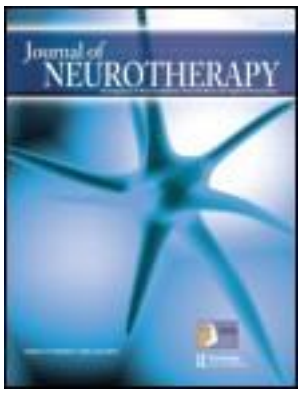

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Comment on "Neurofeedback Overtraining and the Vulnerable Patient"

Len Ochs, PhD

ABSTRACT. Instead of looking at impediments to neurofeedback treatment successes as indicative of client vulnerabilities, understanding client sensitivity, hardiness, reactivity, and behavioral suppression, the therapist can better predict the course of treatment, provide an enhanced basis for continuous informed consent, and reframe self-perceived deficits as validation of patient talents. A self-report questionnaire is appended.

KEYWORDS. Biofeedback, EEG biofeedback, LENS, Low Energy Neurofeedback System Neurofeedback

INTRODUCTION

Thomas V. Matthews, PhD (this issue), presents some valuable ideas for detecting client vulnerability factors in the course of pursuing EEG neurofeedback. Specifically, he lists blood sugar response abnormalities, traumatic brain injury, and intelligence as markers for "vulnerabilities" that interfere with neurofeedback treatment. These "vulnerabilities" show themselves as cessation of improvements, and the start of deteriorations in performance that do not abate with training.

Rather than looking at "vulnerability," as a client defect that interferes with and complicates neurofeedback treatment, however, I would like to suggest that this phenomenon is really a complex mixture of a number of variables, each needing to be evaluated alone and in combination with others. Instead of looking at these vulnerabilities as client defects, in fact, they seem to me to reflect client *talents* that require recognition and modification of the neurofeedback treatment protocols in a way that matches the protocol to these talents. The following are the phenomena I have noticed in the design and construction of the protocol used in neurofeedback.

First, there is sensitivity, ranging from the exquisite to the completely insensitive. I see sensitivity as the ability to respond with varying degrees of differentiation ranging from the finest, most subtle to the grossest and crudest. Sensitivity is the fineness of the detail noticed, or, how small a detail can make an impact on the person. It is a perceptual variable. There is no quality of intensity to sensitivity, although culturally "sensitivity" is often seen as a negative trait ("oversensitivity"), and equated with hyperreactivity to the extent that an onlooker might need to tiptoe around someone considered hypersensitive. Sensitivity is one

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of the variables that influence how rapidly a person responds to situations. As Matthews (this issue) points out, these sensitive individuals respond more rapidly to shorter durations of neurofeedback. To make them endure longer exposures to neurofeedback is to punish them for their sensitivity, as well as to push them into fatigue and disappointment. Intelligence is also a correlate of sensitivity, as greater perceptual differentiation is a characteristic of those with greater sensitivity, as well as those who are more developmentally advanced (Witkin, 1974).

Another phenomenon is hardiness, ranging from hardy to the most fragile. This is a measure of the vitality, energy, or stamina of the individual. Hardiness is not to be equated with sensitivity. One individual can be quite sensitive and discerning and yet hardy and able to be fatigued by too much treatment, and yet recover rapidly, or someone may be sensitive and fragile (i.e., fatigued by too much treatment and need a week to recover, with qualms about returning).

There is also reactivity. As previously mentioned, intensity is absent from sensitivity. However, intensity of response is clearly present in a reactivity variable. An example of reactivity is having a reaction of intense fatigue, or intense explosiveness or headache. The reactivity variable is one that demands prior assessment about the client's reaction style and history. This information can be used to predict and assess the likelihood that greater support during treatment will probably be needed. Clients often enter treatment complaining of being "too" sensitive. However, they are talking about the size of their reactions. When people's reactions are strong, their awareness is absorbed by their reactions; in fact, the size of their reactions prevents them from being very sensitive and aware of much beyond their reactions. Consequently, and paradoxically, those who complain of being too sensitive are, in my experience, typically reactive and quite insensitive.

The course of neurofeedback changes these clients from hyperreactive to increasingly sensitive. In fact, those who have multiple chemical sensitivities often ask me before they start treatment whether neurofeedback will make them less sensitive. "No," I tell them. "Neurofeedback will make you more sensitive and less reactive—so you will be kinder to your children when you react, and less irritating to them." Neurofeedback can make a person more aware—although frequently there is also greater awareness of things that are not so pleasant. This is when psychotherapy becomes a useful adjunct to neurofeedback.

