

QUESTIONS AND ANSWERS ABOUT SEASONAL AFFECTIVE DISORDER AND LIGHT THERAPY

Society for Light Treatment & Biological Rhythms

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Note that the information on these pages do not substitute for medical consultation. SLTBR is unable to answer clinical questions, and recommends that you contact your family physician or the nearest university medical center for the name of a mood disorders or sleep disorders specialist.

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What is Seasonal Affective Disorder (SAD)? Everyone gets "the winter blues" - what's different about SAD?

Many people complain of feeling down, having less energy, putting on a few pounds, and having difficulty getting up in the morning throughout the dark, short days of winter. People suffering from SAD experience these and other symptoms to such a degree that they feel unable to function normally. They often feel chronically depressed and fatigued, and want to withdraw from the world and to avoid social contacts. They become less productive at work and complain that their quality of life has gone. In the extreme, they may increase their sleep by as much as four hours or more per day, have greatly increased appetite - sometimes accompanied by irresistible cravings for sweet and starchy foods - and gain a substantial amount of weight. Women frequently report worsening of premenstrual symptoms. People with SAD suffer in the extreme the kinds of changes that many others experience to a much lesser degree in wintertime.

An individual SAD sufferer, however, need not show all the symptoms described above. Sleep duration, for example, may be normal while carbohydrate craving may be extreme - or vice versa. Sometimes a symptom in the cluster is actually opposite the norm, such as insomnia as opposed to excessive sleep. A proper diagnosis of SAD requires a professional evaluation by a psychiatrist, psychologist or social worker. Although people with SAD often diagnose themselves correctly, professional confirmation is very important because certain medical conditions can be misdiagnosed as SAD, and because people can become depressed for many reasons aside from changes in their physical environment.

Recent studies indicate that about three times as many people suffer from "winter doldrums", a sub-clinical level of SAD, as suffer at a level of clinical severity. These people notice the return of SAD-like symptoms each winter and are bothered by them, but remain fully functional. As much as 25 percent of the population at the middle-to-northern latitudes of the United States experience "winter doldrums".

What is light therapy for winter symptoms, and how is it delivered?

Light therapy involves exposure to intense light under specified conditions. The recommended light therapy system consists of a set of fluorescent bulbs installed in a box with a plastic diffusing screen, and set up on a table or desk top at which one can sit comfortably for the treatment session. Treatment consists simply of sitting close to the light box, with lights on and eyes open. Looking at the lights is not necessary or recommended; rather, one is free to engage in such activities as reading and writing, or eating meals. What is important is to orient the head and body toward the lights, concentrating on activities on the surfaces illuminated by the lights, and not on the lights themselves. Treatment sessions can last from 15 minutes to 2 hours, usually once a day, but sometimes split into separate sessions, depending on individual needs and equipment used. The amount of light reaching the eyes and the duration of light treatments may need to be adjusted to achieve the best possible effect. It may be possible to shorten the duration of exposure by using a light source that gives off more light, or by sitting closer to the lights. It is important, however, to stay within the recommended guidelines that come with the lighting system.

Early research used special "full-spectrum" bulbs producing light similar in color composition to outdoor daylight, but more recent devices have used ordinary fluorescent bulbs (cool white, warm white, and triphosphor types) with similar results. (Since full-spectrum bulbs are designed to include ultraviolet light, which might contribute to cataract formation and skin problems, it is best to avoid such light at high intensity unless it has been carefully filtered for UV.) What appears to be critical is that the level of light produced match that of visible light outdoors shortly after sunrise or before sunset. Light intensity is critical for adequate therapy. Systems deliver varying amounts of light, which should be specified in detail by the manufacturer, with information provided as to how far away the patient should sit in order to receive the rated intensity.

Two recent innovations in apparatus design are worth noting. One is a head-mounted lighting unit that allows the user to move around while taking the treatment. Extensive testing of one such unit, however, was inconclusive. Although users reported feeling less depressed, it is not clear that this was more than a placebo effect. In principle, there is no reason why head-mounted units should not work effectively, provided that sufficient light gets to the eye. Further research and design enhancements may be needed to clarify the potential of this method.

A second type of innovation has been the design of dawn/dusk generators which present graduated light signals in the bedroom as substitutes for (or as supplements to) bright light exposure. Although it is too soon to make a strong conclusion about clinical effectiveness because of the small number of studies, the

use of simulated dawn signals appears to be antidepressant. Nonetheless, additional research is needed before a recommendation can be made.

Is increased exposure to normal room light therapeutic, without the use of special apparatus?

