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ADHD FACTS & RESOURCES

ADHD is the most common developmental disorder, affecting approximately 10% of children worldwide.

ADHD symptoms range from very mild to very severe. The symptoms of ADHD consist of traits that everyone has (like activity level) but with ADHD these traits are magnified.

There are many children (and adults) who have some of these symptoms but not to the level that would be diagnosable. Researchers call this *subthreshold ADHD*. I call it *ADHD-ish*.

ADHD is highly genetic, with 70-80% of kids with ADHD having one or more parent with similar traits. Symptoms of ADHD can be caused by non-genetic contributors as well, such as low birth weight, delivery complications, and head injury.

ADHD diagnosis does not require formal psychological testing. What is required is a thorough collection of observations from multiple environments by a qualified clinician. Formal testing can be helpful to identify additional learning issues, anxiety, IQ level, and other developmental disorders.

Symptoms of ADHD occur in 4 main areas:

- Activity Level: restlessness, extra body energy, the need for stimulation.
- Inattention: difficulty staying focused (and not getting distracted) —especially when doing *non-preferred* activities.
- Impulsivity: difficulty stopping oneself or slowing down to think before acting.
- Emotion Regulation: controlling the size and frequency of emotional reactions.

ADHD has 3 presentations: Primarily Inattentive (20-30% of diagnosed kids), Primarily Hyperactive/Impulsive (less than 15%), and Combined, which is the most common presentation (50-75%).

31-40% of children diagnosed with ADHD have Sluggish Cognitive Tempo (SCT), which is comprised of cognitive symptoms of day dreaming, spacey appearance, mental fogging, and sluggish responding.

60% of people with ADHD have dysgraphia or poor handwriting.

People with ADHD are at an increased risk for Rejection Sensitive Dysphoria- a condition where actual or perceived social rejection creates intense emotional pain. Read about RSD [here](#).

Degree of symptoms varies greatly depending on the environment. Situations that are fun or interesting decrease symptoms, while demanding or 'boring' situations often increase symptoms. Recent studies also show that most people with ADHD have periods of symptom remission and recurrence over their lifetime.

Studies show that almost 50% of kids diagnosed with ADHD will eventually have a significant decrease in symptoms. This usually occurs during puberty and is seen most often with symptoms of hyperactivity. Inattention only decreases significantly in about 20% of kids.

Kids with ADHD often have executive function deficits, like difficulty with memory (80%), planning, organization, self-regulation, motivation, and goal achievement. Studies also show that children/teens with executive deficits often perceive time inaccurately—over-estimating time available to complete tasks. So, time management is an important skill development area for people with ADHD.

Executive deficits also contribute to poor self-awareness and self-monitoring—especially in social contexts. Kids with ADHD often underestimate their part in conflicts and overestimate or blame others.

It is common for kids with ADHD to have other challenges as well. 44% of kids diagnosed with ADHD have deficits in other areas, such as difficulty with sensory/motor coordination, learning challenges, processing delays, anxiety, tic disorders, self-perception deficits, and social challenges. ADHD commonly occurs with Dyslexia, with up to 40% of children with ADHD also having Dyslexia.

Studies show that kids with ADHD require more repetition in learning, even when incentives or consequences are used. Learning that is highly structured and consistent produces better performance for kids with ADHD.

ADHD symptoms often present in early childhood and continue to pose a challenge throughout the school years. Approximately 75% of kids who display ADHD symptoms in preschool continue to struggle with these symptoms later in elementary and middle school.

ADHD affects the dopamine reward pathways in the brain. This creates challenges with motivation and persistence, especially if the activity is difficult or not immediately rewarding.

Due to dopamine deficits, kids with ADHD require more *external* rewards/motivators to complete difficult or non-preferred tasks. Both social (praise) and tangible (tokens/privileges) rewards are helpful. Rewards usually need to be delivered immediately, as delaying gratification is often a challenge for these kids. Interestingly, studies show that *the anticipation* of reward releases more dopamine than getting the actual reward. So, helping kids *get excited* about earning things is as important as giving out actual rewards.

Children with ADHD show decreased blood flow (observed through SPECT scans) to the brain regions controlling emotion, behavioral inhibition, and attention.

The ADHD brain becomes glucose depleted later in the day. Kids with ADHD may crave sugar due to this and slow-release forms of glucose, like sipping on a sports drink, are often recommended if afternoon tasks need to be completed.

EEG measurements of brainwave activity show that children with ADHD have an average of 32% excess theta band activity. Theta band represents a drowsy/inattentive cortical (brain) state. These children also show decreased beta wave activity. Beta waves represent an active/attentive cortical state.

Contrary to popular myth, ADHD is not over-diagnosed. Studies show that 50% of children in the US with ADHD get no treatment.

Children with ADHD are at risk for higher rates of self-esteem problems, which are often evident by age 7. Children and adolescents with ADHD are at a five-fold risk for depression and a three-fold risk

for anxiety. Studies also show that anxiety occurs more often in children struggling primarily with inattention.

ADHD is considered a disorder of *performance* (vs knowledge). Most children both know and want to do the right thing, but issues of impulse and emotion regulation often hijack these kids and create challenges with self-control and decision making.

