

# Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

## Measuring the Effectiveness of Neurotherapy

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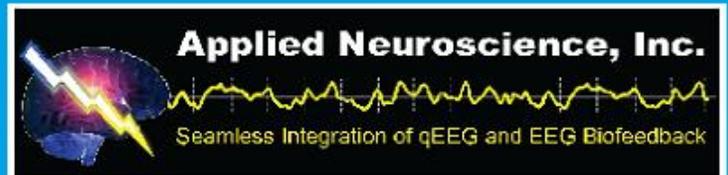
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## EDITORIAL

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### Measuring the Effectiveness of Neurotherapy

The *Journal of Neurotherapy* (JN) has published several studies showing neurotherapy or neurofeedback as an effective treatment for a variety of neurological and neuropsychological diagnoses, including adults with Attention Deficit Hyperactivity Disorder (ADHD; APA, 1994). The readers are encouraged to read the Comprehensive Neurofeedback Bibliography published in volume 5, issue 1/2 of the journal (Hammond, 2001). When reading these outcome studies, I always review the measure treatment effectiveness. We know there is no panacea for all disorders; similarly, there is no correct or perfect measure of treatment effectiveness. My experience has concluded that outcome measures are divided into behavioral symptoms (rating scales by others), self-report of symptoms, or cognitive symptom measures such as a continuous performance test or intelligence test. Each measures a different aspect or part of psychological performance, is limited to the hypothetical construct that the test author used when developing the test, and should have reasonable scores for validity and reliability. For example, Tinius and Tinius (2001) found significant changes on self-report and a measure of sustained attention, but the change in

scores (i.e., post-treatment score minus pre-treatment) from the self-report and attention measures were not correlated. Recently, Naglerie, Goldstein, Delauder, and Schwebach (2005) found that Continuous Performance Test results in children and adolescents on the WISC-III (Wechsler, 1991) and Cognitive Assessment System (Naglerie & Das, 1997) results showed very few correlations with behavior rating scales; and there were fewer correlations in the ADHD sample. In clinical practice, data from parent rating scales may be incongruent with performance on a continuous performance test, and Naglerie et al. (2004) concluded that the poor relationship between rating scales and a continuous performance test suggests that behavioral rating scales measure diagnostic symptoms, but cognitive testing should be completed to examine the underlying cognitive deficit. They suggest this cognitive component is a failure of self-regulation in persons with ADHD. This provides some understanding of the failure to find a relationship between self-report and test performance by Tinius and Tinius (2001). Furthermore, it has been suggested that clinicians abandon the practice of assigning an ADHD diagnosis

based solely upon a self-report of current symptoms (McCann & Roy-Bourne, 2004).

The criteria for ADHD were field tested on children with ADHD (with behavior rating scales) and may not be applicable to adults with ADHD (Roy-Byrne, Scheele, Brinkley, Ward, Wiatrak, & Russo et al., 1997). Adults with ADHD have more problems with follow-through, forgetting, organization and losing things suggesting that diagnostic criteria take into account differences in development and age related differences in contextual demands (Riccio et al., 2004). Self-report scales have their own set of problems with high rates of false positives, especially for persons with major depression or dysthymia (McCann & Roy-Byrne, 2004). Furthermore, recent studies found personality constructs in persons with ADHD adults with ADHD had lower scores on a measure of agreeableness (Nigg et al., 2003) and adults with ADHD used maladaptive coping strategies of confrontative, escape-avoidance and lack of problem-solving (Young, 2005). Also, the symptoms characteristic of ADHD are common among individuals with psychiatric disturbance, regardless of specific diagnosis, and therefore, a self-report of current symptoms may be of little value in screening or diagnosing ADHD in adults (McCann & Roy-Byrne, 2004). Other researchers have suggested that the overlap of poor reading comprehension, especially phonological deficits is closely related to attention problems (Swanson, Mink, & Bocian, 1999). Thus, a clinical diagnosis such as adult ADHD may be related to a variety of other emotional and personality constructs and one behavioral rating or cognitive test simply cannot define the extent of the symptoms and underlying cognitive processing skills.

While this short review only touches the surface of a complex clinical area of diagnosis of ADHD in adults, it suggests that (a) the diagnosis of ADHD should not be based solely upon rating scales, (b) treatment outcome should not be based solely on self-rating scales, and (c) there should be different measures used for child/adolescent and adults. As you read the articles in this issue of the JN, consider what form of measurement you use with clients for evaluation or measurement of treatment outcome. In this issue, Daniel Hoffman, MD, discusses the

use of LORETA to analyze QEEG data and Jonathan Walker, MD, reviews the literature on QEEG and dyslexia with treatment recommendations. The Clinical Corner describes changes in QEEG related to allergy and the final article demonstrates preliminary data using QEEG as a measure of treatment outcome with medication. Each of these studies has implications of how we use testing to assist in our diagnosis of symptoms, and most importantly, how we measure treatment outcome.

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Editor

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