ABSTRACT

Surrogate testing is a procedure which utilizes manual muscle testing to help in the diagnosis of some disorder or lesion in a patient. The uniqueness of this method is that the patient being examined, person number one, is passive with regard to the actual test but is in physical contact with the second person, the surrogate. The lesion is either touched by the surrogate or by the patient and a previously intact indicator muscle of the surrogate is tested for a change in function. In some cases the patient is subjected to a physical, chemical, or mental challenge and a previously intact indicator muscle of the surrogate is tested for a change in function. The purpose of this paper is to survey the current literature on surrogate testing and draw conclusions on its utility for practitioners of applied kinesiology.

Surrogate testing is a controversial procedure used in chiropractic and other health professions. Dr. George Goodheart discovered surrogate testing serendipitously while examining and treating a mother and her child. When Dr. Goodheart was done working with the child, the mother of the child asked Dr. Goodheart to examine her shoulder. During the examination he found certain muscle imbalances in the mother but was interrupted by a number of phone calls. On returning each time he began examining the mother again. He noticed that some muscle imbalances had changed but only when she was holding her child. This seemed interesting so he had an associate doctor reproduce the results to confirm his findings. He attributed the conflicting findings to a form of energy transfer between the mother and child. Dr. Goodheart referred this to a parallel study in which a similar phenomenon appeared to occur. An Australian publication showed that similar electroencephalographic tracings occurred from nursing mothers and their breast fed-children. The children were kept in a nursery forty feet down the hall from the mothers. The electroencephalographic tracings of the mother and her child would demonstrate similar spiking at exactly the same time when the sleeping mother demonstrated rapid eye movements (REM activity). This history on the discovery of surrogate testing was reported by McCord (1).
In 1985 Sprieser (2,3) hypothesized that surrogate testing occurred as a result of cellular resonance. He purported that a specific resonance or vibratory pattern could be seen in almost every area and cell of the body. Each part could emit a specific resonance frequency that would be similar for all humans. The lesioned area could have a different resonance frequency which could be compared by the body by means of a Fourier Transform to the usual frequency. The discrepancy could be interpreted by the body of the surrogate as a facilitation or inhibition of the surrogate's indicator muscle. To support his theory he quoted a 1936 theory of Dr. Paul Weiss (4) of "selectivity in fiber connection (Radio Broadcast Model) based on resonance effects involving diffuse morphological interconnection with impulses specificity and selective neuronal and end organ attunement." The resonance principle worked like a radio pick-up and provided a selective response in the presence of diffuse non-selective synaptic connection. Sprieser gave an example of the resonance theory of sound; a goblet shattering when a violin was played at the right frequency. He described the ability of the human ear to differentiate sounds as a result of the three dimensional nature of sound. He then described the eye's response to colour, the taste buds' to taste, the olfactory system to smell and the skin to various types of stimuli. He quoted Bern, 1983 (5) that "all the evidence shown for touch kinesthesia sensory feedback shows there is a specificity to particular signals". He also stated that muscles were found to respond to specific electrical stimuli that corresponded to that specific muscle's length. He concluded that the similarity in resonant pattern could be recognized by the surrogate's nervous system allowing a similar response to testing the patient directly.
Reliability of Surrogate Testing

There have been two attempts at measuring the reliability of this procedure. In 1990, Zvirblis (6) used five surrogates to test a sample of fifty patients on whom a therapy localization to the C7-T1 area caused a gamma II weakness in the right hamstring of a prone patient. He claimed that "all five surrogates yielded 100% gamma II muscle weakness, regardless of sex and age of the patient." He then concluded that "gamma II muscle problems apparently are better transmitted than gamma I." His use of gamma II muscle testing is questionable. Schmitt, a chiropractic neurologist, (7) hypothesized that gamma I and gamma II pathways could explain results found using manual muscle testing. He also has related gamma II weakness to upper motorneuron problems. Zvirblis, by having the patient therapy localize C7-T1 resulting in a gamma II weakness, was in effect indicating that a lower motorneuron problem was causing an upper motorneuron problem. This does not make sense given the hierarchy of the nervous system. It has always been my understanding that the gamma II weakness is a true muscle weakness existing before therapy localization. What he was measuring could have involved a second variable. Secondly, it is difficult to accept 100% results on 250 tests. Very rarely can any procedure perform 100% of the time over a large number of tests.

