

Narrative Review: Autonomic Response Testing as a Whole Person System of Health Care

by Patrick J. LaRicca, MD, MSCE; Tracy L. Brobyn, MD, FAAFP;
Jonathan Curzon, DC, DIBCN, FIAMA;
Mark McClure, DDS, FAGD; and Myung Kyu Chung, MD

Abstract

Autonomic Response Testing is a whole person system of medical care. Herein is presented a concise descriptive overview of the system, including a review of published outcome reports of patients assessed within the autonomic response testing framework, limitations of the published research, and possible future research perspectives.

Introduction

The United States has been known to spend more on health care than other high-income countries and have poorer health outcomes.¹ Chronic illness is a contributor to health care costs. Whole person systems of medical care may hold promise for improving the health outcomes related to chronic illness. We present a review of one of them: autonomic response testing (ART).

Whole person systems of medical care are multi-faceted. They are challenging to thoroughly describe and to evaluate.^{2,3} A detailed description of Ayurvedic medicine, traditional Chinese medicine (TCM), or chiropractic cannot be done in a review article format. Though ART is a modern form of a whole person system of health care, it draws on all forms of health care both traditional and modern. Thus, we present an informative overview rather than a detailed description. ART provides an assessment tool that can fit within other forms of medical care, informing the assessments made within other systems and informing the selection of interventions and the ongoing use of interventions. ART is a whole person system that enhances assessment and treatment planning. Herein is presented a concise description of ART,

an overview of publications of clinical outcomes related to ART assessment; limitations of the evidence to date, and future research perspectives.

ART Basic Principles

ART postulates five levels of healing which are from lowest to highest: physical, energetic, mental, intuitive, and spiritual.⁴ ART identifies seven categories of factors that initiate, maintain, or aggravate disease conditions: 1. Toxins 2. Biochemical 3. Structural 4. Energetic 5. Food 6. Psychological and 7. Geographic.⁴ (See Table 1.)

Toxins include heavy metals, pesticides, bio-toxins from microorganisms in clinical and subclinical infections, etc. In ART a toxin reduces the optimum performance of a person. Thus, it is better to think of the toxic burden presented by a substance rather than a standard level of toxin which is considered pathological, such as a lead level equal to or greater than 5 micrograms per deciliter. Sensitivity to levels lower than 5 micrograms per deciliter will vary across individuals. According to the US Agency for Toxic Substances and Disease Registry, no blood lead level above zero is free of all risk.⁵ **Biochemical** imbalances include hormonal problems, genetic disturbances of metabolism, and nutritional problems. Examples of **structural** problems are malocclusion and vertebral subluxations. **Energetic**

Table 1. Seven factors that can initiate, aggravate or maintain disease.

1. Toxins	includes heavy metals, pesticides, bio-toxins from microorganisms in clinical and subclinical infections, etc.
2. Biochemical	imbalances include hormonal problems, genetic disturbances of metabolism and nutritional problems.
3. Structural	Examples are problems of malocclusion and vertebral subluxations.
4. Energetic	disturbances include phenomena associated with acupuncture points and meridians; chakras; interference fields such as scars and focal infections; nervous system problems; and emotions.
5. Food	factors include both intolerances and allergies.
6. Psychological	Includes psychological conflict and trauma.
7. Geographical	factors pertain to a person's habitual location and the influence of light, electromagnetic smog, underground water streams, and other geophysical influences on patients.

disturbances include phenomena associated with acupuncture points and meridians; chakras; interference fields such as scars and focal infections; nervous system problems; and emotions. Food factors include both intolerances and allergies. Geographical factors pertain to a person's habitual location and the influence of light, electromagnetic smog, underground water streams, and other geophysical influences on patients. Finally, but not least, are the influence of psychological factors such as psychological conflict and trauma.⁴

The ART assessment method aims to identify the presence of the above factors and which areas of the body and mind are being affected. The ART examination assesses all parts of the body. The ART assessment procedure also helps predict ameliorating and aggravating factors such as medications, homeopathic remedies, nutrients, herbs, etc.