For many people with winter depression, and especially those with the milder 'doldrums', it can be helpful to increase the amount of indoor lighting with regular lamps. This is also true for people who live or work in dim environments. However, research studies show that most sufferers of SAD and winter doldrums require exposure to much higher light levels. Such therapeutic levels are usually at least five times higher (as measured in lux or foot-candles by a light meter) than provided by ordinary indoor lamps and ceiling fixtures in the home or office.

If outdoor light intensities are what's critical, can the therapeutic effect be achieved by spending more time outdoors in winter? Does this depend on the timing or the light?

Some people report improvement by spending more time outdoors, where light intensity (even when it is overcast) can far exceed that of indoor light. For some, however, it appears that the strongest therapeutic effect requires exposure to artificial bright light in early morning at an hour (6:30 a.m., for example) when it is still quite dark outdoors during long winter nights. For others, however, the time of day of treatment doesn't seem to make a difference, and afternoon or evening light may also work. (Light taken very shortly before bedtime, however, may cause insomnia.) Those people who can sleep later on winter mornings may benefit by outdoor light exposure after awakening. Although just going outside may be adequate (weather permitting), looking directly at the sun must be avoided as it could cause eye damage.

Do the lights really work?

Researchers at medical centers and clinics in the U.S., Canada, Europe, Asian and Australia have had much success with light therapy in many thousands of patients with clear histories of SAD for at least several years. Marked improvement is usually observed within four or five days, if not sooner, and symptoms often return in about the same amount of time when the lights are withdrawn. Some people take longer than the usual few days to respond to light. It is therefore worth persevering for a week or two before concluding that light therapy doesn't work. Most users maintain a consistent daily schedule of light exposures beginning -as needed - in fall or winter and usually continuing until spring, when outdoor light becomes sufficient to maintain good mood and high energy. Some people can skip treatments for one to three days, occasionally longer, without ill effect, but most start to slump quickly when treatment is interrupted.

How do the lights work?

The therapeutic level of illumination has several known physiological effects, though its mechanism of effect is still unclear. Blood levels of the hormone melatonin, which may be abnormally high at certain times of day, are rapidly reduced by light exposure. Depending on when bright light is presented, the body's internal clock - which controls daily rhythms of body temperature, hormone secretions, and sleep patterns - shifts ahead or is delayed when stimulated by light. These physiological time shifts may be the basis of the therapeutic response. On the other hand, the antidepressant effect may not involve rhythm shifts, but rather overall changes in neurotransmitter (chemicals involved in the communication between brain cells) activity. Neurotransmitters such as serotonin and dopamine may be prime candidates.

Research into possible mechanisms is currently underway, and the final answer is not yet in.

Are there any side effects?

Side effects have been minimal. People occasionally report eye irritation and redness that can be alleviated by sitting farther from the lights or for shorter periods. Using a humidifier to counteract the dryness of winter air indoors may also help.

A few people have reported feeling mildly nauseous or agitated when beginning light treatment; this tends to pass quickly as one accommodates to the high intensity. The most dramatic side effect, and one that occurs infrequently, is a switch from the lethargic state to an over-active state in which one may have difficulty getting a normal amount of sleep, become restless - even reckless - and be unable to slow down, feel irritable, or subjectively speedy and "too high". This state is called hypomania, when milder, and mania when more severe. People who have previously experienced these states in late spring or summer are particularly vulnerable. In such cases, the guidance of a clinician skilled in the use of light therapy is important. For example, the dose of light should be reduced, and other treatments may be required.

Do the lights cause tanning?

They shouldn't. Most light therapy systems shield out the ultraviolet rays that causes tanning, or substantially reduce them, in order to avoid harmful effects of UV. Occasionally a person with sensitive skin shows reddening under full-spectrum lights, in which case complete UV blocking, with filters, alternate bulbs, or a sun screen lotion is needed. This should not influence effectiveness, however; the action of light therapy is through the eyes, not the skin, and in adults UV does not reach the retina (unfiltered artificial lens implants are an exception).

Can the lights be combined with antidepressant medication?

Patients who have received partial benefit from antidepressants often begin light therapy without changing drug dose. If there is quick improvement, it is then sometimes possible to withdraw the drugs (or reduce drug dose) under clinical supervision, while maintaining improved mood and energy. Some patients find a combination of light and drug treatment to be most effective. Some antidepressant drugs (as well as lithium, St. John's Wort, and melatonin), however, are known or suspected to be "photosensitizers", i.e., they may interact with the effect of light in the retina of the eyes. Users of antidepressant or other drugs should therefore check with their physician or ophthalmologist (eye specialist) before commencing light treatment.

