# Cognitive Behavioral Therapy for Insomnia

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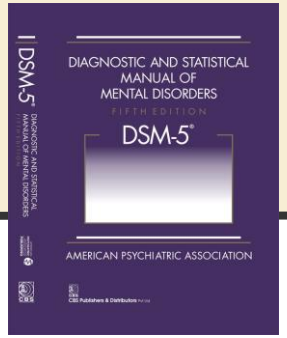
# Insomnia Impact

- 30-45% of Americans have insufficient sleep
  - 6-15% of the population has chronic insomnia
- > 50% of primary care patients experience insomnia
- Consequences
  - Comorbidities, reduced QOL, absenteeism, accident risk, Higher healthcare costs



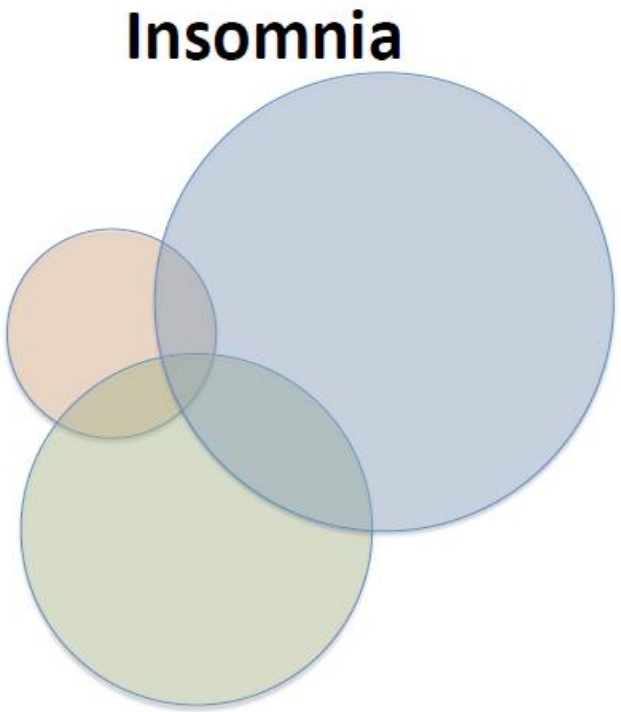
*Benca, 2001; Ancoli-Israel et al 1999; NIH ConsensSci Statements. 2005;22(2):1-30.*

# Insomnia




- Dissatisfaction with sleep quantity or quality
  - Difficulty initiating sleep
  - Difficulty maintaining sleep
  - Early morning awakening
  - Non-restorative sleep
- Significant distress or impairment in daytime functioning
  - **Despite adequate sleep opportunity**
  - **>3 night/week**
  - **>3 months**

