

Biopsychosocial Scaffolding for ADHD

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Scaffolding?

- Temporary work surface for support and materials during construction; meant to be removed when no longer needed.
 - In education... an instructional practice providing guidance and support until a student learns and can become more competent.
 - 50% of those with ADHD seem to “grow” out of the need for medication.
 - Is this due to scaffolding used or not used?
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Scaffolding for ADHD

Biological

Sleep

Exercise

Medication

Spiritual

Highly Individualized

Psychological

Emotional Regulation

Self-Efficacy / Confidence

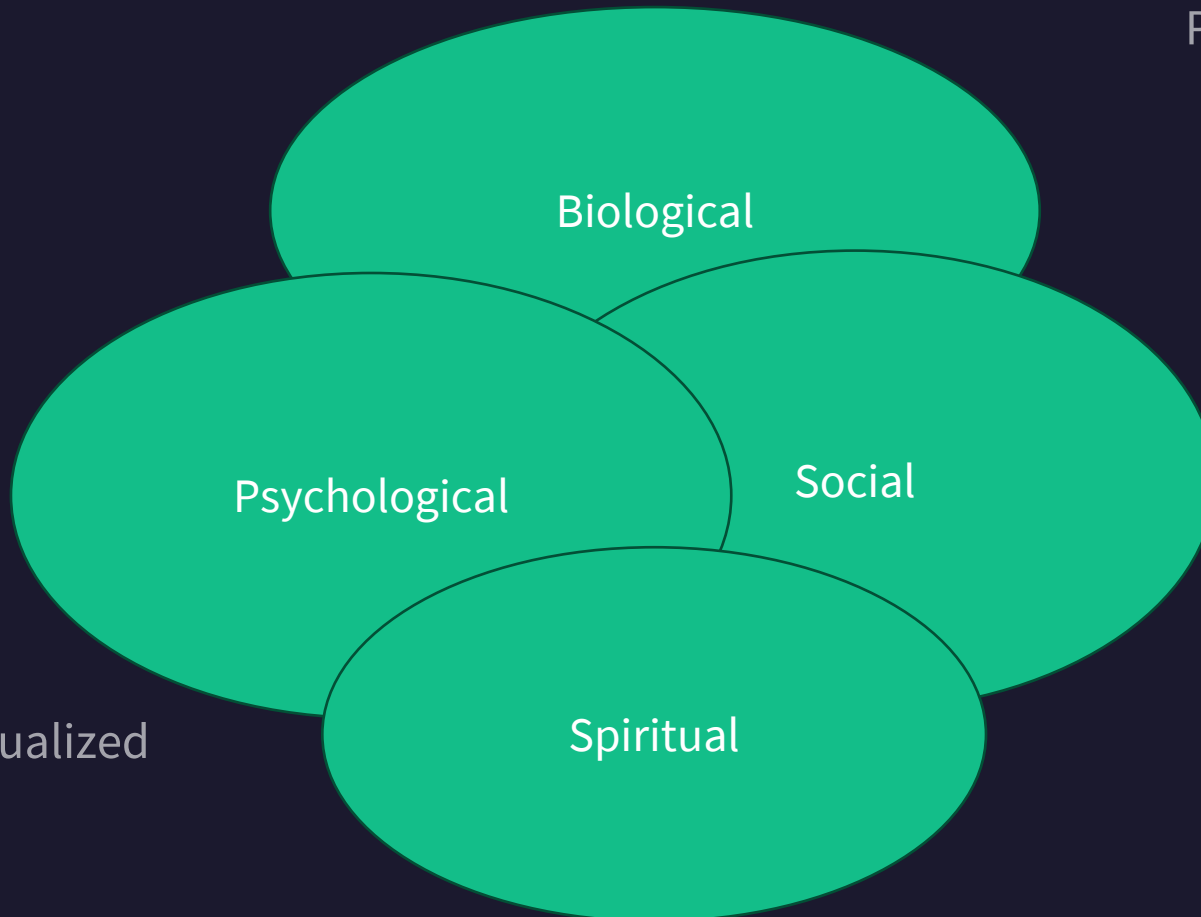
Coping Skills

Social

Peer Support / Social Media

Borrowing EF

Team Based



Sleep



ADHD and Sleep Problems: The Conundrum

- Intertwined brain changes – slow frontal metabolism on PET scans; ADHD may disrupt melatonin release
- Parallel Symptoms – inattention, hyperactivity, cognitive disinhibition, emotional irritability; disturbed sleep once characterized ADHD in DSM-III
- Mutually aggravating to each other
- Treatment for one may affects the other

