

Sleep 101

A CBT-I group for patients with chronic pain
Class #2



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Week 2 Agenda

- Review Homework
- Understanding your sleep
- Sleep system – Circadian Rhythm and Sleep Drive
- Pillars of CBT-I
 - Sleep Restriction
 - Cognitive Restructuring – looking at our thoughts and beliefs about sleep
- Review typical medications used in sleep.

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Homework

- Sleep Log – what did you notice about your sleep??
- Sleep Hygiene Goal – what was ONE change that you made?
- My Beliefs About Sleep Questionnaire

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Understanding Your Sleep

Throughout your sleep, your brain cycles repeatedly between two different types of sleep: non-REM and REM sleep.

- Non-REM is composed of four stages
 - Stage 1: Drowsy – transitioning between being awake and sleeping.
 - Stage 2: Light Sleep – Heart rate and temperature drop; breathing regulates.
 - Stage 3: Moderate Sleep – Your brain produces delta waves which are deep and slow.
 - Stage 4: Deep Sleep
- REM Sleep - Your brain activates while muscles relax. Eyes move more rapidly between closed lids. Dreaming occurs.
- The cycle repeats itself 4 or 5 times throughout the night.

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Sleep: A Balance Act

There are 2 main processes that regulate sleep:

Circadian Rhythm

BODY CLOCK

Sleep Drive

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Circadian Rhythm

- Biological clock located in the brain
- Helps you to feel awake during the day and sleepy at night.
- Responds to light cues to turn on and off melatonin.
- Disruptions (like shift work, jet lag, or too much screen time at night) can confuse your clock.

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Chronotypes  vs 

- Your body's natural inclination to sleep, wake and be active at certain times of day.
- Reflects your internal biological clock.
- There are generally 4 common chronotypes:
 - Morning (Lark)
 - Evening (Owl)
 - Intermediate (Third Bird)
 - Irregular or Biphasic

1. How Chronotypes affect sleep:

- Sleep quality
- Sleep duration
- Alertness and productivity

2. Our body clock can change over time.

Check your type!
<https://sleepsurge.com/morningness-eveningness-questionnaire/>

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Working With Your Body Clock:



- Behave in accordance with your body clock
- Difference between being fatigued and being sleepy
- "Reset" your body clock daily by:
 - Exposure to sunlight in the morning
 - Keeping a regular wake-up schedule
 - Regularity in other routines: physical activity, meals, and social interactions.

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Sleep Drive

- It is the amount of "pressure" to fall asleep your body experiences within 24 hours
- Pressure builds the longer you are awake.
- Adenosine plays a central role. It accumulates while we are awake and is cleared during deep sleep.
- After a full night's sleep, our sleep drive resets to a low level.



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Working With Your Sleep Driver:

Don't try to compensate for lost sleep

The following compensating behaviors tend to disrupt the sleep driver's balance:

- Staying in bed after the alarm goes off/snoozing
- Sleeping in the next day after a late night
- Going to bed earlier than usual
- Naps
- Drastically reducing our activity levels



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Quantity Versus Quality



- Compensating behaviors seem intuitive and logical to recover from lack of sleep, BUT:
- After losing sleep, the system tries to recover by producing deeper sleep
- Quality is better than quantity: six hours of deep sleep feel much better than 10 hours of interrupted, light sleep

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5 Pillars of CBT-I

- ❖ Stimulus Control
- ❖ Relaxation Techniques
- ❖ Sleep Hygiene
- ❖ **Sleep Restriction**
- ❖ Cognitive Restructuring/Thoughts



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Sleep Efficiency:

- The percentage of time spent in bed that is actually spent sleeping.
- Sleep efficiency = $\frac{\text{Total Sleep Time}}{\text{Time in Bed}} \times 100$
- If I slept 6 hours and spent 8 hours in bed: $6/8 \times 100 = 75\%$
- The ideal sleep efficiency coefficient has been determined at 85% - 90%



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Sleep efficiency

- Sleep efficiency explained:
https://www.youtube.com/watch?v=7ubEDO09_UI
- Here is a sleep efficiency calculator:
<https://mysleepwell.ca/cbti/sleep-efficiency-calculator/>
- Sleep efficiency is used to guide adjustments in sleep restriction therapy



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Sleep Restriction Therapy



Goal:
To limit time in bed to match actual sleep time, reducing the amount of time spent awake in bed and building a stronger association between bed and sleep.

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    graph TD
      A[Track sleep: Complete your sleep log for 1-2 weeks.] --> B[Calculate your sleep efficiency.]
      B --> C[Use the information you gather to help guide how much time to spend in bed.]
      C --> D[As sleep becomes more efficient, increase time in bed to aim for 85% SE.]
  
