

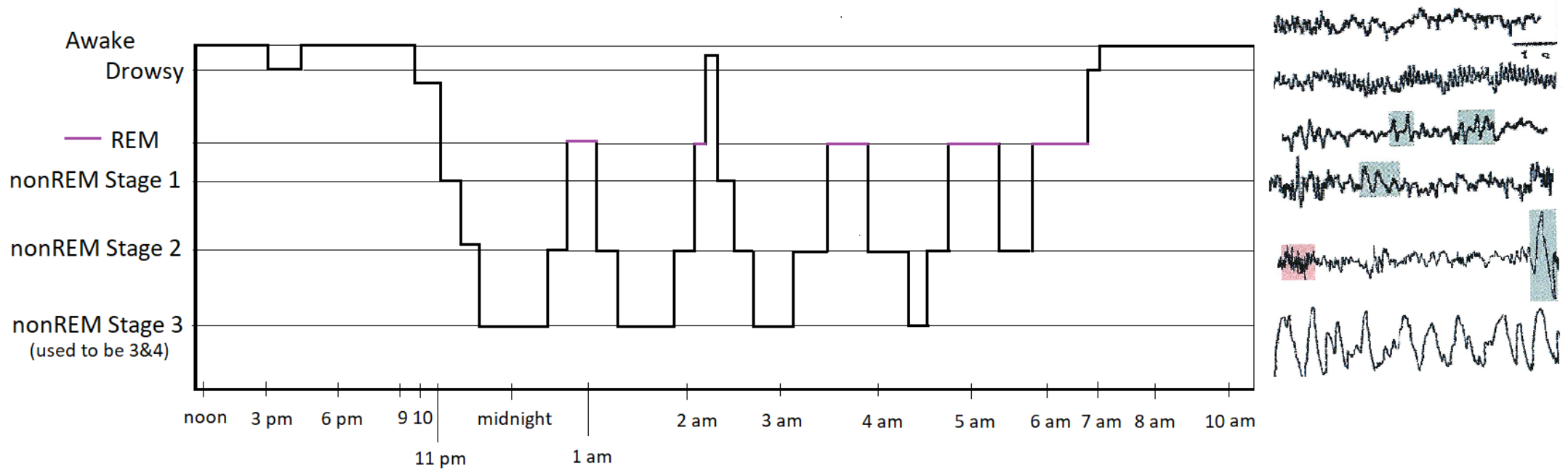
Getting Restorative Sleep after Brain Injury

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BRAIN INJURY ALLIANCE OF CO
ANNUAL CONFERENCE 11/2/18



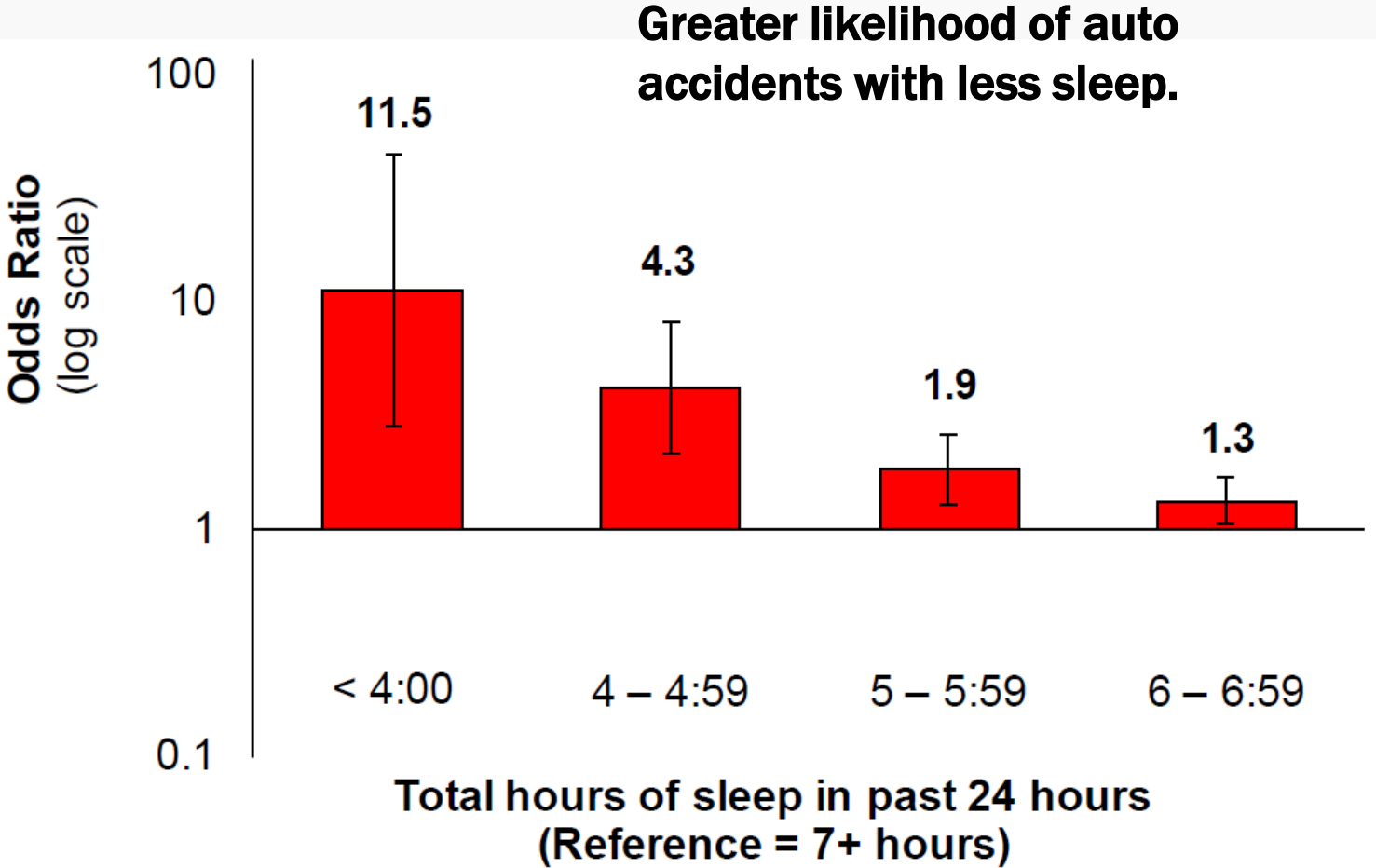
How sleep looks over the night – sleep phases