In 1989 Corneal (8) reported a study in which two doctors and three surrogates were used to evaluate surrogate testing. The doctors compared direct testing with surrogate testing. Dr. A used two surrogates. Surrogate number one was used to test eight patients and surrogate number two to test five patients. The results revealed 100% accuracy for surrogate number one and 64% accuracy for surrogate number two. Dr. B used one surrogate who we will refer to as surrogate number three. Dr. B tested nine patients in his part of the study. The results revealed 58% accuracy. Corneal concluded that his test sample lacked reliability. In two of the three surrogates, results were only slightly better than chance. The fact that one surrogate was 100% accurate, indicated that certain surrogates may be more reliable than others. He also pointed out that an inaccurate response could be changed by a reversal of palm up, or palm down therapy localization.

3.
Controversy with Surrogate Testing

Surrogate testing has been the source of some controversy in applied kinesiology. I will use a personal anecdote to illustrate this. At a technique forum in Calgary, Alberta, Canada, April 24-25, 1993, three techniques were presented. My presentation (9) was on applied kinesiology. There were times when all three presenters were on a panel, with a moderator asking questions. The moderator, a prominent chiropractic researcher, directed a very provocative question to me on the topic of surrogate testing. The fact that he chose to ask that question in front of a large audience rather than in private was an indication of its potential for controversy. There have been other instances where the media have focused some of their attention on this procedure when presenting a documentary program designed to create controversy.

Rating of Surrogate Testing

Walther (10) in his text, emphasized that therapy localization (a diagnostic method frequently used with surrogate testing) should only be done by the patient contacting the area in question. He states "another individual touching the area for therapy localization introduces variables that are difficult, if not impossible to evaluate". He indicated that these variables could be readily observed by having several individuals therapy localize the same area on another individual. This indicates that he does not consider it a very reliable procedure. He proposed that individuals with high energy levels could add energy to the area tested while those with low energy could subtract energy from the area tested and also that the additional variables could cause errors in interpretation and thus, he recommended not using the procedure. He did not specifically use the term 'surrogate testing' but described the method as mentioned above.

Due to the controversy associated with this procedure, Walther put forth a motion to the ICAK-USA board to make a policy statement including surrogate testing. The following is a correspondance presented by Dr. Weistein (11), to the ICAK-USA board, with the results of an affirmative vote dated May 25, 1995.
The policy statement on surrogate testing by ICAK-USA is as follows: "Surrogate testing is not a usual method of diagnosis in applied kinesiology. It is used only when the subject cannot respond appropriately, such as with a comatose individual, an infant, or with an otherwise incapacitated person. In those cases surrogate testing should be done only with oral or written informed consent, and that it be included in the patient's record and performed in conjunction with the appropriate standard diagnostic tests necessary to determine the indications for therapy." The policy also indicates that the proper use of applied kinesiology is by licensed primary health care providers. It emphasizes the necessity to have standard diagnostic background to properly put applied kinesiology findings into perspective and that these be applied according to the laws and regulations applicable to the doctor's license to practice.

Description of Surrogate Testing

Dr Goodheart first wrote about surrogate testing in 1974 (12). He indicated that the use of therapy localization could be done with infants and small children using their mothers and with older individuals, such as those comatose or following a stroke, using another individual of the same sex. A hand hold contact was needed and the patient could be tested using a second individual to determine a muscle response. He referred to it as an energy transfer technique. He also emphasized that the surrogate be evaluated and have any weaknesses corrected prior to the use of the procedure.

Sprieser (13,14) described three methods of application of the procedure. They are as follows:

1) Find a stable muscle on the surrogate; have the surrogate contact the area in question and retest the surrogate's muscle.

2) The surrogate contacts a non-lesioned area; the patient therapy localizes the area in question and the previously stable muscle of the surrogate is retested.

3) The patient contacts the surrogate's body at a convenient location so that the surrogate can be tested.
The Use of Surrogate Testing

Three papers discuss the use of surrogate testing. In 1977, Saks (15) presented a single case study of an eight month old girl who he evaluated by means of surrogate testing of her mother. He treated her over a six month period to correct a foot which was turned 90 degrees to the normal posture. As the treatment progressed, she began to walk and place her leg and foot in the normal position with improved balance and weight bearing.