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**Full Sleep Restriction Therapy is not recommended for patients with epilepsy or bipolar disorder

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5 Pillars of CBT-I

- ❖ Stimulus Control
- ❖ Relaxation Techniques
- ❖ Sleep Hygiene
- ❖ Sleep Restriction
- ❖ Cognitive Restructuring/Thoughts



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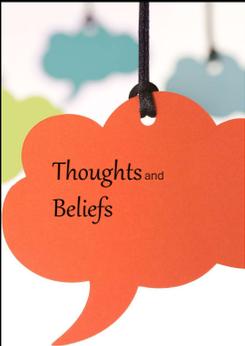
Cognitive Restructuring

- Used to help people identify, challenge and change unhelpful or distorted thoughts related to sleep.
- The goal is to break the cycle of anxiety and negative thinking that often fuels insomnia.



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Thoughts and Beliefs About Sleep:



- What we think and believe has an impact on our sleep
- Thoughts elicit emotions...if you think about not getting any sleep tonight, how do you feel about it? What might you do in response?
- What do you do if you can't sleep?

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Unhelpful Attitudes About Sleep:

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graph TD; A[Excessive worry about loss of sleep] --> B[Overthinking about the consequences]; B --> C[Unrealistic expectations about sleep]; C --> D[Making catastrophic predictions];
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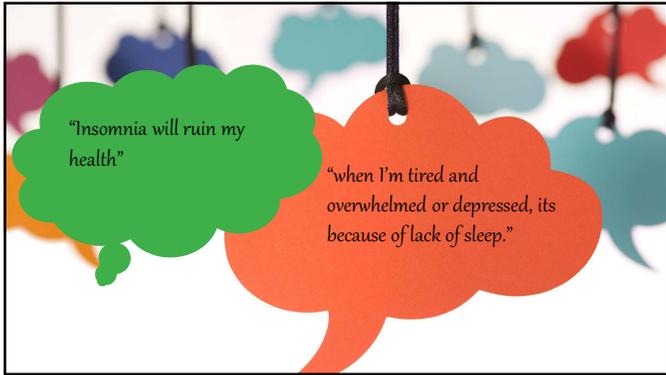
Let's Review some Common unhelpful thoughts/myths

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"I need 8.5 hours"

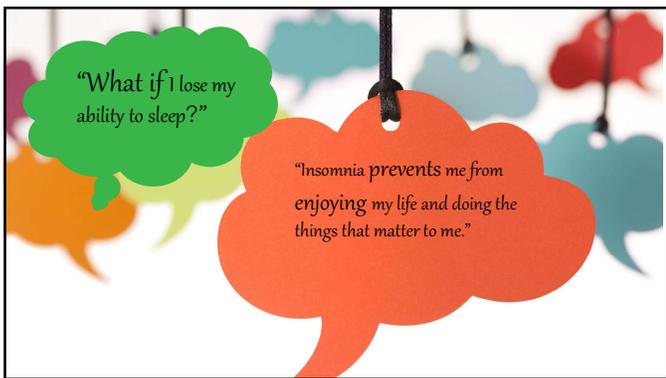
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Discussion

- Identify the dysfunctional thought.
- Evaluate the evidence.
- Challenge and reframe.
- Practice and reinforce.

Thought	Alternative Thought
Example: If I don't sleep well, my day is ruined.	Example: I can still get up, and the more active I am, it may better my chances of falling asleep tonight.
	Is this thought true? True 100% of the time. Evidence for and against

What are your unhelpful thoughts about sleep and how might you challenge them?

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“Medication is the only thing that works for my insomnia”

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What about Medications?

Should I use them?

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Sleeping Medication True or False

1. Sleeping pills are meant to be used long term (ie. >4 weeks)
True or False
2. Sleeping pills can contribute to insomnia.
True or False
3. Sleeping pills help me to get a much deeper sleep and help me to feel more rested in the morning.
True or False

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What are the most common medications used for sleep?

Benzodiazepines and Z-drugs are two classes of drugs that are used to treat problems such as anxiety or difficulty sleeping.

Some common names include:

- Lorazepam (Ativan) (off-use for sleep) **
- Clonazepam (Rivotril) (off-use for sleep)
- Temazepam (Restoril) **
- Zopiclone (Imovane)
- Zolpidem (Sublinox)



**Stopping a Benzodiazepine is not for everyone. Check with your DR first!

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Limited Evidence for Sleep

Other Medications Used for Sleep

- Anti-depressants - Trazodone, mirtazapine
- Tri-cyclic antidepressants – nortriptyline, amitriptyline, doxepin
- Anti-psychotics – Quetiapine, Risperidone

**Medications should be adjusted on an individualized basis. Talk to your pharmacist or Dr. prior to making changes.

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Balancing the Pros and Cons of Sleeping Medication

<p>Benefits</p> <ul style="list-style-type: none"> • Estimated decrease in sleep latency by 10 to 20 minutes • Estimated increase in total sleep-time by approximately 30 minutes 		<p>Harms</p> <ul style="list-style-type: none"> • Tolerance Building • Withdrawal Symptoms • Side effects • Hangover Effects • May suppress Delta and REM sleep
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Potential Harms

<p>Side Effects</p> <ul style="list-style-type: none"> • Hangover effects • Fall risk • Fractures • Memory and performance impairment • Increase risk of motor vehicle accidents • Tolerance building • Drug interactions • Complex Sleep Behaviours 	<p>Withdrawal Symptoms</p> <ul style="list-style-type: none"> • Rebound insomnia when stopped abruptly - this can lead to a vicious cycle of increasing the dose to help with sleep. • Anxiety • Irritability • Sweating • Gastrointestinal symptoms <i>(all usually mild and last a few days to a few weeks)</i>
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What's New??