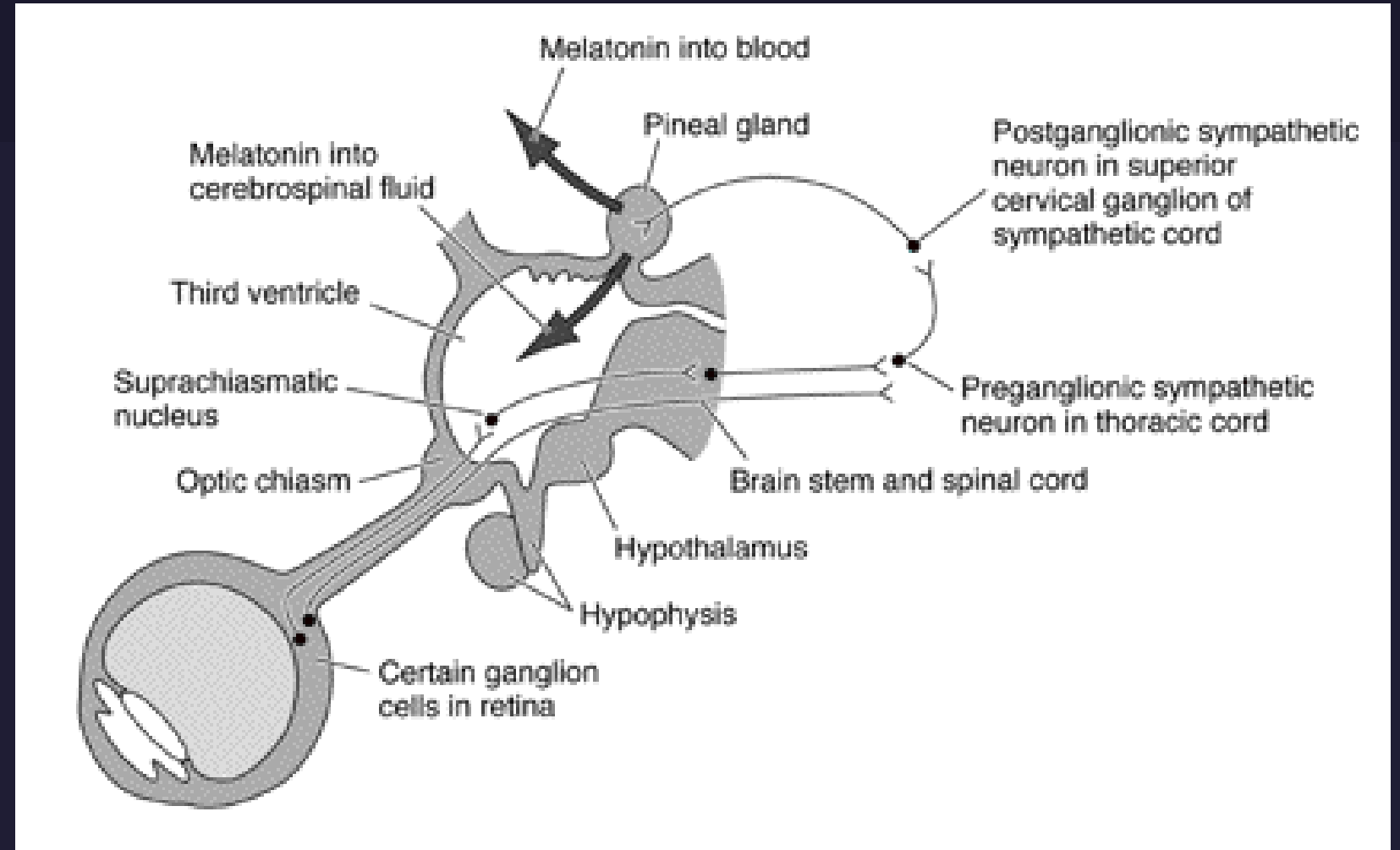


Circadian Cycle in the Brain

ADHD Differences

Higher activity levels in the afternoon.

Higher heart rate levels, especially in late afternoon and at night.

