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### Cover Art

*Inner Light* by Rekha Krishnan  
See inside back cover for additional details.

(Alkaline Phosphatase) as a sensitive detector of subtle energies. In the present paper, the groundwork is laid to determine the effect of a Faraday cage on the ALP activity. A statistically significant change in ALP activity is detected as the environment of the controlled vessel is changed. Is this going to be the subtle energy detector? Only time and lot more experiments can tell.

All these papers are thus unique in their own way in introducing innovative research in this nascent area of Energy Medicine. Hopefully, the area will mature in a short time and research will be available to clarify many anomalies around us.

Last, but by no means least, the cover art, *Inner Light*, is by Rekha Krishnan, a renowned artist from Bombay, India. Herself a Reiki master, she is able to portray the sublime and the subtle in new ways to evoke the ineffable in us all.

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## Experimental

# A PSYCHOLOGICAL AND METAPHYSICAL STUDY OF DR. EDWARD BACH'S FLOWER ESSENCE STRESS FORMULA

Jeffrey R. Cram, Ph.D.

### ABSTRACT

A traditional psychophysiological stress profiling research paradigm was applied to the study of a flower essence combination (Five-Flower Formula) on the "stress response." A double blind, placebo control group outcome study was conducted, in which 24 subjects were administered either a placebo or the flower essence combination prior to engaging in a Paced Serial Arithmetic Task (PSAT). The impact of the PSAT test on the two groups was assessed using a traditional surface electromyograph, with the electrodes being placed at 6 sites. Two of these sites (frontal and cervical) reflect traditional monitoring sites, but all 6 sites were selected to reflect placement over the Chakras. In addition, the autonomic nervous system (ANS) is monitored by measurement of peripheral hand temperature and skin conductance (GSR) activity. The results of the study indicated that the flower essence group showed a significantly smaller stress response at the cervical (Throat Chakra) site, as well as the T6 paraspinal (Heart Chakra) site. The emotional/psychophysiological and metaphysical interpretation of the findings are given.

**KEYWORDS:** Flower essences, stress, EMG, psychophysiology

## INTRODUCTION

When one begins the process of the scientific study of alternative therapies such as flower essences, one must appreciate the necessity to consider alternate ways of utilizing the scientific method. The study of metaphysical events using classic psychophysiological methods alone leaves something to be desired. Negative findings, rather than being a statement about the veracity of the metaphysical phenomena itself could represent the fact that one is looking for results in the wrong place or has chosen to monitor the wrong physiological system.

For this reason, while the study of flower essences described below utilized a standard psychophysiological method called "stress profiling," it selected physiological sites to monitor whose locations have both traditional psychophysiological interpretations as well as metaphysical ones. The tool used to monitor these sites is known to collect information about muscle activity (surface electromyography or sEMG). Therefore, we can potentially interpret the signal for emotional displays or postural support.<sup>1-4</sup> Yet the selected sites are also considered by some to be "sacred," in that they are simultaneously located where the Chakras are believed to reside.<sup>5-9</sup> Thus, metaphysical explanations are also possible.

Knowledge of flower essence properties is derived from study of the physical and energetic properties of the source plants. Indications are refined and verified by extensive anecdotal reports of their effects in clinical practice and home care. However, there are few formal scientific studies of flower essences, and the current study is an attempt to begin to fill this gap.

Like homeopathic remedies, flower essences are physically dilute (1:300 from the original infusion of the flowers). Therefore, it is unlikely that the effects of flower essences are due to physiological impacts of bio-physical components. Rather, the most likely hypothesis is that they work through energetic resonance.<sup>10</sup> Evidence of energetic fields produced by flower essences can be found in color-plate photographs by the German researcher Dieter Knapp.<sup>11</sup> Using a variation of the Kirlian method, Dr. Knapp placed a drop of each flower essence on special photographic film. Each essence produced a distinct pattern, described by Knapp as an indicator of its characteristic bioenergy pattern.

The first flower essences were developed by Dr. Edward Bach in England in the 1930's.<sup>12,13</sup> After practicing as a bacteriologist at University Hospital, London, Bach took a post at the Hahnemann Hospital and developed a series of homeopathic bowel nosodes still in use today. He then left the practice of homeopathy to develop a new form of natural healing that would directly address the emotional and mental aspects of illness. For this purpose, he found that the dew on fresh blossoms of certain plants, when exposed to the light and warmth of the morning sun, contained a certain "essence" of the plant's energetic qualities, which had a profound effect on the human psyche. He then developed a modified preparation method, which is currently in use, by collecting fresh blossoms and placing them on the surface of a bowl of water, exposed to the morning sun, until the essence of the flower has been infused into the water. In certain cases, particularly with flowering shrubs and trees, heat was applied to the blossoms to produce the essence.

When the appropriate essence is ingested by a person (several drops, several times a day), it awakens an awareness of a particular emotional and/or mental pattern that is repressed or in conflict, thus assisting the person to make lasting changes.

**P**aricia Kaminski, in her book *Flowers That Heal* describes this process as "uniting the human soul with the soul of nature."<sup>14</sup> Bach's intention was that flower essences are selected to address the issues affecting the person's psyche, or soul, and through changes in attitude and awareness physical health is impacted. Thus, a clinician using flower essences generally does an intake interview exploring the psychological aspects of a person's condition. Once the individual is understood as a whole being, a selection of several flower essences may be given as catalysts for psycho-spiritual change and greater mind-body health.<sup>15</sup>

Dr Bach's flower essence stress formula was chosen for this study because its effects are much more immediate than most flower essences, and its indication for stressful situations is generally applicable to a wide range of the population. The study examines short-term psychological responses to a stressful event, as revealed by specific physiological indicators. The traditional psychophysiological findings of the study are then examined and compared to a more metaphysical interpretation. In this article, I will briefly review and explore some of the

traditional conceptualizations for stress profiling, while also introducing and demonstrating a unique metaphysical perspective which reaches back to ancient Vedic writings.

