

## ORGANIZATION NEWS

### Information/Education Page

#### Managing Sleep Problems After Traumatic Brain Injury



Sleep problems after traumatic brain injury (TBI) affect anywhere between 30%-70% of survivors. Moreover, sleep problems can have a tremendous effect on physical health, the ability to think, and emotional well-being. The purpose of this fact sheet is to provide people living with TBI a quick reference about common sleep problems and things you can do at home to manage these problems and help improve your sleep.

#### Sleep problems after traumatic brain injury

How common are sleep problems after TBI?<sup>1</sup>

- People living with TBI experience more sleep disturbances than the general population.
- This is because of physical and chemical changes to the brain after an injury as well as changes in the natural sleep-wake cycle, breathing, and mood (depression and anxiety).

What are the common sleep problems after TBI?<sup>1</sup>

- Insomnia: difficulty falling or staying asleep or waking up too early.
- Hypersomnia: sleeping too much.
- Obstructive sleep apnea: a sleep-related breathing disorder in which breathing is interrupted or stops.
- Circadian rhythm disorders: disruption in someone's natural sleep-wake cycle.

Why should we care about sleep after TBI?<sup>2</sup>

- Sleep disturbances are associated with many symptoms that can greatly affect day-to-day life.

- Poor sleep may have a negative effect on your thinking abilities (ie, cognition).
- People living with TBI who experience sleep problems often have problems with attention, learning and memory, and aspects of executive functioning, such as one's ability to organize/plan, start or end tasks, and manage emotions.<sup>3</sup>
- Sleep interventions that change behaviors around sleep can improve mood and cognition.
- Be sure to ask your doctor about the other benefits of quality sleep on your health.

#### What can you do to improve your sleep?

##### Sleep hygiene rules to improve your sleep<sup>3</sup>

What is sleep hygiene?

- Increasing behaviors and environmental conditions that promote sleep and eliminate behaviors or conditions that interfere with sleep (fig 1).

Rules for sleep hygiene

- Wake up and go to bed at the same time every day.
- Avoid naps during the day; if you do nap, keep them under 20 minutes.
- Exercise every day; people with TBI who exercise report fewer sleep problems on average.
- If you cannot fall asleep within 20 minutes, get out of bed and do something relaxing.
- Keep stress and work out of the bedroom.
- Avoid alcohol and nicotine before bed.
- Watch television outside of your bedroom.



**Fig 1** Sleep hygiene rules to improve your sleep.

- Keep your bedroom quiet, dark, and at a comfortable temperature.
- Consider asking your doctor about taking melatonin supplements.

#### Creating a sleep routine

- Be creative with your routine and choose activities that help you relax and promote sleep.
- Keep the sleep hygiene rules in mind.
- An example of a sleep routine might be to (1) put out your clothes for the morning; (2) brush your teeth; (3) read or listen to relaxing music for 10 minutes; and (4) turn out the light and go to sleep.

#### Stimulus control: managing your bedroom environment<sup>4</sup>

What is “stimulus control”?

- As part of stimulus control, you change your behaviors so that only sleep and intimacy are linked with the bedroom (fig 2). This will increase your odds of falling asleep when you go to bed.

Instructions for stimulus control.

- Stimulus control research suggests you:

1. Go to bed only when you are sleepy.
2. Use your bed and bedroom only for sleep and intimacy (romance and sex).
3. Leave your bed and go to another room if you are unable to fall asleep or return to sleep. If you do not have another room, try sitting in a comfortable chair.

a. When you get out of bed:

- i. Try a relaxing, low-impact activity to promote sleep: reading, meditation, listening to music, deep breathing.
- ii. Stay out of bed for at least 30 minutes; however, you might choose any amount of time (30, 45, 60, or 90min) that works for you. Note, it is best not to worry too much about the amount of time, rather go back to bed when you feel drowsy.

4. Repeat step 3 as often as necessary throughout the night.
5. Wake up at the same time every morning, regardless of the amount of time slept during the night.
6. Refrain from napping during the day.

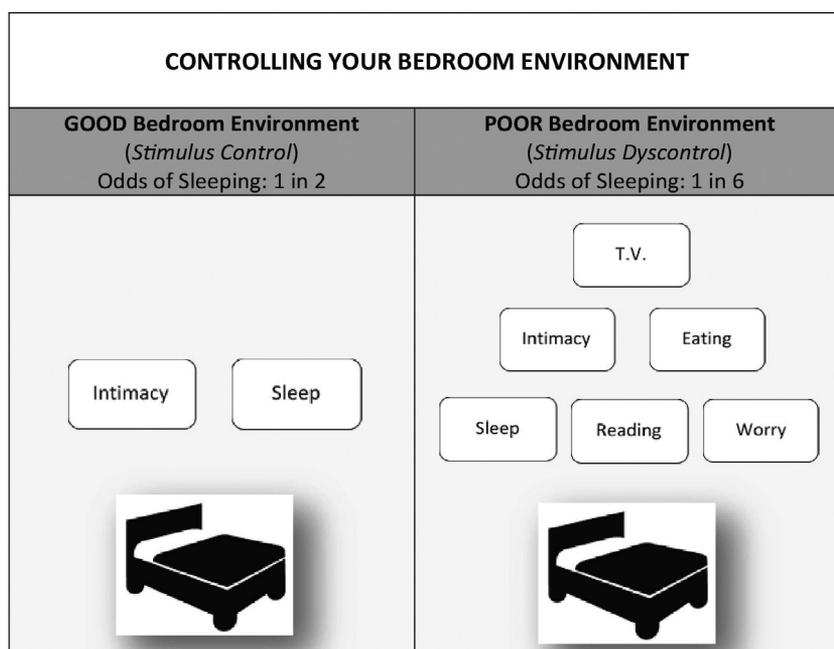


Fig 2 Managing your bedroom environment for better sleep.

### Resources for Improving your Sleep

1. Sleep Foundation. Sleep hygiene. Available at: <https://www.sleepfoundation.org/sleep-hygiene>.
2. Sleep Foundation. Cognitive behavioral therapy for insomnia. Available at: <https://www.sleepfoundation.org/insomnia/treatment/cognitive-behavioral-therapy-insomnia>.

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### References

1. Mathias JL, Alvaro PK. Prevalence of sleep disturbances, disorders, and problems following traumatic brain injury: a meta-analysis. *Sleep Med* 2012;13:898–905.
2. Larson EB. Sleep disturbance and cognition in people with TBI. *NeuroRehabilitation* 2018; 43:297–306.
3. Bogdanov S, Naismith S, Lah S. Sleep outcomes following sleep-hygiene-related interventions for individuals with traumatic brain injury: a systematic review. *Brain Inj* 2017;31: 422–33.
4. Sullivan KA, Blaine H, Kaye SA, Theadom A, Haden C, Smith SS. A systematic review of psychological interventions for sleep and fatigue after mild traumatic brain injury. *J Neurotrauma* 2018;35:195–209.