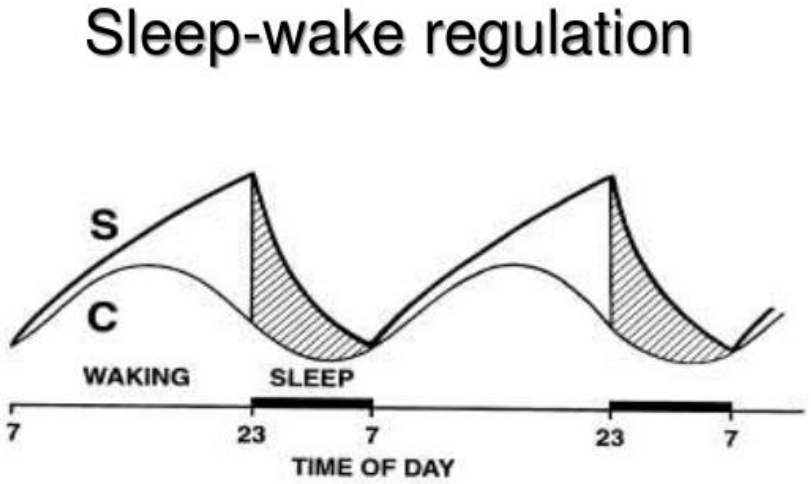
# Healthy Sleep vs. Insomnia


**SO > SA < SN**

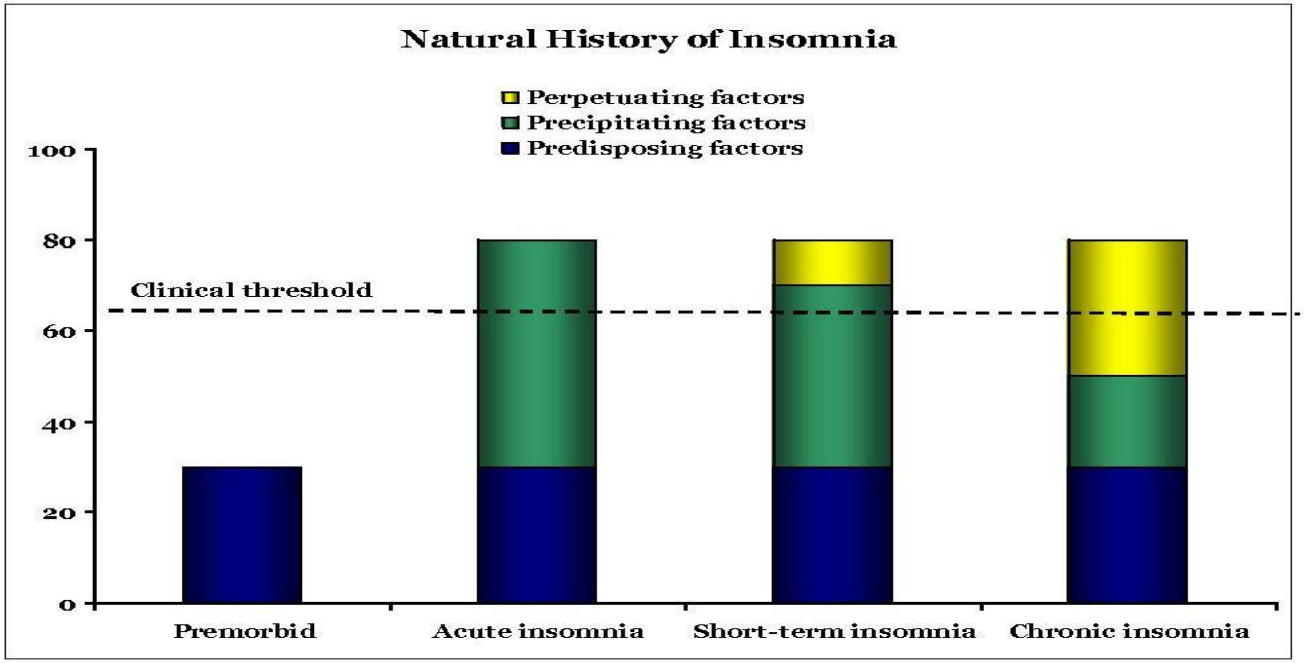
# Healthy Sleep: 2 Process Model of Sleep

- Homeostatic Sleep: Process S
  - Sleep debt accumulated during wakefulness
    - *How long you have been awake?*
- Circadian Sleep: Process C
  - Endogenous Pacemaker




Borbély's model of sleep-wake regulation (Borbély & Achermann, 1999).
Process S represents the homeostatic built-up of sleep pressure.
Process C represents the circadian rhythm.
When the distance between process S and process C is largest, sleep propensity will be

# Evolution of Insomnia




## Predisposing factors

- Personality
- Sleep-wake cycle
- Circadian rhythm
- Coping mechanisms
- Age

## Precipitating factors

- Situational
- Environmental
- Medical
- Psychiatric
- Medications

## Perpetuating factors

- Conditioning
- Substance abuse
- Performance anxiety
- Poor sleep hygiene

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*Hauri PJ. Clin chest med. 1998; 19:157-168*
*Spielman AJ et al. Psychiatr Clin North Am. 1987; 10:541-553*

ACP American College of Physicians® Leading Internal Medicine, Improving Lives

CLINICAL GUIDELINE

## Management of Chronic Insomnia Disorder in Adults: A Clinical Practice Guideline From the American College of Physicians

**Amir Qaseem, MD, PhD, MHA; Devan Kansagara, MD, MCR; Mary Ann Forciea, MD; Molly Cooke, MD; and Thomas D. Denberg, MD, PhD, for the Clinical Guidelines Committee of the American College of Physicians***

**Description:** The American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on the management of chronic insomnia disorder in adults.

**Methods:** This guideline is based on a systematic review of randomized, controlled trials published in English from 2004 through September 2015. Evaluated outcomes included global outcomes assessed by questionnaires, patient-reported sleep outcomes, and harms. The target audience for this guideline includes all clinicians, and the target patient population includes adults with chronic insomnia disorder. This guideline grades the evidence and recommendations by using the ACP grading system, which is based on the GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach.