## THE PSYCHOPHYSIOLOGICAL PERSPECTIVE

The psychophysiological procedure utilized to study the emotional reactivity of the body is called stress profiling. Looking for correlates to human emotions extends throughout the history of psychophysiology, with the hope that we would be able to objectively determine the individual's emotional state without having to rely upon self report.<sup>16-18</sup> As investigations moved into applied clinical research the questions were directed more at whether we can identify those individuals who are at risk for a particular disorder. For excellent reviews on these topics, see Haynes<sup>19</sup> and Schwartz.<sup>20</sup>

On a purely mind-body level, a key attribute of muscles is that of emotional display. On one level, we can conceptualize emotions as setting muscle tone as the foundation upon which intentional movement exists (*e-motion*). When the muscle activation associated with emotions occurs, energy is sent out into the neuromuscular system, taking up the "slack" in the system and increasing the tone or resting level.<sup>21,22</sup> This emotional bracing or increased tonus may also effect the quality of movement. Professional athletes certainly know how emotional arousal can "unintentionally" alter their levels of exertion or change the timing associated with coordinated movement.

In addition, it is not uncommon for patients to react to stressful events in a "stereotypic" fashion. *Individual Response Stereotypy* is the tendency for an individual to respond to a variety of stressors with a similar physiologic response.<sup>23</sup> This tendency was first noted in the early 60's, where some individuals were observed to always respond to a stressful event by, say, speeding up their heart rate or by tensing just their shoulder muscles. Within the neuromuscular system, emotional arousal and associated stereotypy have been studied for the facial muscles,<sup>24</sup> the postural muscles,<sup>2</sup> and the muscle spindle.<sup>25</sup>

So, one question to ask is: where do we search for these stereotypic patterns? We can look for signs of autonomic arousal through recordings from hand

temperature and electrodermal activity (EDA). Recordings from the wide frontal placement is a very popular sEMG placement since it provides an excellent barometer of the negative emotional displays found on the upper face. The role of posture also needs to be considered. A simple visual observation of depressed patients usually indicates scooped shoulders and fallen chest, while the anxious patient may have their shoulders markedly elevated as if to protect their neck.

Wharmore has validated this phenomena using sEMG recordings.<sup>26,27</sup> Reactivity in the trunk muscles during stress may show a high level of specificity. Crain has presented a case example of sEMG recordings from the right and left trapezius muscle groups using the cervical trapezius placement.<sup>28</sup> Here a patient who had injured his right upper quarter during a fall down some stairs, resulting in headache and right upper quarter pain, was tested using a stress profiling procedure. For this patient, only the injured right cervical trapezius lead responded to the stressor, and was followed by a very poor recovery pattern (return to baseline). The uninjured left aspect showed only a small, insignificant response.

Flor has also demonstrated the specific effects of emotions on the muscles of the low back.<sup>29</sup> In this study of the right and left aspect of the erector spinae muscles were studied in a group of low back patients, a group of general pain patients (i.e., pain other than low back) and a group of healthy controls. Each group was presented with various types of stressors. The findings of this study clearly demonstrated that only the low back pain patients experienced an emotional response (activation pattern), primarily in the left erector spinae muscles and only during stressors relevant to the patient's condition.

Thus, the literature on stress profiling demonstrates that predictable patterns of reactivity may be seen at traditional sites for emotional display, sites of injury or sites of reports of pain. While these perspectives have provided us with a wealth of information, they are limited in terms of the current study by their pure psychophysiological basis of interpretation.

## FLOWER ESSENCE PERSPECTIVE

In the current study we studied the Five Flower Formula prepared by Julian and Martine Barnard in Herefordshire, England. They follow Dr. Edward

Bach's original method and formula, which he developed in the 1930's as "Rescue Remedy." The essences in the study were bottled and prepared by Flower Essence Services of Nevada City, California. Because of possible differences in preparation method, it is not known if the findings of this study will be applicable to other brands of this formula.

The primary use of Five-Flower Formula is for the treatment of physical trauma, emergencies and crisis situations. It contains the flower essence combination described in Table I.

*Table I*

**The Flower Essences Found in the Five Flower Formula<sup>30</sup>**

Flower Essence	Quality
Cherry Plum <i>Prunus cerasifera</i>	For tension and fear of losing control. Helps create a sense of inner peace/stillness.
Clematis <i>Clematis vitalba</i>	For lack of clarity and consciousness. Helps to draw one's consciousness back into the body, and into present time.
Impatiens <i>Impatiens glandulifera</i>	For irritability, impulsiveness and hastiness. Allows one to flow with outer events.
Rock Rose <i>Helianthemum nummularium</i>	For conditions of fear. Provides a calming, stabilizing force to the situation
Star of Bethlehem <i>Ornithogalum</i>	For shock and trauma. Helps one to accept and understand the deeper meaning of one's experience.

Based on a 70 year history of anecdotal case reports on the effectiveness of Dr. Bach's formula in ameliorating the effects of stress and trauma, it seemed a likely candidate to influence the physiological response to stress in some way. Yet no studies on the psychophysiological mechanisms of action of the flower essence had been performed to date.

To study the effects of the subtle energy of this flower essence combination, it seemed necessary to embrace some of the traditional psychophysiological

recording sites, yet broaden the selection of these placements such that a conceptual framework of stress profiling could include the possible metaphysical influences of flower essences. Rather than sticking to the routinely used sEMG recording sites of the frontal, neck, shoulder or forearm it was decided to extend the study to include multiple sites along the human spine.<sup>31</sup> These non-traditional sites were selected such that they reflected the location of the Chakras.<sup>32,33</sup> In fact, all of the sEMG recording sites were specifically designed to reflect emotions and posture, as well as Chakra site activity. The dual nature of each site may be seen in Table II.

