



# **Back to School:**

# **It's Time to Sleep!**

## **A Behavioral Approach to Sleep Disorders in School-Age Children and Adolescents**

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# Prevalence of Sleep Problems

- 7 of 10 parents report concern about their child's sleep
  - 3 of 10 parents report child sleep problems 3 or more nights per week by age 4
- 10% of families are under significant stress due to infants' sleep habits
- Almost 9 of 10 parents with children with neurodevelopmental disorders report sleep problems in their children
- Almost 9 of 10 children with anxiety have sleep problems
- Almost 9 of 10 adolescents live in a relatively constant state of sleep deprivation
- Adolescents need at least 9 hours per night but most get 7 to 7.5
- Delayed sleep phase seen in up to 16% of young adults

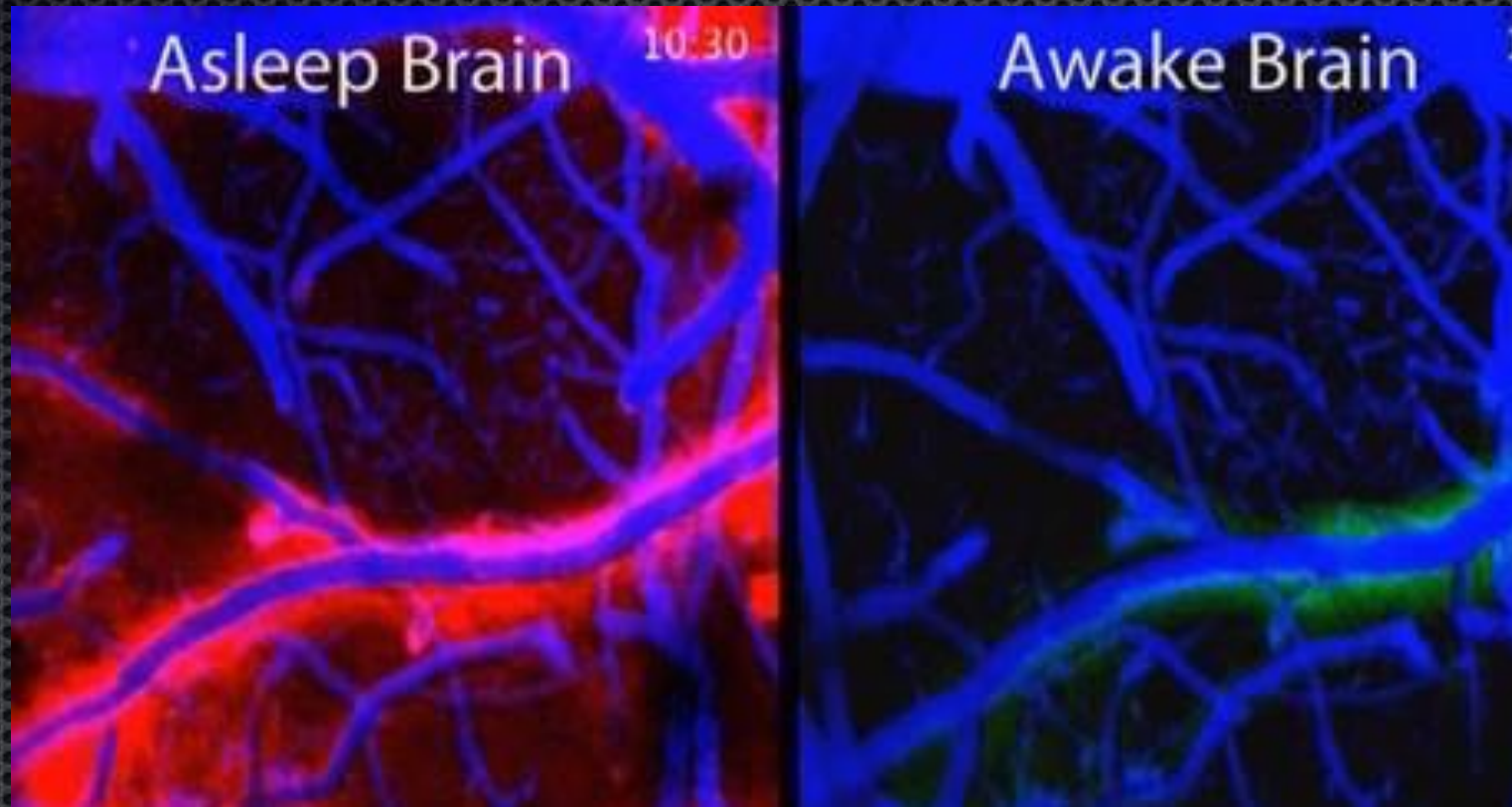


# Associated Problems

- ✦ Poor sleep increases risk of
  - ✦ suppressed immune system and illness (more colds and less immune response to vaccination)