***Recommendation 1:*** *ACP recommends that all adult patients receive cognitive behavioral therapy for insomnia (CBT-I) as the initial treatment for chronic insomnia disorder. (Grade: strong recommendation, moderate-quality evidence)*

***Recommendation 2:*** *ACP recommends that clinicians use a shared decision-making approach, including discussion of the benefits, harms, and costs of short-term use of medications, to decide whether to add pharmacological therapy in adults with chronic insomnia disorder in whom cognitive behavioral therapy for insomnia (CBT-I) alone was unsuccessful. (Grade: weak recommendation, low-quality evidence)*

*Ann Intern Med.* 2016;165:XXX-XXX. doi:10.7326/M15-2175 **www.annals.org**
For author affiliations, see end of text.
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Insomnia is a major health care problem in the United States. It is defined as dissatisfaction with sleep quantity or quality and is associated with difficulty initiating or maintaining sleep and early-morning waking with inability to return to sleep (1). Approximately 6% to 10% of adults have insomnia that meets diagnostic criteria (1–4). Insomnia is more common in women and older adults (5, 6) and can occur independently or be caused by another disease. People with the disorder often experience fatigue, poor cognitive function, mood disturbance, and distress or interference with personal functioning (2, 4). An estimated $30 billion to $107 billion is spent on insomnia in the United States each year (7). Insomnia also takes a toll on the economy in terms of loss of workplace productivity, estimated at $63.2 billion in the United States in 2009 (8).

Chronic insomnia, also referred to as "chronic insomnia disorder" in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5), is diagnosed according to the DSM-5 (9) and the International Classification of Sleep Disorders (10), which have similar criteria for making the diagnosis. These criteria specify that symptoms must cause clinically significant functional distress or impairment; be present for at least 3 nights per week for at least 3 months; and not be linked to other sleep, medical, or mental disorders (1). Symptoms of insomnia differ between older adults and the younger population. Older adults are more likely to report problems with waking after sleep onset (difficulty maintaining sleep) than they are to report problems with sleep onset latency (time to fall asleep).

The goal of treatment for insomnia is to improve sleep and alleviate distress or dysfunction caused by the disorder. Insomnia can be managed with psychological therapy, pharmacologic therapy, or a combination of both. Psychological therapy options include cognitive behavioral therapy for insomnia (CBT-I); multicomponent behavioral therapy or brief behavioral therapy (BBT) for insomnia; and other interventions, such as stimulus control, relaxation strategies, and sleep restriction (see **Appendix Table 1**, available at www.annals.org, for a description of these interventions). Cognitive behavioral therapy for insomnia is

See also:
Related articles . . . . . 1
Editorial comment . . . . . 2
Summary for Patients . . . . . 3

* This paper, written by Amir Qaseem, MD, PhD, MHA; Devan Kansagara, MD, MCR; Mary Ann Forciea, MD; Molly Cooke, MD; and Thomas D. Denberg, MD, PhD, was developed for the Clinical Guidelines Committee of the American College of Physicians. Individuals who served on the Clinical Guidelines Committee from initiation of the project until its approval were Mary Ann Forciea, MD† (Chair); Thomas D. Denberg, MD, PhD† (Immediate Past Chair); Michael J. Barry, MD†; Cynthia Boyd, MD, MPH‡; R. Dobbin Chow, MD, MBA‡; Molly Cooke, MD‡; Nick Fitterman, MD†; Russell P. Harris, MD, MPH†; Linda L. Humphrey, MD, MPH†; Devan Kansagara, MD, MCR†; Scott Manaker, MD, PhD†; Robert McLean, MD†; Tanveer P. Mir, MD‡; Holger J. Schünemann, MD, PhD‡; Sandeep Vijan, MD, MS†; and Timothy Wilt, MD, MPH‡. Approved by the ACP Board of Regents on 25 July 2015.
† Author (participated in discussion and voting).
‡ Nonauthor contributor (participated in discussion but excluded from voting).

ACP recommends that all adult patients receive cognitive behavioral therapy for insomnia (CBT-I) as the initial treatment for chronic insomnia disorder. (Grade: strong recommendation, moderate quality evidence.

