

# Light Box Therapy

Brown Health Services Patient Education Series

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## What is a light box?

A light box is a light therapy device. Many high quality studies from all over the world have supported the benefits of light box therapy for treatment of depression. Initially recommended for Seasonal Affective Disorder (SAD) this modality can be helpful for other depressive disorders as well.

## How to select a light therapy device?

The FDA does not approve or regulate light box devices. It is important to discuss use of the device with your healthcare provider. Major factors to be considered are clinical efficacy, ocular and dermatologic safety, and visual comfort. Here is a checklist with recommended criteria for light box selection:

**Intensity:** 10,000 lux illuminance at a comfortable sitting distance, as measured with a broad-field illuminometer. Narrow-field measurements, as have been used with smaller light boxes, may register 10,000 lux but do not replicate the observer's wider field of vision, which includes darker areas in the periphery.

**Screen size:** Should exceed 200 sq in., the larger the better. Smaller sizes increase the likelihood that small head movements reduce the specified 10,000 lux dose. Even large light boxes mounted on the wall or on overhead stands are

too distant from the observer to deliver 10,000 lux to the eyes.

**UV Filter:** Fluorescent lamps should be fitted with a diffusing screen that filters ultraviolet (UV) rays that can be harmful to the eyes and skin with long-term use of the device. Claims of UV protection are common, but questionable if a polycarbonate filter is not specified.

**Spectrum:** White light is the standard. "Full spectrum" lamps and blue (or bluish) lamps with color temperature above 5000 Kelvin are not superior in efficacy and cause increased visual glare.

**Angle of gaze:** To avoid aversive visual glare, the light box should project downward towards the eyes at an angle. To do so, it needs to be raised off the table surface with adjustable legs or side supports. Light boxes of any size that are tilted upward toward the eyes increase aversive glare.

## How to use the device?

**Administration:** Bright light therapy is administered on a daily basis.

**Positioning and distance:** The light box should be positioned at a distance that enables patients to receive 10,000 lux while seated and facing the box, with the light projected downward to minimize aversive glare. Commercial light box instructions should give the distance at which 10,000 lux is achieved, which is typically approximately 40 to 80 cm (16

31 inches). The distance from the eyes to the light box is important because light intensity follows the inverse square law; if the distance between the eye and the light source is doubled, the intensity of light that is received drops to one-quarter of the original intensity.

**Time of day:** Bright light therapy generally commences in the early morning, soon after awakening (eg, 7:00 AM). Patients should administer light therapy at approximately the same time each day, including weekends, holidays, and vacations. Most light therapy studies required a regular time for light treatment to start and thus stipulated a regular wake-up time for the subjects. A regular wake-up time may be important for optimal effectiveness of the bright light treatment. The effectiveness of variable timing of the bright light therapy is unknown.

If morning bright light treatment alone is not fully effective after two to four weeks of treatment, adding evening (eg, 8:00 PM) bright light treatment may be helpful. A minority of patients with SAD may benefit from bright light in the evening rather than morning bright light.

**Duration of exposure:** The duration of early morning exposure to standard light boxes emitting 10,000 lux is generally 30 minutes/day, but some studies have used 45 or 60 minutes per session. However, no head-to-head trials have compared the efficacy of different lengths of exposure. For patients who do not respond to initial treatment with 30 minutes/day, some studies have increased the duration of exposure to 45 minutes/day, and if nonresponse persists, to 60 minutes/day (algorithm 1). However, no studies have compared the efficacy of a fixed dose of 30 minutes/day with an increasing dose, and the potential benefit of increasing exposure must be weighed against the added time burden.

If evening bright light therapy is added, the duration of evening exposure is generally 30 to 60 minutes. Patients who switch from morning to evening exposure continue the same length of exposure.

Bright light boxes emitting light that is less than 10,000 lux require longer exposures. As an example, morning light therapy with a 2500 lux light box requires an exposure of two hours to achieve the same benefit of 10,000 lux for 30 minutes.

**Looking at the device:** The eyes are open during bright light therapy, with light visible at least in the peripheral vision. Patients can glance at the box but should avoid staring directly at the light.

**Patient activity:** During bright light therapy, patients can engage in any activity, such as reading, eating, watching television, or working on a computer. Although patients are typically seated, it is reasonable to place the light box on a stand so that patients can engage in other activities, such as riding a stationary bicycle.

**Sources:**

[www.cet.org](http://www.cet.org): Founded in 1994, CET is an independent, non-profit professional organization dedicated to education and research on new environmental therapies

[www.uptodate.com](http://www.uptodate.com)