

# Decoding Dyslexia

## Research Based Executive Functioning Interventions

New Leaves Clinic  
**Cynthia Arnold, Ph.D.**  
Clinical Psychologist – Developmental Disability Specialist  
1575 N.E. Arrington Road, Hillsboro, Oregon 97124  
503.693.9153

- **What is ADHD:**
  - Executive Functions vs IQ
  - What are the Executive Functions?
  - ADHD types: Hyper Impulsive, Inattentive (Sluggish Cognitive Tempo) & Combined Type
- **Assessment:**
  - Interview and paper/pencil
  - Neuropsych does not have Dr. Barkley's support
- **Medications:**
  - **Psychostimulants**
    - methylphenidate (Ritalin, Concerta)
    - amphetamine (Adderall, Dexedrine)
    - drugs that increase both dopamine and norepinephrine
  - **Dopamine** (decreased dopamine activity)
    - Major function in reward and motivation (inattention)
    - Most rewards increase dopamine
    - Involved in motor control (impulsive/hyper)
    - problems with regulating attention (**attentional control**), inhibiting behaviors (**inhibitory control**), and forgetting things or missing details (**working memory**).
  - **Norepinephrine**
    - (Guanfacine, Clonidine. Strattera; dopamine is the precursor)
    - substantial evidence - "biomarkers" of altered norepinephrine processing
    - It mobilizes the brain and body to action when stressed/endangered (so they seek STRESS)
    - increases arousal and alertness, promotes vigilance, enhances formation and retrieval of memory, and focuses attention

*Summary of Stephanie Sarkis' Ph.D. talk on Nonmedication Treatments for ADHD. She also has a book out with the same title.*

### Nonmedication Treatments

- **Any treatment that requires a contract Red Flag!**
- **Very little data on supplements working at all.**
- **ADHD is a disorder of motivation.**
- **YOU MUST MOVE AROUND NO MATTER WHAT!**
- **CBT** (Solanto) **YES**
  - Self Talk:
    - They think they are not smart → release cortisol.
    - **Talking positively releases dopamine, serotonin, and norepinephrine**
  - Group therapy → find out they aren't alone.
  - CBT Homework:
    - They are more likely to apply positive group pressure to do homework.
    - Homework is correlated with success
  - 53% got better with CBT vs 23% relaxation and education.
- **Coaching** **YES**
  - Careful because it is not certified or licensed by a state board (only their own organizations)
    - Eric Tivers, LCSW
    - **CHADD has a list of people**
    - **ADD Consults.com**
  - Reframe the coach as a *personal assistant*
  - Skilled at:

- setting up structure
    - College -**accountability**
    - Plays on people's need to be socially appropriate
    - novelty
  - Accommodations are very effective for college students.
- **Exercise YES**
  - Very effective
  - **15 minutes increases dopamine** (the more you exercise the more dopamine you get)
  - Do it first thing because it helps the sleep- wake cycle and gives you dopamine during the day.
  - **All styles of martial arts 1) increase dopamine and EF which includes 2) positive social pressure**
    - Judo is great because it also does meditation
    - Kata is a bite size piece
      - detailed choreographed patterns of movements practised either solo or in pairs
  - **Positive reinforcement to encourage exercise**
  - **Movement in a classroom → turns on your cerebellum**
    - The **cerebellum** (Latin for "little brain") role in motor control/coordination/précising, timing, attention, and language. Also regulates fear and pleasure responses
  - Chiropractic does not work.
- **Brain Games NO**
  - They do not work because they **do not generalize.**
    - No improvement with inhibition
  - Alternatives: Simon and Memory
- **Interactive Metronome YES, Listening Programs NO, Physiotherapy NO**
  - 12 weeks showed 2 years of improvement...but very limited data
  - The goal is to speed up SCT by developing CNS processing
  - **Use a concentrated distraction like a metronome is useful.**
    - Using a regular metronome is just as good
    - Try Metranome Beats
  - The idea with SCT is that it is inattentive with sensory processing (and possibly mood)
  - Listening Therapy: data against
  - Physiotherapy: data against
- **Mindfulness Meditation YES**
  - Paying attention to present experience. (You do not need to sit still to do this.)
  - 78% improved - 30% had symptom reduction
  - Walking Mindfulness may be good for that.
- **Neurofeedback LIKELY NOT**
  - FDA approved
  - goal to decrease theta waves and increase beta waves
  - Animation on a screen. Only on when beta waves are more active.
  - **Good only while you are doing it.**
  - It is very expensive.
  - Very limited data. **Double blind showed no benefit.**
  - **Brain Gym does not work.**
- **Omega 3 6 9 YES**
  - Omega is usually low in ADHDers
  - **Small but significant effect on ADHD symptoms**
  - Vitamins did not make a difference....Omega did
- **Diet Changes Kinda**
  - **Higher food allergies and sensitivities**
  - Gluten free – not effective.
  - Feingold diet - not effective
  - Having said all that it may help with other issue that are Impacting attention
  - Food dyes – no clear support
  - More protein - not supported
  - Fatty Acids – small effect size
  - If meds **aren't working, it may be smart** to do an elimination diet

## ***Turning Intentions Into Actions - ADHD as an Implementation Problem & Treatment Implications***

"Russ"ell Ramsay, Ph.D. [ramsay@mail.med.upenn.edu](mailto:ramsay@mail.med.upenn.edu)

Anthony "Tony" Tostain, M.D., M.A. [rostain@mail.med.upenn.edu](mailto:rostain@mail.med.upenn.edu)

