

Circadian rhythm (body clock) and chronotherapies for bipolar disorder and depression

Information for patients

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What is circadian rhythm?

Your internal body clock (circadian rhythm) is essential for maintaining wellbeing. If your regular rhythms of rest and activity get out of synch, this can cause problems with physical and mental health. One of the most important factors for regulating our rhythms is light (the night and day cycle). Circadian rhythms are also influenced by other factors such as the timing of meals, sleep, physical activity, work and social interaction. To stay healthy, our circadian rhythms should follow the light-dark cycle as closely as possible.

Bipolar disorder and the body clock

If you have bipolar disorder, circadian rhythm disruption is a core part of the illness. Preventing changes to your regular rhythms is vital and can help to reduce the risk of developing depression and mania. Sleeping too much or too little can be a risk factor or an early warning sign of a mood episode. Examples of factors that may affect sleep or circadian rhythm include shift work or travel across time zones.

What are chronotherapies?

Chronotherapies are treatments that can improve or reset your circadian rhythm, reducing symptoms of bipolar disorder. This leaflet will outline some of these treatments.

Lifestyle changes

To help stabilise your circadian rhythm, it is important to **ensure your daily activities take place at regular times and are consistent from day to day**. This can be helpful to treat and prevent depression.

You should attempt to carry out the following activities at the same time each day, including at weekends
<ul style="list-style-type: none">• The time you wake up• First contact with another person• Mealtimes• Bedtime.

To help ensure you get to sleep around the right time every day, you can put in place the strategies below which are known as 'sleep hygiene':

Sleep hygiene strategies

- Ensure adequate bedroom environment – most people find it easier to sleep when it is dark, quiet and cool
- Try to relax before bed by reading or listening to music
- If you cannot sleep after 20 minutes, get up and do something relaxing (like reading, yoga, listening to music) and only go back to bed when you feel sleepy
- Avoid caffeine, nicotine and alcohol for 2 hours before bed
- Avoid using electronic devices 1 hour before bedtime (e.g. tv, phones, laptops etc)
- Daily exercise (avoid during the 90 minutes before bed).

Light therapy for depression

Light therapy can be an effective treatment for depressive episodes (in both primary depressive disorder or as part of bipolar disorder), particularly episodes that are seasonal (occur in the winter). Studies suggest that the effect may be similar to antidepressants. Light therapy uses an artificial light source (UV-filtered white light). The best result is achieved by daily light exposure, usually at a dose of 10,000 lx, for 30-60 minutes in the early morning, from slightly above the eye position, with the largest possible screen ($>1000\text{cm}^2$). Treatment for an episode of depression is usually several weeks, but can be continued over the whole winter if needed. Side effects can include headaches, nausea, tired eyes or insomnia after late use, but these are usually mild and temporary. If you have bipolar disorder, you should ideally be treated with a mood stabiliser as well, to reduce the risk of a switch into hypomania or mania. Titrating the daily exposure time (e.g. starting with 15 minutes and increasing to 30 minutes or more) may also reduce mood switching. If a switch does occur, reduce and stop the exposure to the light box.

Dark therapy for mania

Not getting enough sleep can sometimes trigger mania, and so making sure you get enough sleep can reduce manic symptoms. Blue blocking glasses specifically block the blue light which disrupts the circadian rhythms at night. This tricks the body into thinking it is dark. Using these glasses may reduce manic symptoms and the need for anti-manic medication. The best way to use these is in the evening from 6pm until sleep. Depressive symptoms are a possible side effect, but these resolve after normal exposure to light. If possible, artificial light in the evening should contain fewer blue light wavelengths than in the day, i.e. white light around 2500 K instead of the usual cold white light of 6000 K.

Combination therapy

All of these treatments have limited side effects and are usually combined with each other and medication to treat depression and bipolar disorder.

