



Neurofeedback is the Best Available First-Line Treatment for ADHD: What is the Evidence for this Claim?

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With over 50 years of research and hundreds of articles in the same amount of time, Neurofeedback, a well studied therapy for the treatment of ADHD, is the topic under review by the author. Neurologix, which incorporates Neurofeedback, uses visual feedback to help guide the brain into better states of focus, attention, concentration, and mood. This article covers a great deal of questions which have been asked over the years regarding Neurofeedback's effectiveness and justification for its consideration to be a front line treatment for ADHD.

I have been a Neurofeedback Therapist for over 20 years. In the early 2000's it was still considered "Research and Experimental". Very few providers solely provided or practiced Neurofeedback as their main service within their clinics. I was one of the few who risked rejection for lack of "evidence" that this therapy was going to be successful, and justified the thousands of dollars that were being charged even back then. Joel Lubar at the



University of Tennessee was leading the way in researching ADD/ ADHD at the time and was producing positive results. His name is forever associated with the pioneering research that eventually led to articles like this one under review. We faithfully replicated Joel's protocols and those of emerging pioneers like Richard Soutar Ph.D.

Peer reviewed protocols showed that the brain could understand the subtle cues it was given through either visual or audio "rewards" for producing change. The changes the brain made happened to produce better focus, less distraction, and improve sustained attention. This was Neurofeedback.

More troubling still, in the 22-month follow-up assessment it was found that –medication use was a significant marker, not of beneficial outcome, but of deterioration! (Jensen et al., 2007),

-H. Edmund Pigott, Ph.D

The author opens with the standard definition of ADHD which is standard as in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders - Version 4). Like most descriptions, ADHD is categorized as impairment to tasks related to sustained attention, impulse control and shows evidence of hyperactive tendencies that affect the individual in one or more settings, ie, school, work, social settings or at home. The author then sites age related statistics regarding who it effects with 11%

of school aged children (20% teenaged boys) bearing the majority of the population that is diagnosed. A staggering 70% of the ADHD diagnosed population is prescribed medication therapy. It is the author's position that these therapies fail to result in sustainable outcomes for those with ADHD.

The discussion and summary outlines the failures of both medication therapy and cognitive behavioral therapy in over 500 participants in 2 very large and well funded (\$21 Million) studies. Over a dozen years after the studies were published, several authors of the studies reported their "regrets" for overselling the medication

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management approach in an article entitled —ADHD Experts Re-evaluate Study's Zeal for Drugs || (Schwarz, 2013). The author goes on to insert that the authors of the study should

have regretted NOT further studying the negative findings of the study instead of burying the findings in a table within the findings section. I've come to find this common practice in highly funded studies that aim to "prove" their hypothesis and over inflate findings and undermine the pitfalls. This isn't new to most readers. This is evident in one of the follow ups reporting that 10.4% to 12.3% of the participants had psychiatric hospitalizations versus the community care group at 8.3%. The participants were in either the medication group, a cognitive behavior group, a combination of the 2, or a community care group that may or may not have received any intervention at all. Disturbing at best.

The studies also outline the high cost associated with these interventions with 14 months of medication management costing approximately \$5,300, behavior therapy costing over \$15,000, and over \$21,500 for a combined intervention! *The exact figures are outlined in Table 1 of the study. In contrast, based off of our own and current cost for a comprehensive Neurofeedback based program, all Newrologix Providers are at or below industry costs. It costs almost thousands less and in a later article review we will discuss how LONG TERM outcomes from doing Neurofeedback last longer and outperform medication therapies in some cases 5:1.

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The author discusses another article that was published by the NIMH study called the PATS or Preschool Attention-Deficit/Hyperactivity Disorder Treatment Study. Their conclusion found that there was minimal improvement over the placebo in the medicated group. The follow up to the study cited that

“Across the sample, severity of symptoms, despite initial decline, remained primarily in the moderate-to-severe clinical range (emphases added; Riddle et al., 2013).” Later the author discusses how the NIMH responded in a press release that studying these powerful medications on preschoolers should be studied to see what the effects are on the use of a drug or multiple drugs on children! In other words... Let's test drugs on preschoolers and see what happens! From a scientific perspective I'd still find it highly unethical to do so and the author agrees. It's a slippery slope and I just don't see how the outcomes would benefit the effort.

We have found in our clinics that most children are either able to significantly reduce their medication or eliminate it completely as instructed by a licensed medical professional. We often get praise and amazement by the doctors and PA's who have never even heard of Neurofeedback or have only looked at the literature pre 2000. It seems like our job as

Neurotherapists is to reintroduce these providers to the latest studies like this one and start the rapport building with those who manage and prescribe these powerful medications.

The author did a review of 16 controlled studies done since 2000 and their findings in Table 2 starting on page 11 of the article were staggering...The 16 studies respectively cover many of the symptoms found in ADHD populations had;

- Significant improvements to TOVA (Test of Variables of Attention) scores in the Neurofeedback groups.
- Teachers' ratings significantly improved. 3 years later, all of the gains from Neurofeedback stayed the same while unmedicated and 80% of the Neurofeedback groups reduced their medications by 50% or more.
- Those that didn't do the Neurofeedback were able to reduce their meds and an alarming 85% of them actually increased their doses.
- Repeated studies showed that Neurofeedback performed as good and in some measures better than medication therapy.
- Neurofeedback significantly outperforms non-Neurofeedback participants in several (IVA, CPRS, CTRS's inattentive and hyperactive scales) tests.
- fMRI studies showed that Neurofeedback was able to functionally normalize systems responsible for selective attention and inhibition or suppression.
- When coupled with Cognitive Behavior Therapy (CBT) parents who were more supportive had better outcomes and the participants had better cortical control.
- After a 2 year follow up, the Neurofeedback group had half as many participants with diagnosed ADHD and only 22% were taking medications, again, 2 years later.
- In a study done using methylphenidate, ONLY the Neurofeedback group showed significant academic performance improvements and they held at the 2 and 6 month follow up.

→ Versus computerized cognitive training (CT), Neurofeedback was SUPERIOR both the control group and the CT group even after the 6 month follow up and no increases in medication.

Neurofeedback is now able to provide evidence that holds up against the medical model and its nay-sayers. I have personally witnessed its successes and shortcomings with all of the families my staff/partners/providers performed Neurofeedback on. I have also seen the power of combining Neurofeedback with other modalities. As many studies often show, combining therapies gives the individual the opportunity to solve the illness, condition, or disease using a multidisciplinary approach. Inflammation, spinal health, mental health, gut health, nutrition, and medication management play a crucial role in how the brain deals with attention and inhibition. By choosing a Neurofeedback provider that works within a practice that incorporates testing, assessments, and evaluations that can be compared and contrasted to a qEEG, we are able to understand so much more and create a customized therapeutic program for you and your family.

The articles that the author reviewed give us hope that with continued studies and research, we can continue to improve on Neurofeedback and see new outcomes when combining it with Multidisciplinary approaches. Hopefully this will cast a greater net of support and help to the millions of families that are looking for a non-medication or assisted medication route.

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