

A Food Allergy Study Utilizing the EAV Acupuncture Technique

Julia J. Tsuei, M.D., Carl W. Lehman, M.D., Fred M.K. Lam Jr., M.D., and David A.H. Zhu, M.D.

Abstract: Six diagnostic measures were performed on 30 volunteers. Five of the six diagnostic measures are currently utilized procedures for allergy, namely history and food challenge, skin, RAST, and IgE tests. The sixth and new method is based upon Electroacupuncture According to Voll (EAV). Results showed that the EAV test evidences a high degree of compatibility with the other five, particularly the food challenge test. As a new, noninvasive but sensitive test, it was found to be quite promising.

IT IS WIDELY recognized that most of the diagnostic tools available for identifying food allergy are not reliable. Draper refers to a number of workers who reported on the unreliability of skin tests in diagnosing food allergy.¹ The standard and most reliable method of testing for food allergy has been to eliminate food from the diet and then to rechallenge, observing for the reinduction of symptoms. There is some controversy regarding the length of time that a food should be eliminated from the diet before rechallenging. Rowe recommended total elimination of a food for at least three weeks.² He observed that sometimes symptoms are not reproduced when the food is first reintroduced into the diet. Rinkel et al. found four to ten days to be the optimal time to rechallenge following total elimination of the food being tested.³ To establish a diagnosis of food allergy, they

emphasize the necessity of repeating this type of testing on three different occasions and require that one observe repetition of similar symptoms produced on each occasion when the testing is properly done. Bahna recommends an approach utilizing some features of each of the above.³ Rinkel et al. describe two types of food allergy: fixed and cyclic. The latter is the most common form of food sensitivity. They observed that skin testing correlated positively with food sensitivity only 25 percent of the time when tested clinically. Bock reports some usefulness of the prick test in screening for food allergy in four of 14 food antigens tested.⁵ Of the 54 positive prick or intradermal tests to peanut, only 12 had a clinical response during a double-blind food challenge with peanut. Bahna indicates that skin testing for milk allergy is unreliable. Galant et al. classify food allergy as immediate or delayed, and have noted a positive correlation of the immediate allergy with skin tests, as well as with allergen-induced leukocyte histamine release, radio-immunodiffusion test and the skin window test.⁶ However, individuals with delayed-onset variety of food sensitivity seldom had positive skin tests, the skin window was never positive and the leukocyte histamine release test was positive only slightly more often than in the control patient.

One of the principal shortcomings of most allergy tests, with the exception of the RAST (radio-immunodiffusion test), is that the procedures require that the patient come into

Reprints requests should be directed to: Julia J. Tsuei, M.D., F.A.C.O.G., Professor, Department of International Health, School of Public Health, University of Hawaii, 1890 East-West Road, Honolulu, Hawaii 96822.

This research was supported by a grant from The Bratton Foundation.

contact with the allergen. Thus, there is a risk factor involved for the individual, since the body's reaction is unpredictable. This diagnostic difficulty is most pronounced regarding food allergy because, in addition to the body's reaction which evokes immunological pathogenesis to a certain food, there are other reactions which take place without a clear immunological pathogenesis. Several papers addressing this subject classify the former as food allergy and the latter as food intolerance or sensitivity.⁷⁻¹⁰ A simple and more objective method of identifying specific food allergies, including intolerance, is therefore needed.

The EAV Instrument

The electroacupuncture diagnostic method utilizes a galvanometer designed to measure the skin's electrical activity at designated acupuncture points. Electroacupuncture has been used in Europe for nearly thirty years to determine the abnormality, pathogenesis or energy imbalance of the body.^{11, 12} Allergy is considered a pathogenic and measurable entity.¹³

The electronic device designed by Dr. Reinhold Voll of Germany is a 10-microampere meter calibrated from 0 to 100. (The EMF = 1.5 v). A person holds the negative electrode in one hand. The probe which constitutes the positive electrode is used to press upon the selected acupuncture point. If the measurement reads "50," it indicates that the organ or system associated with that particular acupuncture point is free of pathological problems. At the "50" reading on the scale, the skin resistance between the electrodes is approximately 100,000 ohms.

