

Session 2

Sleep Scheduling and Stimulus Control Techniques



Two of the most important techniques in the Conquering Insomnia program that you will learn in this session are called *sleep scheduling* and *stimulus control* techniques.

Sleep scheduling involves learning to strengthen your sleep system by changing when you go to bed, get out of bed, and how much time you spend in bed; and, limiting naps.

Stimulus control techniques are designed to strengthen your brain's association between the bed and sleep by making the bed a stronger cue for sleep.

Lesson 1: Sleep Scheduling Techniques

Prior Wakefulness and Sleep Efficiency

To use sleep scheduling techniques, you must first understand the concepts of prior wakefulness and sleep efficiency.

Recall from session 1 that prior wakefulness refers to the number of hours that have gone by from the time you get out of bed in the morning until you turn off the lights at bedtime. The longer the wake system is "on" during the day (that is, the more waking time we accumulate during the day, termed prior wakefulness), the greater the drive or pressure for nocturnal sleep and the better we sleep. This is the result of the build-up of a sleep neurotransmitter called adenosine in the brain for each hour of wakefulness during the day. Because adenosine builds up as a result of energy expenditure, and we expend more energy with greater prior wakefulness during the day, we create more sleep drive- and will sleep better- the longer we are awake during the day. Thus, arising at 7 am and going to bed at 11 pm yields a stronger sleep drive than arising at 8 am and going to bed at 11 pm (16 vs. 15 hours of prior wakefulness and adenosine accumulation). Similarly, arising at 7 am and going to bed at 11 pm yields a stronger sleep drive than arising at 7 am and going to bed at 10 pm. (16 vs. 15 hours of prior wakefulness and adenosine accumulation). *Thus, the earlier you get out of bed and the later you turn out the lights, the better you will sleep.*

Sleep efficiency is the ratio of how much time you actually spend sleeping versus how much time you allot for sleep (from lights out at bedtime to arising time in the morning). Most poor sleepers average about 5.5 hours of sleep and allot just over 8 hours for sleep, which is a sleep efficiency of about 65 percent. This means that they are awake one-third of the time that they allot for sleep. As a result, the bed has become a strong cue for wakefulness instead of sleep.



Key Concept: Your goal will be to improve your sleep efficiency in order to make your bed a stronger cue for sleep.

A Regular Arising Time is Important

In an effort to make up for lost sleep, many people with insomnia sleep in later on weekends or after a bad night's sleep. Although this strategy may work in the short run by providing a few hours of extra sleep or bed rest, it actually contributes to insomnia for several reasons:

1. It delays the rise and fall in body temperature throughout the day, making it harder to fall asleep that night.
2. It reduces your normal amount of prior wakefulness. As a result, you will weaken your sleep system and have a harder time falling asleep and staying asleep that night.
3. Sleeping later on weekends is the primary cause of Sunday night insomnia. Although you might think that Sunday night insomnia is caused by the mental adjustment of going back to work after the weekend, it is often due to later arising times on the weekends, which causes a delay in the body temperature rhythm and reduces prior wakefulness.

Sleep Scheduling Guideline #1



Sleep scheduling guideline number 1 is to *get out of bed around the same time every day, including weekends, no matter how poorly you sleep.* Therefore, you should set an arising time goal, then set an alarm clock if necessary, so that your arising times do not vary by more than a half hour during the week. Your arising time goal should be no later than your third earliest final wake-up time for the week since your circadian rhythm is currently “set” to wake around that time on many days. Earlier arising times are also preferable because larks, who arise earlier in the morning, have better physical and mental health, well-being, and quality of life compared to owls who arise later in the morning.

If you feel you must sleep in after a bad night's sleep and cannot meet this goal, limit yourself to one-hour extra hour and not more than twice a week. However, this is likely to disrupt your sleep just as changing the clocks by an hour in the spring can disrupt sleep.

A regular arising time is crucial to establishing a consistent sleep rhythm and amount of prior wakefulness. If you sleep later on weekends or after a poor night's sleep, you delay the rise and fall in your body temperature, which will make it hard to fall asleep at bedtime. Furthermore, you

will reduce your prior wakefulness because you stayed in bed later. This will weaken your sleep system and make it harder to sleep.

Reducing Time Allotted for Sleep is Important

Another common coping strategy among poor sleepers is to go to bed early in order to get a head start on sleep, to increase the likelihood of being asleep at a certain time, or to catch up on lost sleep. Some also go to bed early simply to escape boredom.