Two previous studies have demonstrated the sensitivity of sEMG recordings at these Chakra sites while studying the subtle influences of procedures such as Therapeutic Touch<sup>34</sup> and Distant Prayer.<sup>35</sup> The *Chakra sites* are known to have

*Table II*

**sEMG Recording Sites and Their Two Levels of Meaning**

sEMG Site Location	Psychophysiological Meaning	Metaphysical (Chakra) Meaning
Wide Frontal	Sear of Negative Emotions <sup>21</sup>	3rd Eye: Divine Joy. Also Sear of Knowledge/Enlightenment
Mastoid to Mastoid Process	Muscle Tension of Axis Postural: Head Position	Medulla Oblongata: The Ego. The Entry Point of Prana Which Regulates Breath
Bilateral C4 Paraspinals	Muscle Tension of Neck. Postural: Anti-Gravity Muscles	Throat Chakra: Center of Will. Also Associated with Calmness
Bilateral T6 Paraspinals	Intrascapular Muscle Tension. Postural: Anti-Gravity Muscles	Heart Chakra: Divine Love Also Desires and Attachments
Bilateral T12 Paraspinals	Muscle Tension at the Thoracic Lumbar Junction. Postural: Anti-Gravity Muscles	Lumbar Chakra: Strong Sense of Self Control, Self Image
Bilateral L3 Paraspinals	Muscle Tension of Lumbar Sacral Area. Postural: Anti-Gravity Muscles	Sacral Chakra: Creativity, Power, Sexuality

specific locations in the human body, and are described as the points where the flow of *pranic energy* is purported to be the greatest.

## PROCEDURE

A randomized double blind placebo control, group outcome study was conducted. There were 12 subjects in each group; Flower Essence versus Placebo. The flower essence group received 4 drops of the Five Flower Formula under the tongue. The essence, itself, has no taste and is carried in a brandy water mixture. The placebo group received four drops sublingually of only the brandy water mixture. The mean age of the subjects in the study was 46.2 years (range 18-67), and there were 8 men and 16 women.

The physiological recordings were made using a J&J 1-330 computer interface with 6 electromyographic channels (M501) set to the 100-200 Hz band pass filter as a measure to eliminate or reduce the ECG artifact. There was also one skin conductance channel (TG01) and one peripheral hand temperature monitor (TG01). sEMG electrodes (Norrode 3.0, Norrolyn, Tukwila, WA), were placed 3.0 cm apart bilaterally at the Frontal, C4, T6, T12 and L3 sites. In addition, one sEMG recording site, the mastoid to mastoid recording site, entailed placing an active electrode on the right and left mastoid process. Lastly, a peripheral hand temperature probe was placed on the back of the middle finger, while two FDA recording electrodes were placed in the second phalanx of the ring and index finger. Data was collected by the computer using the U.S.F. physiological monitoring software on a second by second basis, and then averaged into one minute averages. These one minute averages were utilized for data analysis.

The experimental procedure entailed the following five components:

- 1) A five minute adaptation baseline period;
- 2) A one minute period was allowed for the administration of the essence or placebo;
- 3) A three minute response time to the essence, which also served as the baseline comparison for the stress profile;
- 4) A three minute serial arithmetic task (pre-recorded audio tape from Hartje's Flow Chart);
- 5) A three minute recovery period.

## RESULTS

The data from each channel of physiological information was analyzed independently using a standard analysis of variance (ANOVA). The variables in the analysis have 3 factors: Group having 2 levels (flower essence Vs placebo); Period having 3 levels (Baseline, Stress, Recovery); and Time having 3 levels (Minutes 1-3). The group variable was handled as a between variable, while the period and time variables were the repeated measures.

The results of the sEMG analysis are presented in Table III. This presents the F statistic and probability value for each term and interaction of the analysis.

*Table III*  
ANOVA results for the sEMG variables of the flower essence study.

Term Variable	Essence Effect	Period Effect	Time Effect	Essence x Period	Essence x Time	Period x Time	Essence x Period x Time
Frontal F	1.91	2.6	1.4	.12	.06	5.1*	0.8
SEM G P	0.18	0.07	0.24	0.88	0.93	0.00008*	0.98
Mastoid F	.23	24.43	3.12	.11	.11	35.86	.41
SEM G P	0.63	0.0000*	0.53*	0.89	0.89	0.0000*	0.79
Cervical F	.09	5.6	2.23	.099	.004	6.7	3.2
SEM G P	0.76	0.006*	0.11	0.99	0.79	0.0000*	0.01*
Thoracic F	.05	1.5	7.3	.74	1.43	.52	3.1
SEM G P	.081	0.22	0.001*	0.48	0.24	0.71	0.01*
Lumbar F	.88	.62	2.0	2.6	.74	32.4	.01
SEM G P	0.35	0.54	0.14	0.08	0.48	0.016*	0.99
Sacral F	.56	.93	.14	.28	.02	.25	.15
SEM G P	0.45	0.39	0.86	0.75	0.97	0.90	0.95

\* means statistically significant

As can be seen from this table, the Period effect was significantly different from the neck up. The Time effect, by itself, is considered fairly meaningless. The Essence by Period interaction term shows one strong trend seen at

the lumbar recording site. The Essence by Time interaction term is also considered fairly meaningless by itself. The Period by Time interaction term is quite important in that it collapses across the placebo and essence groups, while having the ability to demonstrate an over all psychophysiological response to the PSAT event. The patterns of psychophysiological stress responses, as indicated by the Period x Time interaction, can be seen in Figures 1-6. As can be seen, at all of the sEMG recording sites, the stress response is at a higher level of amplitude compared to the baseline levels. This term shows significant effects on all variables with the exception of the heart and sacral recording sites. The lack of a significant stress response for the T6/Heart Chakra site may be attributed to the attenuating effects of the flower essence. The lack of significance at the L2/sacral site appears to be due to excessive variability.