If the initially-measured maximum value decreases and settles at a lower value, it is called an "indicator drop." Voll considers the indicator drop to be the most important criterion for determining disturbance of organ function. It is hypothesized that when function of the organ or a system is disturbed, the bioelectric resistance of the organ or system is unable to maintain a fixed resistance with respect to the incoming current. As a result, new equilibrium is established at a lower reading level.¹⁴

The individual with allergy should show an indicator drop when the allergic acupuncture

points are being measured. There are four specific allergy measurement points (MP) on the hand, as illustrated in Fig. 1.¹⁵ Loci A-2 constitutes the control point. This point should produce an indicator drop if the person has any type of allergy. The other three loci are hypothesized to correspond with the following:

Loci A-1: Allergy with respect to the skin of the lower portions of the body, including the lower extremities, and with respect to the organs in the abdomen and in the minor pelvis; or, allergic reactions due to food.

Loci A-3: Allergy with respect to the skin of the upper portions of the body, including the neck, upper extremities, and with respect to the organs in the chest and neck; or, allergic reactions due to inhalants.

Loci A-4: Allergy with respect to the scalp, the organs in the head, oral cavity, the nasal and paranasal sinuses.

In addition, the EAV technique uses actual food items to determine allergic reactions to these particular items. If a particular food item is placed on an aluminum plate which is attached to the galvanometer, and the indicator drops, this is said to demonstrate the presence of allergy to the food item. If a diluted form of the food extract (resembling a homeopathic preparation) is placed on the aluminum plate, an equilibrium of "50" should be re-established.¹⁶ This method can be used to test for other allergic substances such as inhalants. If the validity of the electrodiagnostic method can be established, it offers an attractive alternative to other diagnostic methods. It has the advantage of eliminating actual contact between the patient and the allergen, thus removing the risk element. In addition, it offers a diagnostic method that may realize time and cost savings. With this purpose in mind, a study to assess the validity of the electroacupuncture diagnostic method or Electroacupuncture According to Voll (EAV) in diagnosing allergy and intolerance was conducted from January to July 1982.

Materials and Methods

A total of 30 healthy adults volunteered for this study, and with 27 of these individuals completing all the requirements. Their ages