ART Assessment Method

ART is a version of applied kinesiology. Applied kinesiology was originally developed by George Goodheart, Jr, DC.⁶ Today, many forms of applied kinesiology are used clinically. Different originators of applied kinesiology methods believe that their method is an improvement compared to other versions.⁷⁻¹¹ Many chiropractors and integrative physicians use some form of applied kinesiology. The version practiced in our centers, known as ART, was originated by Dietrich Klinghardt, MD, PhD, and Louisa Williams, DC, ND,¹² and further extended by Klinghardt.⁴ Different forms of applied kinesiology can give results that conflict with the results obtained with other forms. Klinghardt demonstrated this situation in a video on his website.¹³

In manual muscle testing an assessment of muscle function is made and recorded. Applied kinesiology expands manual muscle testing assessment to a second muscle function assessment that occurs in the presence of a stimulus such as a food, toxin, allergen, etc. The two assessments are compared, determining whether the response to the added stimulus

was weakening, no change, or strengthening of the muscle function. The interpretation of the muscular response informs the assessment of the patient and makes a prediction of positive, negative, or neutral responses to therapies. Different forms of applied kinesiology vary in the muscles tested, the interpretation of a weak muscle response, the type and number of preparatory steps, and the manner of presentation of specific stimuli. Thus, different forms of applied kinesiology

was good, it was not perfect. The results of ART assessments are to be interpreted in the context of standard medical assessment methods. No other study evaluating the validity of ART assessment has been published to date per our literature search of PubMed (which includes MEDLINE), EMBASE, AMED, and CINAHL. We hope this review of ART will prompt serious attention from the research community toward ART. Our clinical experience with ART as an assessment tool to help identify

Autonomic response testing can be used with any type of medical care.

can give different results.¹⁴ A systematic review by Hall et al¹⁴ of applied kinesiology across different forms of applied kinesiology was unable to draw clear conclusions and recommended studying applied kinesiology using a pragmatic study design. No ART studies were included in that systematic review.

Schwartz et al¹⁵ published a negative experimental study; however, no distinction was made regarding the various forms of applied kinesiology. No designation was given as to which form of applied kinesiology was being tested. It was implied that the form studied generalized to all versions of applied kinesiology. The article did state that the utilized protocol was not the approved Goodheart version⁶ of applied kinesiology. The concluding statement appeared to lump all versions of applied kinesiology together. It is clear that neither ART^{12,13} nor the official Goodheart protocol⁶ was tested in the Schwartz et al¹⁵ study. Just as antibiotics and diagnostic tests can differ one from another, so can different forms of applied kinesiology differ one from another.

We published a pilot study (14 patients) on the validity of ART for predicting the results of an Immunoglobulin E blood test for allergy identification.¹⁶ Our results were positive: Sensitivity, specificity, positive predictive value, negative predictive value, overall accuracy, phi coefficient, and Cohen's kappa were all in the desired direction. As the correlation

contributing disease factors and helping to guide the choice of interventions has resulted in positive clinical outcomes in patients who have failed standard medical therapy.¹⁷⁻²³

ART Therapeutics

ART draws on all available therapeutics. Therapeutic interventions can be drawn from Chinese medicine, Ayurvedic medicine, homeopathy, osteopathic medicine, allopathic medicine, chiropractic medicine, dentistry, etc. Therapeutic options are in continual evolution. The crux of ART is the assessment procedure, which informs the identification of contributing factors and the choice of intervention.

One of the therapeutics that is often drawn on in our centers is neural therapy (NT),²⁴ which frequently involves injecting ART-indicated scars with procaine. In NT, scars and dental foci can act as interference fields. The interference field can have an influence at a distance e.g., the scars from tongue piercings influencing abdominal pain and nausea.²²⁻²³ The proposed mechanism is chronic stimulation of autonomic afferent nerves, which feed back into autonomic nervous system with resultant effector reflex activity such as nausea, vomiting and pain.²⁵

Clinical Outcomes Associated with ART

We searched the previously mentioned literature databases for outcome studies involving ART. We

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searched specifically for ART as opposed to any version of applied kinesiology. No published studies were found other than those published by the authors of this paper.

In each published report, ART assessment was used to identify the contributing/maintaining disease factors and predict positive result-producing interventions. Common to the reports is that the patients had failed to obtain satisfactory improvement from standard medical assessment and treatment; some of the patients had already visited other complementary/alternative medicine practitioners. The reports come from a practice located near the major medical centers of Philadelphia and Camden, New Jersey. The patients had multiple opportunities to experience a placebo response due to contact with providers, medical tests, and interventions before participating in the multi-modal approach described herein. These patients also had stable baselines of the intensity of their chief complaints. Their improvements were beyond the best points of their pretreatment baselines thus arguing against regression to the mean.

In a seven-year-old male with obsessive compulsive disorder, ART assessment identified gluten as a food factor, burdensome levels of lead

and mercury, subclinical infection, and energetic disturbances on ear acupuncture points.¹⁷ (See Table 2.) All factors were addressed in a multi-modal approach. The patient did exceptionally well. Based on our clinical experience, it was felt that gluten sensitivity was the dominant factor; however, as with all multi-modal approaches, we cannot be certain of the dominance of any one factor nor of a specific combination or specific sequence of factors. These are questions for further research.