In an additional post hoc analysis, the level of the stress response for each recording site was calculated by subtracting the mean for the stress period from that of the first baseline period. This is considered to describe the magnitude of the stress response to the PSAT, and may be seen in Figure 7. The post hoc analysis yielded a significant term ( $F = 7.2, p .001$ ) As can be seen, the mastoid to mastoid/Medulla recording site show a significantly larger response pattern, compared to all other sites.

Lastly, the most powerful level of analysis may be seen in the three way interaction term of the statistical analysis: Essence x Period x Time. This allows one to study influence of the Five Flower Formula Essence, not only across conditions, but also time. These interactions may be seen in Figures 8-13. As can be seen in Table III, significant effects were noted only for the T6 Paraspinal/Heart Chakra and C4 Paraspinal/Throat Chakra sites. At both sites, there is an attenuation in the level of the stress response for the flower essence group only (see Figures 10 & 11).

The two autonomic variables are presented separately in Table IV. These two variables, EDA and Peripheral Hand Temperature, are very traditional psychophysiological indicators. And, as can be seen in the Period x Time interaction term in Table IV below and in Figures 14 and 15, the PSAT stressor created the stereotypic ANS activation response. Electrodermal activity rose from baseline to the mental arithmetic task, and recovers shortly afterwards. Hand shows a significant cooling trend to the stressor, with a rebound warming during recovery. The non-significant trends for the three-way interaction term

are shown in Figures 16 and 17. These indicate that the flower essences did not systematically influence the autonomic nervous system (ANS).

## DISCUSSION

There are several conclusions which may be drawn from the outcome of this study, some of them having to do with psychophysiology, some with metaphysics and still others about flower essences. From a psychophysiological point of view, knowing where to look for phenomena provides the pathway to the type of answers one receives. This study clearly demonstrates that the stress response occurs all along the spine, and not only at the favorite electrode placement sites such as the wide frontal placement. In fact, had we stuck to just that traditional site, we would have missed the true nature of the clinical effects of the flower essence.

In addition, one must be impressed by the sheer magnitude of the stress response at the mastoid to mastoid/Medulla Chakra site. This site has been pretty well ignored in the stress profiling literature, and currently is not commonly used in clinical practice. The only other notation for recordings from this site are found in the electrode atlas by Cram and Kasman, and in the work by Mark Schwartz at the Mayo Clinic.<sup>1,20</sup> Schwartz has utilized this site to study headaches for years, and a study by Hudzynski and Lawrence has validated its clinical utility for assessment purposes.<sup>36</sup> One could interpret the increase of sEMG activity at the mastoid to mastoid site to represent a locking of the head to the spine at a time of threat so as to minimize damage to this important junction if a struggle were to ensue.

From a mechanical point of view, Body Work professionals have known about the importance of the axis/atlas relationships for years. Chiropractors and physical therapists frequently manipulate this site to alleviate headaches, the Alexander Technique has based the foundation of its work at this site, and John Upledger uses it as the basis of cranial sacral therapy.<sup>37-40</sup> From a metaphysical point of view, activation at the Medulla site might suggest that the Ego was engaged or threatened.<sup>41</sup> Perhaps, the psychophysiology and biofeedback arena should more completely explore the potential of this site for assessment and treatment purposes. Are we missing the possible etiology or understanding of psychophysiological phenomena because we tend to monitor only from frontals and upper trapezius sites?



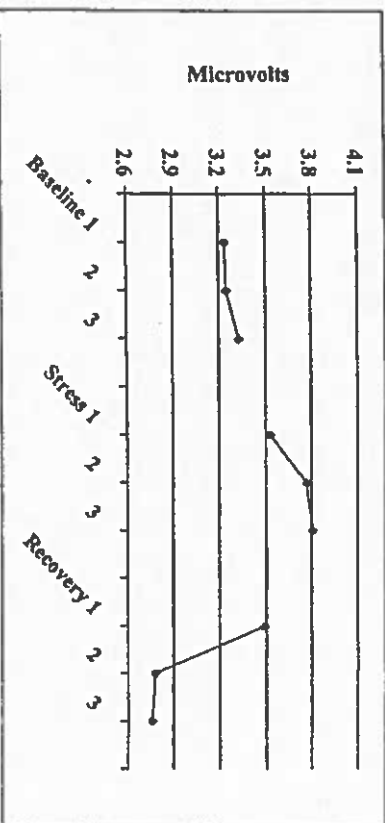


Figure 1. Stress Response for Wide Frontal/Third Eye Chakra Site.

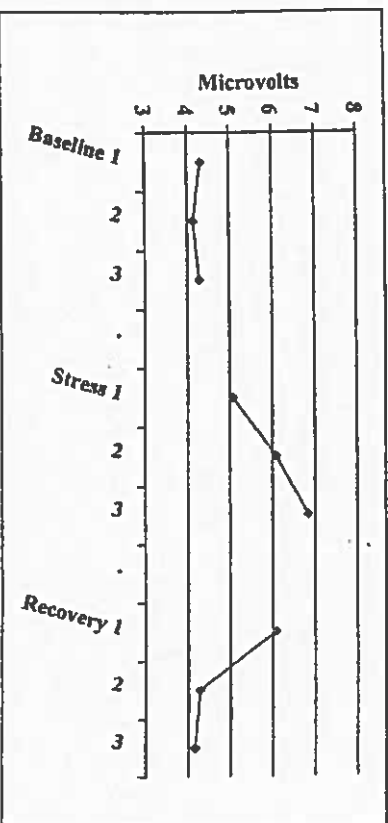


Figure 2. Stress Response for Masonid/Masonid/Medulla Chakra Site.