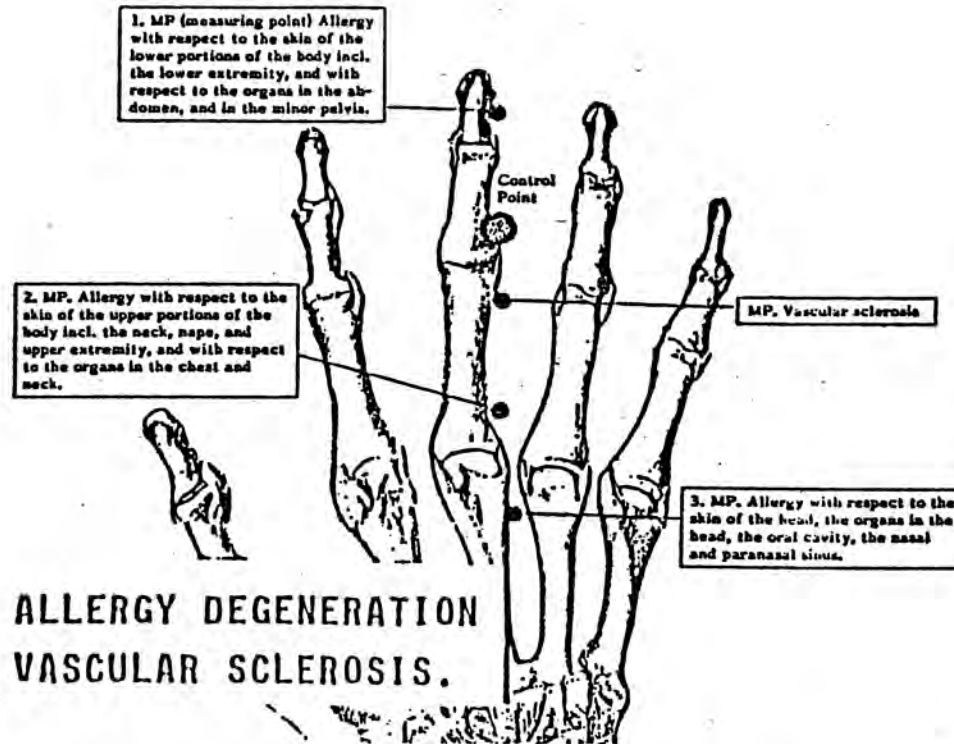


Fig. 1.

The four specific allergy measurement points on the hand.

Table 1.
EAV Test Grading

Grade	Indicator Reading	Interpretation
0	No indicator drop	Negative
1	Indicator drop of 1 or 2 (on one side)	Borderline
2	Indicator drop of 2 (on both sides) or 3 (on one or both sides)	Weakly positive
3	Indicator drop of 4 (on one or both sides)	Moderately positive
4	Indicator drop above 5	Strongly positive

ranged from 16 to 69 years, with an average age of 39 for the group. Fourteen men and 16 women were included in this group. Through interviews, a comprehensive allergy history and general medical information were obtained. This data was then sealed, assuring the diagnosticians' performance under "blind" conditions.

Four senior EAV diagnosticians were assigned to perform EAV tests. Each diagnostician had at least six months of training. EAV readings required the establishment of a baseline level of resistance. To obtain this reading, the participant holds a brass electrode in each hand. If the reading registers between 80-86, the individual is determined to be "in balance." Dr. Voll considers that this reading indicates the energy balance and energy level of the entire body.¹⁷ Subjects with readings below 70 and above 90 were disqualified from the study. These measurements were followed by measurement of the control point A-2; then A-1 for food allergy and A-3 for inhalant allergy (see Fig. 1). Measurements were obtained from the right and left sides of the body.

Specific food and inhalant items were then used to test for allergic response to these particular substances. Food items of milk, eggs, and rice were placed in unlabeled, sealed containers. Inhalant substances of house dust, red top (a genus of grass), and hormodendrum (a genus of mold), were sealed in similar fashion. The food extracts contained phenol and the inhalant extracts contained glycerine as preservatives. Two placebo containers with saline and glycerine were added to the group of test containers. Blood samples were then drawn for analysis of immunological reaction, the IgE levels and RAST (radio-immunodiffusion test). (IgE analyses were conducted by the Dept. of Medicine Laboratory, University of Hawaii at Manoa, while RAST analyses were conducted through Accupath (Smith Kline Laboratories). Skin tests were performed by the allergist in the research team using unlabeled allergen extracts.

During the following weeks, food challenge tests for milk, egg, and rice were carried out. EAV measurements were obtained during the test and on the second and third weeks after the

initial test. However, the time interval between the particular food intake and the EAV measurement taken was not recorded or standardized.

Evaluative Criteria

It is known that allergy tests do not yield results in absolute positive and negative terms.¹⁸ A subjective interpretation of findings is therefore necessary to distinguish between various possible degrees of individual response.

A. EAV Test. For evaluative purposes, the original EAV data (indicator drop readings) were divided into five grades as specified in Table 1. Each participant had two EAV tests: The initial and the follow-up. Based on the graduations received upon initial and final tests, each participant was evaluated as negative or positive as a whole. The criteria used to determine this were applied to a total of eight readings from each participant: the four points from the initial EAV test and four from the final. Since the readings have to be taken from the two allergy points from each side of the body, for a negative diagnosis, all of the eight numbers must be in the range of Grade 0 to Grade 1. A negative diagnosis was also given if less than three of the numbers are Grade 2 or if just one qualifies as Grade 3 on one side. To be deemed positive, more than four numbers must be of Grade 2, or two of Grade 3, or any Grade 4 combined with other grades above Grade 2.