# CBTI

## The Basics

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# CBTI Components

- Sleep Hygiene
- Stimulus Control*
- Sleep Restriction*

} Behavioral Therapies

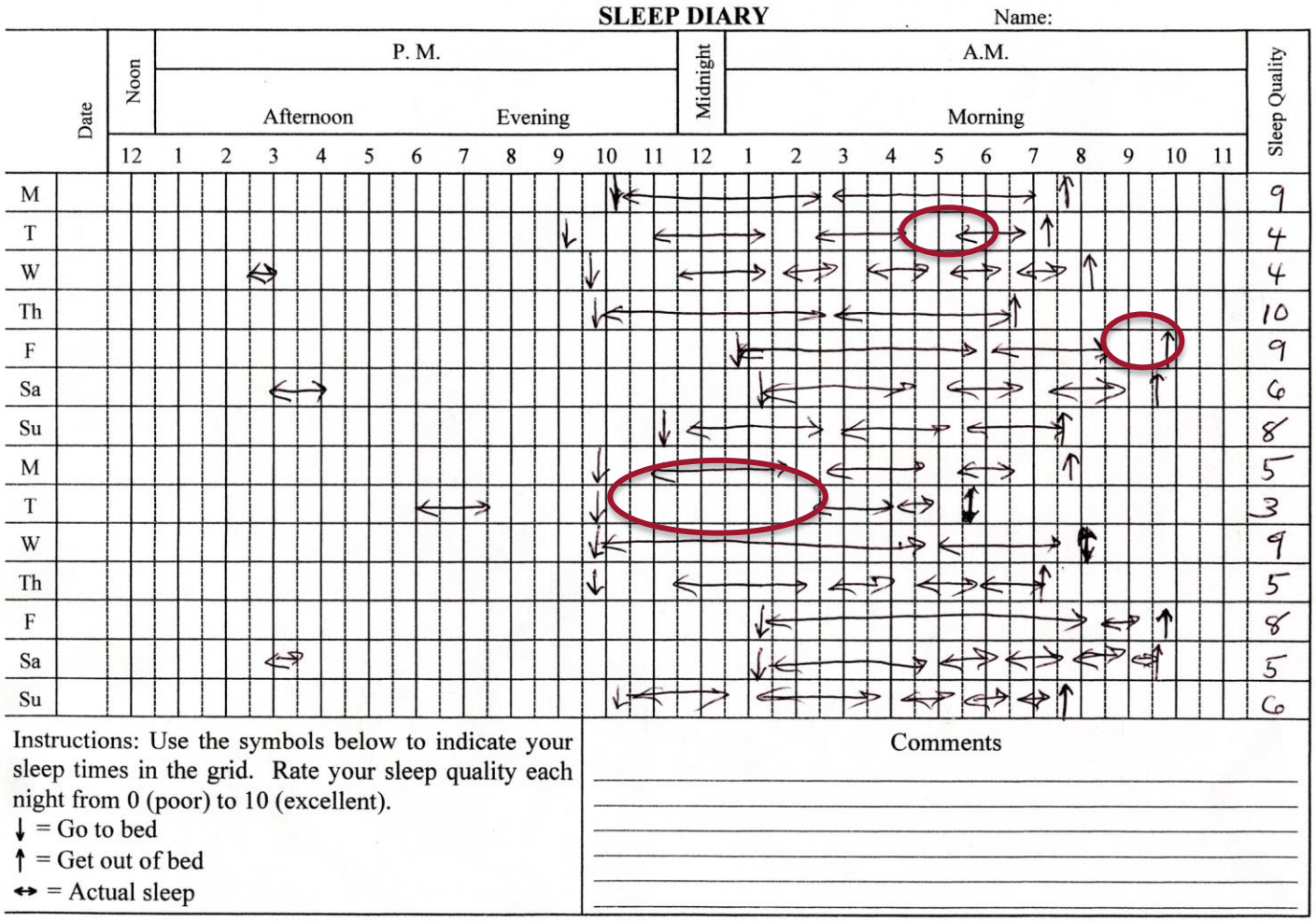
- Relaxation Therapies*
- Cognitive Restructuring
- *Paradoxical Intention*
- *Light Therapy*
- *Mindfulness*

** Efficacious as stand alone treatment*



*Morin et al., 1994, 1999, 2006; Murtagh & Greenwood, 1995*

# Sleep Diaries: Cost of Doing Treatment



# Sleep Hygiene


## HELP:

- ❑ Exercise (not too close)
- ❑ Nightly routine
- ❑ Cool, Dark, Quiet
- ❑ Consistency
- ❑ Safety