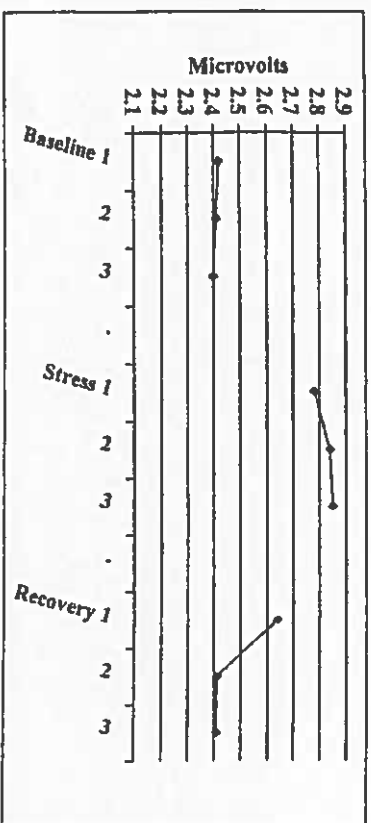


Figure 3. Stress Response for C4 Paraspinal/Throat Chakra Site.

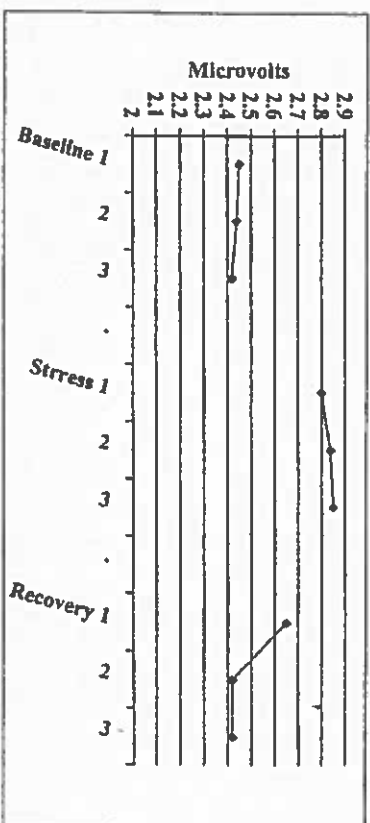


Figure 4. Stress Response for T6 Paraspinal/Heart Chakra Site.

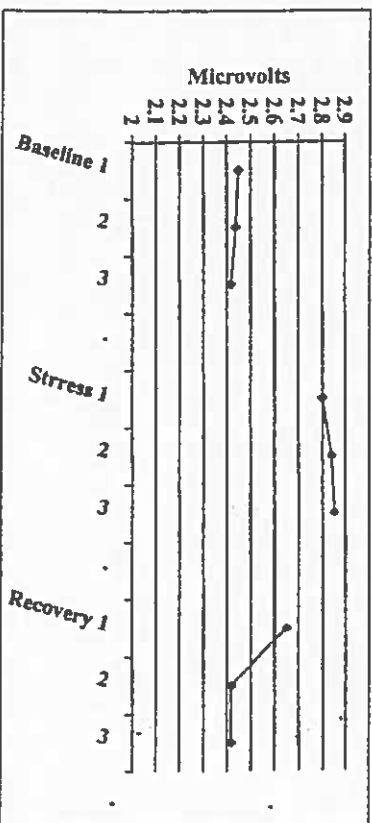


Figure 5. Stress Response for T12 Paraspinal/Lumbar Chakra Site.

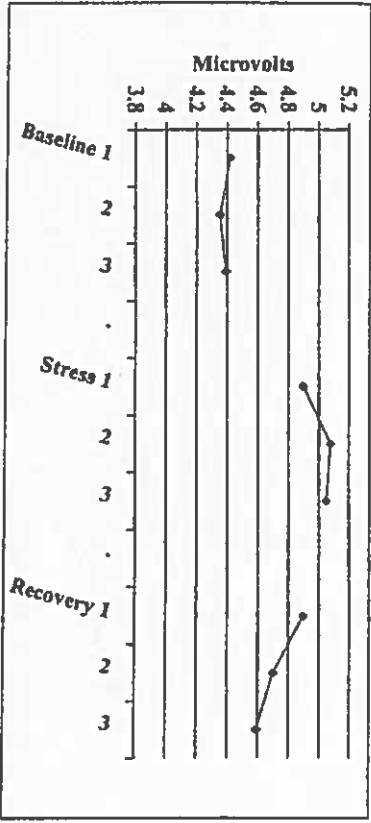


Figure 6. Stress Response for L3 Paraspinal/Sacral Chakra Site.

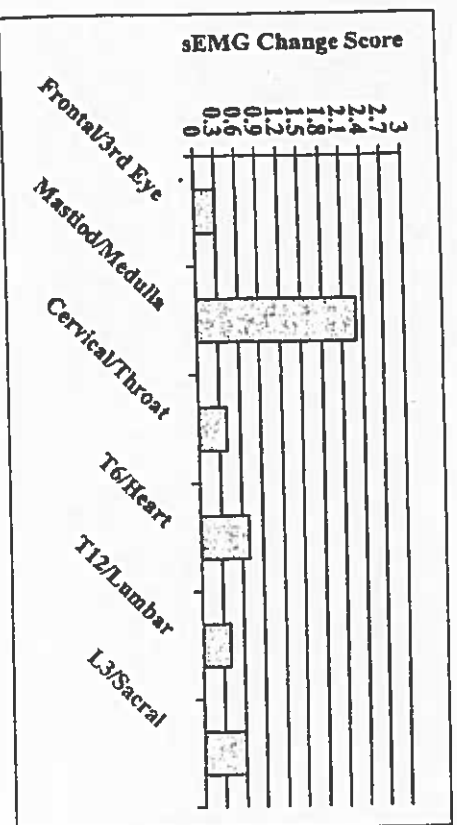


Figure 7. Analysis of the magnitude of the stress response across sEMG recording sites.

