

# Sun and Substitutes

1. Antidepressants that boost serotonin can counteract SAD symptoms.
2. Light therapy can help reset the body's internal clock.
3. Spending more time outdoors is all some people need.
4. Others treat SAD as a vitamin D deficiency.
5. Proponents say negative ion therapy may boost oxygen levels in the blood.



# Bright Ideas for Winter Blues

*Host of New Therapies Promise Relief for Millions Who Suffer From Seasonal Affective Disorder*

It's that time of year when darkness descends like a heavy blanket beginning in mid-afternoon in much of the country. For some people, it also brings a desire to stay in bed and wait for spring.

Seasonal affective disorder, or SAD, affects an estimated 6% of Americans, causing depression, lethargy, irritability and a desire to avoid social situations. It can also create an urge to overeat, particularly carbohydrates. As many as 15% of people in the U.S. may have a milder version



By Melinda Beck

that includes only some of these symptoms. The incidence rises along with the distance from the equator: Roughly 8% of Canadians, 10% of Britons and as many as 20% of Scandinavians suffer from SAD this time of year.

Light therapy, using beams many times more intense than normal light, is

the most common treatment. But a host of new therapies—from simulating dawn in your bedroom and changing your thoughts through cognitive-behavioral therapy to taking mega doses of vitamin D—are having success in some patients. Despite decades of study, experts still aren't sure exactly what causes SAD, which is officially recognized as a form of major depression that remits in spring and summer. The seasonal and geographic patterns provide strong clues that it's related to the diminishing daylight in the fall and winter. One theory suggests that the reduced light disrupts peoples' circadian rhythms, the 24-hour biological clock that governs waking, sleeping and many other body functions. Another theory holds that the darkness wreaks havoc with neurotransmitters—brain chemicals that affect mood. Some experts believe the reduced sun exacerbates vitamin D deficiencies. It may also be that SAD has several different causes.

There are other mysteries, too. Why do SAD symptoms tend to peak in January and February, even though days are lengthening by then? Why does it hit most prominently between the ages of 18 and 30, and why are women three times as likely as men to be affected? The incidence of SAD is also surprisingly low in Iceland, where the homogeneous population leads experts to surmise that genetic factors may also play a role.

Some people who have symptoms of SAD don't recognize them as part of a disorder. "Most people with winter depression blame themselves, or attribute it to something else—to not liking the cold or bad family experiences at Christmas time, or school or work stress," says Michael Terman, director of the Center for Light Treatment and Biological Rhythms at Columbia University Medical Center in New York.

There is a wide range of treatments that can alleviate SAD symptoms. Most experts say that if you have mild winter

blues, it's fine to try any of these remedies on your own. But if you have severe depression, whether it's related to seasonal patterns or not, consult a mental-health expert.

**Light Therapy:** The most extensively studied treatment is sitting before an intense light for 15 to 20 minutes daily. The theory is that when the sun rises later each day, people's circadian clocks tend to slip later, too, since they're regulated by light hitting the retina. But because most people have to wake up at the same time year-round, their bodies fall out of sync, which can bring sleep and mood disturbances.

Light therapy can relieve symptoms in 80% of SAD cases, Dr. Terman says. It's most effective when timed to fit a person's individual circadian rhythm, ideally starting about eight hours after the pineal gland starts secreting melatonin, the hormone that stimulates sleep. That varies widely from person to person, depending on whether you're

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a night owl or a morning lark.

You can calculate your own melatonin onset point by taking the "morningness/eveningness" test at [www.cet.org](http://www.cet.org), the Web site of the Center for Environmental Therapeutics Center, a nonprofit group of researchers studying light and circadian rhythms. (The test showed that I am a "definite evening" person, and it advised light therapy at 8 a.m. for me. My husband, a "moderate morning person," would fare better with light therapy at 5:30 a.m.)