Sleep and traumatic brain injury – cause & effect

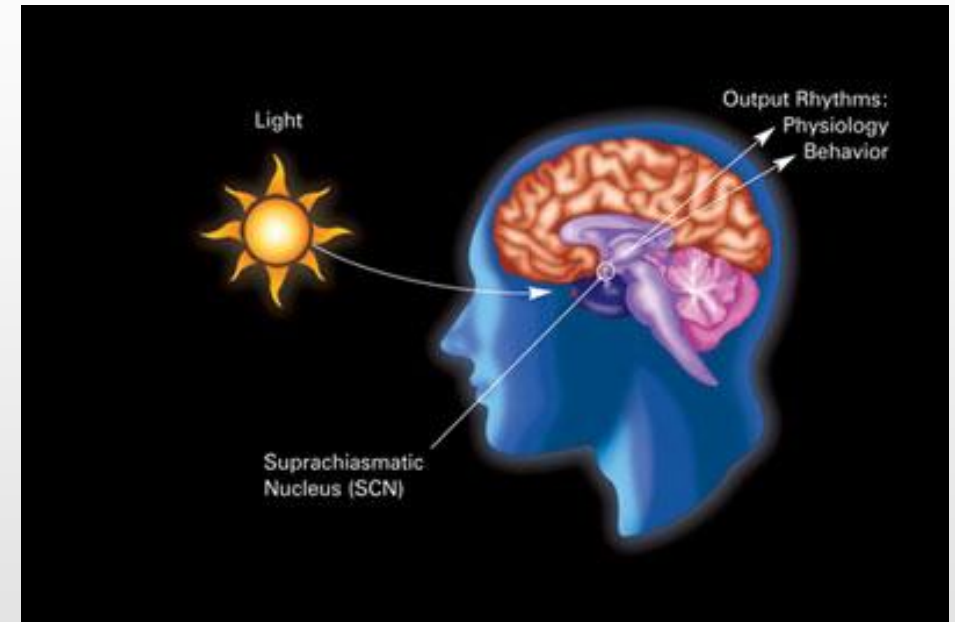
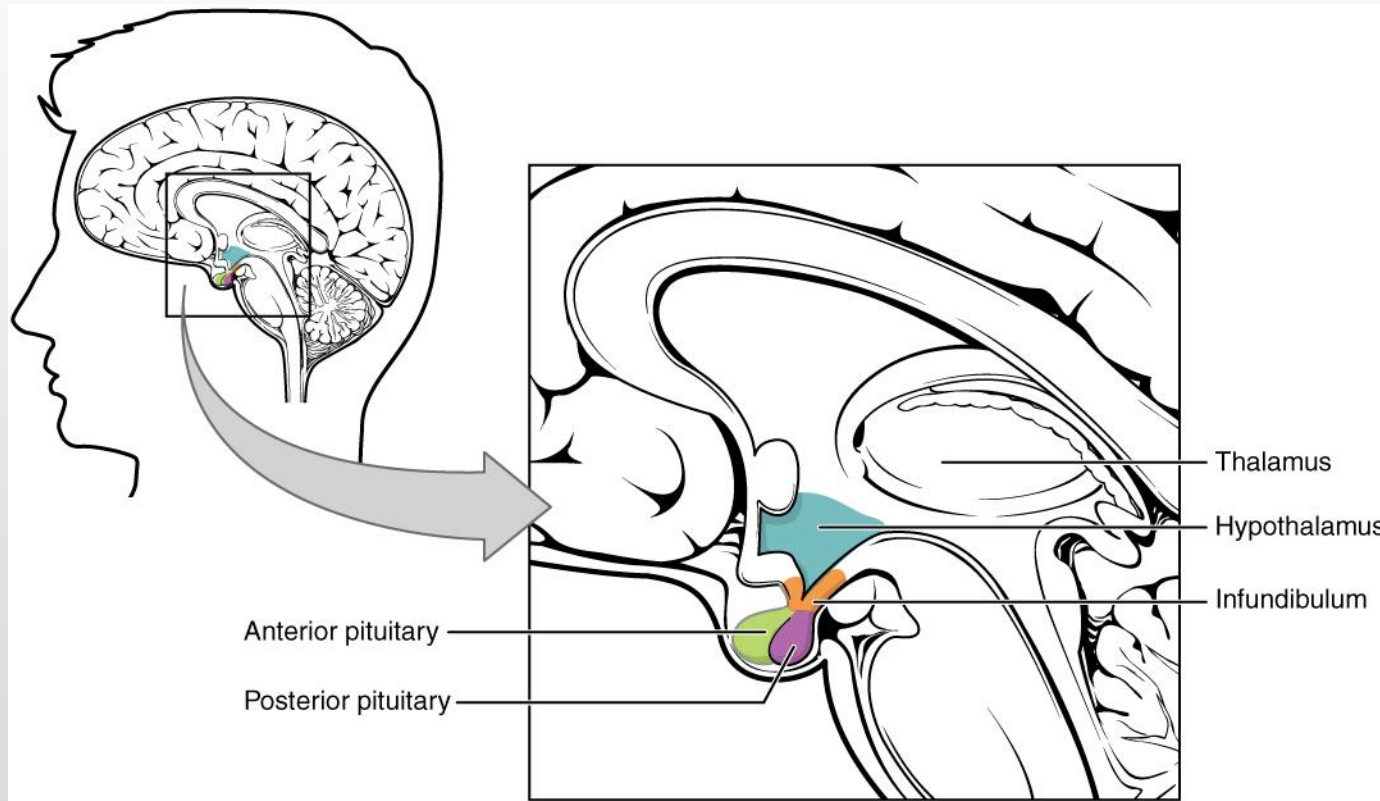