DORA's (dual orexin receptor antagonists)	New mechanism of action – blocks the chemical that promotes wakefulness	2 available in Canada: Dayvigo (lemvorexant) and Quviviq (daridorexant)
Pro's – suggested to cause no tolerance and no physical dependence	Con's – next day sedation, complex sleep behaviors, sleep paralysis, abnormal dreams/nightmares	Long term effects unknown but suggested that it may be appropriate for long term use

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What About OTC and Herbal Supplements ?

- OTC Antihistamines (diphenhydramine, doxylamine)
- Herbs (Valerian, kava, passionflower, and others)
- Melatonin

What About Cannabis ?

- On a short term basis – may help you fall asleep faster
- Potential to negatively impact sleep quality and cause other side effects for long term use
- Cannabis for Sleep: Benefits and Risks (sleepfoundation.org)



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What other medications/substances can contribute to insomnia?

- Alcohol
- Amphetamines
- Caffeine
- Corticosteroids
- Decongestants
- Diuretics
- Nicotine
- Opioids
- Stimulating anti-depressants



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Tips on Tapering

- 1. Don't go it alone!**
 - Talk to your pharmacist or physician to ensure that tapering your sleeping pill is right for you. Make a tapering plan. Follow-up frequently for support.
- 2. Go slow!**
 - Slowly reduce your dose. It may take weeks to months to entirely get off your sleeping pill.
- 3. Make a plan!**
 - Have a plan in place to deal with withdrawal symptoms (anxiety, insomnia).
- 4. Keep up with healthy sleep practices**
- 5. Talk to a HCP about CBT-I.**



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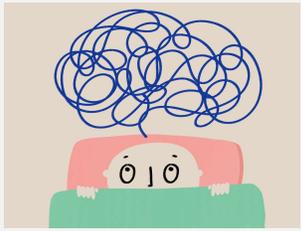
Take Home Messages

- Sleep is controlled by two systems: your body clock and your sleep driver.
- Matching your schedule to your body clock and keeping a regular timing of activities that reset the body clock is helpful.
- It is important to distinguish between sleepiness and fatigue.
- Keeping a regular wake-up time is crucial.
- How deep you sleep is more important than how long you sleep.
- Spending more time sleeping or resting tells your sleep driver to produce less sleep and lighter sleep.

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Take Home Messages

- Thoughts impact emotions, impact behaviours, impact thoughts, impact emotions, impact behaviours.
- Consider your beliefs and thoughts: How you think about sleep, impacts your emotions and behaviours with regards to sleep.
- We can cope and function on a lot less sleep than we usually think.



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Relapse Prevention



- We know it is normal to experience bouts of insomnia. What parts of CBT-I have worked for you, and how might you use them when you experience insomnia in the future?
- Take a few moments to consider what your own personal action plan or cope ahead plan (DBT) might include.

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Websites

- <https://mysleepwell.ca/>
- <https://www.sleepfoundation.org/articles/pain-and-sleep>
- <https://mysleeptutor.com/>
- <https://Static1.squarespace.com> (Cognitive Behavioral Therapy for Insomnia (CBT))



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Other References:

Books:

- Carney, Colleen E. & Manber, Rachel (2009). *Quiet your mind & get to sleep: Solutions to insomnia for those with depression, anxiety, or chronic pain*. New Harbinger Publications, Inc.
- Jacobs, Gregg D. (2000-present). *CBT-I Program Clinical Training Manual*. CBT-I (cbtforinsomnia.com/wp-content/uploads/2025/03/CBT-I-Clinician-Training-Manual-Copy.pdf)
- Jungquist, Carla, Perlis, Michael L., Posner, Donn, & Smith, Michael T. (2008). *Cognitive Behavioral Treatment of Insomnia: A session-by-session guide*. Springer.

Video on sleep efficiency:

- https://www.youtube.com/watch?v=7ubEDO09_UI

My sleep beliefs questionnaire:

- <http://dr.colleencarney.com/wp-content/uploads/2013/05/My-beliefs-about-sleep.pdf> (Carney, 2013)



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Questions??




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Thank You

- A note will be sent to your GP that indicates you completed Sleep 101.
- We will notify your case worker, and they will follow up with you to discuss next steps.
- Please book in with your mental health consultant or an EHT member if you have further questions on CBT-I.