With the proper timing and dosing of light therapy, SAD sufferers should start to see their depression lift in as little as three days, says Dr. Terman, one of the founders of CET. He recommends using light therapy daily for at least three weeks. In some cases, symptoms can return without continuous usage. Users need to keep their eyes open, but not look at the light directly.

The Food and Drug Administration doesn't regulate light-therapy products, and there are many confusing claims. According to CET, the best light boxes provide 10,000 lux of illumination—many times stronger than typical indoor light—and have a broad diffuser screen that filters out ultraviolet rays and projects downward toward the eyes. CET says the light should give off white light, rather than blue or "full spectrum" light, which it says provide "no known therapeutic advantage." The group's Web site sells a recommended model with a stand for \$180.

A controversy is brewing over blue light, which some other experts believe can reset circadian clocks more efficiently than white light. Last year, Philips Electronics NV introduced portable models, the goLITE BLU, which uses shortwave blue light (\$199), and the briteLITE, which uses white light with added blue spectrum (\$169). A study of 18 moderately depressed patients at Brigham and Women's Hospital, supported in part by the manufacturer, found that both types of lights used for 45 minutes a day for three weeks lifted depression in 82% of subjects. The study was published in September in a Scandinavian journal.

But some ophthalmologists



Diana Picasso

worry that exposure to blue light could damage retinas and exacerbate age-related macular degeneration. Philips says the goLITE BLU is safe when used according to instructions, but anyone with eye disease should consult an ophthalmologist before using it.

Side effects to light therapy are usually minimal. Some users get headaches or mild nausea initially, and a few feel restless or have trouble sleeping. But the main downside is the time and daily diligence required.

**Dawn Simulation:** A newer form of light therapy gradually turns the light on in your bedroom, creating a slow transition from darkness to dawn in the room while it's still dark outside. Even though the user is still asleep, and the maximum light is much dimmer than traditional light therapy, a few studies have found that dawn simulation can ease depression and help people wake up with more energy. Best of all, "it's basically over by the time you wake up," says Dr. Terman.

Inexpensive "dawn alarm clocks" that sit on a nightstand probably don't have the same effect because it's easy to turn

away from the light source in your sleep, Dr. Terman says. Other models, including one sold by CET for \$215, attach to an overhead fixture to flood the room with light from above.

**Negative Air Ions:** The air near a pounding surf or after a lightning storm has oxygen molecules that are naturally charged with extra electrons, called negative air ions. These have long been believed to have mood-lifting properties. In the 1990s, researchers at Columbia University tested an air-flow device that created such negative ions and found that in high doses, they were as effective as light therapy in helping to ease depression. One theory is that inhaling so-called superoxygenated air raises the oxygen level of the bloodstream as it pumps to needy tissues in the body.

Several models of ion generators are on the market. Some, designed to be used for 30 to 60 minutes daily, include a wrist strap that is meant to channel the ions directly to the body to be absorbed through the skin. Other models work overnight, filling the entire room with negative ions. There are no known side effects, but research is still

limited.

**Antidepressants:** If light therapy isn't sufficient to alleviate SAD symptoms, some patients find relief from antidepressants, particularly selective-serotonin reuptake inhibitors, or SSRIs. A multicenter study in Canada that followed 96 patients over three winters found that those subjects randomly assigned to take fluoxetine (Prozac) and a placebo light therapy fared just as well as those taking 10,000-lux light therapy and a placebo capsule. The light therapy worked faster, and had fewer side effects, according to the study, published in 2006 in the *American Journal of Psychiatry*.

**Cognitive Behavioral Therapy:** Even though SAD clearly seems related to biological functions, researchers are finding that changing one's behavior can help alleviate symptoms. "There's a lot of evidence to show that thinking in SAD patients becomes maladaptive in the winter time—they have more negative thoughts, they ruminate more, they retreat from things that are fun and enjoyable. We call it going into hibernation mode," says Kelly Rohan, associate professor of psychology at the University of Vermont. Dr. Rohan and her colleagues developed a cognitive behavioral therapy (CBT) program, in which patients identified, and then challenged, negative thoughts and behaviors (like declining social invitations and spending time in bed) that were contributing to their depression. She also had them identify enjoyable wintertime activities and do them, starting with just 10 minutes a day and gradually working up to more.