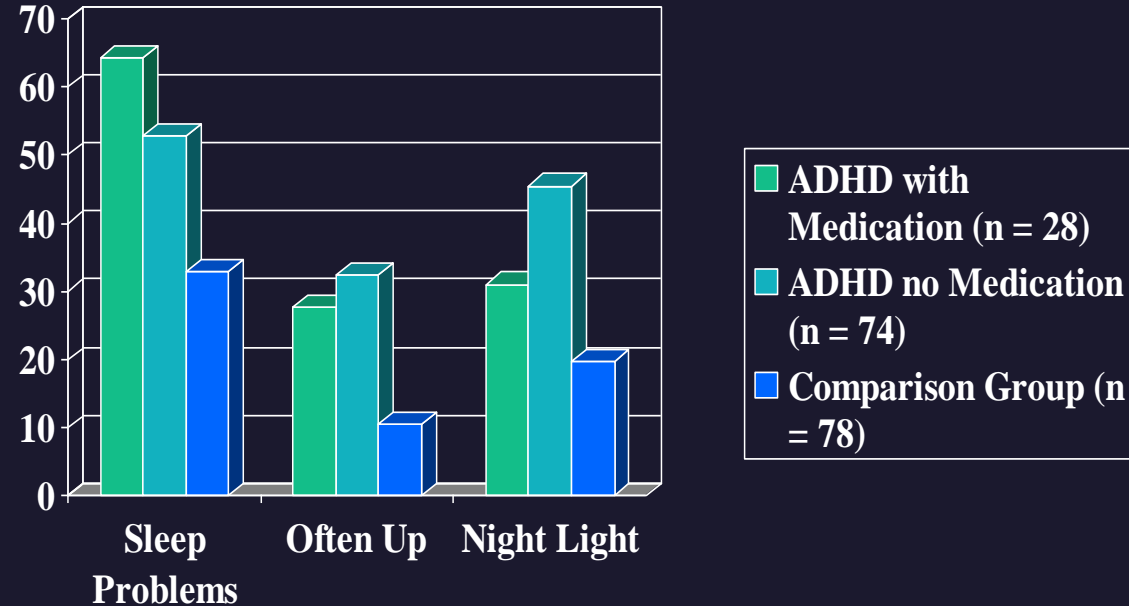



Percentages of Sleep Problems on Conners' Scales: ADHD (n = 102) vs. Other Referrals (n = 78)

Ball, Tiernan, Janusz & Furr (1997)


Two decades of others' research have affirmed these findings.

On average, parents of children with ADHD report 2X the rate of controls: 50% vs. 25%.





ADHD, Sleep Apnea, or Periodic Limb Movement Disorder?



Children with ADHD present an increased frequency of breathing disturbances, especially snoring, with > 5 apneas/hour and oxygen levels lower than 95%

Children with ADHD present high rates of limb activity



OSAS in Childhood: Nocturnal Symptoms

Loud snoring
Respiratory pauses, snorts, gasps
Increased respiratory effort / paradoxical breathing

Restless sleep
Sweating
Unusual sleeping positions



OSAS in Childhood: Diurnal Symptoms

- Difficulty with AM waking
Early AM headaches
- Daytime sleepiness

Hyperactivity, poor impulse control

Aggressiveness

Attention span problems

Shyness / social withdrawal

Learning problems

School failure



What's a Clinician / Parent To Do?

- Assess sleep in all ADHD – both before and after medication
- If sleep disordered breathing, refer to ENT
- Clean up sleep hygiene by assisting circadian rhythm – consistent bedtimes and awake times
- Avoid daytime napping
- Avoid caffeine, chocolate, and exercise near bedtime
- Cool, dark, comfortable room without electronics



Physical Activity



Exercise for ADHD is *Not Just* to Release Excess Energy:

Exercise is Good for the Brain!!

- Executive functioning develops through childhood, particularly in early adolescence.
- Physical activity produces neurotrophic factors that help regulate growth, differentiate neurons, and wire synapses .
- Brain Derived Neurotrophic Factor --- BDNF --- the brain's Miracle Grow--- is associated with exercise.
- The single most important cognitive benefit to exercise is improvements in attention.