  - ✦ obesity and diabetes
  - ✦ hypertension, hypercholesterolemia
  - ✦ accidents (car accidents are the most common cause of death)
  - ✦ behavioral health diagnoses like ADHD and mood disorders; poor behavioral regulation, temper tantrums, aggression, distractibility, hyperactivity, impulsiveness, anxiety, depression
  - ✦ academic/vocational/social problems



# Neurobiology of Sleep

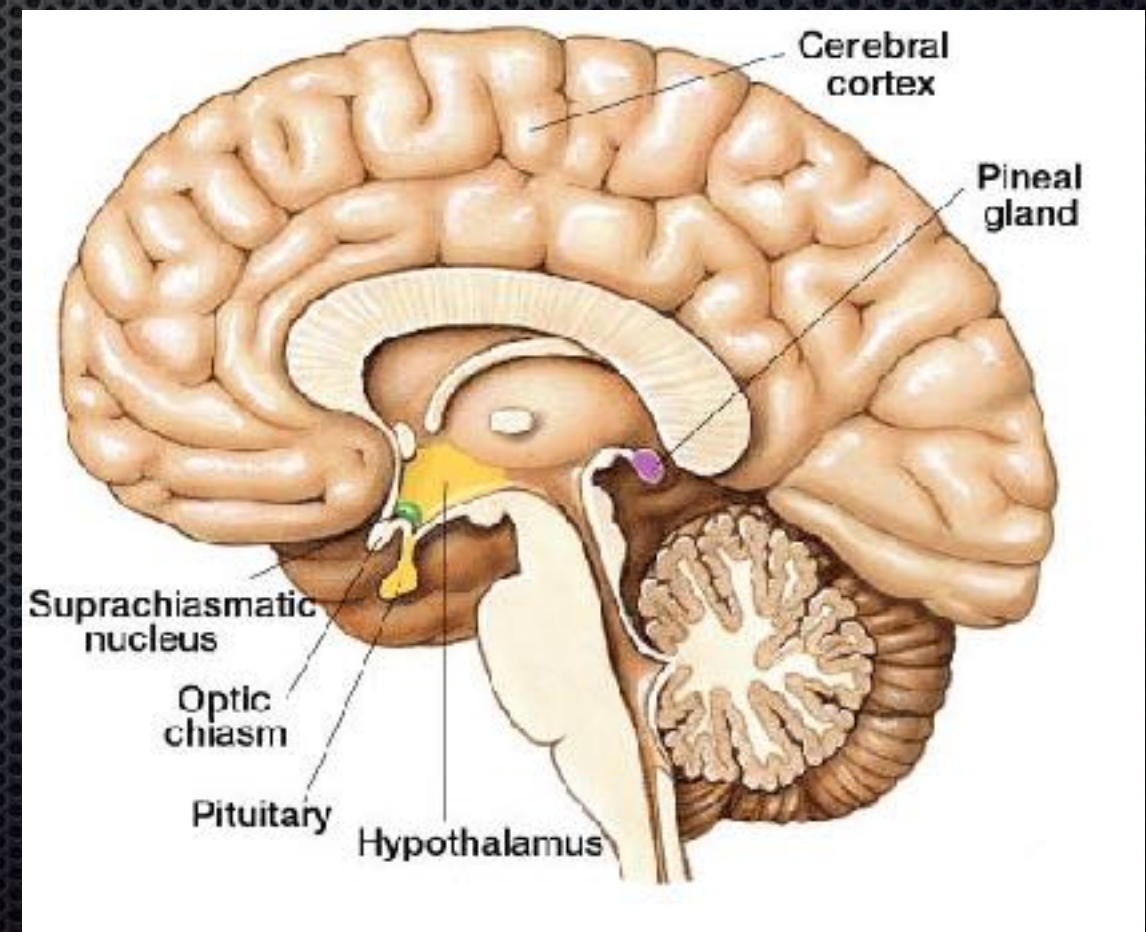
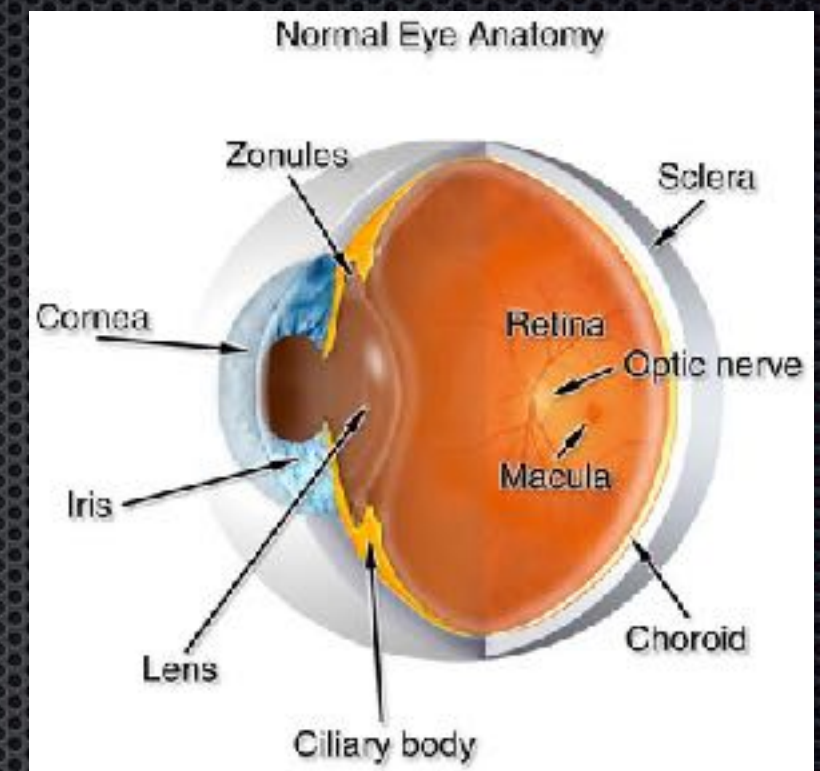