N= 7,234 drivers in accidents, half who caused crashes & matched controls who did not cause crash.



Graph from *Acute Sleep Deprivation and Risk of Motor Vehicle Crash Involvement*. AAA Foundation for Traffic Safety, 2016.

Sleep and traumatic brain injury - physiology



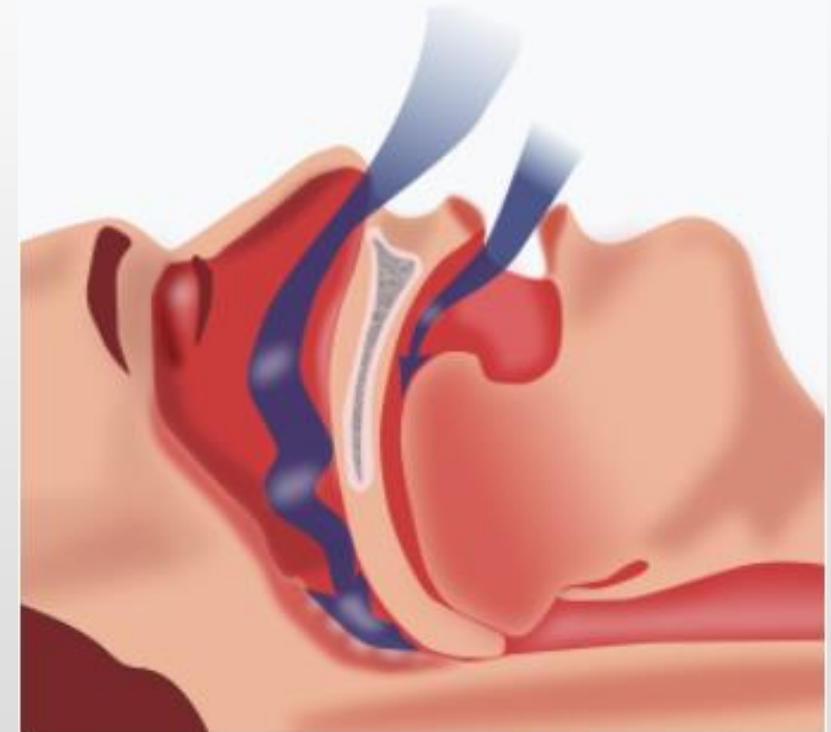
Hypothalamus illustration from Anatomy & Physiology, Connexions Web site. <http://cnx.org/content/col11496/1.6/>, Jun 19, 2013. Circadian rhythm and SCN responding to light illustration from NIGMS, Circadian Rhythms Fact Sheet.

