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Introduction

In America, some two-thirds of seniors — about thirty-seven million people — suffer from frequent sleep problems. Of these, only a small fraction have had their sleep problems diagnosed and treated. The others may assume that having sleep problems is simply a natural, unavoidable aspect of getting older. But when researchers looked at the sleep patterns of healthy people across the life span, they found that most of the changes happen before the age of sixty. Compared to teens, healthy middle-aged and older adults sleep a little less and wake up a little more often, but they do not take any longer to fall asleep or, once asleep, to start dreaming.

Poor quality sleep is not something to be accepted or brushed aside at any age, but the consequences are particularly risky for the elderly. Among these are:

- Daytime sleepiness and fatigue, leading to a lack of exercise that in turn may accentuate weight problems, diabetes, and difficulty getting around.
- Cognitive confusion and problems with memory and concentration, which a senior may see as indicating something much more frightening than lack of sleep.
- Depression, which can both lead to sleep problems and be a result of them.
- A weakened immune system, which increases susceptibility to disease.
- Increased sensitivity to pain, which in turn makes sleep even more difficult.
- Greater danger of nighttime falls and accidents.

In addition, sleep problems complicate the treatment of other serious medical conditions in older people.



DRUGS, LIGHT AND THE EYE

Two important causes of sleep problems in the elderly are other illnesses and the drugs that are used to treat them. Many prescription drugs have been linked to insomnia, either by themselves or in interaction with other drugs. When we consider that the average senior takes six to eight prescription drugs, the odds are high that at least one of these is having a negative impact on sleep. Other sources of sleep difficulties include apnea (brief, repeated breathing interruptions), restless leg syndrome, and bladder problems that lead to nighttime urination. Much less widely recognized — even by sleep experts and the medical community — are the ways the circadian clock is implicated in the sleep problems of older people.

Bright light is the most intensively studied time cue for keeping the inner clock in sync with the day/night cycle. It is also crucial to maintaining optimal alertness during the day. But as we get older, what is bright outside does not necessarily translate to brightness in the eye and brain. Starting around age forty, the liquid media of the eyes begin to cloud. In effect, this puts a density filter between the external world and the retina, reducing the amount of light that gets through.

In later years, the lens of the eye also changes, turning yellowish. This reduces the amount of short-wavelength (violet, indigo, blue) light that reaches the retina, causing not only color distortion but also reduced stimulation the circadian photopigment in the retina, by as much as 30%. We are not aware that it is happening because it takes place so gradually during later adulthood.

OUTDOORS AND IN

Some parts of the world, and seasons of the year, offer more hours of bright sunlight than others. Indoor room light, however, is an environmental factor under our direct control. Unfortunately, many older people use that control in exactly the wrong way. They adopt a lifestyle that minimizes their exposure to both indoor and outdoor light.

But why do these older folks darken their daytimes? One reason is that they dislike wasting a penny of their limited and fixed income on something they see as a pointless extravagance like brighter light. If you can see where you're going, what more do you need? Also, lamps and ceiling fixtures that are not properly designed can create unpleasant glare that becomes still more bothersome as our eyes age. So, we turn down the lights. Their children may repeatedly tell them to put in brighter lightbulbs and to get outside more, but it's a difficult sell. And the problem worsens after moving to an elder care facility that confines residents indoors for most of the day.

Our inner clock expects to receive contrasting signals of light and dark that indicate the sequence of daytime and nighttime. Those who spend the day in dimly lit interiors are depriving their clock of that essential cue. This in turn weakens the ability of the inner clock to regulate the daily cycles of attentional and metabolic processes. Something as simple as brightening the living room, making it function as an extension of daylight, can help maintain energy through the evening, forestall premature sleepiness, and increase the length of quality sleep during the night.



“EARLY TO BED . . .”

It is not hard to describe what a good sleeping pattern should be. You would go to bed at a reasonable hour, neither too early nor too late, and fall asleep easily. After sleeping through the night, with no interruptions, you would wake up alert and refreshed. And we know of two factors that, acting together, help bring this about. One is sleep pressure, which builds up during the time you are awake. The other is a switch in the internal clock signal from alertness to sleep onset.

You might think that the closer we get to bedtime, the easier it would be to fall asleep. Not so. The inner clock continues to keep us in awake mode during the evening, even while sleep pressure is building up. Then, when the clock shifts into nighttime mode, we feel that wave of intense drowsiness that sends us to bed for the night. But if the circadian rhythm has weakened with age, sleep pressure can come to the fore earlier in the evening. This creates a vicious cycle of earlier bedtime, shorter sleep, and earlier awakening.



WHAT ABOUT NAPS?

One question that has generated a lot of discussion is whether to take an afternoon nap. Some researchers say that siestas improve alertness and cognitive functioning without affecting nighttime sleep. Others insist that napping in the afternoon carries a risk of insomnia, for both older and younger people. Most would agree that those who decide to take an afternoon nap should make sure it is:

- early, ideally, before 3 pm
- short, no more than half an hour, and possibly as short as five to ten minutes
- restful, in a quiet, dark, and comfortable setting

Those who nap much more than half an hour are likely to suffer from grogginess and lack of alertness when they wake up, and those who nap much later than 3 pm are more likely to have problems getting to sleep that night.