When should the lights not be used?

No adverse effects of light therapy have been found in ophthalmological (eye) examinations of SAD patients after treatment, but caution is warranted in people with pre-existing eye disease. There are several conditions (such as macular degeneration, retinitis pigmentosa, diabetic retinopathy) for which light therapy should be used only in conjunction with ophthalmological monitoring. Certain medications may increase the eye's sensitivity to light, and patients using them should also be followed by an ophthalmologist.

How did this treatment develop? How long has it been in use?

The first demonstration of clinical effect was in the early 1980's. Soon after, several research centers initiated clinical trials, and more than 2,500 SAD patients have been studied to date. The method has also been used in private practices, in most cases by psychiatrists, but also by family doctors, psychologists, and psychiatric social workers and nurses. The number of clinicians offering light therapy is increasing dramatically year by year, though compared to drug treatments or psychotherapy, the method is not yet in widespread use.

Are the lights medically approved? Is a prescription needed? Does insurance cover their cost?

The American Psychiatric Association, the U.S. Public Health Service Agency for Health Care Policy and Research, a Canadian Consensus Group of clinician-researchers, and our Society have published clinical guidelines and endorsed the use of light treatment for winter depression. The light apparatus is not a prescription item, and its therapeutic use is currently still under consideration by the Food and Drug Administration. Pending FDA's decision in the matter, its authority cannot be superseded by guidelines that have been issued by other agencies. Light boxes are commercially available, but anyone suffering serious depression should seek a doctor's recommendation before obtaining a unit, and use it under the doctor's supervision. Some people have been successful in obtaining insurance reimbursement for purchase of light therapy apparatus, based on their physician's statement that the lights are medically indicated and effective for the individuals. Medicaid does not yet cover this expense.

How much do the lights cost? Can individuals build them for personal use?

Light therapy apparatus is available from several manufacturers at prices ranging from approximately US\$200 to US\$500, depending on how elaborate the design features are. We do not recommend home construction of the apparatus. Output must be specifically calibrated for the proper therapeutic effect. A danger of creating electrical or heat hazard also exists. The apparatus on the market should have been carefully evaluated for output intensity, compatibility of components, visual comfort, maximum transmittance with minimal heat build-up and, importantly, clinical efficacy in controlled studies. These factors should be checked before purchasing any light system. Even though companies are not permitted to make medical claims for apparatus, some commercial devices do meet the standards of those that have been used in published research.

Where do I get a light box?

Our Society does not specifically recommend any particular lighting product for clinical, research or general purpose use. Furthermore, it maintains no responsibility for implicit or explicit claims for efficacy or instructions for use that may be contained in literature written and distributed by manufacturers and suppliers of apparatus. We urge patients to seek the advice of an experienced clinician regarding the use of bright light for treatment purposes.

More information about light devices is available from the Corporate Members of the SLTBR.

Can I treat my SAD symptoms on my own?

Like other forms of depression, SAD can seriously disrupt a person's functioning and quality of life. We therefore do not recommend that people with SAD treat themselves without the supervision of a qualified professional. Light therapy needs to be monitored in order to achieve the best possible clinical outcome and fewest possible side-effects. For some people, other therapies may be required in conjunction with lights. For these reasons, a knowledgeable professional is an invaluable resource in treating SAD.

What other treatments are available for SAD?

Apart from moving to or taking long vacations in a climate with more available natural light, some sufferers find that standard antidepressant medications provide a measure of relief, even if they do not reach their normal level of well-being until spring or summer. Although light therapy is often fully adequate for treating SAD, patients have been helped by other means as well, including psychotherapy, stress management, and exercise.

Is light treatment useful for conditions other than SAD?

Certain seasonal problems focused on winter can occur without depressed mood, such as increased appetite with overeating and weight gain, oversleeping, daytime fatigue, and worsening of premenstrual symptoms. (Of course, these problems are often also associated with SAD). Light therapy has been used successfully in such cases, although additional research is still needed. Applications for certain nonseasonal problems also appear promising. One is for treatment of delayed sleep phase disorder, in which a person cannot fall asleep till very late nor awaken at any early-morning hour. The method may also be useful to assist with jet-lag adjustments, when a person's internal clock gets out of sync with local time because of rapid crossing over time zones. Shift workers may also benefit by appropriately timed bright light exposure to ease the adjustment to rotations as well as to counteract difficulties on the night shift. Light therapy may also be useful for nonseasonal depression, bulimia nervosa, and premenstrual syndrome.

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