Light therapy for winter depression

If you suffer from seasonal affective disorder, you don’t need to wait for longer days to get some relief.

Most of us welcome the sun’s effect on our mood, especially after a stretch of gray days. But for some people, reduced daylight during fall and winter months can bring on full-blown depression. For them, bright sunlight may represent more than a nice change in the weather: It can have therapeutic benefits. Exposure to the right kind of light, whether indoors or out, is now the first-line therapy for alleviating the symptoms of seasonal affective disorder (SAD).

SAD is a form of depression that follows a seasonal pattern, almost always worsening during the darker winter months and returning every year at roughly the same time. It’s also known as “winter depression” or “winter blues.” Though there’s some evidence of a spring-summer pattern of depression, SAD is most commonly a fall-winter disorder.

This condition accounts for about 10% of all cases of major depression and occurs mostly in women. SAD makes you feel unhappy, anxious, tired, and irritable. It leaves you disinclined to socialize, and it undermines your ability to concentrate — all symptoms typical of depression. Many women increase their calorie intake (especially from carbohydrates) and sleep longer than at other times of the year. Interestingly, people with winter depression are often happy and productive the rest of the year.

SAD usually begins in a woman’s late teens or early 20s and often disappears after menopause. No one knows what causes winter blues, but there’s some evidence implicating melatonin, a hormone produced in the brain.

Body clocks out of kilter?
SAD appears to result from changes in the length of day, although more than lost sunlight may be involved. The disorder tends to last longer and be more severe at higher latitudes where there is a greater difference between the long days of summer and the short winter ones.

Many physiological functions are rhythmic — that is, they cycle in 24-hour intervals — including sleeping and waking, the release of certain hormones, and the highs and lows of body temperature. This circadian (24-hour) rhythm is essentially under the control of our genes, but it can adjust to environmental cues, notably changes in the light/dark cycle. Cells in the retina of the eye respond to the varying levels of light, signaling a pacemaker-like structure in the brain called the suprachiasmatic nucleus, which controls some of the body’s rhythms. One of the cycles this brain area regulates is the production of the hormone melatonin. Melatonin levels rise in the evening, helping to induce sleep, and fall in response to morning light.

According to one theory, the body clocks of people with SAD don’t adjust to winter’s later dawns and earlier sunsets. Melatonin thus remains elevated during their waking hours, dampening mood and energy. It’s also possible that people with SAD are hypersensitive to melatonin or over-produce the hormone in response to longer periods of darkness. Other evidence suggests that low levels of certain brain chemicals are involved.

The influence of light doesn’t completely explain SAD. Thus far, no studies have demonstrated a causal link between a reduction in daylight hours and the development of the disorder. And various experiments have shown that some of the body’s cycles persist in the absence of light cues. Nonetheless, light therapy is uniquely (though not universally) effective in treating winter depression. For people with well-documented winter depression who aren’t suicidal and for whom antidepressants may not be an option, it’s usually the first treatment to be considered.

How light therapy works
The most common light therapy device is a box containing fluorescent lights mounted on a metal reflector. The light box is fitted with a plastic screen to filter out damaging ultraviolet frequencies. The screen also diffuses the emitted light, preventing glare. The important thing is the intensity, not the spectrum, of the light, so “full-spectrum” light isn’t necessary.

There are several light box models; some are designed to sit on a tabletop or desk, and others clamp onto a stand. They differ in size and portability — some are small enough to be packed in a travel bag — and they may be adjustable for height and light intensity. Light boxes work best when the user sits nearby at a prescribed distance and height, keeping her eyes open and looking ahead or slightly downward (see photograph). Looking directly at the box is not advisable.

Other light therapy devices include a battery-operated light visor worn on the head and the dawn simulator, a bedside light on a timer that gradually illuminates the bedroom in the morning to create an artificial early dawn.

Course of treatment. Using a standard measure of brightness, experts usually recommend about 10,000 lux, which is more or less equivalent to early morning sunlight. In the
Bad actor in cardiovascular disease may play role in fractures

Most people who’ve heard of homocysteine associate it with heart disease. Homocysteine is an amino acid produced by the breakdown of various proteins in the body. Levels tend to increase with age, and in excess, it can damage blood vessels, causing plaque to build up in the artery walls. About half of all people with cardiovascular disease have too much homocysteine in their blood. Now it appears that elevated homocysteine may also increase fracture risk, at least in people over age 55. This finding could open the way to a fuller understanding of age-related osteoporosis and new options for preventing it.

It has been known for a long time that very high blood levels of homocysteine are related to osteoporosis in people with a rare genetic disorder called homocystinuria. Now, in two separate studies, scientists in Boston and in the Netherlands have examined the relationship between moderately high blood levels of homocysteine and fracture risk. In the Boston study, researchers analyzed blood samples taken more than 20 years ago from nearly 2,000 men and women participating in the Framingham Heart Study, along with records of hip fractures in the group since 1983.

The subjects were divided into groups based on their homocysteine levels. People in the group with the highest levels had two to four times more fractures than those in the other groups. The Netherlands scientists found similar results in a study of homocysteine and fractures in more than 2,400 subjects, ages 55 and over.

Both teams of researchers acknowledge that more work is needed to confirm a connection. But the editorial accompanying the studies, which appeared in the May 13, 2004, New England Journal of Medicine, suggests that it may be time to consider homocysteine a risk factor for fractures — and to use it, along with bone mineral density and other factors, to guide prevention and treatment of osteoporosis.

How higher homocysteine levels weaken bones isn’t entirely clear, but laboratory studies indicate that this amino acid interferes with collagen, a protein essential to bone strength and stability. As normal bone forms, collagen molecules link together, creating a matrix, or “scaffolding,” for the deposit of calcium. Without good bone matrix and adequate calcium, bones become fragile even when bone mineral density is normal. Indeed, neither the Boston or the Netherlands researchers found a link between homocysteine levels and bone mineral density.

What to do: From studies of homocysteine and cardiovascular disease, we know that taking folic acid and vitamins B₆ and B₁₂ can reduce homocysteine levels, but we don’t know yet whether that translates into a reduced rate of fractures. Should we supplement our diets with these vitamins? Grain products in the United States are already fortified with folic acid, and many women take it in supplements to reduce the risk of birth defects. Nevertheless, many people aren’t getting the recommended amounts, so it’s a good idea to take a daily multivitamin containing 400 mcg of folic acid, 1.5 mg of vitamin B₂, and 2.4 mcg of vitamin B₁₂.

At this point, no one is suggesting that women should have their homocysteine levels checked to prevent fractures. Currently, the best advice is to follow established recommendations for improving bone health, including regular weight-bearing exercise and strength training, a nutritious diet, and adequate vitamin D (400–600 IU per day) and calcium (1,000–1,200 mg per day). It’s also important to maintain a healthy weight, avoid smoking, and take measures to prevent falls.

Other options

Treating depression begins with a diagnostic consultation. If it’s winter depression, light therapy may do the trick. But if not, antidepressant drugs, chiefly selective serotonin reuptake inhibitors such as fluoxetine (Prozac) and citalopram (Celexa) have been found effective for seasonal blues in controlled trials. In one study, giving citalopram following one week of light therapy helped sustain light-derived improvements in mood. People with seasonal mood changes may also benefit from psychotherapy, with or without light treatment.

For milder seasonal mood changes, adding more regular lamps to the home or workplace, sitting near windows, or spending more time outdoors may help. One study found that walking for an hour in the winter sunlight was as effective as 2 1/2 hours of artificial light. Snow helps: Its reflective surface intensifies the light.

in brief

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