Secondly, one must be duly impressed by the psychophysiological effects of the flower essence combination studied. The flower essence therapy administered just prior to the stress profiling procedure significantly reduced the level of reactivity at the C4 paraspinal/Throat Chakra site, as well as the T6 paraspinal/Heart Chakra site. This is the first study of its kind to utilize a placebo controlled experimental procedure to document that Flower Essences have an impact on the emotional and physical aspects of the human body. While placebo controlled studies have been attempted with for homeopathic remedies, the current study was the first to attempt this for the subtle energies of Flower Essences.<sup>42</sup>

Thirdly, one must look at the locations where the Flower Essence combination had its effect, and try to interpret the findings. Why were the throat and heart sites more affected, rather than the more commonly studied frontal sEMG site? From a strictly emotional model, the reduction in cervical sEMG might have been predicted. If flower essences work on the emotional body, then, the cervical site is a likely candidate. As was noted earlier, the neck/shoulder region is known for carrying emotional tone. Skubick has gone so far as to note that, phylogenetically, the muscles from the neck and shoulders are related to the gills of the fish, making them hard wired for emotional responses.<sup>2,4,23,43</sup>

To date, the emotional reactivity of the T6 paraspinal (heart chakra) site has not been studied. If these findings are to be considered an amelioration of an emotional response, there is specificity in this effect, in that not all sites responded to the influences of the flower essences.

From a metaphysical perspective the Throat Chakra has to do with fiery self control and will, while the Heart Chakra has to do with love and attachment. It is entirely possible that the flower essences interacted with these qualities to bring about change. According to Kaminski, the five-flower combination was specifically designed to "bring about stabilization and calmness" (Rock Rose), to "draw one back into present time" (Clematis), to "balance and soothe away impulsiveness and irritability" (Impatiens), to "bring about inner peace and stillness which allows us to ease the contraction felt in the body" (Cherry Plum), and to "help us regain our composure" and "for learning and mastery of our lives" (Star of Bethlehem).<sup>30</sup> The empirical data from the study clearly suggests that the Five Flower Formula works primarily on the centers for calmness (Throat Chakra) and love and desire (Heart Chakra). It appears to assist us in letting go of our attachments and desires, while promoting a sense of calmness.

One of the limitations of this study is the use of the flower essence combination. Because of this, we can not speak directly about the effects of a specific flower essence, but only of the combination of essences acting together. Further studies would be needed to address specific effects of any single flower essence.

Lastly, a related plausible explanation for the findings at the cervical and mid back sites might involve posture.<sup>44,45</sup> Posture is like our shadow. It is a part of us which we always take with us, but seldom pay attention to. On a physical level, the back and neck are an orchestrated mixture of bones, ligaments and muscles, all of which interact in a system's model to allow us to stay upright against gravity. Certainly, one could argue that changes in one part of the spine, might affect other parts of the spine. Therefore, the lack of a stressful response or change in the cervical region could have created the lack of change in the mid back (heart) region, or visa versa. Since the postural muscles must interact and orchestrate themselves within the gravitational field, this type of connectedness may partially account for why both the neck and mid back sites were similarly affected.

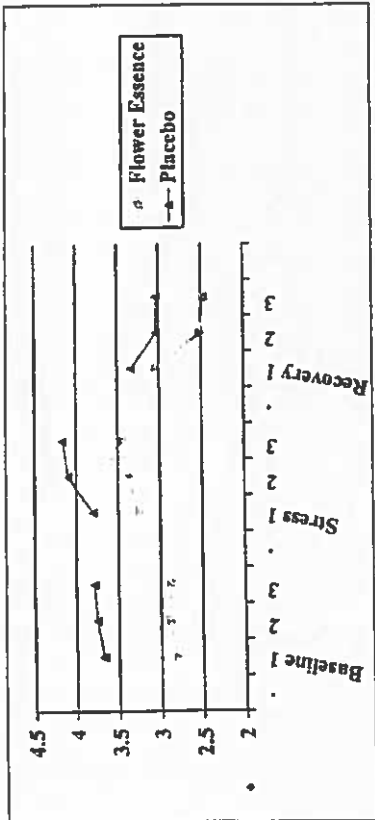


Figure 8. Interaction of Flower Essence and Stress: Wide Frontal/Third Eye Chakra Site.

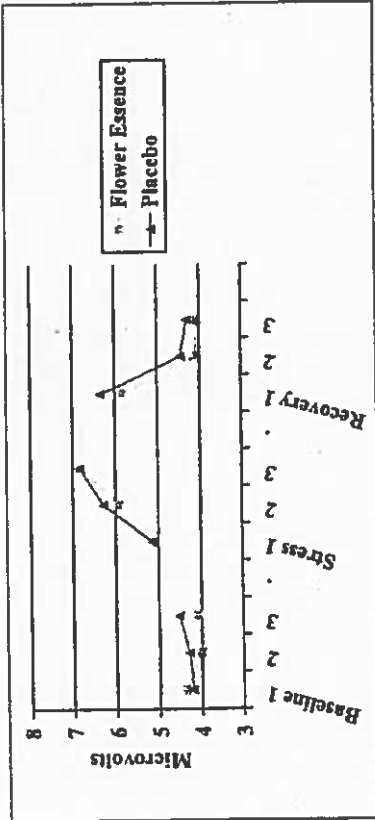


Figure 9. Interaction of Flower Essence and Stress: Mastoid to Mastoid/Medulla Chakra Site.