B. RAST Test. The results of the RAST test were graded as follows:

Grade	Interpretation
0	Negative
1	Borderline
2	Weakly positive
3	Moderately positive
4	Strongly positive

C. IgE Test. The IgE test findings were rated in accordance with the following:¹⁹

Grade	Titer
0	Less than 500
1	500-700

Table 2.
Skin Test Grading.

Grade	Skin Test Results	Interpretation
0	On the #1 dilution, wheal size 5 mm. or less after ten minutes	Negative
1	On the #1 dilution, wheal size 6 mm. or greater after ten minutes	Borderline
2	On the #1 dilution, wheal size 7 mm. or greater after ten minutes	Weakly positive
3	On the #2 dilution, wheal size 6 mm. or greater after ten minutes	Moderately positive
4	On the #3 dilution or weaker, wheal size 6 mm. or greater after ten minutes	Strongly positive

Table 3.
Allergy History Categorization.

Symptoms	Interpretation
Nasal congestion, stuffiness, running nose, ear pressure, earache, ringing in the ears, dizziness wheezing, sneezing, chest congestion, cough	Disorders of the respiratory system
Headache, stiffness, joint pain, muscular ache	Disorders of the neuromuscular system
Indigestion, heartburn, abdominal cramps, diarrhea	Disorders of the digestive system
Hives, rash, itchiness	Disorders of the integumentary system

2	700-800
3	800-900
4	Above 900

D. Skin Test. The intracutaneous testing was done using a 5:1 serial dilution technique. Extracts of whole milk, whole eggs, and whole grain rice were used. These were aqueous food extracts purchased from Nollister-Stein Laboratory. Each food extract contained 500 pnu/ml. and 0.4 percent phenol as a preservative in a solution containing 0.5 percent sodium chloride and 0.275 percent sodium bicarbonate. Approximately 0.01 cc of the test material was injected intracutaneously which is sufficient to produce an elevated skin lesion 4 mm. in diameter. After 10 minutes, this area was re-examined, and if the wheal area was greater than 5 mm. in diameter it was considered positive. The number 1 dilution is one-fifth the strength of the concentrate. Skin test grading was determined in the manner presented in Table 2.

E. History. The allergy/medical histories obtained from interviews with each participant yielded data on a range of symptoms which, for evaluative purposes, were categorized as indicated in Table 3.

Results

Table 4 depicts the composite results (positive and negative) for 27 research participants as detected by case history and five of the successive tests: EAV, food challenge, skin, RAST and IgE. Of the 27 cases, five were negative for all the allergens. Five cases had only one positive result among all 16 tests. Seventeen participants showed a minimum of two positive results. Table 5 shows the number of positive or negative cases for each test.

Results of the EAV test, in comparison with the other, are found in Table 6. As a whole, the EAV results correlated with the others on 220 points (70.5 percent), in the case of both positive and negative diagnoses. A total of 74 false positive and 18 false negative points were obtained, with 29.5 percent of the points thus not matching. When the EAV test results were examined relative to the other tests on an in-

dividual basis, it was found that there is a high level of correlation with the food challenge test (77.1 percent) and the allergy history (74.1 percent), with the RAST and skin tests matching the EAV test on 68.8 and 63 percent of the points respectively. This is shown in Table 7.

Tables 8 and 9 demonstrate comparative data between the skin test results and the history, food challenge, EAV and RAST tests. It can be seen from Table 8 that the skin test findings match the others on 237 points, or 75.7 percent of the time. Table 9 presents the breakdown of the skin test results compared individually with the other tests. The highest correlation is with the RAST, where 81.5 percent of the points were found to be in agreement. Further, the skin test data matched with the allergy histories for 75.3 percent of the points; with the food challenge test 74.3 percent, and with the EAV test on 71.6 percent of the points.