## HURT:

- ❑ Alcohol
- ❑ Caffeine
- ❑ Worries
- ❑ Poor environment
- ❑ Electronics
- ❑ Clock watching

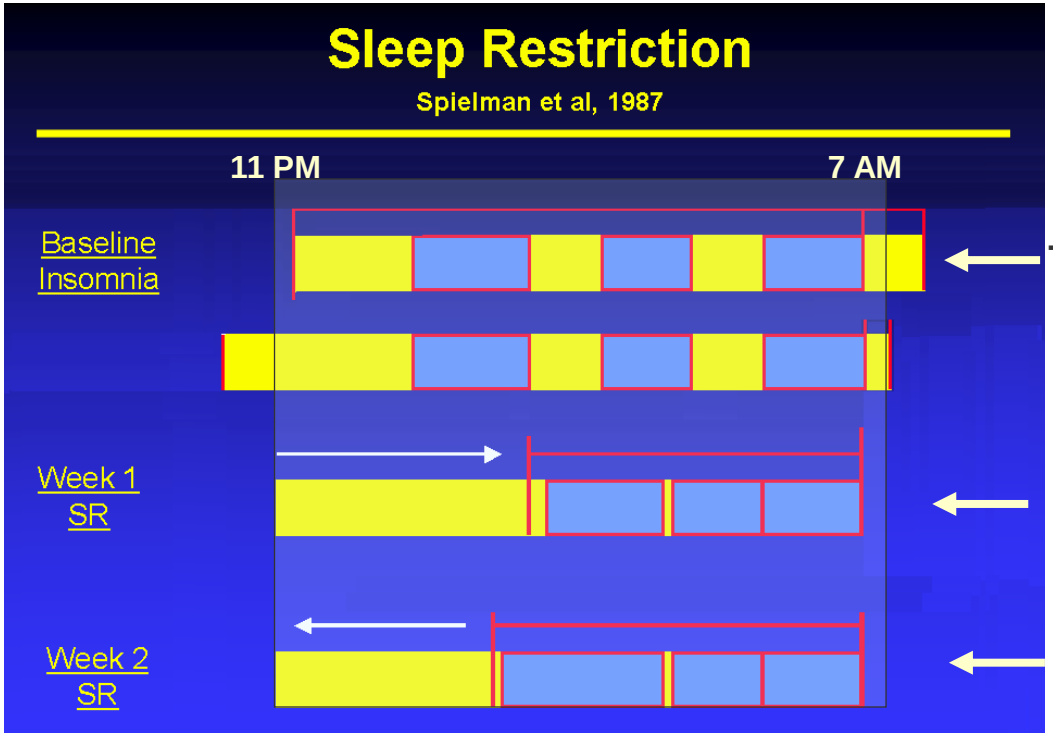
# Stimulus Control

- Do not use the bedroom for sleep-incompatible activities
- Go to bed only when ‘sleepy’, not just ‘tired’
- Get out of bed if not asleep after 20 min, go into another room and stay up until sleepy. Repeat if necessary.
- Wake up the same time each morning, set alarm, regardless of how much sleep you got the night before
- No naps.

# Sleep Restriction

- Systematic reduction of time in bed to the amount of total sleep time from sleep log data
- Increased propensity to sleep by increasing homeostatic sleep drive with partial sleep deprivation
- Increase time in bed by 15 minutes only when sleep efficiency exceeds 90% for 5 nights
- **Not decreasing sleep → Decreasing time awake in the bed**