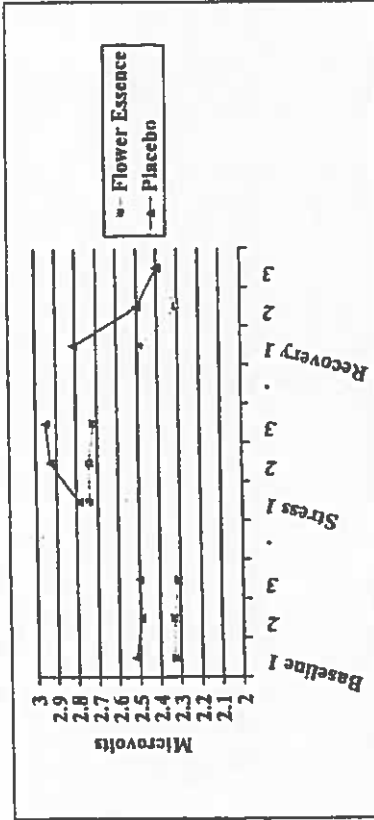


Figure 10. Interaction of Flower Essence and Stress: C4 Paraspinal/Throat Chakra Site.

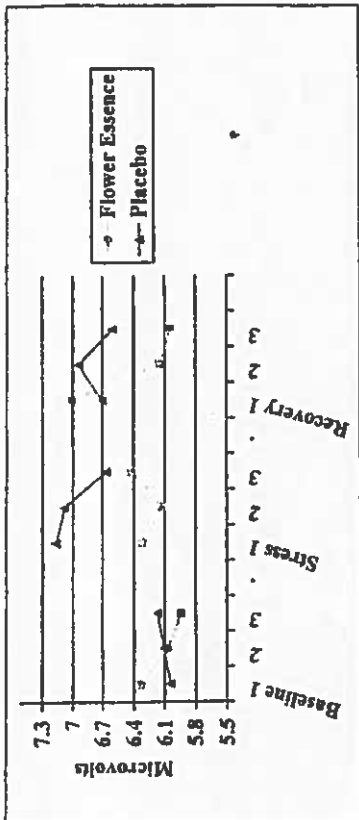


Figure 11. Interaction of Flower Essence and Stress: T6 Paraspinal/Heart Chakra Site.

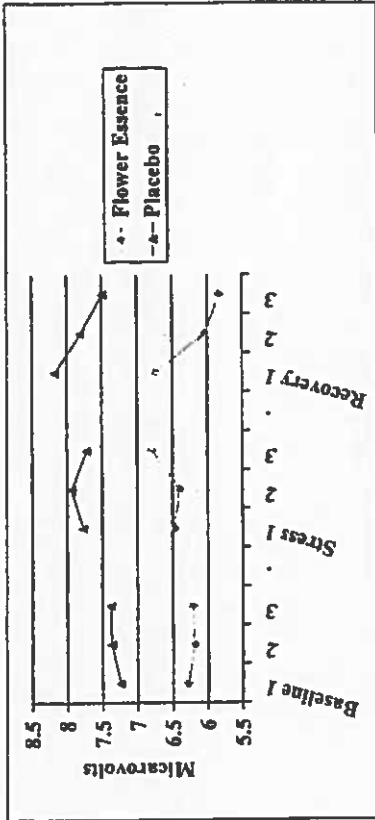


Figure 12. Interaction of Flower Essence and Stress: T12 Paraspinal/Lumbar Chakra Site.

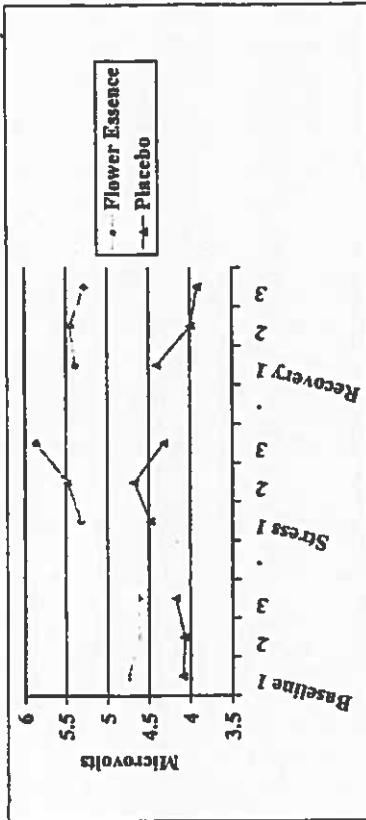


Figure 13. Interaction of Flower Essence and Stress: L3 Paraspinal/Sacral Chakra Site.

Table IV

ANOVA results for the autonomic variables of the flower essence study.

Term/Variable	Essence Effect	Period Effect	Time Effect	Essence x Period	Essence x Time	Period x Time	Essence x Period x Time
EDA	F 0.99 P 0.32	33.22 0.00008*	2.5 0.93	2.7 0.07	2.4 0.78	19.86 0.0000*	1.1 0.35
Hand Temp	F .49 P 0.48	4.3 0.01*	5.6 0.006*	1.2 0.34	2.3 0.10	10.8 0.0000*	.51 0.72

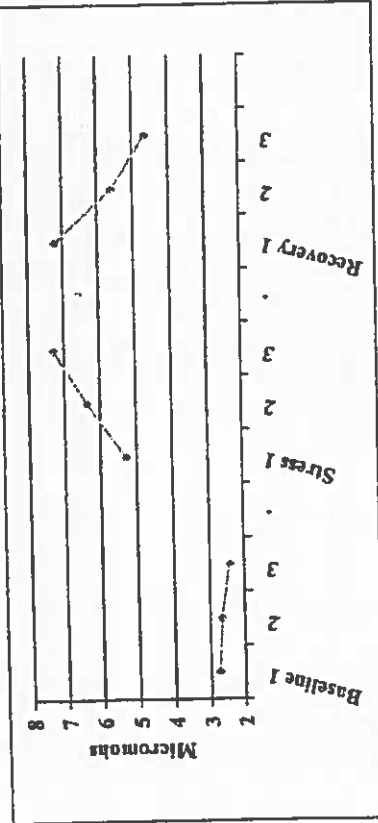


Figure 14. Stress Response for EDA Activity.

