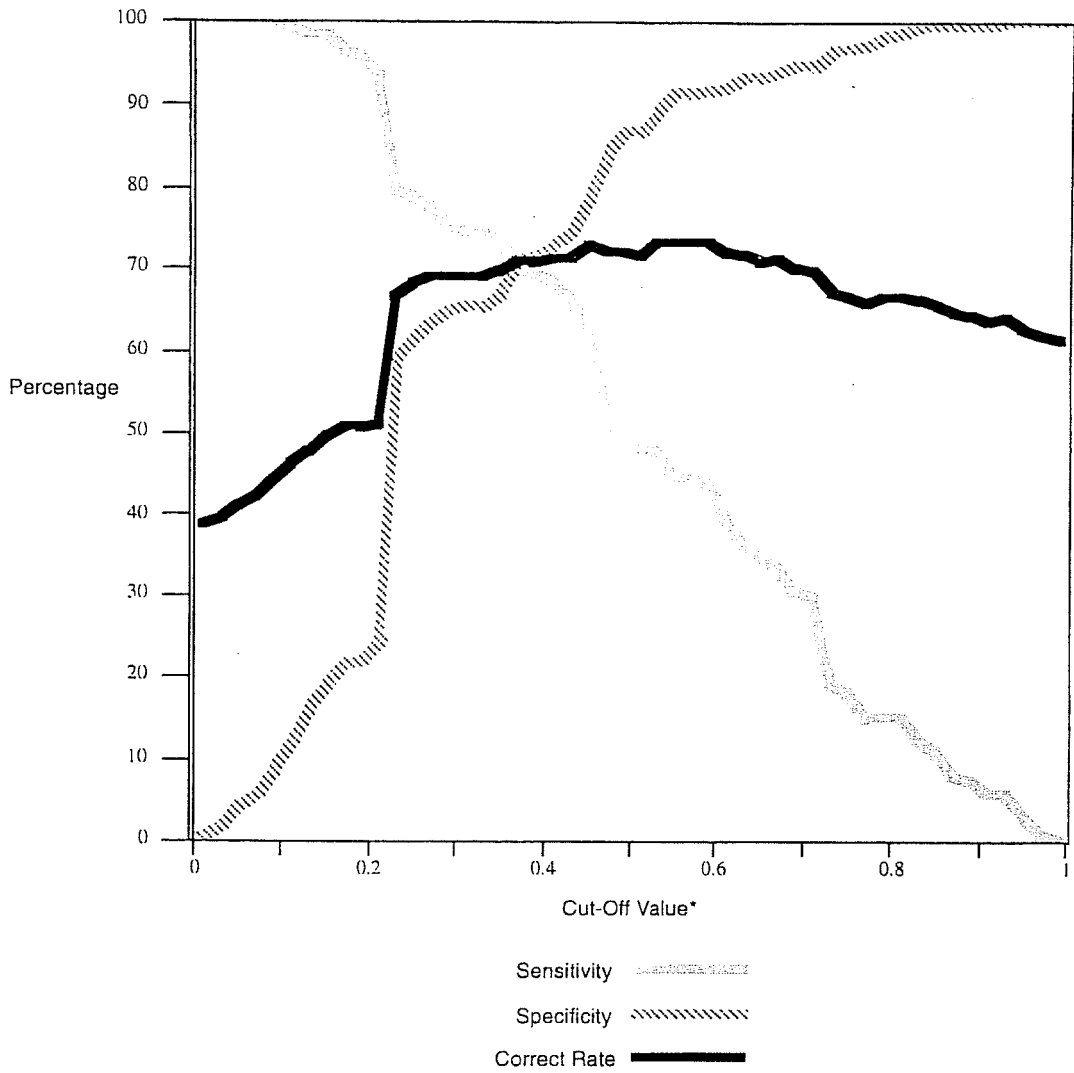
As we have said, many diseases can only be understood and properly treated by analysis of the whole patient. Although traditional and modern methods are used together by many physicians, the two methods have never been fully integrated. This is possible with the EDSS because it is historically connected to Chinese medical tradition which shares similarities with traditional medicine as practiced throughout the world. It is also truly modern and has a scientific foundation, is computerized, and produces data that are quantifiable and reproducible. Based on advanced physics, it is arguably more modern than the mechanistic and biochemical models that dominate current medical thought.

At our clinic, a comprehensive method of studying new patients has been developed. Quadrant measurements determine the general balance of the whole body, and CMP measurements determine the balance of the 20 meridians. Medicine testing is used to determine the cause of any imbalanced meridians. The aging process is monitored by measuring the levels of contaminants in the body, the free radicals or homotoxins in Reckeweg's homotoxological theory (53). Emotional

the other
 model for
 ed using
 only 2 or
 rely high
 ore were
 id sensi-
 inations
 the cut-
 ng mode
 pecificity
 ny point
 ng speci-
 readings
 bility of
 dical re-

properly
 mal and
 the two
 with the
 al tradi-
 racticed
 scientific
 ntifiable
 ly more
 yminate

ents has
 eral bal-
 the bal-
 nine the
 onitored
 radicals
 notional



*The cut-off value is a statistical value between 0 and 1, arbitrarily chosen based on the study subject. In the graph above, the cut-off value is used to specify various possible combinations of specificity and sensitivity, which in turn determine the correct rate for the screening.

