

Improving and Maintaining a Healthy Sleep-Wake Cycle

Investing in lifestyle choices that result in a good restful night's sleep is one of the most important ingredients in giving ourselves what we need to heal and maintain health. Below are some tools that can be helpful. Seven-eight hours of uninterrupted restful sleep is the goal.

Remove barriers that may be preventing a good night's sleep

Be aware of medications and supplements that can interfere with sleep

Medications	Nutritional Supplements (herbs, vitamins)
Anticholinergics (bowel or bladder spasms)	Weight loss supplements (Bitter Orange)
Antidepressants	Ma Huang (ephedra)
Blood pressure medications	Caffeine containing supplements:
Chemotherapy medications	• Guarana
Bronchodilators (asthma medications)	• Yerba Mate (cola nut)
Steroids	• Green/black Tea
Decongestants (cold medicines)	Ginseng
Diuretics (make you urinate)	SAME
Histamine-2 blockers (stomach medicines)	Phosphatidylserine

Improve sleep hygiene through healthy lifestyle habits

The most common cause of insomnia is a change in your daily routine. For example traveling, a change in work hours, disruption of other behaviors (eating, exercise, leisure, etc.), and relationship conflicts may cause sleep problems.

Paying attention to good sleep hygiene is the most important thing you can do to maintain good sleep.

Do:

1. Go to bed at the same time each day.
2. Get up from bed at the same time each day.
3. Get regular exercise each day, preferably in the morning. There is good evidence that regular exercise improves restful sleep. This includes stretching and aerobic exercise.
4. Get regular exposure to outdoor or bright lights, especially in the late afternoon.
5. Keep the temperature in your bedroom comfortable, or on the cool side.
6. Keep the bedroom quiet when sleeping.
7. Keep the bedroom dark to facilitate sleep (this increases production of melatonin, the sleep hormone).
8. Use your bed only for sleep and sex.



Healthy Sleep-Wake Cycle

9. Remove electrical devices (radios, cell phones, multiple outlet connectors) from around your head when you sleep. Electromagnetic fields have been found to reduce melatonin (sleep hormone) levels.
10. Use a relaxation exercise just before going to sleep (e.g., muscle relaxation, imagery, massage, warm bath, etc.).
11. Keep your feet and hands warm. Wear warm socks and/or mittens or gloves to bed.

Don't:

1. Exercise just before going to bed.
2. Engage in stimulating activity just before bed, such as playing a competitive game, watching an exciting program on television or having an important discussion with a loved one.
3. Have caffeine in the evening (coffee, many teas, chocolate, some sodas, etc.)
4. Read or watch television in bed.
5. Use alcohol to help you sleep.
6. Go to bed too hungry or too full.
7. Take daytime naps.
8. Command yourself to go to sleep. This only makes your mind and body more alert.

If you lie in bed awake for more than 20-30 minutes, get up, go to a different room (or different part of the bedroom), participate in a quiet activity (e.g. reading that doesn't excite you or television), then return to bed when you feel sleepy. Do this as many times during the night as needed.

Improve the Circadian Rhythm

Are you a "night owl" or an "early bird?" When these are brought to extremes, they can disrupt a regular restful sleep pattern.

The Night Owl

This person may stay up late and have trouble arising in the morning. This is also known as the "delayed sleep phase syndrome" or DSPS.

Treatment to help advance the sleep cycle (stimulate earlier sleep):

- Start earlier sleep habits. (Go to bed one hour earlier each week until you are happy with your bedtime).
- Temporarily use a medication or supplement to initiate sleep (See box).
- Keep room dark in the evening (to help stimulate earlier production of melatonin).
- Use bright lights in the morning.
 - There are alarm clocks you can buy that wake you up by gradually by turning on a light which is meant to simulate a sunrise. These can be costly (\$150 for the Verilux "Rise and Shine" light. <http://www.verilux.com/light-therapy-lamps/rise-shine-therapy>).

You can also just set your alarm clock and then open the shades or turn on a light in your room. If you have trouble getting out of bed, one of the above products may prove helpful.



Healthy Sleep-Wake Cycle

The Early Bird

This person goes to bed early and rises early. At the extreme, there is early morning awakening with difficulty going back to sleep.

Treatment to help delay the sleep cycle (stimulate later sleep):

- Begin sleep later (Go to bed one hour later each week until you are happy with your bedtime).
- Use bright lights in your home/bedroom late in the day to simulate daylight and to prevent release of melatonin.
- Keep your room dark in the morning by keeping the shades pulled or by using an eye cover.

Insomnia Patterns

Two common causes of sleep disturbance are 1) difficulty getting to sleep and 2) awakening too early. These patterns can often be related to anxiety and depression, so be sure to discuss this with your health care provider.