In a study of 69 patients published in the journal *Behavior Therapy* this year, Dr. Rohan and colleagues treated some SAD patients with CBT, some with light therapy and some with a combination, and followed them through two winters. About 37% of the patients treated with light therapy had a recurrence of depression. That compared with 7% of patients treated only with CBT, and 6% of patients who received a combination of treatments. The skills they learned carried over into the next year. "These patients become their

own therapists," Dr. Rohan says.

**Vitamin D:** This is created by the sun's rays on the skin, and therefore declines during the winter. Deficiencies have been linked to a wide variety of illnesses, including depression. So it stands to reason that vitamin D might play a role in SAD. Yet the few studies involving vitamin D and SAD patients have had conflicting results.

A 1993 study of 125 Boston women with seasonal mood swings found that those who received 400 international units of vitamin D-2—double the current recommended daily allowance for adults aged 19 to 50—fared no better than those who got a placebo.

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## A new therapy gradually turns the light on in your bedroom, creating a transition from darkness to dawn inside while it's still dark outside.

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But vitamin D proponents say the doses used in that and other similar studies were too small to be effective, and they note that vitamin D-2 is weaker than vitamin D-3, the preferred form. A 1999 study at John Hopkins University Medical Center administered a big one-time dose of 100,000 IUs of vitamin D-3 to eight SAD patients. Another seven patients received light therapy with full-spectrum light. The light-therapy group showed no significant improvement on three separate depression scales. But "to my surprise, every single person who got vitamin D improved," says lead investigator Michael Gloth, a geriatrician at John Hopkins, who continues the high-dosage treatment for his elderly SAD patients today.

Researchers agree that more study is needed on the effects of vitamin D, and at what doses. Vitamin D can't be gotten from a light-therapy box, which should screen out ultraviolet-B rays. Midday sunbathers can get plenty of vitamin D in about 20 minutes in the summertime in New York City. But UVB rays are much weaker in the winter. North of a line running roughly

from Boston to northern California, between October and March, the sun's rays aren't strong enough to provide vitamin D.

While some foods contain vitamin D—particularly fish, eggs, cod liver oil and fortified milk—the most efficient way to get it is with supplements. Some experts recommend getting at least 4,000 IUs of D-3 daily. "There's compelling evidence that if you are deficient, taking more vitamin D can be very very helpful," says Dr. Gloth.

**Suntanning:** Both sunlight and tanning beds do provide UVB rays, which produce vitamin D in the body. There's also some speculation that UVB rays may stimulate endorphins, a natural hormone that acts like a pain-reducing, pleasure-enhancing opiate in the brain.

But some experts criticize some tanning salons' practice of advertising their services as mood lifting. And Monday, the FDA issued a reminder to consumers that the ultraviolet radiation in sunlamps and tanning beds pose serious risks for sunburn, skin cancer, eye damage and premature aging.

**Exercise outdoors:** Even if the winter light is weak, some experts believe that taking a morning or noontime walk can go a long way toward alleviating SAD symptoms. "It's easy for people to imagine that there's a magical device, but investing in a good overcoat might be more cost-effective in the long run," says Janis Anderson, director of Seasonal Affective Disorders services at Brigham and Women's Hospital in Boston. "I've had people who have SAD problems and have chosen to walk to work in the morning rather than take the car, and that's been a great treatment."

**Diet:** Fighting the urge to splurge on carbohydrates can also be helpful (even though there is some evidence that chocolate boosts the neurotransmitter serotonin). Opting for more vegetables and keeping meals light can improve insulin regulation, which can also improve mood. But Dr. Terman says that generally, the craving for carbohydrates will lessen when the depression itself lessens, and not vice versa.

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Email [healthjournal@wsj.com](mailto:healthjournal@wsj.com).