Physiologically-based sleep disorders – see an MD

Narcolepsy/hypersomnia

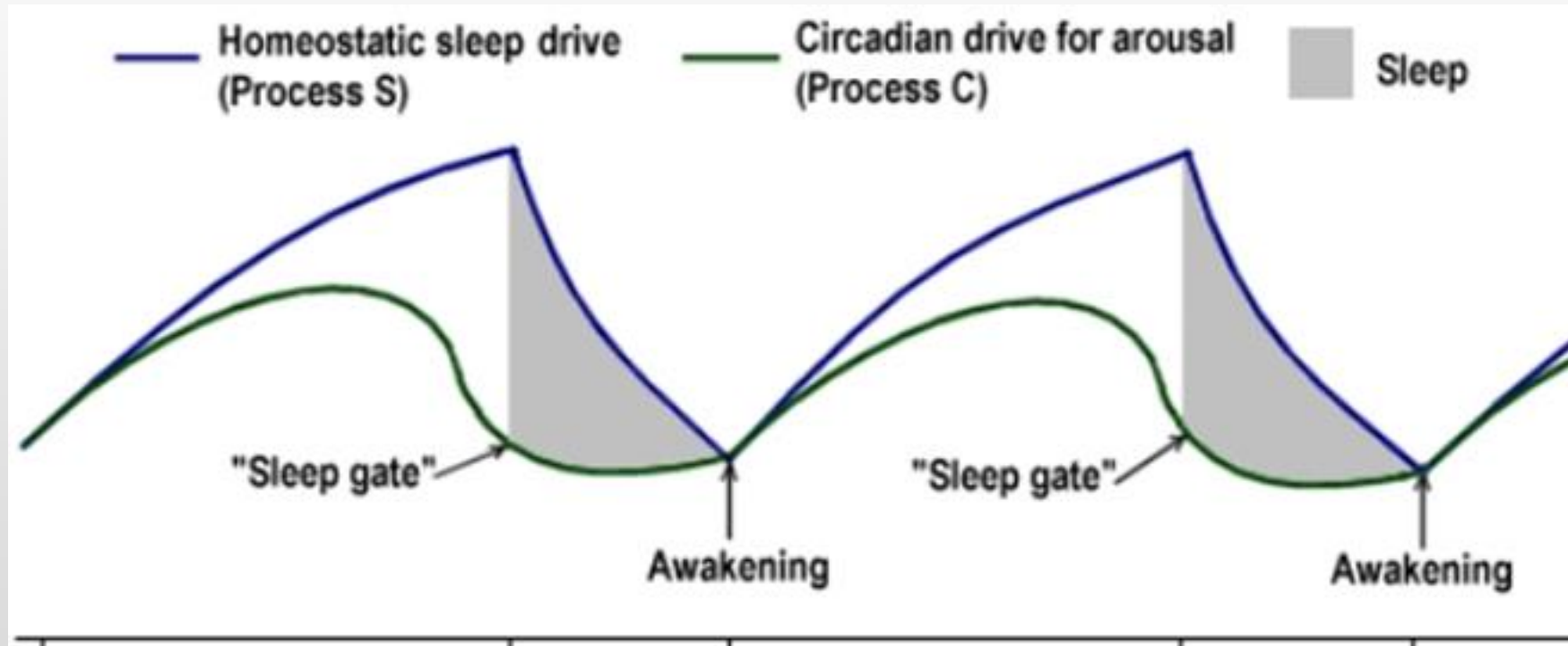
These should be ruled out before insomnia is diagnosed:

- Sleep apnea
 - Obstructive sleep apnea (OSA)
 - Central sleep apnea
- Circadian rhythm disorders
 - Advanced or delayed
- Parasomnias (sleep-walking, RLS, etc.)
- Medication side-effects



Obstructive sleep apnea: As soft tissue falls to the back of the throat, it impedes the passage of air (blue arrows) through the trachea.

Insomnia – physiology *and* psychology



Medications to avoid or use with caution for sleep in patients with TBI

Drug type	Why not?
Benzodiazepines	Relatively ineffective, little long-term benefit. Can make cognitive problems worse.
Amitriptyline (tricyclic AD)	No demonstrated effect on average in TBI. Correlation with slower recovery in rehab.
The Z's: zolpidem, eszopiclone, zaleplon (especially not in women)	No long term benefit in TBI; long-term cost: Increases risk of dementia, independent of sleep problems Memory issues, fall risk, sleep behaviors (walking, eating).
Suvorexant (Belsomra) (and related new drugs)	Can decrease coordination, mood, cognition. Can cause sudden loss of muscle tone (like in narcolepsy). No large-scale efficacy studies in TBI.

Things haven't changed much in a century

Nevertheless we must bear in mind that it is a sign of the times in which we live if the patient looks upon soporifics as a comfort which is to be taken for granted. And I must admit that many of us are much too prone to succumb to the autosuggestion of the patients who look upon soporifics as their only salvation and we meekly prescribe as much as they want.

- C. Pototzky, *Bulletin of NY Academy of Medicine*, 1930, p. 345

Cannabis and sleep

- Cannabinoids interact with circadian system in brain and body
- More research is needed
- Can be harmful in sleep apnea, no solid evidence it's helpful*
- THC vs. CBD**
 - THC stimulating, reduced stage 3 sleep
 - CBD – stimulating or sedating depending on dosage
- Indica vs. sativa, myths vs. reality
- How do you know what you're getting at a dispensary?