The American Academy of Pediatrics (AAP) recommends a multi-faceted treatment approach for ADHD, with academic, family, and social supports provided as necessary.

AAP and CDC (Centers for Disease Control and Prevention) advise behavioral therapy for children with ADHD under 6 years. For children over 6 years (and also children under 6 who do not get enough progress from therapy), they recommend a combination of therapy and medication.

Medications for ADHD often provide substantial help by increasing focus and self-regulation and decreasing impulsive behaviors. Most of them work by increasing both Dopamine and Beta wave activity in the brain. ADHD medications have a 90% success rate for children accurately diagnosed with ADHD. 62% of children respond better to one ADHD medication over others, so several medications may need to be tried to find the best fit.

Studies show that taking medication to treat ADHD has a protective effect as children enter the teen years, with lower rates of motor vehicle accidents, criminal activity, suicide, and substance abuse for medicated vs non-medicated ADHD teens.

Here is a very informative podcast on ADHD medications by Stanford neuroscientist Dr. Andrew Huberman <https://hubermanlab.com/adderall-stimulants-and-modafinil-for-adhd-short-and-long-term-effects/>

To date, no natural remedies or elimination diets have proven as effective as standard medications for treating ADHD symptoms. Adding Omega 3 fish oils has shown to have some positive effect on symptoms (both inattention and hyperactivity). The following two meta-analysis of multiple studies connects specifically omega 3 EPA (500mg +) intake with improved ADHD symptoms. Talk to your pediatrician if you're interested in trying Omega 3 supplementation for ADHD symptoms.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3625948/>

<https://www.nature.com/articles/npp2017160>

A novel video game (Endeavor RX) was designed to help treat ADHD symptoms and was cleared by the FDA in 2020. The initial study showed some improvement in one type of attention measure but other results were mixed, and the trial was done by the lab that created the game so there may be conflict of interest. Here's a link to the study article.

<https://www.thelancet.com/journals/landig/article/PIIS2589-7500%2820%2930017-0/fulltext>

There is also now an interactive video game called Mightier <https://www.mightier.com/> that reports success in helping kids regulate emotions. However, it looks very similar to the identification/expression/regulation skills you would get through psychotherapy or OT work.

Additional therapies that show efficacy for ADHD:

Positive parenting training

Parent education

Coaching for adult ADHD <https://chadd.org/about-adhd/coaching/>
Classroom behavioral support
Social skills training (groups)
Occupational therapy (OT)
Speech therapy
Tutoring
Programs that promote self-regulation (mindfulness, martial arts, yoga)
Kids screen free mindfulness player <https://zenimals.com>

Online resources:

CHADD: <https://chadd.org>
CDC: <https://www.cdc.gov/ncbddd/adhd/guidelines.html>
NIMH: <https://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd/index.shtml>
American Academy of Pediatrics: <https://www.healthychildren.org/English/health-issues/conditions/adhd/Pages/Understanding-ADHD.aspx>
ADD Warehouse: http://addwarehouse.com/shopsite_sc/store/html/index.html
Matrix Parents: <https://www.matrixparents.org>
Understood <https://www.understood.org>
Clarity Pediatrics- ADHD evaluation and parent groups <https://www.claritypediatrics.com>

Educational video: Leading expert Dr. Russell Barkley discusses ADHD

https://www.youtube.com/watch?v=BzhhAK1pdPM&list=PLzBixSjmbc8eFI6UX5_wWGP8i0mAs-cvY

Another great one from Dr. Barkley: 6 principles for raising a child with ADHD.

https://www.additudemag.com/webinar/parenting-a-child-with-adhd-podcast-345/?utm_source=eletter&utm_medium=email&utm_campaign=webinar_january_2021&utm_content=012421

ADHD books:

Taking Charge of ADHD. R. Barkley
Managing ADHD in School. R. Barkley
ADHD: What Every Parent Needs to Know. American Academy of Pediatrics
Raising an Organized Child. American Academy of Pediatrics
The Couples Guide to Thriving with ADHD. Orlov & Kohlenberger.
Taking Charge of Adult ADHD. R. Barkley
Smart but Scattered. Dawson & Guare
The Explosive Child. R. A. Greene
Raising Human Beings. R. A. Greene
Transforming the Difficult Child. H. Glasser
Driven to Distraction. Hallowell & Ratey
Mindfulness for Kids with ADHD. D. Burdick
Mindful Games Activity Cards. S. K. Greenland

For Kids:

Thriving with ADHD. K. Miller
Learning to Slow Down and Pay Attention. K. Nadeau
Survival Guide for Kids With ADHD. J. F. Taylor
Marvin's Monster Diary: ADHD Explosion

The ADHD Workbook for Kids. L. Shapiro

Attention, Girls! P. Quinn

Six Super Skills for Executive Functioning: Tools to Help Teens Improve Focus, Stay Organized, and Reach Their Goals

Also see Noah's [Classroom Recommendations for Children with ADHD](#)

Sources: American Academy of Pediatrics, CDC, NiMH, the ADHD Report (Barkley & Assoc), and studies cited in Dr. Kempler's dissertation: *Emerging Treatments for ADHD* viewable at noahkempler.com/biography.

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