Tables 10 and 11 show the RAST test results in relation to those from the other diagnostic techniques. Some 225 matching points were found overall, representing 72.6 percent of the total. When the RAST results were compared separately to the others, the highest correlation of matching was with the skin test, where 81.5 percent of the points were compatible. The history results were the next highest with 73.8 percent of the points matching. This was followed by the EAV and food challenge tests with 68.8 and 65.2 percent matching.

Table 12 delineates data from both IgE and RAST tests and contrasts the two. This table includes the 30 participants and their reactions to three food and three inhalant antigens. It shows 80 percent correlation between the two tests (24 out of 30), and thus 20 percent of the findings were in disagreement (6 out of 30). In fact, three cases with low titer of IgE were found to be "strongly positive" in the RAST test, while three found to be "strongly positive" on the basis of IgE had negative results for the six antigens tested by the RAST.

Table 4.
Results of Food Allergy Tests in Individual Participants.

Number and Name	Food	History	Food Rechall. Test	EAV Test	Skin Test	RAST Test	IgE Test
1. A.E.	Milk	-	+	+	-	-	-
	Egg	-	+	+	-	-	-
	Rice	-	-	+	-	-	-
2. A.R.	Milk	-	-	-	-	-	-
	Egg	-	-	+	-	-	-
	Rice	-	-	-	-	-	-
3. B.L.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
4. C.L.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
5. C.R.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
6. M.C.	Milk	+	-	+	-	+	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
7. D.W.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	+	-
	Rice	-	-	-	-	-	-
8. D.J.	Milk	-	-	+	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
9. G.S.	Milk	-	+	+	-	-	-
	Egg	-	+	-	-	-	-
	Rice	-	-	-	-	-	-
10. G.D.	Milk	+	+	+	-	+	-
	Egg	-	-	+	-	-	-
	Rice	-	-	-	-	-	-
11. D.G.	Milk	+	+	+	-	-	-
	Egg	-	-	-	-	-	-
	Rice	+	-	-	-	-	-
12. H.D.	Milk	-	+	-	-	-	+
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
13. R.J.	Milk	+	+	-	-	-	+
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
14. L.E.	Milk	+	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
15. M.S.	Milk	+	-	+	-	-	-
	Egg	-	+	-	-	-	-
	Rice	-	-	-	-	-	-
16. S.M.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
17. M.N.	Milk	+	+	+	+	-	-
	Egg	+	+	+	+	+	-
	Rice	-	-	+	+	-	-
18. N.N.	Milk	-	-	+	+	+	-
	Egg	+	-	+	+	+	-
	Rice	-	-	+	+	-	-
19. S.P.	Milk	-	-	+	-	-	-
	Egg	-	+	+	-	-	-
	Rice	-	-	+	-	+	-
20. O.M.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	+	-	-	-	-	-
21. S.B.	Milk	-	-	-	-	-	-
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	-	-
22. S.P.	Milk	-	+	+	+	-	+
	Egg	-	-	+	-	-	-
	Rice	-	-	-	-	-	-
23. T.G.	Milk	+	-	-	-	-	-
	Egg	+	+	-	-	-	-
	Rice	-	-	-	-	-	-
24. T.J.	Milk	+	+	+	+	-	-
	Egg	-	-	-	+	-	-
	Rice	-	+	-	+	-	-
25. U.G.	Milk	+	+	+	-	-	-
	Egg	+	+	+	-	-	-
	Rice	+	-	+	-	-	-
26. W.K.	Milk	+	+	+	-	-	+
	Egg	-	-	-	-	-	-
	Rice	-	-	-	-	+	-
27. W.E.	Milk	-	+	+	+	-	+
	Egg	-	-	+	-	-	-
	Rice	-	+	+	-	+	-

Table 5.
Number of positive and negative cases for each test.