- ✦ Recently discovered “glymphatic system”:  
Noradrenaline ebbs during sleep, causing glial (non-neuron) cells to shrink, allowing cerebrospinal fluid to flow through and “flush out the brain”



# Neurobiology of Sleep

- ✦ Melatonin regulatory pathway
  - ✦ lens, iris, ciliary body, retinal ganglion cells, lacrimal glands
- ✦ SCN within the hypothalamus
- ✦ neuroendocrine effector of the pineal gland





# Neurobiology of Sleep



- ✦ To “switch on” melatonin:
  - ✦ Heed zeitgebers: light, temperature, stimulus control considerations
    - ✦ 10 min direct sunlight during the day
    - ✦ Use traditional lightbulbs and dim lights in PM
    - ✦ Cooler temperature
    - ✦ No electronics 1 hr before bedtime
  - ✦ Consistent schedule and routine
  - ✦ No sleeping anywhere but bed, and nothing but sleep in bed



# Meds



- ✦ Clonidine and SSRIs suppress REM-stage sleep
- ✦ Synthetic melatonin, if used, must be taken two hours before bedtime
  - ✦ next-day drowsiness in 20% of patients
  - ✦ interferes with blood pressure and diabetes management



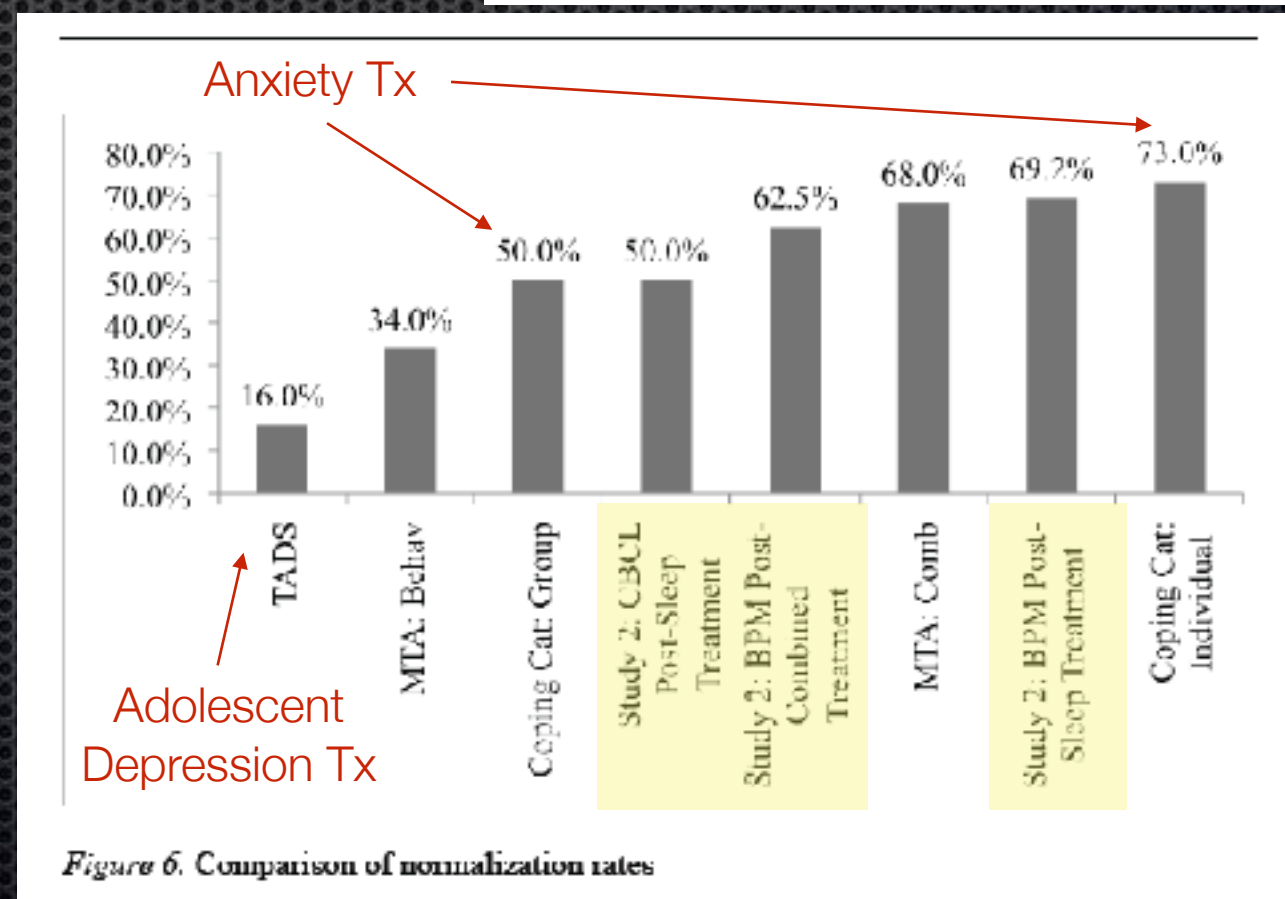
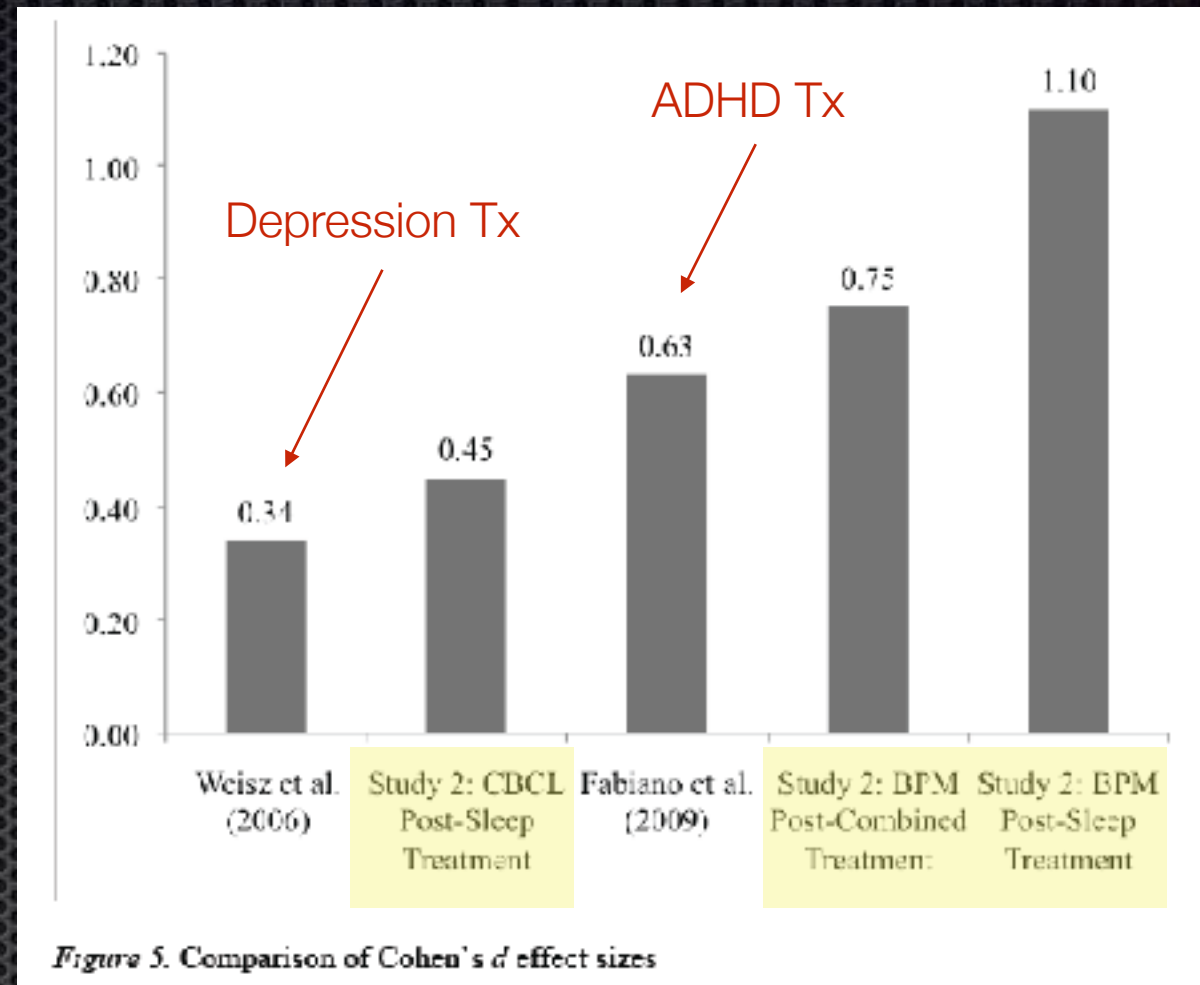
# Sleep and ADHD