STEPS TO TAKE

If any of these descriptions of common sleep problems seem to fit your experience as an older person, or that of an older person you are concerned about, take heart. There are effective steps you can take to get back on the road to healthful, refreshing sleep. Some of these are basic measures of sleep hygiene that most of us know but too often ignore.

For many older people, simply putting these basic steps into practice is enough to bring about a good night's sleep. If not, it is time to consult your physician

or a sleep medicine specialist. Persistent insomnia should not be accepted as a normal part of aging.

Think carefully and critically about the use of sleeping pills to treat insomnia. This is especially relevant for seniors, who buy almost half of the prescription sleeping pills sold, even though they make up less than one-fifth of the population. There is a place for these powerful medications, but in our view they are best used only after other therapies have failed to help, and even then only as a temporary measure.

DON'T:

- Drink caffeinated beverages (coffee, tea, cola, cocoa) in the second half of the day.
- Have dinner within three hours of bedtime.
- Exercise during the evening.
- Smoke near bedtime.
- Drink alcoholic beverages after dinnertime.
- Read from a backlit e-reader or similar screen devices within two hours of bedtime, unless the blue output can be controlled.
- Read, snack, or watch TV while in bed.
- Get into bed if you do not feel sleepy.

BUT DO:

- Try to keep to a regular bedtime, even on weekends.
- Develop a relaxing pre-bed ritual, such as a warm bath or quiet music.
- Keep your bedroom as quiet and dark as you can.
- Attend to medical conditions, such as apnea, restless legs, and urinary problems, which interrupt your sleep.



GETTING TO BETTER SLEEP

The first step in putting chronotherapy to work is to decide what the most important sleep difficulty is. Is it:

- Falling asleep well before normal bedtime and waking up before morning?
- Being unable to fall asleep until well after normal bedtime?
- Sleeping too lightly, with frequent wake-ups?

Each of these has a different relationship to the inner clock and requires a different treatment approach.

FALLING ASLEEP TOO EARLY?

- Go outdoors for a walk at midday rather than early in the morning.
- Have your major meal of the day at lunchtime.
- Cut down on napping, especially in the afternoon and evening; move around, do stretches, turn up the lights.
- Move dinner earlier.
- Turn up the room lights during the evening, or use a **bright light therapy box** about an hour before you usually get sleepy, for fifteen to thirty minutes.



FALLING ASLEEP TOO LATE?

- Keep your bedroom dark until you wake up.
- Consider installing a **dawn simulator** in your bedroom, and set it to rise to maximum light level at your natural wake-up time, even if that is in the late morning.
- Consider using a bright light box shortly after your final awakening. Whether you use a dawn simulator, light box, or both, begin shifting the lighting schedule and wake-up time earlier, in fifteen- minute steps, as soon as you feel comfortable waking up at each step.
- Finish dinner at least three hours before bedtime.
- Try to minimize napping, especially in the late evening; move around, do stretches, avoid all alcohol after dinner.
- Dim your evening room light, using dimmer switches or plug-in dimmers that rest on the floor, but keep the light level high enough to be able to see clearly throughout the room.
- If you are sitting up close to the TV or computer, or using a mobile phone in the evening, wear **protective amber glasses** to reduce the activating effect of screen light.
- If your feet are usually cold when you get into bed, take a warm shower first, or wear socks.



SLEEPING FITFULLY

- Eliminate alcohol after dinner.
- Keep your bedroom dark.
- Bladder control: If you are waking up at night to urinate, install **amber-colored night-lights** in the bathroom and hallway instead of switching on regular room light.
- If sleep improves, and you have been using sleeping pills, it is time to talk with your doctor about reducing the dose or eliminating the sleeping pill entirely.

Sleep disturbance is not an inevitable consequence of aging, but it often seems secondary when compared with acute and chronic illnesses. True, some illnesses can cause insomnia (or oversleeping). But the opposite can also hold. Intelligent sleep management can help lighten other medical and psychological burdens and reduce the need for taking multiple prescription drugs — all steps toward increased quality of life.





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About us

The Center for Environmental Therapeutics is a 501(c)(3) nonprofit based in New York, founded in 1994 in response to international interest in new environmental therapies - drug-free ways to improve mood sleep, and energy. We are leaders in the research and development of light therapies as counterparts to conventional medications. Our program serves health care providers, the consumer public, and industry. CET is made up of a multidisciplinary team of eminent researchers and clinicians committed to pooling their efforts toward the development of effective environmental therapies. We host a popular website, cet.org, with educational material for the general public and clinicians; online, personalized self-assessments of depressive disorders, symptom severity, and circadian rhythm status; and an extensive question library based on inquiries from the public, which offers guidance from academic and clinical experts.

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