* Ramar, K, et al. (2018). *Journal of Clinical Sleep Medicine*, 14(4), 679–681.

** Babson, K.A., Sottile, J., & Morabito, D. (2017). *Current Psychiatry Reports*, 19(4), 23.

My budtender told me it was CBD/sativa!

- Actual lab tests of cannabis products
 - Oils, tinctures, vaping liquid
 - In 7/10, CBD amount was mis-labeled
 - THC detected in 2/10 sold as pure CBD
 - Oils more accurately labeled than vaping liquid
- Are you getting what you think you're getting?
 - What are the advantages of believing the numbers on the labels?
 - What are some of the possible downsides?



Bonn-Miller, M.O. et al. (2017). *JAMA*, 318(17), 1708-09.

Insomnia can affect personal injury cases & rehab

- Insomnia & TBI can both cause cognitive problems in
 - Exec functions, processing speed, memory
- Insomnia & TBI can both cause emotional/social problems like
 - Disinhibition, low mood, anxiety, irritability
- A good neuropsychologist will evaluate sleep. Do they all?
- Effects on rehabilitation and recovery from TBI
 - The bad news: rehabilitation longer, less successful with insomnia
- The good news: Cognition gets better after successful insomnia treatment!
 - Mechanism: improving non-REM sleep. (Wilckens et al., 2016)

The Myth of Sleep Hygiene

- What is “sleep hygiene”?
- Why it makes people with chronic insomnia mad!
 - If sleep hygiene is bad, sleep will be bad, but...
 - Many people with chronic insomnia have great sleep hygiene.
- American Psychological Association: sleep hygiene is NOT an empirically supported treatment.
- Worst of all, people think that’s all we have to offer →
 - keeps people away from effective sleep treatment.
- Behavioral treatment for insomnia works much, much better.

Sleep hygiene will not undo unconscious conditioning; CBT-I, BBT-I will undo it

- Understanding the true cause of chronic insomnia
- Unconscious association between being in bed and being awake.
- You have to break that association to fix the problem.
 - Don't spend time in bed awake.
 - Don't get into or stay in bed unless sleepy (eyelids heavy).
- Easy to say, takes some work to do.
- Usually works in 2-10 sessions.
- Differentiate fatigue and sleepiness.

Better than Drugs! Curing chronic insomnia is a psychology success story

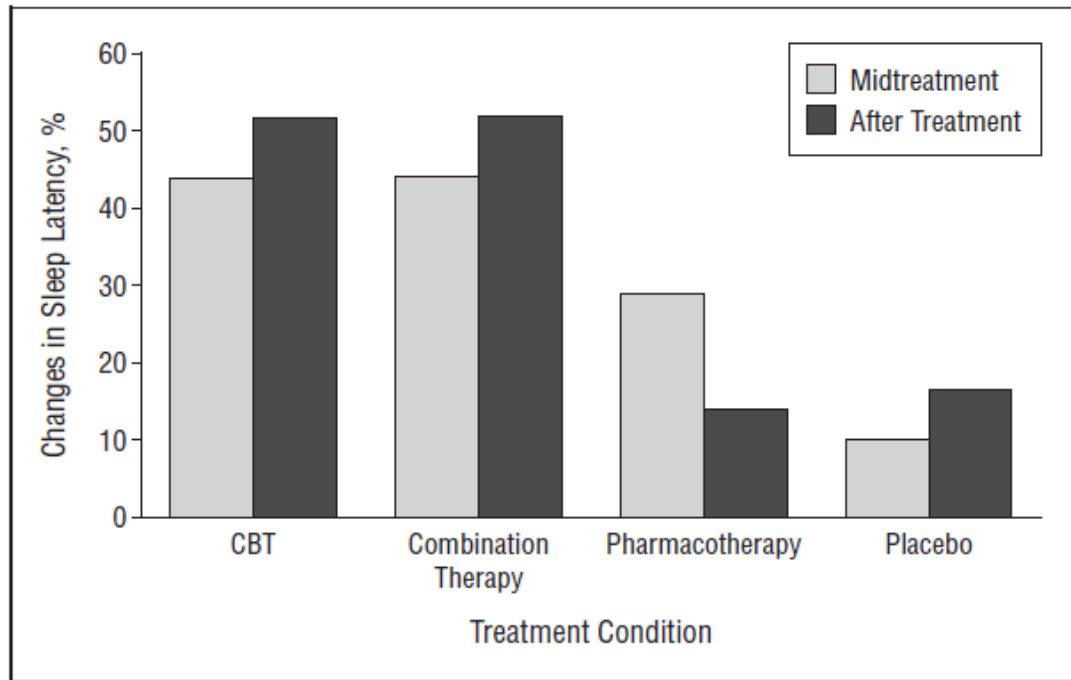


Figure 2. Changes in sleep-onset latency as measured by sleep diaries. CBT indicates cognitive behavior therapy.