In 1981 a veterinarian, Tiekert (16), described the use of a surrogate staff member in his office to locate by therapy localization, lesioned areas in various animals. He used a test of the surrogate's anterior serratus muscle; however, he did not describe an accurate testing procedure. He did mention occasionally finding some positive tests, for which he could find no lesion by standard means. He did not try to explain this phenomenon, but referred to finding areas of decreased energy.

In 1982 Cousineau (17) recommended that the doctor not use the palmar aspect of the fingers when muscle testing a patient. He felt that when the doctor had meridian imbalances, the use of the palmar aspect of the fingers for testing would in effect cause surrogate testing of the doctor. He then described a method he used of testing himself while using the patient as a surrogate. He suggested that doctors examine and treat themselves using this method. I feel however, this rather interesting use of the procedure introduces many variables, that as Walther stated earlier "are difficult, if not impossible to evaluate." In this case some of the possible variables are; the health status of the surrogate, the mindset of the doctor who is in effect examining himself, the mindset of the patient, the variation in the doctor's posture during testing, the doctor's respiration, and the doctor's facial expression, etc. These would all be difficult to evaluate while trying to objectively test an intact muscle on someone else.
SURROGATE TESTING-BOEHNKE

Recommendations on the Use of Surrogate Testing

In January, 1996, I spoke with Dr. Goodheart regarding surrogate testing (18). He indicated that his position was the following:

a) It is a much overused procedure.
b) He himself has found occasion to use it about once in three years.
c) It should only be used on individuals that cannot be tested in any other way, such as comatose individuals or infants.
d) It should be done only after obtaining informed consent in writing after explaining it to the patient.
e) He called it experimental.

Stoner (19) indicated that in cases where the doctor's ability to adequately test muscles was constrained, in the very young, the very old, or those in acute pain, through transference, a second person could be used to therapy localize the patient. He specified that the second person be examined and treated to eliminate all gross structural faults before being used. He described a palmar contact of the second person on the suspected area of involvement of the patient, while testing an intact muscle on the second person. He also described the use of challenge testing using the second person. He emphasized that only weakness would transfer from the patient to the second person. He also indicated that the transference was most effective between two people of the same sex and those closely empathically related.

McCord (20) indicated that the following factors were important with regard to surrogate testing:

a) The doctor should be healthy.
b) The surrogate should be in good health.
c) The surrogate testing should not be used unless it is impossible to test otherwise.
d) One should first test to ensure that the surrogate's muscle is strong.
e) When a positive therapy localization is present, have the patient therapy localize a related reflex area and if positive, treat it and retest.
f) A surrogate with just a casual relationship with the patient can rarely be used.
g) The doctor will cause an adverse response up to 1% of the time.
Informed Consent and Surrogate Testing

In April 1995, Walther (21) described the historical change in consent for treatment, from implied consent, to informed consent. He also described the two legal standards used to evaluate informed consent; "The physician" or "professional standard" which is generally more forgiving of the doctor, and the now more accepted "patient standard". The patient standard, places the burden on the physician to supply the information that a reasonable patient needs to make an intelligent choice. He described the process of obtaining informed consent and its importance. He made special mention of surrogate testing. He recommended that it only be used when no other method of examination is available, such as with infants. He emphasized that surrogate testing should never be used without informed consent. He mentioned the importance of giving to the patient, parent, or guardian, specific information; that surrogate testing is a research method, used only in conjunction with other standard diagnostic methods.

Discussion

With the current emphasis on the development of guidelines for various professions, it seems appropriate to draw conclusions and set a policy or a set of guidelines for the use of various procedures, especially when they are subject to controversy. I recommend that a general set of procedural ratings be established for all chapters of the International College of Applied Kinesiology. Based on these ratings, procedures can be evaluated as needed and policies formed with regard to their use, should the need arise. If ICAK has a clear picture on the use of procedures, such as surrogate testing, it will give practitioners of applied kinesiology added protection. The policies, provided they are followed, show that the practitioner practices in a responsible manner which is recognized and practiced by numbers of other practitioners. This would certainly be of importance to any practitioner who finds him or herself in a legal situation in which the use of a procedure is questioned.
Conclusions

Based on the information presented in this paper, I would recommend the following or similar procedural ratings be adopted for all chapters of ICAK. These ratings are a modified form of those used in the clinical guidelines for chiropractic practice in Canada. They are modified to reflect the special needs of practitioners of applied kinesiology. These ratings can be used now to evaluate surrogate testing and when the need arises they will be useful in evaluating other procedures.