In a 33-year-old male disabled metal worker with chronic lower leg edema and recurrent cellulitis, ART identified the contributing factors of subclinical infection, scar interference fields, burdensome levels of lead and mercury, gluten sensitivity and sub-optimal mineral levels.¹⁸ (See Table 2.) All of these ART findings were addressed in a multi-modal fashion. The patient did well and was able to return to work.

We (MKC, PJJ) reported a case series of three women with chronic neck and back pain, one of whom failed two surgical procedures which included implantation of a spinal cord stimulator.¹⁹ All three patients had treatment by other complementary/alternative medicine practitioners, which included acupuncture for two of the patients. ART identified energetic disturbances related to surgical breast scars; body, ear, and scalp acupuncture sites; and a tooth interference field.

Also identified were structural factors related to the vertebrae. (See Table 2.) All three had an excellent response to a multi-modal approach guided by ART.

In a 10-year-old girl ART helped identify a psychological trauma that occurred before birth as a result of the therapeutic abortion of one of her sibling triplets.²⁰ (See Table 2.) Bringing this event into awareness helped the child to overcome her severe emotional lability problem with further treatment.

ART identified the correct acupuncture point related to a structural energetic interference field in an football player presenting with hip flexor weakness.²¹ After placing an acupuncture needle at this point, there was a sudden increase in the strength of the player's hip flexors for which he was seeking help. (See Table 2.)

In the next two reports^{22, 23} the treatment arms of the case reports were the main focus; thus ART was not described although it was performed. In two young women with chronic abdominal pain,²² treatment of the ART-identified energetic factors from scars due to tongue rings appeared to be dominant factors in their dramatic recoveries. (See Table 2.) In a young woman with chronic nausea and vomiting,²³ a tongue ring scar and tattoo scar with energetic disturbances were involved in the multimodal treatment approach. One single office visit resulted in full lasting recovery.

Table 2. Contributing factors identified with ART in seven different chronic clinical presentations

Contributing Factor(s)	Obsessive Compulsive Disorder ¹⁷	Chronic Cellulitis Edema ¹⁸	Chronic Neck/Back Pain ¹⁹	Emotional Lability ²⁰	Hip Flexor Weakness ²¹	Chronic Abdominal Pain ²²	Chronic Nausea ²³
Energetic: body acupuncture system							
Energetic: ear acupuncture system		X	X				
Energetic: scalp acupuncture system	X		X				
Energetic: scar interference field			X			X	X
Energetic: tooth interference field		X	X		X	X	X
Food sensitivity			X				
Biochemical (nutritional): sub-optimal minerals	X	X	X		X	X	X
Psychological trauma		X					
Structural: musculoskeletal problems							
Toxin: Burdensome level of heavy metals	X		X	X			
Toxin: Sub-clinical infection	X	X					

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Discussion

ART is a whole person system approach to health care. The main conceptual tenets of ART are the five levels of healing and the seven disease factors. ART provides a specific assessment method used to help identify the seven disease factors. A pilot evaluation of the ART assessment method indicated good correlation with the results of blood immunoglobulin E levels for allergy assessment. A review of seven published reports in which ART was utilized in the medical care of patients who had failed standard medical care indicated excellent clinical outcomes.

Outcome studies consisted of retrospective case studies and two very small retrospective case series. Case studies/series sit at the bottom of the evidence hierarchy; however, case studies are often the starting point for new discoveries. Our hope is that this review will energize the research community to examine ART with an open mind and with larger more rigorous studies.

Among confounding factors in case reports are placebo response, regression to the mean, and spontaneous remission. In the context of stable baseline disease activity, it is unlikely that spontaneous remission would coincide so closely with the advent of the ART-guided treatment program in all these cases. In regard to regression to the mean, again in the context of stable baseline disease activity, the treatment effect was larger than at any previous period of time for all the patients. In regard to placebo effect all patients had multiple opportunities for placebo response elicitation by interaction with mainstream health care personnel, mainstream diagnostic tests, and mainstream interventions. Some also had treatment by other complementary/alternative medicine practitioners. Yet none of the patients had a prior placebo response. Publication bias is another possible limitation. Three of the authors (PJL, MKC, MM) have over 90 years combined experience in complementary/alternative medicine (CAM) modalities and have been in leadership positions

within different local CAM organizations in major metropolitan areas. Two of us (PJL, MKC) have had combined continuous academic affiliations of over 60 years. We are unaware of any negative outcome studies of ART that were rejected for publication. We are unaware of anyone even attempting to perform either an outcome study or diagnostic study related specifically to ART. Practitioners do not have funding and time to conduct or report