Difficulty initiating sleep can be related to anxiety with the mind racing, jumping from thought to thought.

Early morning awakening can be related to a reduction in hormones that can be seen with depression.

Disruption of the sleep-wake cycle is often one of the first symptoms of anxiety and depression and is also the first thing to improve with resolution of these conditions.

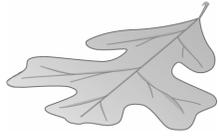
For a list of medical conditions that can negatively affect sleep, see below.

Some common medical conditions that cause abnormality of the sleep cycle

Depression
Anxiety/Panic disorder/Post traumatic stress
Restless leg disorder/Periodic limb movement disorder
Sleep apnea
Substance abuse

Asthma/Emphysema & other lung diseases
Heart failure
Pain (arthritis, malignancy, others)
Diseases of the central nervous system (Parkinson's)

The goal is to use fewer medications and supplements over time. We do not want to become dependent on them. Ideally, we want to help the body find what it needs to sleep well, but we also don't want to develop tolerance to products that can cause side effects when higher doses are needed. The products listed in the next two tables are to help begin improved sleep/wake cycles with the goal of stopping them after 4-6 weeks or sooner.



Healthy Sleep-Wake Cycle

Techniques to help get to sleep

Relaxation Exercises (Goal: to focus the mind away from the chaos of thought)	
Mindfulness sleep induction technique	Described below
Progressive muscle relaxation	Described below
Guided Imagery/Visualization Tapes	www.Healthjourneys.com (enter "guided imagery" in the search box)
Biofeedback devices	www.Heartmath.com www.Stresserasor.com
Over-the-Counter Foods/Supplements	
Melatonin 0.5-3 mg one hour before bedtime.	Lower doses (0.5-3 mg) work better for insomnia. Higher doses (3-6 mg) work better for jet lag.
Diphenhydramine (<i>Benadryl, Tylenol PM</i>)	25-50 mg at bedtime can help start sleep.
Valerian Root Extract 400-900 mg 30 minutes--2 hours before bedtime	This works best if used continuously for 4-6 weeks. It does not work as well on an "as needed" basis. Should be slowly tapered off since withdrawal symptoms can occur.
Lavender Oil	Place this essential oil on a cloth under the pillow. Inhaling the aroma can make you sleepy.
Foods rich in tryptophan and melatonin (chemicals in the nervous system that have a soothing or calming effect) Takes time to raise levels in the body so eat at least one hour before bedtime.	Foods high in tryptophan (milk, cookies, bananas, soy, sesame seeds, whole grain cereal, peanut butter). DANGER: Eating before bedtime can cause weight gain. Foods high in melatonin (tomato, rice, orange, apple, banana, cherries, cucumber, cabbage, almonds, walnuts and seeds (sunflower, mustard, fennel).
Chamomile Tea	Chamomile has a soothing/calming effect, but so does drinking other warm, soothing beverages. Don't drink too much, or you may wake up to go to the bathroom.

PATIENT HANDOUT



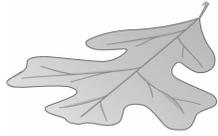
Healthy Sleep-Wake Cycle

Prescription Sleep Aids	
Ramelteon (<i>Rozerem</i>) 8 mg at bedtime	Stimulates the melatonin receptor. Likely no better than over-the-counter melatonin.
Zolpidem (<i>Ambien</i>) 5-10 mg at bedtime	Can cause sleep-walking and sleep-eating in a small percentage of people
Zaleplon (<i>Sonata</i>) 5-10 mg at bedtime	Similar to Zolpidem but works more quickly.
Trazodone (<i>Desyrel</i>) 25-50 mg at bedtime	Can be useful if there is also anxiety or depression.
Amitriptyline (<i>Elavil</i>) 10-100 mg at bedtime	Can also reduce pain symptoms and headache frequency.
Mirtazapine (<i>Remeron</i>) 15-45 mg at bedtime	Does not negatively affect REM sleep like other sedating anti-depressants but can cause weight gain.

Techniques to Help Maintain Sleep

Movement/Exercise	
40-60 minutes of aerobic and muscle toning exercise most days of the week	Do not do this after supper time. Regular exercise is one of the key ingredients in maintaining sleep and overall health.
Over-the-Counter Supplements	
Extended Release Melatonin 0.5-3 mg at bedtime	Releases the melatonin slower over time compared to immediate release and is better for maintaining sleep
Prescription Sleep Aids	
Eszopiclone (<i>Lunesta</i>) 1-3 mg at bedtime	Longer acting than Zolpidem (<i>Ambien</i>) and Zaleplon (<i>Sonata</i>)
Temazepam (<i>Restoril</i>) 15-30 mg at bedtime	A sleep aid that can have side effects including impaired memory, daytime fatigue and rebound insomnia. Not a good first choice.