Procedural Ratings (ICAk-Canada)

Established: Accepted as appropriate by the practicing practitioners of applied kinesiology for the given indications in the specified patient population.

Promising: Provisional acceptance as it appears to be appropriate for the given indication in the specified patient population.

Equivocal: Caution is recommended for general application although current knowledge appears to support a given indication in a specified patient population. The value cannot be confirmed or denied.

Investigational: Use for a given indication in a specified patient population should be confined to research protocols. Evidence is insufficient to determine appropriateness.

Doubtful: This appears inappropriate for the given indication in the specified patient population at this time.

Inappropriate: Regarded by the majority of Certified Teaching Diplomates of applied kinesiology as being unacceptable for the given indication in the specified patient population.

NOTE: These ratings are subject to change if warranted by new evidence.
Furthermore, I propose the following ratings for the procedure known as surrogate testing:

Surrogate testing is considered to be a procedure which for the general patient population as given below, is rated investigational. For a specified patient population it is rated as equivocal.

The specified patient population is:

1) Infants or small children who cannot be tested by use of manual muscle testing and for whom all other means of investigation available to the practitioner of applied kinesiology have been utilized.

2) Unconscious or neurologically compromised individuals for whom all other means of investigation available to the practitioner of applied kinesiology have been utilized. This would include but not be limited to stroke victims and those with advanced neurological conditions.

The procedural ratings are attached on a separate sheet but for the sake of clarity the two ratings mentioned above are defined below in the order of their presentation above.

Investigational: Use for a given indication in a specified patient population should be confined to research protocols. Evidence is insufficient to determine appropriateness.

Equivocal: Caution is recommended for general application although current knowledge appears to support a given indication in a specified patient population. The value cannot be confirmed or denied.

The use of surrogate testing in general clinical application is discouraged with the exceptions listed above for the specified patient population. In those special cases the results should be interpreted very cautiously, being used only as an added confirmation of other findings rather than as reliable findings themselves.
In the special (usually rare) instance that the clinician chooses to use the procedure, the following suggestions are strongly recommended.

1) That the clinician be in good health.
2) That all other available procedures for diagnosis available to the clinician be done first.
3) That the procedure be done by the clinician himself or herself rather than a support individual.
4) That the procedure be limited to infants, very small children who cannot be muscle tested on their own, or to comatose or neurologically disabled individuals who cannot be tested on their own by any other method to evaluate the suspected problem(s).
5) That the individual used as the surrogate be examined and all major structural problems corrected such that the muscle or muscles used on the surrogate can be relied on to be intact.
6) That the results be interpreted very cautiously with the weight of evidence in favour of any other more objective findings and as a confirmation of those.
7) That the clinician explain the status of this procedure and obtain informed consent by the patient, their parent(s) or guardian as the case may be before proceeding.
The following is suggested as a possible consent form. It is recommended that your legal advisor check the wording to see if he or she sees the need for any modification in the wording. Laws can vary from province to province.

INFORMED CONSENT FORM

I, Mr__ Ms__ Mrs__ understand that Dr.__________________________
will be using a procedure referred to as surrogate testing to assist in the examination and the formulation of a diagnosis related to______________________________________. I understand that the procedure is experimental and is rated equivocal and will be used only to corroborate (confirm) other findings. I accept and approve of, the use of this procedure at this time.

Patient, Parent or Guardian__________________________signature
REFERENCES


REFERENCES


11. Weinstein, Alan S. D.C. R.C. R.D. "Nutrition and Surrogate Testing". Policy statement ICAK-USA Correspondence to ICAK-USA Board with the result of an affirmative vote dated May 25, 1995. International College Of Applied Kinesiology - USA P.O. Box 905 Lawrence, Kansas 66044 - 0905 USA (913) 542 - 1801 Fax (913) 542-1746


REFERENCES

16. Tiekert, C.G. D.V.M.

17. Cousineau, Elmer J., Bs., D.C.

18. Goodheart, G.J.
Personal communication January 1996. Telephone contact.

19. Stoner, Fred, D.C.

20. Mc Cord, Kerry M., D.C.


Note: References # 4 and 5 are Dr. Sprieser's and not my own. I have included them only because they may help to explain his hypothesis.