

# Seasonal Affective Disorder

The following section is taken from <http://www.mayoclinic.com/health/seasonal-affective-disorder/DS00195> Anything added is in italics.

## Definition

Seasonal affective disorder (also called SAD) is a type of depression that occurs at the same time every year. If you're like most people with seasonal affective disorder, your symptoms start in the fall and may continue into the winter months, sapping your energy and making you feel moody. Less often, seasonal affective disorder causes depression in the spring or early summer.

*The DSM-IV defines SAD as 2 or more consecutive seasonal Major Depressive episodes, where onset and remission were in the same seasons and where there were no psychosocial stressors, and seasonal episodes outnumber non-seasonal episodes in the person's lifetime.*

*Hypothyroidism and sleep disorders should be ruled out.*

Treatment for seasonal affective disorder includes light therapy (phototherapy), psychotherapy and medications. Don't brush off that yearly feeling as simply a case of the "winter blues" or a seasonal funk that you have to tough out on your own. Take steps to keep your mood and motivation steady throughout the year.

## Symptoms

In most cases, seasonal affective disorder symptoms appear during late fall or early winter and go away during the sunnier days of spring and summer. However, some people with the opposite pattern have symptoms that begin in spring or summer. In either case, symptoms may start out mild and become more severe as the season progresses.

### Fall and winter seasonal affective disorder (winter depression)

Winter-onset seasonal affective disorder symptoms *may* include: (*underlining added to emphasize the most common symptoms*)

- Depression
- Hopelessness
- Anxiety
- Loss of energy
- Heavy, "leaden" feeling in the arms or legs
- Social withdrawal
- Oversleeping
- Loss of interest in activities you once enjoyed
- Appetite changes, especially a craving for foods high in carbohydrates
- Weight gain
- Difficulty concentrating

- Fatigue, even after extra sleep, with afternoon slumps in mood/energy leading one to want a nap.
- May also be accompanied by guilt, self-blame, and deficits in memory.
- Suicidal ideation

### **Spring and summer seasonal affective disorder (summer depression)**

Summer-onset seasonal affective disorder symptoms include:

- Anxiety
- Trouble sleeping (insomnia)
- Irritability
- Agitation
- Weight loss
- Poor appetite
- Increased sex drive

### **Seasonal changes in bipolar disorder**

In some people with bipolar disorder, spring and summer can bring on symptoms of mania or a less intense form of mania (hypomania). This is known as reverse seasonal affective disorder. Signs and symptoms of reverse seasonal affective disorder include:

- Persistently elevated mood
- Hyperactivity
- Agitation
- Unbridled enthusiasm out of proportion to the situation
- Rapid thoughts and speech

*Attention to sleep patterns and maintenance of the circadian rhythm is important in the treatment of Bipolar Disorder in general.*

### **When to see a doctor**

It's normal to have some days when you feel down. But if you feel down for days at a time and you can't seem to get motivated to do activities you normally enjoy, see your doctor. This is particularly important if you notice that your sleep patterns and appetite have changed or if you feel hopeless, think about suicide, or find yourself turning to alcohol for comfort or relaxation.

### **Causes**

The specific cause of seasonal affective disorder remains unknown. It's likely, as with many mental health conditions, that genetics, age and, perhaps most importantly, your body's natural chemical makeup all play a role in developing the condition. A few specific factors that may come into play include:

**Your biological clock (circadian rhythm).** The reduced level of sunlight in fall and winter may disrupt your body's internal clock, which lets you know when you should sleep or be awake. This disruption of your circadian rhythm may lead to feelings of depression.

**Serotonin levels.** A drop in serotonin, a brain chemical (neurotransmitter) that affects mood, might play a role in seasonal affective disorder. Reduced sunlight can cause a drop in serotonin that may trigger depression.

**Melatonin levels.** The change in season can disrupt the balance of the natural hormone melatonin, which plays a role in sleep patterns and mood.

*It is interesting that this pattern is similar to what happens in all animals in winter months. There is a general slowing down of our metabolism in the winter, which in and of itself is not disruptive to our lives and would not be called a disorder. The most extreme case of this in animals is hibernation. This is an evolutionarily defined process probably having to do with less availability of natural food in the winter, and possibly relative to timing when reproduction occurs in the wild.*

## **Risk factors**

Factors that may increase your risk of seasonal affective disorder include:

**Being female.** Seasonal affective disorder is diagnosed more often in women than in men, but men may have symptoms that are more severe.