PATIENT HANDOUT



Healthy Sleep-Wake Cycle

Trazodone (<i>Desyrel</i>) 25-50 mg at bedtime	Can be useful if there is also anxiety or depression.
Mirtazapine (<i>Remeron</i>) 15-45 mg at bedtime	Does not negatively affect REM sleep like other sedating anti-depressants but can cause weight gain.

Resources:

American Sleep Association: www.sleepassociation.org.

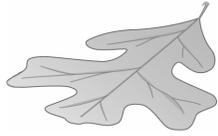
Mindfulness Sleep Induction Technique

Begin with abdominal breathing

- Place one hand on your chest and the other on your abdomen. When you take a deep breath, the hand on the abdomen should rise higher than the one on the chest. This insures that the diaphragm is expanding, pulling air into the bases of the lungs. (Once you have this mastered, you don't have to use your hands).
- Take a slow deep breath in through your nose for a count of 3-4 and exhale slowly through your mouth for a count of 6-7. (Exhalation should be twice as long as your inhalation).
- This diaphragmatic breathing stimulates the vagus nerve which increases the "relaxation response."
- Allow your thoughts to focus on your counting or the breath as the air gently enters and leaves your nose and mouth.
- If your mind wanders, gently bring your attention back to your breath.
- Repeat the cycle for a total of 8 breaths.

After 8 breaths, change your body position and repeat 8 breaths

- After each 8 breath cycle, change your body position in bed and repeat another 8 breaths.
- It is rare that you will complete 4 cycles of breathing and body position changes before falling asleep.



Progressive Muscle Relaxation

Progressive muscle relaxation is a technique that involves tensing specific muscle groups and then relaxing them to create awareness of tension and relaxation. It is termed progressive because it proceeds through all major muscle groups, relaxing them one at a time, and eventually leads to total muscle relaxation.

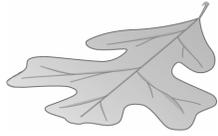
Instructions:

Step 1. Assume a comfortable position. You may lie down. Loosen any tight clothing. Close your eyes and be quiet.

Step 2. Assume a passive attitude. Focus on yourself and on achieving relaxation in specific body muscles. Tune out all other thoughts.

Step 3. Tense and relax each muscle group as follows:

- Forehead - Wrinkle your forehead; try to make your eyebrows touch your hairline for five seconds. Relax.
- Eyes and nose - Close your eyes as tightly as you can for five seconds. Relax.
- Lips, cheeks and jaw - Draw the centers of your mouth back and grimace for five seconds. Relax. Feel the warmth and calmness in your face.
- Hands - Extend your arms in front of you. Clench your fists tightly for five seconds. Relax. Feel the warmth and calmness in your hands.
- Forearms - Extend your arms out against an invisible wall and push forward with your hands for five seconds. Relax.
- Upper arms - Bend your elbows. Tense your biceps (the muscle at the front of your upper arm) for five seconds. Relax. Feel the tension leave your arms.
- Shoulders - Shrug your shoulders up to your ears for five seconds. Relax.
- Back - Arch your back off the floor for five seconds. Relax. Feel the anxiety and tension disappearing.
- Stomach - Tighten your stomach muscles for five seconds. Relax.
- Hips and buttocks - Tighten your hip and buttock muscles for five seconds. Relax.
- Thighs - Tighten your thigh muscles by pressing your legs together as tightly as you can for five seconds. Relax.



Healthy Sleep-Wake Cycle

- Feet - Bend your ankles toward your body as far as you can for five seconds. Relax.
- Toes - Curl your toes as tightly as you can for five seconds. Relax.

Step 4. Focus on any muscles which may still be tense. If any muscle remains tense, tighten and relax that specific muscle three or four times.

Step 5. Fix the feeling of relaxation in your mind. Resolve to repeat the process again.

Remember, people respond differently to various activities. Some feel pleasant or refreshed, and others feel calm and relaxed after an activity like this one. Some people notice little change the first time, but with practice, their control increases - as well as the benefits. If you practice this activity, your relaxation should increase.

Dennis SA, Kennedy R. Techniques for Managing Stress. University of Arkansas Division of Agriculture. http://www.uaex.edu/Other_Areas/publications/pdf/FSHEI-28.pdf

You Must Relax is a helpful book by the founder of this technique, Edmund Jacobson.

Notes:

The information in this handout is for general education. Please work with your health care practitioner to use this information in the best way possible to promote your health.

This handout was created by David Rakel, MD, Asst. Prof. and Director of the Integrative Medicine Program, Dept. of Family Medicine, University of Wisconsin-Madison.

Date Created: March, 2008