The final distinction to be made at this time is to mention the variable of behavioral suppression. Typically this relates to episodes, commonly much earlier in life, of seizures, tics, explosive outbursts, and/or migraines that have disappeared. The disappearance of these symptoms is usually attributed to maturation. However, these may briefly reoccur, especially with neurofeedback, if the feedback variables are not skillfully crafted. The problem here is that the apparent earlier resolution of these problems may be more the brain's adoption of a short-term solution of inhibiting the cortex rather than a longer-term solution dependent on integration. I speculate that the short-term inhibitory solution may involve inhibitory transmitters blocking connectivity, whereas integration may involve higher cortical function. These distinctions may rest on whether the person is having problems of functioning versus whether he or she is showing improved functioning. This inhibitory short-term solution often is seen in the context of problems of functioning, whereas the person that has adopted the longer term solution has higher functioning and is thus less likely to either seek treatment or suffer a reoccurrence if treatment is sought.

However, the most likely phenomena to be seen are either those that have functioning problems accompanied by a history of apparently resolved episodic problems or problems that remain unresolved such as current seizures, tics, anger, or migraines. And, or course, if the problems exist, they cannot reappear because they never went away; so there *is* no suppression in this case. Things began to get exciting for me when someone came in with some mixture of profound hypersensitivity, frailty, an identified problem of (post–traumatic brain injury) tics that showed themselves as gross-motor kicking

and flailing of the arms, especially evident in the car and in bed with her partner at night. As I reviewed her history with her, and predicted more of the same, she declined neurofeedback treatment until she was past an upcoming wedding at which she needed to look as good as she could. In that first session she showed one major tic every 10 min, on average; there were about five major tics during the session.

Because she was apprehensive about the Low Energy Neurofeedback System (LENS) approach (Ochs, 2006), I chose to apply 4 sec total of infrared light (with a photonic stimulator, similar to some types of Hemoencephalography) to her fingertips and toe tips (a 1-sec sweep of each hand and foot) to block sympathetic activity, the afferents from which could travel up to the head and reduce the kindling threshold. As a result of this 4-sec intervention, the next day her tics were reduced to 20% of what they had been on the first visit. A week later at the following appointment there were no tics to be observed during the session. After the wedding, we started LENS neurofeedback without incident. This is an extreme example of what can come about by recognizing sensitivity, fragility, and reactivity in advance of starting treatment, and scaling down the session to fit the observed sensitivity. In this case, because the symptoms were evident, there was no behavioral suppression.

In another case a 40-year-old man, a machinist–woodworker–dancer (a typical Northern California combination) came in because he was spending too much energy deliberately trying to control his tics. I actually saw no tics during the initial interview. He was obviously sensitive enough to be an artist and yet seem likely to be strong (hardy) enough to withstand the occurrence of tics if they should increase when he became less anxious and less guarded. He further expressed that he was also willing to experience his tic again for some indeterminately short period, if that should be a short-term transitional effect in early treatment. He said that he was to be the Lion King in the *Nutcracker*—and that the Lion King couldn't tic. So we waited until after he completed his performance in the show to start treatment. His tics did reappear in full force. As they did his productivity increased at his job and in his art, a sign that his suppression was being reorganized and confirmation that our sessions were not too long. He completed his treatment; his tics went away, and as he improved he did make some rather large job moves and completed some art pieces that he had been working on for more than a decade.

THE SCREENING PROCESS

Other than taking a behavioral and medical history, we used two clinical survey instruments—a CNS Functioning Questionnaire and a Sensitivity-Reactivity-Hardiness-Suppression Questionnaire (SRHS). The CNS Functioning Questionnaire (Ochs, 2006) is a 50-question neuropsychological instrument. The SRHS, reproduced in the appendix, aims to provide the therapist with some idea of how much LENS neurofeedback one can usefully do. The responses to these questionnaires provide information about how much the client can be challenged by the treatment, what the reaction to the treatment challenge might be, and whether there are symptoms in the client's past that might no longer be present but that might reemerge as a transitional effect for a briefer time prior to the occurrence of improvements. Finally, questionnaire responses also help predict whether the client requires additional preparation, support, and education as to what to expect in the course and nature of the recovery process.

The SRHS is divided into three sections: Sensitivity, Reactivity, Hardiness, and Suppression. The questions rank the percentage of the time that the topic appears during the day. For instance, if an item is rated as 5, it would be true 50% of the time. It is important to note that percentage of time is asked for, and not symptom intensity. Percentage of time seems to me to be somewhat more objective that intensity. The SRHS is evaluated by simply counting the number of items in each section with an answer of 5 or higher. The higher the number above 1, the more predominant is the tendency.

There are no established norms for these answers. The therapist must use his or her life and clinical experience to evaluate how significant each tendency is.