# Sleep Restriction



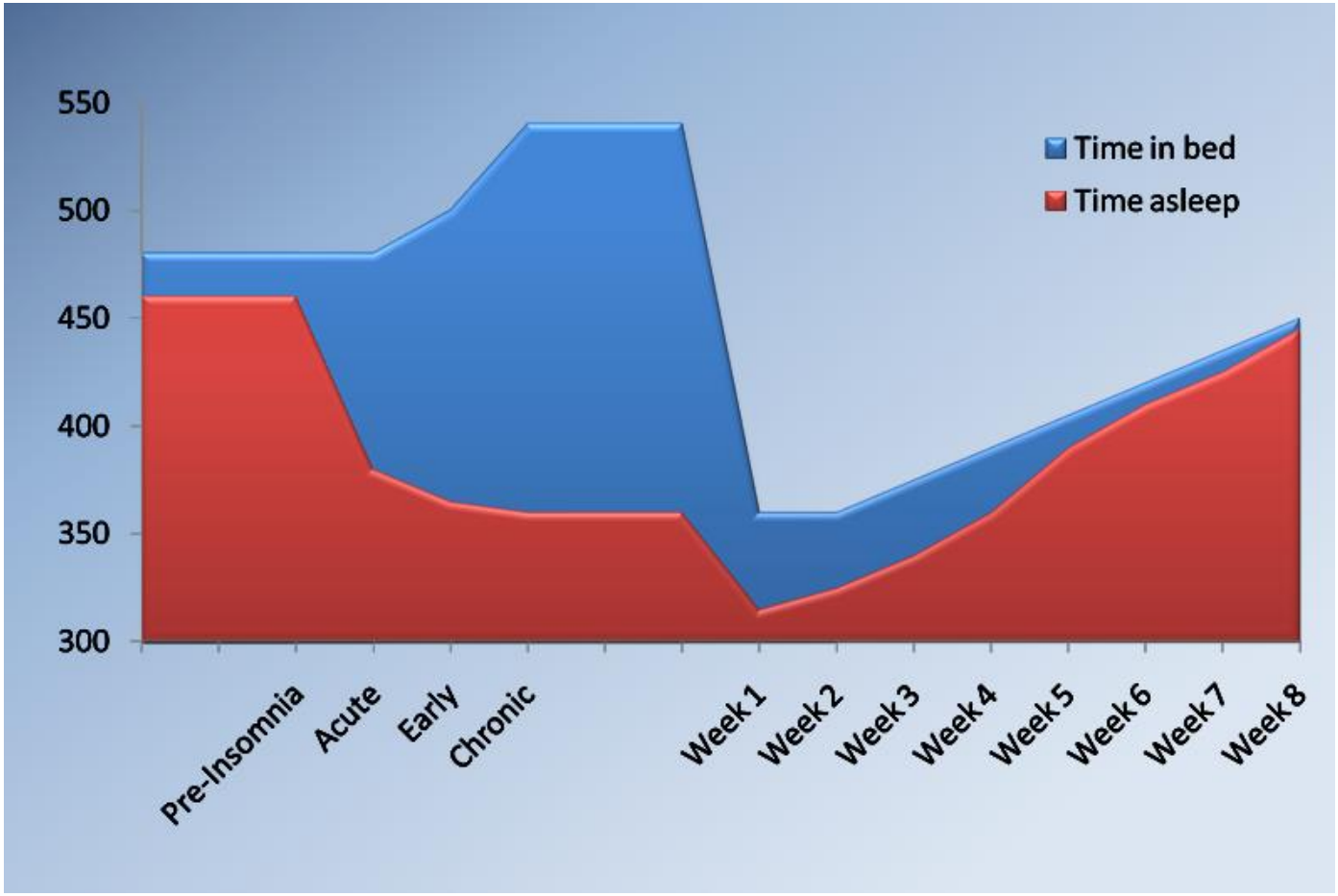

TST = 5 hrs TIB = 8.0 hrs SE% = 62.5%

PTIB = 5.0 hrs TST = 4.75 hrs SE% = 95.0%

+ 15 Min. PTIB = 5.25 hrs

Schematic representation by Michael Smith PhD

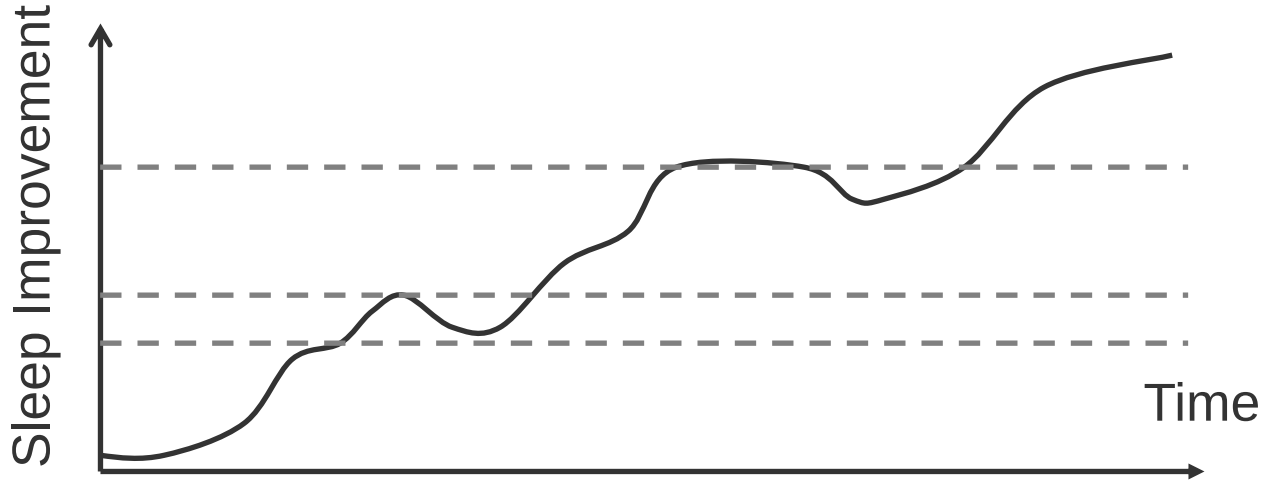
# Sleep Efficiency Over Time with SR




Schematic representation by Michael Grandner PhD

# What to expect?

- "Practice makes perfect"
- Changes in sleep are gradual, and not necessarily steady



# Cognitive Therapy for Insomnia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# Cognitive Therapy

- Domains of cognitive activity hypothesized to contribute to insomnia
  - Worry and rumination
  - Attentional bias and monitoring for sleep-related threat
  - Unhelpful beliefs about sleep
  - Misperception of sleep and daytime deficits
  - Use of safety behaviors that maintain unhelpful beliefs

# Cognitive Distortions Related to Insomnia

**All or Nothing Thinking**: *If I can't sleep 8 hrs tonight, it's terrible.*

- Coping thought: (reframing) : *Every time I get even an extra hour of sleep, that is a good outcome.*

**Overgeneralization** :*I didn't sleep well last night, and I'll never sleep well again.*

- Coping thought (action): *I will try using one of my relaxation techniques to help relax my body.*

**Disqualifying the Positive:** *Although I slept well last night, it was probably just a fluke.*

- Coping thought (reinforcement): *I slept well last night and having been working hard on good sleep habits which seems to be working.*

**Fortune Telling** : *I just know that tonight is going to be another bad one. Here we go again.*

- Coping thought (logical thinking): *I can't predict the future and worrying about my sleep will just make it worse.*

**Mind Reading**: *No one understands what it's like for me to cope with insomnia.*

- Coping thought: (Finding the exception).*: I'm not the only person who has had insomnia. I don't like it but I'm working on getting better.*

