

Artificial Bright Light Therapy for Circadian Rhythm Sleep-Wake Disorders

Circadian rhythm sleep-wake disorders (CRSWD) may occur when the body's internal clock is out of step with environmental cues. This may lead to problems with the timing of the sleep-wake cycle. Types of CRSWD include delayed sleep phase, advanced sleep phase, jet lag, shift work disorder, free-running and irregular sleep-wake type. The use of bright light therapy can help to treat CRSWD.



The most common source of bright light in our environment is the sun, however, sunshine is not always available wherever and whenever it is needed. Artificial sources of bright light have been developed and may be used for treatment of CRSWD. This fact sheet describes bright light therapy and how to use it. For more information on CRSWD, go to the ATS Patient Information Series at <https://www.thoracic.org/patients>.

How does bright light therapy work?

The amount of bright light you receive depends on how bright the light source is (lux) and how far away you are from it. The higher the lux level the brighter the light exposure. When you are outside on a sunny cloudless day, you may be exposed to up to 100,000 lux. When outside on a rainy day, you still may be exposed to 1,000 lux. Indoor light usually has levels of 100-200 lux, but may be as low as 40 lux during the evening hours. A bright light box may put out 10,000 lux, but the amount of lux received by a person who is sitting two feet away from the device is closer to 3,000-5,000 lux. The amount of lux put out by a bright light device is usually measured at the device itself. The manufacturer's instructions will let you know the intensity of the light box.

What type of artificial bright light device can I use?

Light boxes or wearable devices, such as light visors or light glasses, can deliver artificial bright light therapy. Light visors or light glasses, worn on the head are easily portable, thus are ideal while doing household activities.

Some devices are marketed as blue light or blue-enriched white light therapy, but these do not have any advantages over a white broad-spectrum (all colors included) light therapy device. Make sure your light therapy device has an ultraviolet (UV) filter. Do not use tanning lamps, heat lamps, or UV lamps for bright light therapy as they may be harmful to your eyes or skin.

Light boxes come in a variety of sizes. A larger light box generates a larger field of light, but may be difficult to move around and may take up too much space in your home. A smaller light box is more portable, but generates a smaller field of light and it is easier to move out of its effective range.

How do I use my artificial bright light device?

Your healthcare provider will recommend how much light exposure you need (lux and length of the light therapy session) and what time of day you should have it. Light therapy sessions usually last 30-60 minutes. Your healthcare provider may also suggest

avoiding bright light at certain times of day.

You will want to make sure that you are sitting at the same distance from the light box for every bright light therapy session. A good way to do this is to tape a 2-foot long string to the base of the light box. You will want to pull the string out to the level of your eyes and sit at that distance from the light box.

Do not stare directly at the light box.

Reading or eating are ideal activities while having your light therapy treatment. You may want to watch television or use a computer while undergoing bright light therapy. In this case, two light boxes may be set up at an angle on either side of you to make sure you are receiving the correct amount of bright light in both eyes.

You should always turn on your indoor lights and do not close your eyes while having your bright light session. It is best not to nap right after bright light therapy, since a nap can interfere with the helpful effects of the bright light.

What are the side effects of artificial bright light therapy?

Most of the side effects of bright light therapy are fairly mild and usually resolve over time. Common side effects include, eye irritation, nausea, headache, dizziness, and agitation (feeling anxious or nervous). A rare side effect of bright light therapy in persons with bipolar disorder is mania (inappropriately elevated mood- sometimes with irrational thinking) or hypomania (a milder form of mania).

What precautions do I take when receiving bright light therapy?

If you are taking a medication that can cause photosensitivity (a reaction to light with a skin rash or sunburn), do not start on bright light therapy without talking to your healthcare provider. These medications may include lithium, melatonin, certain antibiotics, and isotretinoin. You may also need skin examinations by a dermatologist while receiving bright light therapy. If you have eye disease such as glaucoma, macular degeneration, cataracts, or eye disease related to diabetes, you may need monitoring by your ophthalmologist (eye specialist).

People who have migraine headaches that are caused or made worse by bright light may not be good candidates for bright light therapy. Talk with your psychiatrist before using bright light therapy if you have been diagnosed with bipolar disorder.

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Rx Action Steps

- ✓ Talk to your healthcare provider about how and when to use your light therapy device and the amount of light exposure you need.
- ✓ Let your healthcare provider know if you have side effects from artificial bright light therapy.
- ✓ Do not use tanning lamps, heat lamps, or UV lamps.
- ✓ Keep your eyes open but do not stare directly at the source of artificial bright light.
- ✓ Do not take a nap right after a bright light therapy session.

Healthcare Provider's Contact Number:

For More Information

National Institute of General Medical Sciences

- https://www.nigms.nih.gov/education/Pages/Factsheet_CircadianRhythms.aspx

American Thoracic Society

- <https://www.thoracic.org/patients/patient-resources/resources/circadian-rhythm.pdf>

American Academy of Sleep Medicine— Sleep Education

- <http://sleepeducation.org/treatment-therapy/bright-light-therapy/overview>

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