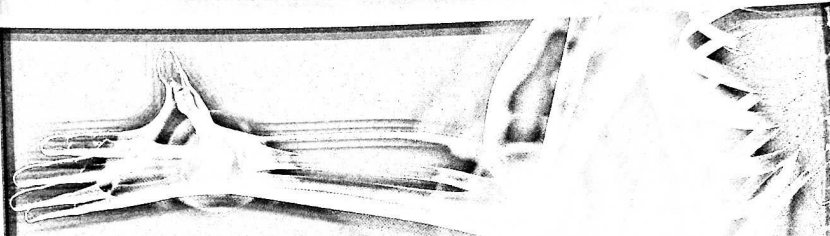
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studies. We have found conducting and reporting studies an expensive, time-consuming process. In addition, we have perceived resistance by both main stream and complementary/alternative medicine journals.

The above is clear preliminary evidence that justifies further research

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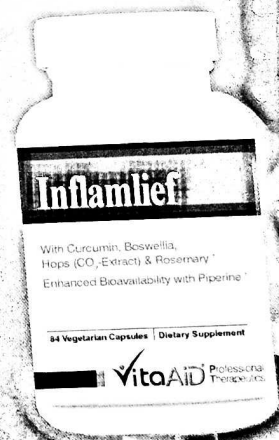
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activity specifically on ART. How does one go about studying a complicated set of procedures as described above? Weeks has proposed "studying the way we practice."²² Kligler and Weeks²⁶ have recommended the aggregation of case studies that have followed the CARE guidelines²⁷ and the use of mixed methods research designs (designs which combine quantitative and qualitative methods). Kligler and Weeks also call for openness and honesty regarding what we actually know with certainty and the unavoidable need for clinical judgement in which experience and intuition cannot be dispensed with.²⁷

We are in full agreement. With ongoing incoming data, models forecasting effectiveness and safety can be developed, evaluated, and adjusted just as is done for models to forecast the weather.²⁸ We project that such an approach will be more beneficial than searching solely for the magic bullet and/or waiting to determine the underlying mechanism for each and every existing integrative modality or combinations of modalities before informing the public and giving chronically ill people the opportunity to try.

The research community currently has the capability of tracking multiple variables, outcomes, and adverse events along with the capability of constructing models and evaluating those models in the context of natural occurrences, e.g. weather forecasting, which has not depended on randomized controlled trials yet has produced steadily improved forecasts over the years. In addition to forecasting if a

treatment approach can be effective, we must use the incoming data also to model who the responders and non-responders will be along with those at risk for adverse events. Simultaneously, the traditional methods of biomedical research can be employed such as cohort studies, pragmatic studies, comparative effectiveness studies, and randomized controlled studies where feasible.

Another method of research is the use of site visit studies such as that carried out by Lisi et al,²⁹ in which nine medical practices, which had integrated chiropractic clinics on site, were qualitatively assessed for outcomes and perceived value by everyone involved. Multi-modal medical practices could have site visits incorporating chart reviews, clinician interviews, and patient interviews focusing on types of problems treated, types of patients treated, outcomes, identification of predictors of responders and non-responders, adverse events, and cost. The site visits can be recurring and incorporate quantitative assessments. Site visit evaluations should include established private practices in addition to university-affiliated integrative medicine practices. Information from site visit studies, along with standardized case reports, and the results of our frequently used current types of research studies can flow into the health care "big data" pool from which predictive models for effectiveness and the risk of adverse events can be developed and adjusted. Thus, actionable information can be provided to healthcare providers, patients, and policy makers while waiting for the conclusion of explanatory studies.

Conclusion

Preliminary evidence has been presented for the utility of ART in the context of chronic disease to be considered for further research. We hope this narrative will stimulate further research. We are willing to advise and collaborate.

Conflicts of Interest: All of the authors report no conflict of interests.

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Corresponding Author Information

Patrick J LaRiccia, MD, MSCE
Penn-Presbyterian Medical Center
51 North 39th Street
Philadelphia, Pennsylvania 19104
215-662-8988 office, 856-222-1137 fax
lariccip@mail.med.upenn.edu

Patrick J. LaRiccia, MD, is board-certified in internal medicine and a licensed acupuncturist. He has served as president of the Acupuncture Society of Pennsylvania and president of the New York Society of Acupuncture for Physicians and Dentists. He received an award for his contribution to acupuncture from the Acupuncture Society of Pennsylvania besides sharing a research prize in acupuncture from the Medical Acupuncture Research Foundation. Dr. LaRiccia is an adjunct scholar at the Center for Clinical Epidemiology and Biostatistics at University of Pennsylvania School of Medicine.