**Catastrophizing**: *I can't stand it when I don't sleep well.*

- Coping thought: (Choosing words carefully)*: I don't like sleeping well but I still do a good job functioning as best as I can even after a bad night.*

**Emotional Reasoning**: *I feel like I won't be able to sleep well, therefore I know I won't sleep well.*

- Coping thought: (Separating out the emotion)*: Just because I feel bad doesn't mean it has to be a bad night.*

**Should Statements:** *I should be able to sleep 8 hours straight every night.*

- Coping thought: (Keeping it reasonable)*: I will work on small goals first to help me feel accomplishment.*

**It's not fair. . .**: *It's not fair that others can sleep well and I can't.*

- Coping thought: (Life isn't fair)*: Everyone has different difficulties. Sleep is my issue.*

**External control:** *There is nothing I can do to control my sleep.*

- Coping thought: (Taking back control): *I have tools that I can use to help improve sleep (relaxation, exercise, habits, etc.)*

# Cognitive Therapy: Psychoeducation

- Routine performance rarely as compromised as feared
- Consequences of Insomnia ≠ Consequences of Sleep Deprivation in good Sleepers
- People with Insomnia exceptionally experienced in coping with insufficient sleep

# Cognitive Therapy: Worry Time

- Suppressing sleep related thoughts/fears ineffective, requires mental effort that interferes with sleep
- Opportunity to think through worries, examine validity, problem solve best done during the day outside of bed
- Creates space for intrusive thoughts during sleep periods to be deferred
- Protocol
  - Set aside daily time
  - Make a list, reference it
  - Problem solve

# CT: Paradoxical Intention

- Explicit instruction ‘give up’ trying to sleep’ or ‘stay awake’
- Based on formulation of insomnia as a ‘sleep effort syndrome’
- How would a ‘good sleeper’ do it?

