

DIRECT NEURAL FEEDBACK AND ADD / ADHD / AUTISM SPECTRUM

ADD/ADHD

1. Characteristics of ADD/ADHD

ADD/ADHD is the most commonly diagnosed childhood mental disorder.¹ Presentations of ADHD may be categorized as:

1. **Inattentive:** Inattentive-type ADHD (or ADD) is when a person shows persistent symptoms of inattention (or easy distractibility), but isn't hyperactive or impulsive. Some characteristics include: being easily distracted, forgetful, unable to complete tasks, unable to give attention to detail, unable to focus, difficulty listening.
2. **Hyperactive:** This type of ADHD occurs when a person has symptoms of hyperactivity and impulsivity, but not inattention. Some characteristics include: lack of impulse control, excessive talking or interrupting, fidgeting, inability to sit still, running or playing in inappropriate situations, being hyperattentive to certain tasks.
3. **Combined or Mixed:** Combined ADHD is when a person has some symptoms of both inattention and hyperactivity / impulsivity.

Boys are more commonly diagnosed with ADHD than are girls; girls who are diagnosed are more often diagnosed as inattentive. CDN works equally well for all types of ADHD and a variety of ADHD symptoms.

2. What are the signs of improvement?

1. **Academic improvement:** doing better in challenging school subjects
2. **More organized:** room or possessions are neater, less forgetful
3. **Extended concentration:** able to study or work longer, less distracted
4. **Better behavior:** more able to follow directions, less combative or oppositional
5. **Interpersonal improvement:** better listening, more appropriate conversation

¹ Nair, J., Ehimare, U., Beitman, B.D., Nair, S.S., Lavin, A. (2006). Clinical review: evidence-based diagnosis and treatment of ADHD in children. *Mo Med.*, Nov-Dec;103(6):617-21.

3. How Does DNF affect ADHD?

People who have received DNF treatment often report that they experience more clarity and focus overall. This is true of patients with ADHD as well. The “relaxing” aspect of DNF may prove helpful in relieving anxiety which leads someone with ADHD to jump from one thing to another. As we’ve stated before, DNF allows the brain to get out of fixed neural pathways and re-evaluate its pathing. And since the brain *WANTS* to be organized and efficient, DNF will help it become so.

AUTISM SPECTRUM DISORDER

As a spectrum disorder, there are a wide variety of autism-associated symptoms and severity can be difficult to determine or quantify. Generally, severity of ASD is assessed based on the level of impairments, and how they impact the person’s ability to function. A child or adult on the autism spectrum may have problems with social interaction and communication skills. This will require delicate handling on the part of the practitioner, and more reliance on feedback from a parent/caretaker. **Our role is not to diagnose ASD, but to screen for symptoms that Direct Neurofeedback can help.**

Because diagnosis can take so long and many parents are searching for early intervention, you will likely get patients that have not been formally diagnosed.

1. Elements of Autism that may be helped by DNF

Some common symptoms of autism which can benefit from direct neurofeedback are:

- **Hypersensitivity** to light, sound, and sometimes touch
- **Emotional meltdowns** caused by overwhelming emotion and inability to express them appropriately.

Autism-related conditions that can be addressed with neurofeedback:

1. **Anxiety** — autistic children demonstrate a greater rate of anxiety and depression.²
2. **Clinical depression**
3. **Bipolar disorder**

² Kim, J. A., Szatmari, P., Bryson, S. E., Streiner, D. L., & Wilson, F. J. (2000). The Prevalence of Anxiety and Mood Problems among Children with Autism and Asperger Syndrome. *Autism*, 4(2), 117–132.

4. **ADHD** — Autism spectrum disorder (ASD) and ADHD share common characteristics, and many children with ASD have behaviors - like interrupting or impulsive behavior - that are common to ADHD.
5. **Seizures** — Prevalence of seizure disorders is significantly higher in people on the autism spectrum³
6. **Sleep problems**⁴
7. **Tourette syndrome**⁵

2. Signs of improvement

1. More emotional stability and resilience.
2. Fewer meltdowns.
3. Faster recoveries.
4. Less anxiety overall.
5. Better sleep.
6. Less hypersensitivity.

One of the reasons some clinicians find treating clients on the autism spectrum rewarding is that there is such a wide range of behaviors, linguistic and social symptoms, that it's often a surprise where you might find some improved function.

Because there are so many symptoms, and young clients will have limited communication skills, rely on what the parents tell you. While they can't express what the patient is experiencing, they will be able to tell you about changes in the patient's behavior.

³ Mouridsen, S.E., Rich, B., Isager, T. (2011). Epilepsy and other central nervous system diseases in atypical autism: a case control study. *J Neural Transm (Vienna)* 118(4):621-7.

⁴ Reynolds, A. M., Malow, B. A. (2011). Sleep and autism spectrum disorders. *Pediatr Clin N Am* 58(3): 685-689.

⁵ Baron-Cohen, S., Scahill, V.L., Izaguirre, J., Hornsey, H. (1999). The prevalence of Gilles de la Tourette syndrome in children and adolescents with autism: a large scale study. *Psychological Medicine* 29(5): 1151-1159.