Instead of leading to increased sleep time, however, going to bed early actually makes insomnia worse. This is because of a simple principle involving prior wakefulness and adenosine: the earlier you go to bed and the more time you spend in bed, the more you reduce prior wakefulness and adenosine, weaken the sleep system, and make insomnia worse. In the long run, increased time in bed also contributes to reduced sleep efficiency and makes the bed a stronger cue for wakefulness.

Sleep Scheduling Guideline #2

Sleep scheduling guideline number 2 is to *reduce the time you allot for sleep (time elapsed from lights out to arising time in the morning), by going to bed later or getting up earlier, so that it more closely matches your average sleep time.* To determine the maximum amount of time you should allot for sleep, add one hour to your average sleep duration for the week. Thus, if you are averaging 5 hours of sleep, the maximum time you should allot for sleep is 6 hours. Or, if you are averaging 6 hours of sleep, you should not allot more than 7 hours for sleep, and so on. However, if you are averaging less than 5 hours of sleep, you should not allot less than five and one-half hours for sleep.

The more that you reduce the time you allot for sleep so that it closely matches your average sleep duration, the more you will increase prior wakefulness and adenosine, increase your sleep drive and improve your sleep, and make your bed a stronger cue for sleep.

As your average sleep duration increases throughout this program, you can gradually increase your time allotted for sleep goal as long as your time allotted for sleep does not exceed your average sleep duration by more than one hour.

Sleep Scheduling Guideline #3

Sleep scheduling guideline number 3 is to *determine your earliest allowable bedtime (e.g., lights out time) by starting from your arising time goal and subtracting your maximum allowable time allotted for sleep.* For example, if you have determined that your arising time goal is 6:00 a.m. and your maximum time allotted for sleep should be seven hours, you should not turn your lights off to go to sleep before 11:00 p.m.

If you find it difficult to stay up until your earliest allowable bedtime goal, use physical activity to prevent drowsiness instead of stretching out on the couch or recliner in a dimly lit room the hour before your targeted bedtime. If you are reading or watching television, walk around every tenth page of your book or after every commercial on the television.

As your average sleep duration increases over the next several weeks, your time allotted for sleep goal will increase. In turn, your earliest allowable bedtime will change.

Sleep Scheduling Guideline #4



Sleep scheduling guideline number 4 is to *limit naps to less than 45 minutes and no later than 3:00 p.m.* Naps longer than 45 minutes or taken later than 3:00 p.m. can make it harder to sleep later that night because they often consist of deep sleep. If you enter deep sleep during a nap, you have “borrowed” your deep sleep from the upcoming night and will weaken your sleep system as a result.

However, naps of 45 minutes or less taken no later than 3:00 p.m. will not disturb your sleep and will help you to feel more energetic and alert for the remainder of the day, particularly after a poor night’s sleep. This is because we experience a dip in our mood and alertness in the mid-afternoon, and, because the brain was designed to have a mid-afternoon nap to compensate for this dip. Research suggests that naps as brief as 10 minutes can enhance mood and alertness, especially after a night of poor sleep.

If you presently take naps that are longer than 45 minutes or after 3:00 p.m., keep track of the timing and length of your naps over the next week.

Lesson 2: Stimulus Control Techniques



Poor sleepers have lain awake for so many nights that the bed and bedroom have become strong cues for frustration and inability to sleep. As a result, just getting into bed often triggers a learned wakefulness response.

Poor sleepers engage in many behaviors that make the bed a cue for wakefulness. These include:

- Using the bedroom to watch television long before bedtime.
- Using the bed for other activities like talking on the phone, reviewing work-related material or studying, or problem-solving with a spouse.
- Lying in bed long after awakening in the morning.
- Trying to force sleep by “trying” to sleep. However, we cannot force sleep. In fact, this backfires and creates more mental and physical arousal that disturbs sleep and strengthens the wakefulness system.

Stimulus control techniques are designed to reduce the brain’s association between the bed and wakefulness, while increasing the association between the bed and sleep. By making the bed a stronger cue for sleep, you will more readily fall asleep and stay asleep.

Stimulus Control Techniques

Here are the first three steps in stimulus control:

Step 1: Use your bedroom for sleep and sexual activity only. Do not use your bed and bedroom to study or talk on the telephone, or as your primary room for watching television, etc. Your goal is to associate your bed with sleep, not wakefulness.