Test	Food	Positive	Negative	Total
<i>History</i>	Milk	10	17	27
	Egg	3	24	27
	Rice	4	23	27
<i>Food Rechallenge Test</i>	Milk	13	11	24*
	Egg	6	17	23**
	Rice	3	20	23**
<i>EAV Test</i>	Milk	15	12	27
	Egg	6	21	27
	Rice	7	20	27
<i>Skin Test</i>	Milk	4	23	27
	Egg	2	25	27
	Rice	2	25	27
<i>RAST Test</i>	Milk	1	26	27
	Egg	1	26	27
	Rice	6	20	26**

* One out of 27 participants in Food Challenge Test stopped the test of egg and rice after a severe reaction on milk.

** Three out of 27 participants did not give the date of Food Challenge Test.

*** One of the RAST Tests in rice reported as "not run."

Table 6.
Results of EAV Test in comparison with the other tests.

		EAV TEST					
		Milk		Egg		Rice	
		Positive	Negative	Positive	Negative	Positive	Negative
<i>History</i>	Positive	8	2	3	0	1	3
	Negative	7	10	3	21	6	17
<i>Food Rechallenge Test</i>	Positive	10	3	4	2	1	2
	Negative	2	9	1	16	6	14
<i>Skin Test</i>	Positive	5	0	2	1	1	2
	Negative	10	12	4	20	6	18
<i>RAST Test</i>	Positive	1	0	1	0	3	3
	Negative	14	12	5	21	3	17

As a whole EAV Test matches 227 points 72.76%

Positive matches positive 40 points

Negative matches negative 187 points

EAV Test not matches 85 points 27.24%

Positive to negative 67 points

Negative to positive 18 points

Table 7.
EAV Test showing a high level of correlation with the other tests.

		EAV TEST			
		Milk	Egg	Rice	Points and %
<i>History</i>	Matches	18	24	18	60 (74.07%)
	Not Matches	9	3	9	21 (25.9%)
<i>Food Re-challenge Test</i>	Matches	19	20	15	54 (77.14%)
	Not Matches	5	3	8	16 (22.86%)
<i>Skin Test</i>	Matches	17	22	19	58 (71.60%)
	Not Matches	10	5	8	23 (28.40%)
<i>RAST Test</i>	Matches	13	22	20	55 (68.75%)
	Not Matches	14	5	6	25 (31.25%)

Table 8.
Skin Test findings match other results on 237 points.

		SKIN TEST					
		Milk		Egg		Rice	
		Positive	Negative	Positive	Negative	Positive	Negative
<i>History</i>	Positive	2	8	2	1	0	4
	Negative	3	14	1	23	3	20
<i>Food Re-challenge Test</i>	Positive	4	9	1	5	1	2
	Negative	0	11	1	16	1	19
<i>EAV Test</i>	Positive	5	10	2	4	1	6
	Negative	0	12	1	20	2	18
<i>RAST Test</i>	Positive	0	1	1	0	1	5
	Negative	5	21	2	24	2	19

As a whole Skin Test matches 237 points 75.72%
 Positive matches positive 20 points
 Negative matches negative 217 points
 Skin Test not matches 76 points 24.28%
 Positive to negative 21 points
 Negative to positive 55 points

Table 9.
Breakdown of Skin Test results compared individually with the other tests.

		SKIN TEST			Points and %
		Milk	Egg	Rice	
<i>History</i>	Matches	16	25	20	61 (75.30%)
	Not Matches	11	2	7	20 (24.70%)
<i>Food Re-challenge Test</i>	Matches	15	17	20	52 (74.29%)
	Not Matches	9	6	3	18 (25.71%)
<i>EAV Test</i>	Matches	17	22	19	58 (71.60%)
	Not Matches	10	5	8	23 (28.40%)
<i>RAST Test</i>	Matches	21	25	20	66 (81.48%)
	Not Matches	6	2	7	15 (18.52%)

Table 10.
RAST Test results in relation to those from other diagnostic techniques.