FIGURE 6

Possible screening results attained using an EDSD based hypertension screening process.

states and moods are monitored by measuring the electrodermal reaction to floral essence samples. 11.

This assessment takes approximately 2 hours, giving body/mind information and environmental effects all at the same time, offering a complete picture of the patient. By selecting the best components from holistic and allopathic methodology perhaps the question of matter versus energy might be settled as an approach to treatment. 12.
13.
14.
15.

Acknowledgments 16.

The author would like to thank Professors Kuo-Gen Chen and Bin-Hsin Yang, and Dr. F.M.K. Lam Jr. for technical assistance; also Christopher Chalfant for his help in editing. 17.
18.

This research was made possible with the support of the Foundations for East-West Medicine, Taipei and Honolulu. 19.
20.
21.
22.

References 23.

1. Bell-Krotoski J. Advances in sensibility evaluation. *Hand Clin* 1991;7:527-46. 24.
2. Kaptchuk TJ. *The Web That Has No Weaver: Understanding Chinese Medicine*. New York, Congdon and Weed, 1983. 25.
3. Kenyon JN. *Modern Techniques of Acupuncture: A Practical Scientific Guide to Electro-Acupuncture, Vol. I*. New York, Thorsons Publishers Inc., 1983. 26.
4. Voll R: *The 850 Eav Measurement Points of the Meridians And Vessels Including The Secondary Vessels*. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1983. 27.
5. Voll R. *Topographic Positions of the Measurement Points in Electroacupuncture, Illustrated vol. I*. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1976 28.
6. Voll R. *Topographic Positions of the Measurement Points in Electroacupuncture, Textual vol.* Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1977. 29.
7. Voll R. *Topographic Positions of the Measurement Points in Electroacupuncture, Illustrated vol. II*. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1977. 30.
8. Voll R. *Topographic Positions of the Measurement Points in Electroacupuncture, Textual and Illustrated vol. III*. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1978. 31.
9. Voll R. *1st Supplement to the Four Volumes on the Topographic Positions of the Measurement Points in Electroacupuncture (EAV)*. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1978. 32.
10. Voll R. *Measurement Points of the Electroacupuncture According to Voll on the Hands and Feet*. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1982. 33.
34.

nal reac-
mind in-
ffering a
ponents
of mat-
ent.

and Bin-
ice; also
Founda-

7-46.
Medicine.

Guide to

Including
lagsgesell-

upuncture,
sellschaft,

upuncture,
aft, 1977.

upuncture,
sellschaft,

upuncture,
ische Ver-

ons of the
edizinisch

oll on the
sellschaft,

11. Voll R. 2nd Supplement: EAV-Measurement Points for the Eye and Its Protective and Auxiliary Organs—New Base Therapy for the Treatment of Diseases of the Eye. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1983.
12. Leonhardt H. Fundamentals of Electroacupuncture According to Voll. Uelzen, Germany, Medizinisch Literarische Verlagsgesellschaft, 1980.
13. Voll R. Twenty years of electroacupuncture diagnosis in Germany: a progressive report. *Am J Acupunct* 1975;3:7-17
14. Tiller WA. On the evolution of electrodermal diagnostic treatment instruments. *J of Advancement in Med* 1988;1:41-72.
15. Tsuei JJ, Lam Jr. F and Zhao Z. Studies in bioenergetic correlations—bioenergetic regulatory measurement instruments and devices. *Am J Acupunct* 1988;16:345-349.
16. van Wijk R, Wiegant F. Homeopathic Remedies and Pressure-induced Changes in the Galvanic Resistance of the Skin. Utrecht, State University Utrecht, 1989.
17. Baker DW. An introduction to the theory and practice of German electroacupuncture and accompanying medications. *Am J Acupunct* 1984;12:327-332.
18. Lam F Jr., Tsuei JJ, Zhao Z. Studies on the bioenergetic measurement of acupuncture points for determination of correct dosage of allopathic or homeopathic medicine in the treatment of diabetes mellitus. *Am J Acupunct* 1990;18:127-133.
19. Voll R. The phenomenon of medicine testing in electroacupuncture according to Voll. *Am J Acupunct* 1980;8:97-104.
20. Tsuei JJ, Lehman CW, Lam F, Jr., Zhu D. A food allergy study utilizing the EAV acupuncture technique. *Am J Acupunct* 1984;12:105-116.
21. Fox A. A determination of the neutralization point for allergic hypersensitivity. *British Homeopath J* 1987;76:230-234.
22. Tsuei JJ, Chun C, Lu CY. Study of pesticide residues in the bodies of workers at a chemical factory by bioenergetic measurements. R.O.C. National Science Council Reports, Apr. 1988 - Mar. 1989.
23. Becker RO, Selden G. *The Body Electric: Electromagnetism and the foundation of life.* New York, Quill, 1985.
24. Becker RO. *Cross Currents: The Promise of Electromedicine, the Perils of Electropollution.* New York, St. Martin's Press, 1990.
25. Wolf FA. *The Body Quantum.* New York, Macmillan, 1986.
26. Royal FF, Royal DF. A review of the history and scientific bases of electrodiagnosis and its relationship to homeopathy and acupuncture. *Am J Acupunct* 1991;19:137-152.
27. Royal FF, Royal DF. Homeopathy and EDT: Upheld by modern science—with case histories. *Am J Acupunct* 1992;20:55-66.
28. Milburn MP. Emerging relationships between the paradigm of oriental medicine and the frontiers of Western biological science. *Am J Acupunct* 1994;22:145-157.
29. Becker RO, Reichmanis M, Marino A. Electrophysiological correlates of acupuncture points and meridians. *Psychoenergetic Systems* 1976;1:195-212.
30. Chen KG, et al.: Transient responses of a human body to a small DC voltage and electrical properties of meridians, in *International Congress on Traditional Medicine (Beijing '91): Modern Interpretation of "Qi" and "Blood," Bioenergetic Medicine.* Taipei, Taiwan, Foundation for East-West Medicine, 1991, pp 16-25.
31. Rosenblatt SL. The electrodermal characteristics of acupuncture points. *Am J Acupunct* 1982;10:131-137.
32. Tiller WA. What do electrodermal diagnostic acupuncture instruments really measure? *Am J Acupunct* 1987;15:12-23.
33. Darras J. Isotopic and cytologic assays in acupuncture. In: *Energy Fields in Medicine.* Kalamazoo, Michigan, John E. Fetzer Foundation, 1989, pp 44-65.
34. Chang Y, Tsuei JJ. Correlation study between acupuncture points, meridians and internal organs of rats by bioenergetic measurements. R.O.C. National Science Council Reports, Aug. 1988 - July 1989.