Step 2: Limit awake time in bed to one half hour before lights out and after your final awakening in the morning. If you like to read or watch television in bed before bedtime as a transitional activity, limit this to 20-30 minutes. Similarly, get out of bed in the morning within 20-30 minutes of your final awakening. Remember, your goal is to associate your bed with sleep, not wakefulness.

Step 3: Make sure you feel drowsy when you turn off the lights to go to sleep. Otherwise, you are more likely to lie awake and think. Learn to rely on internal cues as indicators of

drowsiness (eyes closing or head nodding) rather than external cues such as the clock or your partner's bedtime. If you go to bed at the same time every night, you are probably relying on external cues since it is unlikely you get drowsy at the same time every night. Since you will be reducing the time that you allot for sleep by going to bed later or getting up earlier, you will be more likely to feel drowsy at bedtime.

Here is the last, and most important, step in stimulus control:

Step 4: If you do not fall asleep within 20-30 minutes, or if you awaken during the night and do not fall back to sleep within 20 to 30 minutes and are wide awake, do not lie in bed tossing and turning. Since you should not focus on the clock, the 20 to 30-minute guideline should be estimated. Go to another room and engage in a quiet, relaxing activity (watching television or reading a magazine or book) for at least 30 minutes or until you feel drowsy, then attempt to go to sleep again. Repeat this procedure as often as necessary until you fall asleep. This is called the "1/2 hour-1/2 hour rule".

Although you can also stay in bed and read when you cannot sleep as long as you go back to sleep in a half hour (otherwise, you will associate your bed with wakefulness), it is better to get out of bed.

You may be tempted to simply lie wake in bed when you cannot sleep in the hope that, if you give it just a few more minutes, you will fall asleep. Or, you may believe that you are better off staying in bed when you cannot sleep because you think that getting out of bed will make you more awake. However, studies prove that the longer you lie in bed awake, the longer you will remain awake and the more your bed will be associated with wakefulness.

Here is a four-step summary of stimulus control techniques:

1. Use your bedroom primarily for sleep.
2. Limit awake time in bed to one half hour before lights out and after your final awakening in the morning.
3. Turn your lights out only when drowsy.
4. If you are not asleep in 20-30 minutes, go to another room and do something other than trying to sleep.

Lesson 3: Week #2 Goals



Your goals this week are to:

1. Set an arising time goal, then set an alarm clock if necessary, so that your arising times do not vary by more than a half hour. Remember that, if you e-mailed your week #1 sleep diary to Dr. Jacobs, you have already received this goal.
2. Determine your maximum time allotted for sleep goal, then begin following your time allotted for sleep goal (from lights out to out of bed) each night. Remember that, if you e-mailed your week #1 sleep diary to Dr. Jacobs, you have already received this goal.
3. Determine your earliest lights out goal, then begin following this goal each night. Remember that, if you e-mailed your week #1 sleep diary to Dr. Jacobs, you have already received this goal.
4. Use your bedroom primarily for sleep.
5. Limit time in bed before lights out and after your final awakening in the morning to one-half hour.
6. Do not go to bed until you feel drowsy.
7. Follow the ½ hour- ½ hour rule.
8. Continue your sleep diary. When you have completed all seven nights on your sleep diary, e-mail it to Dr. Jacobs at info@cbtforinsomnia.com to receive your individualized sleep scheduling guidelines. Then go on to Session 3.

Tips for meeting these goals:

To help you meet your arising time goal:

- ✓ Use an alarm clock.
- ✓ Plan enjoyable early morning activities (e.g., read the newspaper, walk the dog, exercise, take a walk) to increase the likelihood of arising on time.

To help you meet your time allotted for sleep goal:

- ✓ View the extra time out of bed as an opportunity to accomplish other things.
- ✓ Remind yourself this goal is only temporary until your sleep improves.

To help you meet your earliest bedtime goal:

- ✓ Be more active in the late evening instead of being a “couch potato”, which makes it harder to ward off fatigue.

To help you limit your nap time:

- ✓ Use an alarm clock.
- ✓ Nap in a chair instead of a bed so you will not be as comfortable.

To help you use your bedroom primarily for sleep:

- ✓ Set up another room as your primary reading or television room.
- ✓ Move your television out of the bedroom.

To help you limit your awake time in bed:

- ✓ Read or watch television in another room.

To help you go to bed only when drowsy:

- ✓ Use internal cues as indicators of drowsiness (yawning, eyes closing) rather than external cues like the end of the news or a partner's bedtime.

To help you follow the ½ hour-½ hour rule:

- ✓ Make sure you have relaxing things to do when you cannot sleep (a book, magazine, etc.).