The Sensitivity section contains questions about appreciation, feeling, sensing, knowing, selecting, and knowing the difference between one state and another. These are all sensory, receptive, and internal activity skills. The Reactivity section of the questionnaire presents questions that highlight the *intensity* of the client's responses. The Hardiness section points to the individual's vitality, strength, and resilience. The Suppression section highlights problems that used to occur but no longer do, the old intensity of the reactions to those problems, or other secondary problems that are indirectly caused by other problems, not evident, loading the organism down. Although sensitivity and hardiness have bearing on how much neurofeedback is done, the Reactivity and Suppression sections are important in letting the therapist know how to frame the treatment. Or, if the reactions of the client are likely to be intense and of concern to the client or others in the client's life, then the client needs to be so informed so as to be able to give truly informed consent. At the same time, the support of those close to the client needs to be enlisted by educating them as well. It is the accuracy of these statements that will help the client partner with the therapist, give him or her confidence in what the therapist has to say, and help the client persevere through what might be a long and troublesome course of therapy if this is what needs to happen.

DEMOGRAPHICS OF SENSITIVITY

Clients from one county, city, or region may predominantly have with one set of the characteristics we have been discussing, whereas those from other areas may be completely different. More insidious in distorting the clinician's judgment may be the fact that certain traits familiar in one geographic location may be completely absent in the subpopulations typical of another location.

Working for more than 30 years with clients who have come from all parts of the world and with training therapists who have clients from all over the world and from many places within the same country has given me the advantage of seeing clients with a wide variety of traits and symptoms, often absent from the practices of many therapists. When a therapist looks at the SRHS, he or she may think, "This type of tendency simply doesn't exist." In other words, it may seem inconceivable that certain extreme qualities of clients such as hypersensitivity, reactivity, hardiness, or suppression exist, because she or he has not had intensive (rather than intimate) therapeutic contact with clients from other locations or with these characteristics. Hardiness may have high survival value in one area, whereas artistic sensitivity may be highly prized in another location or subculture. In fact, clients may migrate to localities as much for the traits of the people who live there, as for economic or other factors. If one does not see the other parts of the elephant, they simply may not appear to exist. Nevertheless, I have encountered many therapists who, after years of never running across someone who is sensitive, will be shocked when one finally shows up, and the long-standing rumor that these "creatures" exist will be confirmed.

SUMMARY AND CONCLUSION

The "vulnerability" described by Matthews (2007) may involve components of sensitivity, reactivity, hardiness, and behavioral suppression. The chance for successful treatment may increase by better understanding how to recognize the factors and customize the neurofeedback settings as appropriate for these components. The assessment tool in the appendix can measure what the patient thinks and allows the therapist and client to have a better sense of the entire therapeutic experience.

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APPENDIX

Sensitivity/Hardiness/Suppression Questionnaire

Please answer each question with a number from 1 to 10 representing the amount of time in a day that one spends doing the item: 1 means at no time, 10 means all the time, and 5 means half the time.

Sensitivity:
1. I have a wide appreciation for tastes in different foods.
2. I feel changes when the weather is about to change.
3. I can easily tell when a medication is going to work or not, and tell much faster than most.
4. I can sense smells and scents that others seem to not notice.
5. I can sense my need for food by changes in my awareness, balance, or comfort level long before I feel hungry.
6. I can sense mood, energy shifts, and attention changes, in those around me.
7. I frequently know when something is going to work out—such as a job or relationship.
8. Although I know when I'm in a toxic environment, I know it early and have the time to think about how to take care of myself.
9. I know when I'm coming down with a cold or flu if I'm aware of slight increases in irritability, fogginess, or physical tightness not attributable to what's going on socially.
10. I am very creative.
11. I have to do things more slowly than others.
12. I need time to do things at my own pace.
13. I know the difference between quietness and stillness.
14. I know the difference between relaxation and comfort.
15. I select my companions, situations, and friends by the rapport that I feel when I'm with them.
16. I have some abilities that some people consider psychic, but that I consider familiar.

Reactivity:
1. I can and do have strong reactions to foods.
2. I can and do have strong reactions to weather changes.
3. I and do have strong reactions to medications.
4. I can and do have strong reactions to smells outdoors.
5. I can and do have strong reactions to smells indoors.
6. I can and do have strong reactions to not eating when I need to.
7. I am suddenly shocked by my reactions—but then I remember, I do these kinds of things.
8. My friends have a hard time being around me.

Hardiness:
1. I can do an amazing amount without fatigue.
2. I can do an amazing amount without pain.
3. I have no problems with the weather.
4. I have no problems with foods.
5. I have no problems with medications.
6. It's hard to get me upset.
7. People find me even tempered.
8. I can work for long times.
9. When something hits me hard, I recover quickly.

Suppression:
1. Things used to unpredictably have a big effect on me, but no longer do.
2. I have almost forgotten how terribly embarrassing things used to be for me.
3. My friends *used to* have a hard time being around me.
4. I can't get as much done now as I used to.
5. I find myself struggling in my mind.