Quicker to fall asleep

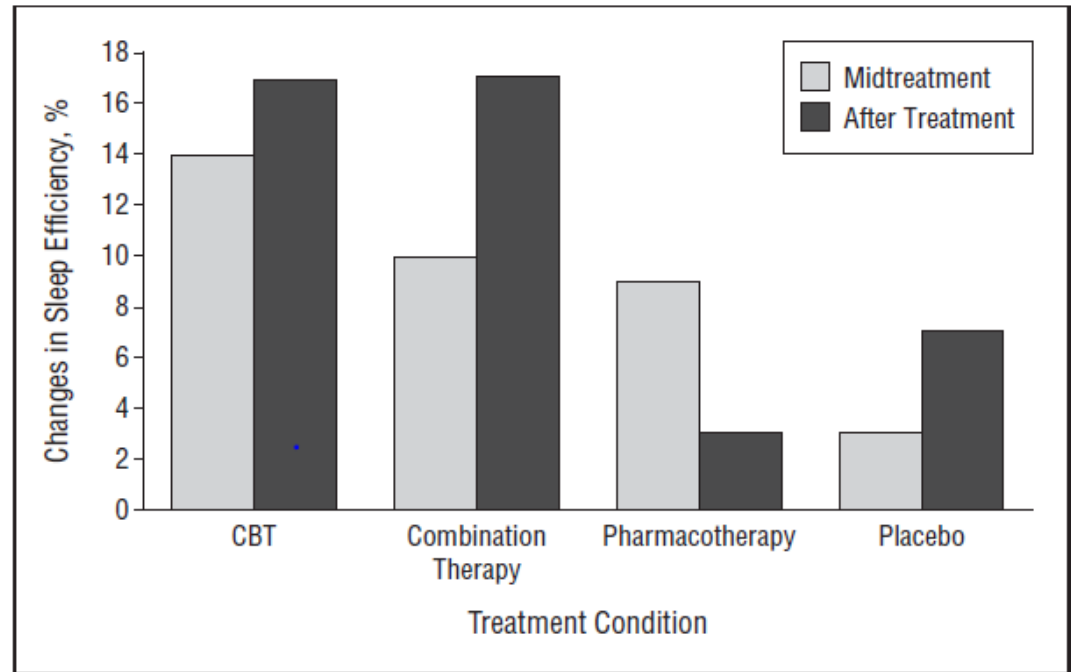
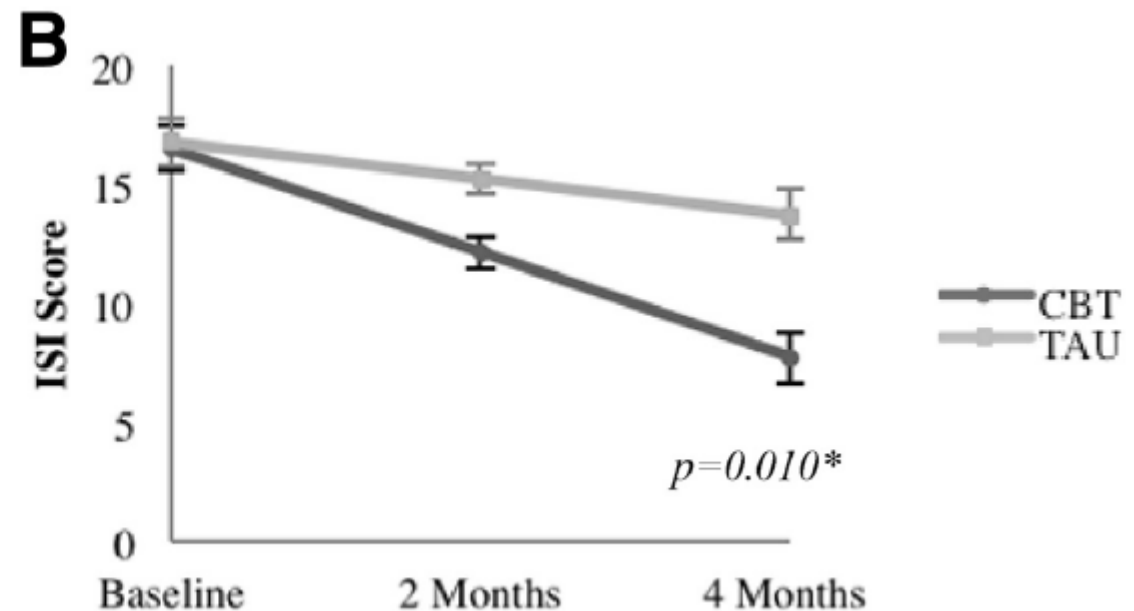
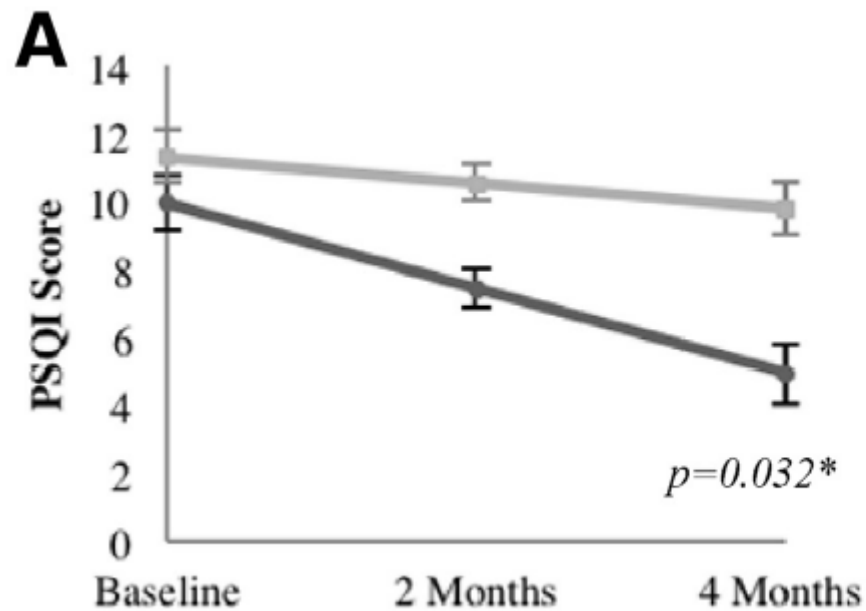