Exercise: A Pathway for Enhancing Executive Functioning

- A short period of intense well supervised weight-lifting improved adolescents' in-school cognitive functioning and learning over a subsequent 48-hour period relative to a group of sedentary kids. (Mezcuza-Heldago et al., 2019)
- Study after study has shown that improving children's motor coordination and decision making from their participation in open-skilled sports (soccer, football, basketball, ping pong) has generated significant improvements in varied aspects of executive functioning (e.g., Alesi et al., 2016; Borioni et al., 2022; Chang et al., 2022).
- Acute benefits last for hours and regular exercise has long-lasting protective benefits for brain functioning.



Brain Mechanisms for Exercise Benefits

- A long-understood exercise related release of endorphins contributes to “flow” and “runners high.”
- A newer exciting understanding of an exercise related release of neurotransmitters (e.g., serotonin and dopamine) that lift mood, bring pleasure, and may assist individuals with brain chemistry problems.
- BDNF production opens new exercise effects on brain development.
- Research suggests particular importance to exercise *early in the day* and *for 6-10-year-olds* with particularly active frontal lobe brain development.



Exercise and Neurodiversity

- While good for everyone, investigators have recently turned to research participants with ADHD, ASD, and other forms of neurodiversity.
- There appears to be particular a benefit to combining exercise with demands for frontal lobe executive functioning in running sport plays, engaging in dance routines, performing go-no-go tasks, (“Simon Says?”) and participating in organized sports.
- Benefits have included improvements in working memory, cognitive inhibition, mental flexibility, decision making, increased attention, resilience to mental fatigue, etc.



Exercise Take-Aways

- Exercise regularly, intensely, and often.
- Exercise early in the day to reap day-long benefits and avoid exacerbating sleep problems.
- Participate in organized sports or physical activity requiring complex motor coordination and planning.
- Exercise is protective against acquired brain dysfunction and may help improve existing brain dysfunction.



Stimulant Medications



Hampton Roads Survey of Parent Practices with Medication Use 1997

- N = 104; Hampton Roads parents of children with ADHD
- Worst behavior problems were 3-8 PM
- Noncompliant with medication regime? 30% said YES
 - 37.5% of these made evening changes
- Ever give medication after school? 74% said YES
 - 58% to help with “homework”
 - 5% to help with “homework and sleep”



Beverly Koloian (1998) – Dissertation VCPCP

Medication Benefits May *Extend* to Sleep and Exercise

- Polysomnogram data does not suggest marked negative effects on sleep from stimulant medications for ADHD.
 - Barkley reported in 1990 that 50% of children had mild problems lasting 7-10 days.
 - Sleep side effect may be due to “rebound” of medication wearing off.
 - Sleep side effect may be relevant to a subset with EEG abnormalities.
- Most reported negative effects of stimulant medications on sleep were based on too short a medication habituation period.
- Medication appears to be needed in later afternoon and for evening homework, when parents have reported breaking with recommended treatment protocols.
- May assist executive functioning on the sports field just as in the classroom.



Psychotherapy for ADHD

- Not likely to directly change ADHD symptoms, though neurofeedback has promise.
- Enormous potential benefit to co-morbid psychological conditions of poor self-esteem, depression, and high anxiety.
- Emotional support, improved self-regulation, for self-efficacy, and coping with stress.
- Cognitive therapy, trauma work, managing peer relations, family dysfunction



Psychological Aids to ADHD

- Externalize executive functioning

(Put the cues outside the brain)

- Use incentives (especially praise and approval)
 - Use cues (especially subtle)
 - Assume it's hard (2 TO DO not 3)
 - Distribute practice
 - Show the clock (think analogue)
 - Tap the shoulder
- Helpers must put on their own masks first and make sure they're working!



Ericson's Developmental Considerations for Psychological / Social Scaffolding

- Trust vs. Mistrust --- Parental Focus
- Autonomy vs. Shame / Doubt --- More Parent Work
- Industry vs. Inferiority --- School, Sport, Personal Achievement
- Identify vs. Identity Confusion --- Peer Group
- Intimacy vs. Isolation --- Individuation from Home; Intimacy with Another
- Generativity vs. Stagnation --- Career and Personal Coaching
- Integrity vs. Despair --- Recapping Strengths and Revisiting Family, Social Themes



Social Factors of Relevance

- Peer support
- Social media challenges
- Coaching
- Borrowing/lending executive functioning
- Teaming up to help



Spiritual

Personally... I

Always ask if someone wants to
dance to this music ... but

I never lead.