35. Kobayashi T. Early diagnosis of microcancer by cancer check of related acupuncture meridian. *Am J Acupunct* 1985;13:63-68.
36. Sullivan S. Evoked electrical conductivity on the lung acupuncture points in healthy individuals and confirmed lung cancer patients. *Am J Acupunct* 1985;13:261-266.
37. Zukauskas G, Dapsys K, Ilgesviciute J, et al. Quantitative analysis of bioelectrical potentials for the diagnosis of internal organ pathology and theoretical speculations concerning electrical circulation in the organism. *Acupunct Electrother Res* 1988;13:119-130.
38. Nordenström BEW. Hand movements above the unshielded tail of a shielded rat induces differences in voltage inside the animal. *Am J Acupunct* 1992;20:157-163.
39. Popp F. Biophoton emission. *Experimentia* 1988;44:443-444.
40. Gagnon T, Rein G. The biological significance of water structured with non-herzian time reversed waves. *J US Psychotronics Assoc.* (in press).
41. Monro J. Electrical sensitivities in allergic patients. *Clin Ecol* 1987;4:93-102.
42. Omura Y, Losco M, Omura AK, et al. Bi-directional transmission of molecular information by photon or electron beams passing in the close vicinity of specific molecules. *Acupunct Electrother Res* 1992;17:29-46.
43. Burr HS. *The Fields of Life*. New York: Ballantine Books, 1972.
44. Popp FA. Coherent photon storage of biological systems, in *Electromagnetic Bio-Information*. Munich, Urban and Schwarzenberg, 1988, pp 144-67.
45. Chen KG. Quantum interference of a human body and medications by electrodermal screening test. *International Congress On Traditional Medicine (Beijing '91), Modern Interpretations of Qi and Blood, Bioenergetic Medicine*. Taipei: Foundation for East-West Medicine, 1991.
46. Tsuei JJ, Lam F, Jr. Case findings from a family practitioner's office using electroacupuncture according to Voll; *Am J Acupunct* 1983;11:23-29.
47. Tsuei JJ, Chung C, Lam F, Jr., et al. Studies of bioenergy in healthy subjects. *Am J Acupunct* 1989;16:125-134.
48. Lui WC, Tsuei JJ. Bioenergetic measurements of patients with chronic fatigue syndrome. *Scientific Reports of the Foundation for East-West Medicine*. Taipei, Taiwan, Foundation for East-West Medicine, 1990.
49. Chang Y, Tsuei JJ, et al. Bioenergetic measurement of Chi-Kung practitioners. Presented at *International Conference of Chi-Kung and Marshall Arts*, July 5-7, 1988.
50. Tsuei JJ, Chun C. Controlled study of diabetes mellitus by bioenergetic measurement. *R.O.C. National Science Council Reports*, Apr. 1988 - Mar. 1989.
51. Tsuei JJ, Lam F, Jr., et al. Studies in Bioenergetic Correlations—Study on Bioenergy in Diabetes Mellitus Patients. *Am J Acupunct* 1989;17:31-38.
52. Tsuei JJ, Wang WK, et al. The study of bioenergetic screening model for hypertension. *R.O.C. National Science Council Reports*, June 1991 - Nov. 1992.
53. Claussen CF. *Homotoxicology: The core of a probiotic and holistic approach to medicine*. Baden-Baden, Germany, Aurelia, 1992.