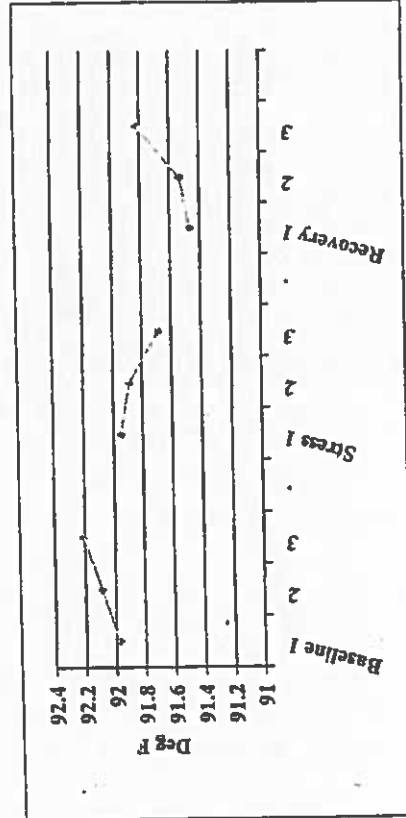


Figure 15. Stress Response for Peripheral Hand Temperature.

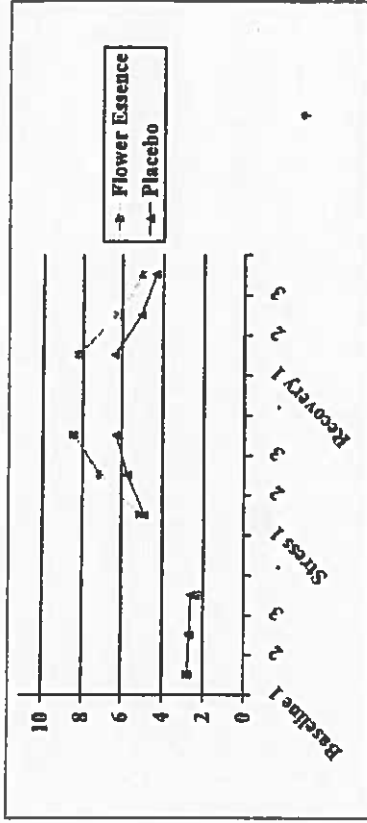


Figure 16. Interaction of Flower Essence and Stress: EDA.

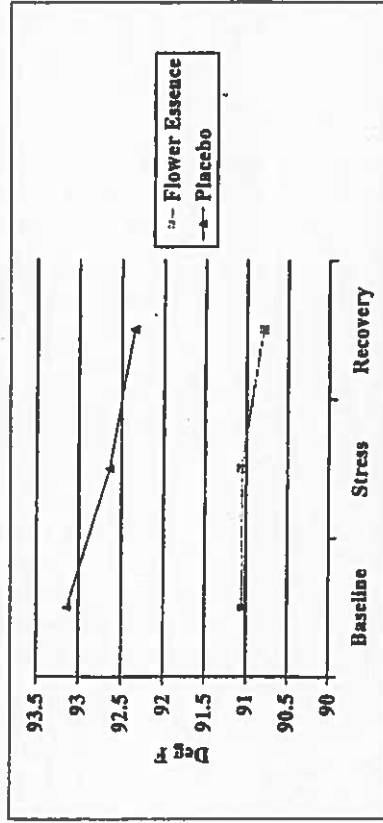


Figure 17. Interaction of Flower Essence and Stress: Peripheral hand temperature.

To conclude, psychophysiology provides a viable tool by which to investigate subtle energies, especially when guided by the metaphysical wisdom of the ages. This represents a blending of the old and new, the East and West. For what is the basis of science but to describe what is already known, using the latest tools of our culture? That the Five-Flower Formula was demonstrated to significantly attenuate the stress response helps lend credence to the use of these substances in the treatment of stress-related disorders.

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## Presidential Address

# PSYCHONEUROIMMUNOLOGY: *From Biochemistry to Energy Medicine*

Leonard A. Wisneski, M.D., F.A.C.P.

### ABSTRACT

Psychoneuroimmunology is the scientific basis of holism. This new discipline is an exploration of the interconnections between the central and autonomic nervous systems, the immune system and the endocrine system. Exploring hormonal and chemical intercellular communication reveals a vast framework for further scientific research. A new family of relaxation hormones have been discovered which lends a biochemical basis for many of the therapies in mind-body medicine. The physiologic effects of emotional stress and, on the other hand, meditation have profound effects in health and illness. The author's view that the pineal gland, not the pituitary, is the master gland will develop the concept of the pineal gland as an energy-biochemical transducer. A synthesis of ancient energy systems provides the basis of a unified energy field theory of physiology and healing. The discipline of energy medicine therefore rests on a scientific and experiential basis.

**KEYWORDS:** Psychoneuroimmunology; energy medicine; limbic system; pineal gland, melatonin, anandamide, chronobiology, chakra, sephiroth