**Living far from the equator.** Seasonal affective disorder appears to be more common among people who live far north or south of the equator. This may be due to decreased sunlight during the winter, and longer days during the summer months.

**Family history.** As with other types of depression, those with seasonal affective disorder may be more likely to have blood relatives with the condition.

**Having clinical depression or bipolar disorder.** Symptoms of depression may worsen seasonally if you have one of these conditions of these conditions.

*People of Icelandic origin seem to have a genetic protection against SAD, although some think that this is due to their larger than normal intake of fish, which contains Vitamin D.*

## **Complications**

Take signs and symptoms of seasonal affective disorder seriously. As with other types of depression, seasonal affective disorder can get worse and lead to problems if it's not treated. These can include:

- Suicidal thoughts or behavior
- Social withdrawal
- School or work problems
- Substance abuse

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**End of Mayo Clinic section**

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## **Diagnosis**

Diagnosis can be provided by doctors, mental health professionals, and occupational therapists who have knowledge and training relative to this disorder. The primary tests used for diagnosing SAD are:

- Hamilton Depression Rating Scale /SIGH-SAD: A structured interview
- SPAQ: Seasonal Pattern Adjustment Questionnaire

## Treatment

**Sleep Habits** – Good sleep habits help depression, including reasonable consistency in bedtime and awakening time, even on non-working days. Special approaches are needed for people working night shifts. It is important that exposure to bright light is reduced prior to going to bed, as this triggers the body's production of melatonin, the hormone that leads to sleep. Particularly, exposure to LED monitors, which have a high output in the blue spectrum, has been shown to disrupt the circadian rhythm. CRT monitors do not have the same negative effect.

A full account of what is needed for good sleep hygiene is beyond the scope of this paper, but your healthcare professional can provide you further information.

**Light Therapy** – Our circadian clock is synchronized by bright light. This clock, in turn, determines various things that our bodies do, including the expression of melatonin in the evening, to prepare us for sleep. In the winter months, there is less bright sunlight to keep our clocks synchronized, especially if we get up in the dark, go to work indoors, and get off work after dark. Cloudy, overcast days have a negative effect as well.

Bright light also increases blood levels of serotonin, a neurochemical that affects mood. That is one reason that exposure to bright sunlight is good for depression of any type.

It is important to recognize that normal fluorescent light does not do the trick. The light must be bright. Light therapy is an evidence-based, standard treatment for SAD.

Possible side-effects include mild nausea, mild headaches, eyestrain, or feeling edgy. Often, these side-effects resolve within a few days.

If response is only temporary, or if problematic early morning awakening occurs, or if severe evening fatigue occurs, the dosage should be reduced.

Feeling too irritable, or euphoric or feeling “too high” may indicate the triggering of a manic episode, and should be reported to your health professional. If light therapy is resumed, it should probably be done at a lower dosage (intensity and/or duration).

People with Bipolar Disorder should use light therapy under the supervision of their psychiatrist.

People with retinal disease, cataracts, or diabetes should consult with their ophthalmologist, as should elderly people (may have macular degeneration without symptoms), and people taking photosensitive medications.

**Light Boxes** – The idea with these is to sit in front of the light for a period of time immediately on arising. This timing is critical – the treatment should occur within the first hour after awakening. 10,000 lumens for 30 minutes or 2,500 lumens for two hours are standard amounts. The light should be at 45 degrees to the user and 12 – 14 inches away. The user should not look into the light, except in glancing, but the eyes should be open.

The distance the user sits from the light, and the amount of time, determine the dosage being received. This can be experimented with as needed to achieve the desired effect. Problematic side-effects would indicate a need to reduce the dosage, while a failure to reduce the depression would indicate a need to extend the time. Distance should become no closer than 12 – 14 inches.

Effects are usually felt within a couple of days, but up to two weeks may be required to achieve the desired effect. Treatment usually needs to continue until Spring. Skipping a day or two occasionally is usually not a problem.

**Dawn Simulators** – Dawn simulators are lamps that brighten over a period of time to simulate the effects of sunrise prior to awakening time. There are not as many studies on these as there are on light boxes. It should be noted that the effect of these would be through closed eyelids. These are probably best for users with lower levels of distress from SAD, or for whom bright light is ineffective, inconvenient, or has too many side-effects.