- ✦ Poor sleep makes mis/diagnosis of ADHD more likely
  - ✦ 75% of children with ADHD are chronically sleep deprived
  - ✦ Poor sleep, and ADHD, each produce decreased glucose metabolism within the prefrontal cortex
  - ✦ Improving sleep improves ADHD profile
  - ✦ What exactly are psychostimulants treating in each case?



# Sleep and ADHD

- Nelson, Kidwell, McGinnis et al. (in preparation): Preliminary analyses find larger effect sizes and normalization rates on pre-post behavioral measures just by addressing sleep problems than seen in the literature for behavioral treatment of ADHD



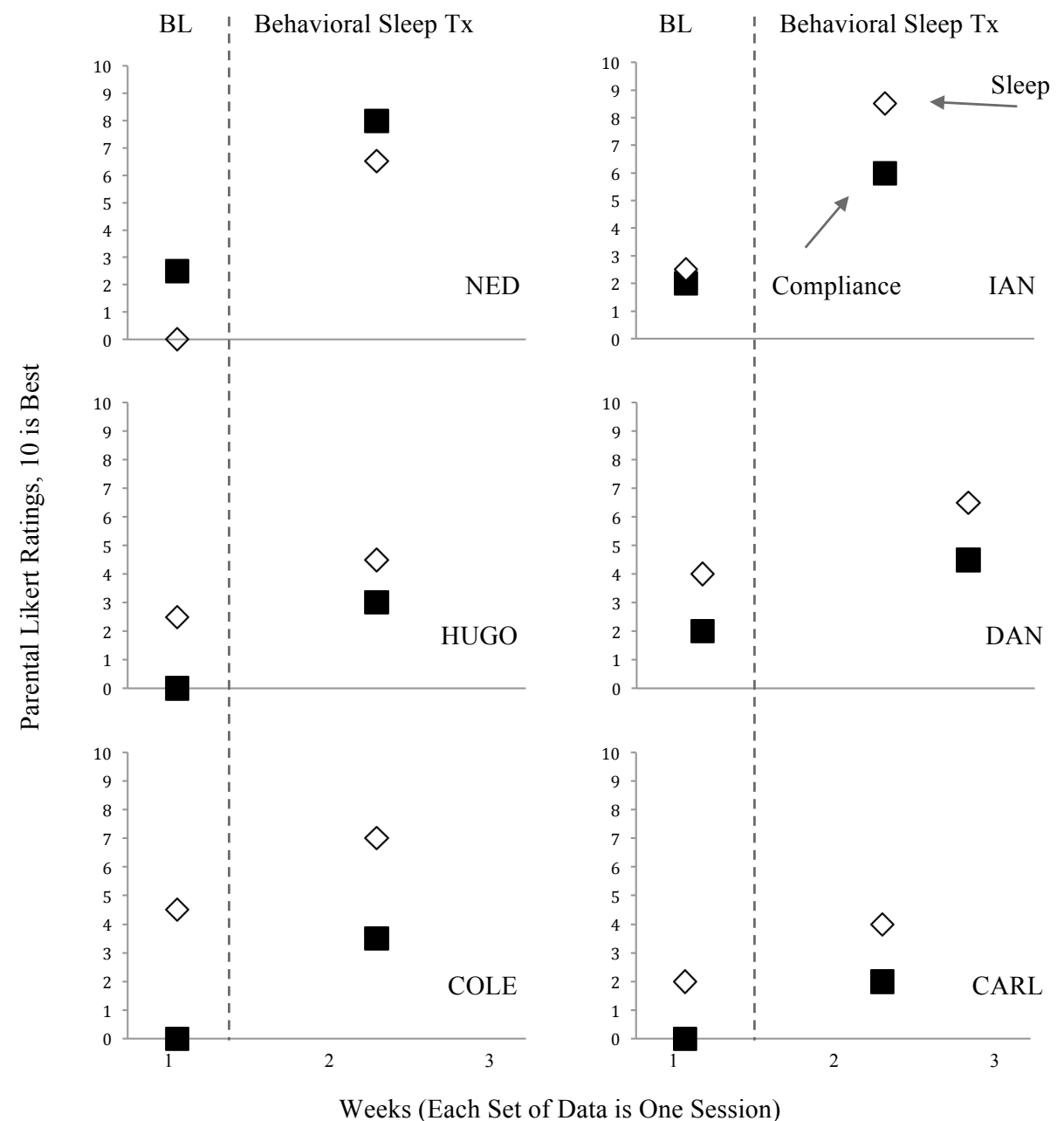


# The Effect of Better Sleep on Cooperation

McGinnis, Nguyen, & Long (2012). [The “lift-effect”.] Unpublished data.