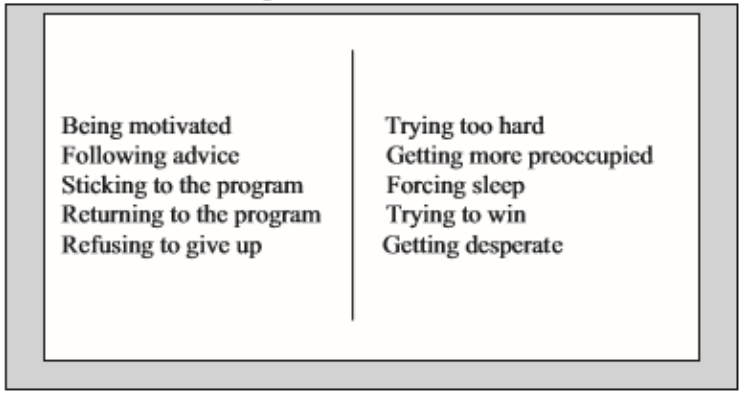
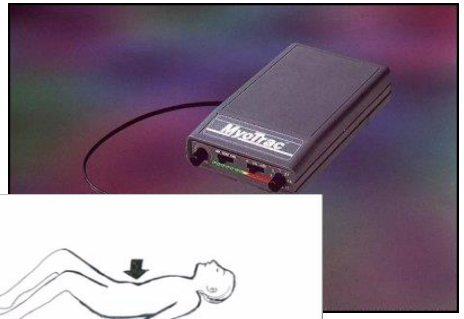
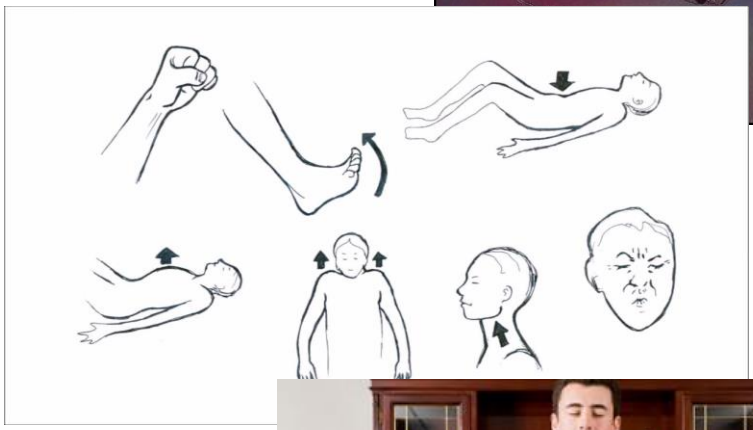


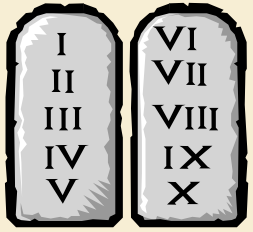

**FIGURE 6.2 The thin line between commitment and unproductive effort.** (*From Espie, 2006*)

# Relaxation therapies

- Progressive Muscle Relaxation*
- Diaphragmatic Breathing
- Visualization/Self-Hypnosis
- Biofeedback
- Autogenic Training






- Never Stay In Bed Awake For More Than 15 Minutes
- Never Compensate For A Bad Night
- Bad Night ≠ Relapse
- ‘If Not Tonight, Then Tomorrow Night’

# CBT-I: Take Home Message

- Tx effects comparable to or better than sleep aid
- Effect sizes for sleep outcomes are moderate to large
- Treatment gains durable
  - May improve further after tx conclusion
- Some data demonstrate non-sleep related improvements (daytime fatigue, QOL)
- Effective in older adults and comorbid conditions

# Training & Patient Resources

- Professional /Clinician reading
  - Morin & Epsie's "Insomnia: A Clinical Guide to Assessment and Treatment"
  - "Treatment of Late-Life Insomnia" Litchstein & Morin
  - Ch.10 on Sleep Medicine in New Harbinger's 'Chronic Pain Control' Workbook
- Self-Help reading
  - Insomnia Cures: Sleep Hygiene practices makes permanent
  - "Say Goodnight to Insomnia' Gregg Jacobs
  - "Desperately Seeking Snoozin': The ; The Insomnia Cure from Awake to Zzzzz…

- Society of Behavioral Sleep Medicine
  - www.behavioralsleep.org
- National Sleep Foundation
  - http://sleepfoundation.org/insomnia
- American Academy of Sleep Medicine
  - http://www.sleepeducation.org
- Internet Based CBTI Treatment
  - www.sleepio.com
  - http://Shuti.me
- Mobile Apps
  - CBTI Coach
  - Breathe2Relax

# Thank you!

Questions?

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