Figure 3. Changes in sleep efficiency as measured by sleep diaries. CBT indicates cognitive behavior therapy.

Less time in bed being awake, more time asleep

Effective for insomnia in TBI, with adjustments



“Improving the recognition and treatment of sleep disorders in TBI should be a central focus of rehabilitation.” - Bell et al., 2018.

Graphs lifted from Nguyen et al., 2017, p. 1513

What to adjust

- Identify obstacles early, collaborate in problem-solving
- Supports for doing a sleep diary/sleep tracking
- Technological help (actigraphy) in moderate-severe TBI
 - Not a Fitbit or similar watch!
- Family member or partner helping support guidelines
- Sleep tracking apps
 - The OK, the bad, and the ugly*
- Timers, reminders in phone
- Fatigue vs. sleepiness, add fatigue management strategies
- Adjustments if comorbid bipolar disorder also

* Yong et al. (2018), *J Clin Sleep Med*, 14(10), 1783-1790.

Colorado has lots of people trained in CBT-I, BBT-I!

- Denver Health, Kaiser, National Jewish, any VA, CU
- Almost all health psychologists, many rehab psychologists
- Some MD's, nurses, social workers
- People specifically trained in Behavioral Sleep Medicine
- Society for Behavioral Sleep Medicine: behavioralsleep.org

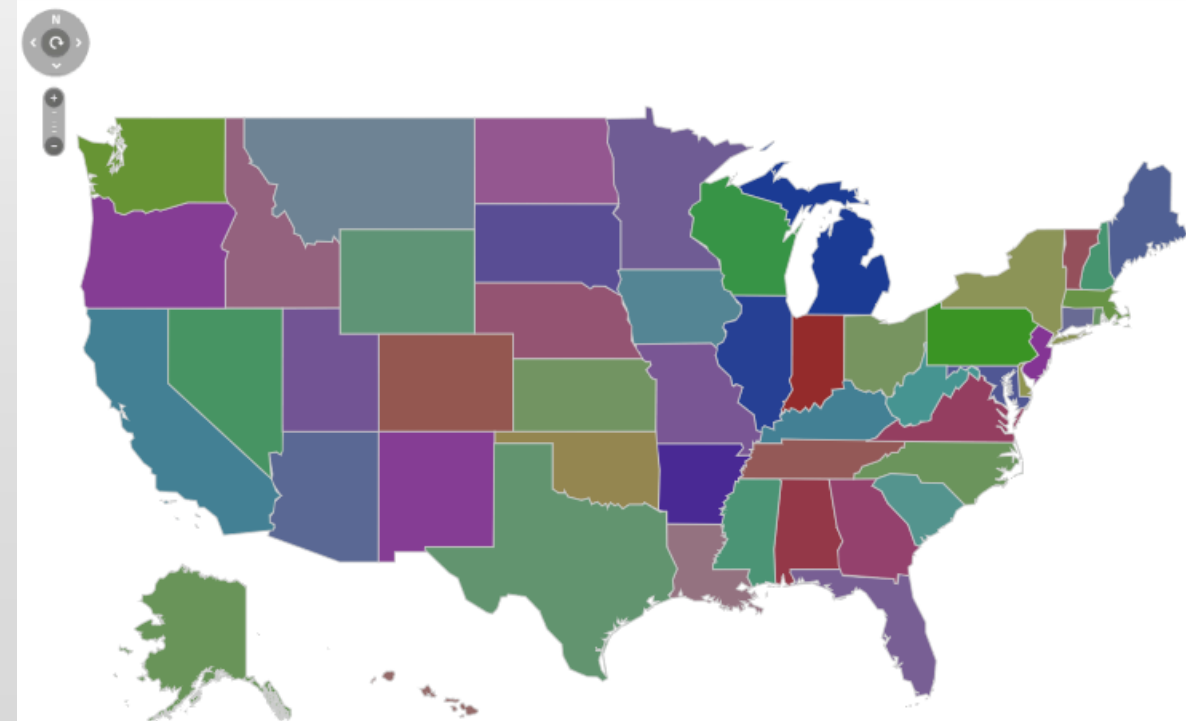


Society of Behavioral Sleep Medicine

MEMBERSHIP PUBLIC RESOURCES EDUCATION MEMBER RESOURCES PROVIDER SEARCH BLOG

MAP OF BEHAVIORAL SLEEP MEDICINE MEMBERS UNITED STATES

Click on a state to locate a Behavioral Sleep Medicine Member in that state.