**Light Visors** – These are visors worn on the head with LED lights. There is little if any evidence for their effectiveness.

**When It Doesn't Work** – In some cases, where morning bright light has been ineffective, dimmed light in the morning with bright light in the evening has been found to be effective. Presumably, this would indicate that the person's circadian clock is too advanced, versus the usual situation of being too delayed.

**Anti-Depressants** – Wellbutrin has been studied as a means of preventing SAD when taken prior to winter. It operates on the neurochemical dopamine, which is involved in pleasure.

The SSRI's Prozac, Paxil, and Zoloft have been shown to be roughly equal to light therapy in effectiveness. They take about 6 weeks to reach their full effect.

Effexor has been shown to be effective as well. These Reducing or eliminating these medications in the spring should be done under a doctor's supervision.

**The above treatments are the best proven for treating Seasonal Affective Disorder.**  
The following may also be helpful.

**Melatonin** – One study has shown efficacy for the use of Melatonin. This is sold as a supplement over the counter. Studied dosages range from .5 mg to 20 mg. No more than 20 mg should be taken. This is meant to supplement the melatonin created by your body, and like light, if taken at the right time, it affects the synchronization of the body clock. It should be taken no earlier than 9 hours after awakening, and no later than two hours before bedtime. Melatonin is not recommended for women who are pregnant or for children.

Taking too much can reduce effectiveness, and even make symptoms worse, so the best approach is probably to start low and build up until it is effective, giving a few days between changes to give it a chance to work.

**Vitamin D** – Several studies exist relative to vitamin D also. Sunlight causes our skin to produce vitamin D. When our ancestors were in the sun more, their blood levels of vitamin D were much higher than ours. Taking 800 – 2000 IU of D3 supplement has been reported to be effective in relieving the symptoms of SAD. For some people, where this dose has been ineffective, 25,000 – 50,000 IU per week has been effective, but this should only be tried with a doctor's supervision.

Fish and fish oil can be a source of Vitamin D. However, some people have adverse reactions to fish oil, so it may be best to leave out this complicating factor.

**Vitamin B1** – Several studies have shown 50mg/day of this vitamin to be effective in elevating the mood of people with depression.

**Tanning Beds** – The current science says that tanning beds are ineffective, since the light does not enter the eyes. However, some clients say that they do help. Whether this is due to placebo effect, co-occurrence with exercise (which helps depression), light entering through the eyelids, or creation of Vitamin D via the skin's exposure to ultraviolet light is unclear. Of course, these increase the risk of skin cancer if overused.

**Talk Therapy** – The current best treatment for depression in general is medication in combination with talk therapy. The purpose of the latter is to resolve stuck emotions, modify ineffective beliefs and automatic thinking, and to build more effective coping skills. Consciously participating in pleasurable activities during winter months is a part of this process. However, SAD is clearly a biochemical phenomenon and requires more than talk therapy to be resolved.

**High Density Negative Ion Generators** – At least one study has shown the use of these devices during the last 90 minutes before waking to be effective in decreasing SAD symptoms.

**Exercise** – People with SAD show lower levels of oxygen consumption (metabolism) in the winter, which supports the idea that SAD is related to reduced activity in other animals during the winter. Aerobic exercise can return metabolism to normal levels. Exercising outdoors or under bright lights is ideal. Increasing your metabolic rate also increases your burning of calories, reducing the likelihood of putting on those winter pounds.

**Diet** – Carb cravings are a key symptom of SAD, presumably as the body's way of building up the reduced supply of serotonin. Unfortunately, it appears that people with SAD have an increased insulin response to carbohydrates, causing the resulting sugar to pass rapidly from the bloodstream into the tissues, causing a lower-than-normal blood sugar level afterward. This triggers further carb cravings. This is the reason for the weight gain many people experience in the winter. A low-carb diet, combined with other ways of increasing serotonin (especially light therapy and/or medication) can prevent the craving cycle and the weight gain.

**Other options** – Exercise, positive activities, and spending as much time as possible outdoors or in direct sunlight are all likely to be therapeutic. Some people notice that burning candles or a fireplace helps them feel better, though there is no evidence that these are therapeutic. Certainly, alcohol and marijuana are to be avoided, as these are depressants.

Any of the above treatments can be used in combination.