		RAST TEST					
		Milk		Egg		Rice	
		Positive	Negative	Positive	Negative	Positive	Negative
<i>History</i>	Positive	1	9	1	2	0	4
	Negative	0	17	0	24	6	16
<i>Food Re-challenge Test</i>	Positive	1	12	0	6	1	2
	Negative	0	11	0	17	4	15
<i>EAV Test</i>	Positive	1	14	1	5	3	3
	Negative	0	12	0	21	3	17
<i>Skin Test</i>	Positive	0	5	1	2	1	2
	Negative	1	21	0	24	5	19

As a whole RAST Test matches 225 points 72.58%
 Positive matches positive 11 points
 Negative matches negative 214 points
 RAST Test not matches 85 points 27.42%
 Positive to negative 19 points
 Negative to positive 66 points

Table 11.
RAST Test results in relation to those from other diagnostic techniques.

		RAST TEST			Points and %
		Milk	Egg	Rice	
<i>History</i>	Matches	18	25	16	59 (73.75%)
	Not Matches	9	2	10	21 (26.25%)
<i>Food Re-challenge Test</i>	Matches	12	17	16	45 (65.22%)
	Not Matches	12	6	6	24 (34.78%)
<i>EAV Test</i>	Matches	13	22	20	55 (68.75%)
	Not Matches	14	5	6	25 (31.25%)
<i>Skin Test</i>	Matches	21	25	20	66 (81.48%)
	Not Matches	6	2	7	15 (18.52%)

Table 12.
Results and comparison of RAST and IgE tests in 30 participants on three food and three inhalant antigens.

Case No.	Grades of RAST Test						Grades of IgE Test	Consistence	
	Milk	Egg	Rice	House Dust	Red Top (Bent Grass)	Dander (D. pteronyssin)		Yes	No
1	0	0	0	0	0	0	1	v	
2	0	0					0	v	
3	0	0	0	0	0	0	0	v	
4	0	0	0	0	2	0	1	v	
5	0	0	0	0	0	0	0	v	
6	0	0	1	0	0	1	1	v	
7	0	0	1	0	0	0	0	v	
8	0	0	0	0	0	0	1	v	
9	0	0	0	0	0	0	0	v	
10	1	0	0	0	0	0	0	v	
11	0	0	0	0	3	0	1	v	
12	0	0	0	0	0	0	4		v**
13	0	0	0	0	0	0	4		v**
14	0	0	0	0	0	0	1	v	
15	0	0	0	0	0	0	1	v	
16	0	0	0	2	0	3	0		v*
17	0	0	1	4	3	4	0		v*
18	0	0	0				0	v	
19	0	0	0	3	0	0	1	v	
20	0	0	1	4	3	4	1		v*
21	0	0	0	0	0	0	0	v	
22	0	0	0	0	0	0	0	v	
23	0	0	0	0	0	0	3		v**
24	0	0	0	0	0	0	0	v	
25	0	0	0	0	0	0	0	v	
26	0	0	0	0	0	0	0	v	
27	0	0	2	0	1	0	4	v	
28	0	0	1	4	0	4	3	v	
29	0	0	0	0	0	0	0	v	
30	0	0	0	0	0	0	1	v	

* Strongly positive in RAST test but negative or borderline in IgE test.
** Strongly positive in IgE test but negative in RAST test.

Discussion

These findings reconfirm the notion that there is no simple, reliable clinical test available for allergy diagnosis. It can be seen, however, that the EAV test demonstrates great sensitivity. The EAV results (see Table 4) showed virtually no positive findings when all the other tests were negative. When the EAV test evidenced positive results, at least one of the other allergy tests for the same individual showed the same results. In general, the EAV data obtained in this experiment demonstrate the highest degree of compatibility with the food challenge test, which is considered to be the most sensitive of the currently available diagnostic techniques for food allergy. In addition, the EAV results were comparable with both skin and RAST tests.