Boulder

Alisha Brosse PhD, 303-225-2709

Vyga Kaufmann PhD & Natalie Whiteford PhD 303-284-5149

CO Springs (also web-based)

Robert Glidewell PsyD, CBSM, 719-243-5173

Fort Collins (also telehealth)

William Moorcroft, 970-308-4495

But, we don't have enough providers!

- Training in CBT-I in Colorado
 - Dr. Alisha Brosse, Boulder Center for CBT
 - <http://bouldercbt.com/contactus/> 303-225-2709
- Introductory training online
 - <https://www.pesi.com/store/onlinecourse>
- Training out of state or online
 - Dr Gregg Jacobs, Harvard Medical School
 - <https://www.cbtforinsomnia.com/clinicians/>

“Your bed should be a refuge, not a place where you struggle”*

- **Most important: Get a good sleep evaluation**
 - Rule out or get treatment for physical sleep problems, like apnea
- **“We do our patients a disservice when we don’t address their insomnia.”** - Alisha Brosse, PhD, Boulder Center for CBT
- **Recommending only sleep hygiene may do more harm than good**
- **Short-term vs. long-term solutions to sleep problems =**
Chemicals vs. CBT-I or BBTI.

If you have insomnia after TBI, get the treatment that works.

If you’re a provider, learn to do CBT-I or BBTI.

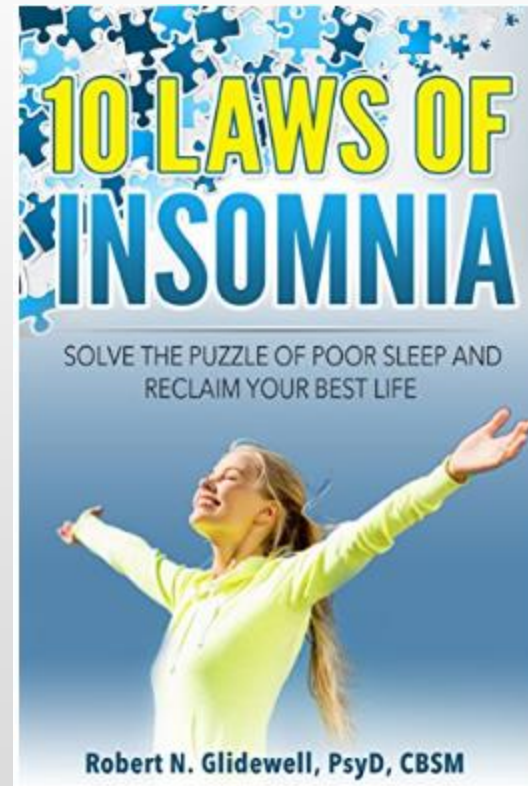
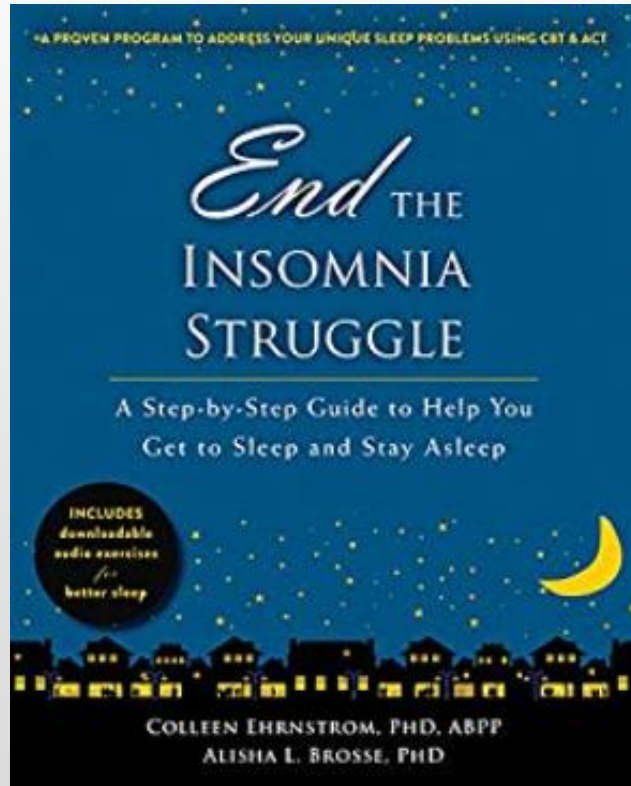
* Mark Holman, PsyD, Alaska VAMC

And, we can all aspire to having only these kinds of problems...



Cartoon source: http://www.grimmy.com/comics.php?sel_dt=2006-06-27

Books by some of our local providers



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