- When you treat sleep problems first, it can impact general cooperation level; thus, it may be conceptualized as a keystone variable.
- Also see Nelson, Van Dyk, McGinnis et al. (2016) and Nelson, Kidwell, McGinnis et al. (in preparation).

Figure 1.





# Recommendations





# Recommendations

- ✦ Most pediatricians fail to ask about sleep; add questions about sleep to initial questions
- ✦ Add sleep considerations to anticipatory guidance
  - ✦ Sleep requirements
  - ✦ Consistent schedule all week long
  - ✦ Prioritize sleep over homework and sports
- ✦ Treat, or refer for sleep treatment, before treating ADHD, depression, anxiety, and other behavioral health concerns
- ✦ Discourage use of OTC/Rx melatonin and limit prescribing of SSRIs and clonidine



# Some Signs of Poor Sleep

- ✦ Parents must wake him, and unable to get going within 15 min
- ✦ 2+ hours more sleep on weekends
- ✦ Car napping
- ✦ “He’s a different person” with more sleep
- ✦ Bedsheets a mess



# Sleep Requirements

- ✦ No naps after age 4
- ✦ Age 1    11.75 hrs (including 2-hr nap)
- ✦ Age 4    11 hrs
- ✦ Age 10   10 hrs
- ✦ Age 17    9 hrs



# Proactive Guidance

- ✦ Infants: Put down drowsy and not asleep; after 6 mo of age, after changing and feeding, allow to cry without rescue
- ✦ Consistent schedule and routine, even on weekends
- ✦ No co-sleeping
- ✦ After age 4, no naps and no sleeping in
- ✦ Get some sun during the day and “mimic caveman days” in evening regarding light and temperature; no nightlight
- ✦ Sleep is more important than homework or sports
- ✦ Sufficient iron



# Proactive Guidance

- ✧ Crib to Bed Transition
  - ✧ “Hooray! You’re growing up!”
  - ✧ Place crib next to bed; warn back to crib if out of bed, and follow through without more warnings
  - ✧ Praise in the morning for success; leave crib there for two weeks as reminder
  - ✧ Use Good Morning Light
  - ✧ May need video monitor, alarm system, no available toys, and/or doorway gates



# Great First-Line Tips for Parents

**Early waking and leaving bed; can't tell time**

*Good Morning Light*

**Fear of the dark**

*Flashlight and blindfold treasure hunts*

**Curtain calls**

*Bedtime Pass*

**Need for parent to be present**

*Excuse-Me Drill*



# Great First-Line Tips for Parents

## **Can't quiet the mind**

*Deep breathing, progressive muscle relaxation, grounding, and mindfulness*

## **Delayed sleep onset**

*Sleep Fairy*

## **Hard to wake**

*Earlier bedtime, and silently turn light on 20 min before planned wake*

## **RLS and PLMD symptoms**

*More iron*



# Great First-Line Tips for Parents

## **NREM Parasomnias**

*Earlier bedtime, and more consistent bedtime*

## **Night Terrors**

*Earlier bedtime, more consistent bedtime, silently maintain safety, and refrain from talking about it tomorrow*

## **No time for sleep due to lots of homework or late sports**

*Priorities, in order, should be sleep, homework, family, and sports*



# When You Refer

- ✦ Comprehensive history
- ✦ Behavioral/scientific approach
- ✦ Parents as coach/therapist
  - ✦ Effective, efficient, durable, acceptable
- ✦ Sleep is usually prioritized but sometimes not, depending upon certain factors
  - ✦ e.g., defiance may preclude successful extinction efforts
- ✦ Pediatrician is seen as the “hub of care”; triage is a team decision
- ✦ “Go-No-Further clause” respected based on case particulars
  - ✦ e.g., suspected apnea, seizures
- ✦ Expect case summary correspondence and active collaboration