PENN Adult ADHD Treatment & Research Program

CHADD 2016

Book: [Cognitive Behavioral Therapy for Adults with ADHD](#)

- ADHD is a disorder of implementation (meaning a challenge of turning intentions into actions)
- **Developmental Disorder of Self Regulation:**
  - Reward Deficiency Syndrome
  - Executive Function Disorder
  - Disorder of Emotion Regulation
- **Self Regulation:**
  - The interaction between the person's disposition and cues/consequences in the environment → adapting to the environment
    - **Structure of Self Regulation:**
      - Inhibition of behavior on command.
      - Behavioral control with an incentive (inhibit and direct)
      - Behavioral control with no incentive
        - brake: refrain from touching
        - accelerator: sustain repetitive tasks without reward
- **What are Executive Functions:**
  - EF usually emerges as a single factor: "*How efficiently do you do what you set out to do?*".
  - There are 5 domains related to daily functioning:
    - Self MANAGEMENT (including TIME)
    - Self ORGANIZATION and PROBLEM SOLVING
    - Self RESTRAINT (inhibition)
    - Self MOTIVATION
    - EMOTION REGULATION
- **Use EF or Lose EF:** (nonbiological cause)
  - You must use and practice your EF's to improve them. (e.g., *helicopter parenting is a problem*)
  - ADHD--> Primary EFD --> Poor Organization & Adaptive Functioning --> Reduced Practice with EF and Avoidance of EF Tasks → Secondary EFD
- **Emotional Regulation:** (these create norepinephrine)
  - low frustration tolerance
  - anger
  - emotional excitability
- **Evaluating Dopamine Reward Pathway in ADHD / Reward Deficiency Syndrome**
  - lower dopamine transporter availability in the reward system → they aren't rewarded neurologically
  - **Motivational Deficits commonly encountered:**
    - trouble activating (initiate)
    - easily bored (distracted/goal persistence)
    - need salient *and* interesting tasks (dopamine)
    - higher risk of addictive behaviors: novelty seeking, chemical dependency, non-chemical additions (e.g., internet, gaming, gambling) (dopamine)
- **CBT in ADHD:**
  - CBT & Meds → quicker benefit. CBT with no meds catches up later on. The determining factor is "When do you want to feel better, now or later?"
  - Brain scan changes are equivalent to what is found on a stimulant medication.
- **CBT Intervention Domains:**
  - cognitive modification
  - behavior modification
  - acceptance, mindfulness, persistence
  - implementation strategies (coaching, Skylar, book)
- **Cognitive Modifications:** (Beck)
  - Cognitive Distortions in procrastinations (which come from living with long term ADHD - not biology):
    - Magical Thinking (*It will get done somehow*)
    - Magnification (*too hard to start*) / Minimization (*I can do it in an hour.*)

- Comparative Thinking (*No one else has to work as hard as me.*)
  - Emotional Reasoning
  - Defense Attorney metaphor: “What argument would your defense attorney make on your behalf? How can you be more **adaptive** (not more positive)?”
  - Broadcast: “If you were broadcasting your life, what would you want to be different?”
- **Maladaptive Thoughts & Adult ADHD:**
  - Depression Spiral: negative experience --> negative outlook --> negative setup (spirals and creates depression)
  - Impulsively Negative: more intrusive and worrisome thoughts that are hard to get rid
  - Low Self Concept creates more severe ADHD --> meaning bad cognitions make your ADHD worse
  - **Perfectionism is the #1 cognitive distortion**
    - front end perfectionism: Everything has to be perfect for me to get started --> then you run out of time
    - The product has to be better than expected due to indebtedness for accommodations, etc.
- **Schema and Core Beliefs:** (tied to emotions)
  - Self Mistrust: “I can’t rely on myself.”
  - Failure: “I have not met expectations.”
  - Incompetence/Dependence: “cannot handle life.”
  - Worthless/Inadequacy
- **Behavioral Modification:**
  - Procras-tivity: Self defeating - Avoiding a higher priority task by engaging in a lower priority task. (A task that takes less time, and is less urgent, *but productive*).
    - The self defeating task is rewarding because you can accomplish it.
  - How to improve procras-tivity:
    - Create a clear sense of progress
    - Create a clear end point
    - Use an existing behavioral script
    - Create a launch sequence of smaller, achievable goals
    - Best if: time based, task based, terrain based
- **Interventions:**
  - **Learn to accept discomfort.**
  - Learn to commitment to a task.
  - Create a VERY SPECIFIC implementation plan.
    - Will not work: I will do my homework.
    - May work: Sit down at 7 for 30 minutes. --> Focus on the process, not the product. You have to get ENGAGED (dopamine).
  - You must reinforce partial progress

**My favorite medication managers:**

- Nicole Christiansen, MD (Psychiatry) [NicoleChristiansenMD.com](http://NicoleChristiansenMD.com)
- Carol Stark, MD (Psychiatry) [LakeOswegoPsychiatric.com](http://LakeOswegoPsychiatric.com)
- Rachel Rittman, MD (Psychiatry) 310.825.2467
- Donna Kirchoff, MD (Developmental Pediatrician – kids 0-10) 503.444.1745

**Making an appointment with Dr. Arnold:**

- Fill out the online appointment form. Appointments are made in the order this form is received. We are out of network (but do still bill) insurance companies. We have a billing company that takes care of payments/billing for you.
- [NewLeavesClinic.com](http://NewLeavesClinic.com) – 503.693.9153 – Our website is comprehensive and can answer most questions about scheduling and billing.