Over the course of this study, the researchers identified several environmental influences that should be carefully accounted for in future EAV research endeavors. The experience of the testers in performing EAV measurements, the status of the participants' health and dietary habits, the time of day EAV measurements are performed, and the location of the instrument itself are all significant factors which can effect the resultant EAV data. A basic study should be undertaken to establish a normal variation curve. In addition, standardizing the timing of the interval between EAV test and the intake of special test foods during the food challenge test requires further refinement. Improved control of these factors should serve to reduce baseline variation, and increase the test's sensitivity and specificity.

Acknowledgement:

This study was supported by a grant from the Bratton Foundation.

The services of Arwin Diwan, M.D., Min-Pin Mi, Ph.D., and Barbara Jensen are deeply appreciated.

References

1. Draper, W.L.: Food Testing in Allergy, Intradermal Provocative vs. Deliberate Feeding. *Arch. Otolaryng.* 95 : 169-171, 1972.
2. Rowe, A.H.: *Elimination Diets and the Patient's Allergies*. Philadelphia, Lee & Febiger, 1941.
3. Rinkel, H.J., Randolph, T.G., Zeller, M.: *Food Allergy*. Springfield, Illinois, Charles C. Thomas, 1951.
4. Bahna, L.: Control of Milk Allergy: A Challenge for Physicians, Mothers and Industry. *Ann. Allerg.* 41 : 1-12, 1978.
5. Bock, S.A., Lee, W.Y., Remigio, L., Holst, A., May, C.D.: Appraisal of Skin Tests with Food Extracts for Diagnosis of Food Hypersensitivity. *Clin. Allerg.* 8 : 559-564, 1978.
6. Gallant, S.P., Bullock, J., Frick, O.L.: An Immunological Approach to the Diagnosis of Food Sensitivity. *Clin. Allerg.* 3 : 363-372, 1973.
7. Franklin, A.W.: Food Allergies. *Roy. Soc. Health J.* 90 : 243-247, 1970.
8. Todd, S., Mackarness, R.: Allergy to Food and Chemicals. II. Investigation and Treatment. *Nursing Times*, 74 : 506-510, 1978.
9. Bahna, L.: *op. cit.*
10. Lehman, C.W.: A Double-blind Study of Sublingual Provocative Food Testing: A Study of Its Efficacy. *Ann. Allerg.* 45 : 144-149, 1980.
11. Voll, R.: Twenty Years of Electroacupuncture Diagnosis in Germany: A Progress Report. *Amer. J. Acupuncture*, 3 (1) : 7-17, 1975.
12. Voll, R.: Twenty Years of Electroacupuncture Therapy Using Low Frequency Current Pulses. *Amer. J. Acupuncture*, 3 (4) : 291-314, 1975.
13. Voll, R.: *Topographic Positions of the Measurement Points in Electroacupuncture*. (Textual Vol. I). Med. Liter. Verlagsgesellschaft, Uelzen, 1977.
14. Schuldt, H.: The Application of Nosodes in Electroacupuncture According to Voll. *Amer. J. Acupunc.* 9 (2) : 161-164, 1981.
15. Voll, R.: *Topographic Positions of the Measurement Points in Electroacupuncture*. (Illustrated Vol. I). Med. Liter. Verlagsgesellschaft, Uelzen, 1977.
16. Voll, R.: The Phenomenon of Medicine Testing in Electroacupuncture According to Voll. *Amer. J. Acupuncture*, 8 (2) : 97-104, 1980.
17. Voll, R.: *Topographic Positions of the Measurement Points in Electroacupuncture*. (Textual Vol. I), *op. cit.*
18. Lehman, C.W.: The Leukocytic Food Allergy Test: A Study of its Reliability and Reproducibility. Effect of Diet and Sublingual Food Drops on this Test. *Ann. Allerg.* 45 : 150-158, 1980.
19. Lessof, M.H., Wraith, D.G., Merrett, T.G., Merrett Jr., Buisseret, P.P.: Food Allergy and Intolerance in 100 Patients—Local and Systemic Effects. *Quarterly J. Med., New Series XLIX* (195) : 259-271, Summer 1980.