### **Obtaining a light box**

**What to Look For** – Light boxes are not regulated by law and do not require a prescription. They range in price from \$50 to \$500, with no evidence that more money buys more value. The key issues are to get the strength (lumens) that you want, ultraviolet filtered, in a product style that fits when and where you will be using it, that is UL or CSA approved for electrical safety, and from a company with a record of reliability. Evidence is mixed on whether blue light is better than white light, so paying more for blue light is probably not advisable. It is *possible* that insurance will pay for this device if it is prescribed by a doctor.

**Building Your Own** – It is entirely possible to build your own inexpensive light box. Do this only if you are comfortable and skilled in working with electricity. Buy a 4-foot, 4 bulb, fluorescent fixture and attach a cord to it with wire nuts. Be sure to use a heavy enough cord and to provide strain relief for the cord. Insert bulbs and plug it in. You

can stand the fixture on end. Maybe not pretty, but it works! If you use special bulbs, take care to use a fixture that has the appropriate ballast for the bulbs you are using. However, standard bulbs work fine.

There is a mix of opinions as to whether standard bulbs put out too much ultraviolet light for exposure this close to the eyes. In addition, the standard covering in one of these light fixtures may block UV rays. Sheet UV filter material is available. Data on the UV output of bulbs is available, as are safety standards. In any case, the exposure would have to exceed that of sitting in sunshine to be deemed a danger.

**Similar Issues** – The following issues are tied to circadian rhythm as well. Your healthcare provider can help you relative to these issues as well.

- Shift Work
- Jet Lag
- Advanced or Delayed Sleep Phase Syndrome – this is a disorder to the extent that it interferes with the person’s desired sleep pattern. These are the extreme night owls (go to bed in the early morning) or morning larks (very early risers).
- Irregular sleep-wake rhythm
- Non-24-hour sleep-wake syndrome

Further reading – Winter Blues by Norman E. Rosenthal, MD. Revised Edition 2006. Dr. Rosenthal is the person who originally defined Seasonal Affective Disorder. This book is considered to be the best on the subject. Many journal articles are also available. Google Scholar would be one source for these.

## Helpful Suggestions for Coping with Winter Depression (SAD)

The following has been adapted from the paper Evidence-Based Management of Seasonal Affective Disorder (SAD): Clinician Resource Package by R.W. Lam and A.J. Levitt

- Do not skip or shorten treatment because you're feeling better...you may relapse. Work with your health professional in adjusting the length of time, time of day, distance, and intensity of lights for your own individualized treatment.
- Educate yourself, family and close friends regarding SAD to gain their understanding and support.
- Get as much light as possible and avoid dark environments during daylight hours in winter.
- Allow natural light to shine through open windows and doors when temperatures are moderate.
- Reduce mild winter depressive symptoms by exercising daily – outdoors when possible to take advantage of natural light.
- If you are unable to exercise outdoors in the winter due to extreme cold, exercise inside.
- Instead, sit in front of an open south-facing window, in sunlight for short but frequent periods during the day if you are able.
- Rearrange workspaces at home and work near a window, or set up bright lights in your work area.
- When there is alternative seating, ask to sit near a window in restaurants, classrooms, cars etc.
- If you are able, arrange winter vacation to warm sunny climate!
- Postpone making major life changes until spring or summer when possible.
- Stay on a regular sleep/wake schedule. People with SAD who get up every morning and go to sleep at the same time, report being more alert and less fatigued than when they vary their schedules.
- Be aware of cold outside temperatures and dress to conserve energy and warmth. Many affected by seasonal changes report sensitivity to extreme temperatures.
- Consider going without sunglasses in the winter except in very bright sunlight or decrease amount of time wearing them.
- Arrange family outings and socials occasions for day times and early evening in winter. Avoid staying up late, which disrupts sleep schedule and biological clock.
- Conserve energy by managing time wisely and avoiding or minimizing unnecessary stress.
- Try putting lights on a timer in the bedroom set to switch on ½ hour or more before awakening. Some people with SAD report it is easier to wake up when using this technique with lights.
- Some find it helpful to record their biological rhythms during fall and winter. They keep a daily log noting weather conditions and their energy levels, moods, appetite/weight, sleep times and activities.
- Share experiences regarding SAD and treatment with others with SAD for information, understanding, validation and support.
- Consider beginning any successful treatment in early fall the following year to prevent symptoms.