

# A dark therapy experiment with blue light blocking glasses for managing bipolar disorder hypomanic episodes

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## Conclusion

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Blue blocking glasses are interesting and this experiment was conducted during two bipolar episodes within a period of 2 months. The glasses used block blue light for 99%, blue light controls the synthesis of the natural occurring sleep hormone melatonin. Melatonin is synthesised from the monoamine neurotransmitter serotonin. Olanzapine was used during this experiment which controls also serotonin levels. The sleep hormone melatonin uses serotonin as its [precursor](#).

In the morning it is the most effective as there is a period of darkness before putting on the glasses. Keeping your eyes in "virtual darkness" preserves all produced melatonin. As melatonin is a natural hormone for inducing sleep and no hangover was experienced from using the glasses. Blocking the blue light also reduced eye-strain. It is also helpful to reduce the amount of Benzodiazepines used as a sleep and relaxing aid. A zen-like total calm feeling was experienced multiple times during the experiment. When putting on the glasses when getting out of bed early it felt most effective. Taking it off before the sun comes up to restore sleep-wake circadian rhythm.

## Abstract

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This experiment is conducted on myself for a period of 2 months.

Before this experiment a [bipolar phase](#) of minor depression with a timeframe of 4 weeks was experienced. During this experiment my mood was in the (hypo)mania phases with rapid cycling between zero and +2 level.

A second mood swing with minor depression of 3 weeks and hypomania of 7 days was experienced.

During the experiment I took the following medications and supplements:

- [Olanzapine](#) 5 mg taken at 21:00, which is one to two hours before bedtime. For the

second episode I took 7.5 mg at 20:00 to suppress the hypomania faster.

- [Magnesium](#) citrate 200mg. For [helping with stressful periods](#), muscle pain and probably anxiety.
- Vitamin B and Iron
- [Ginkgo biloba](#) tincture and extract in pill form, for better stamina, focus and concentration
- [Lormetazepam](#) when unable to sleep or unable to stop puzzling over
- [Lorazepam](#) when having anxiety or feeling overly energetic for some days before sleep

## The blue blocking glasses

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The glasses used are from the brand [Somnoblue](#) which [claim to filter](#) the blue [colour spectrum](#) for 99,5% until 530 nanometer which is also a little of the green spectrum. That is why they are tinted orange/red. Other glasses like the transparent 'computer glasses' [only block 10% off the blue light](#) which is too less to [affect enough melatonin production from serotonin](#).

Information about the glasses is in the form of YouTube videos:

- [Filter blue light for better sleep, 5 misconceptions - Biohacking](#)
- [The effect of blue \(artificial\)light and melatonin on your sleep \(dutch only\)](#)
- [Somnoblue sleeping glasses for better sleep after day- or night shifts \(dutch only\)](#)
- [Somnoblue Blue Light Blocking Glasses for BETTER SLEEP | Koos Meijer](#)
- [Nytimes Wirecutter - The Best Blue-Light Glasses](#)  
| Kaitlyn Wells
- [And more...](#)

Supplementary to this experiment the life hack article [Why Am I So Sleepy And How to Stop Feeling Tired?](#) can be interesting. And <https://www.somnoblue.nl/en/the-science/>

Parallel to this experiment the mood tracking app Daylio was used. This can be very helpful to [track mood over extended periods of time](#) and get insights in activities during these mood states.

The idea to start this experiment is from a tip in the talk show YouTube movie '[PlusMinus landelijke dag 18 december 2021 Thema Slaap \(dutch only\)](#)'

# References

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This is an reported experiment conducted on myself. But there has been enough scientific research prior my experiment, if you are in doubt of my story you could read the following open-access articles:

- [Barbini, B., Benedetti, F., Colombo, C., Dotoli, D., Bernasconi, A., Cigala-Fulgosi, M., ... & Smeraldi, E. \(2005\). Dark therapy for mania: a pilot study. \*Bipolar disorders\*, 7\(1\), 98-101.](#)
- [Gottlieb, J. F., Benedetti, F., Geoffroy, P. A., Henriksen, T. E., Lam, R. W., Murray, G., ... & Chen, S. \(2019\). The chronotherapeutic treatment of bipolar disorders: A systematic review and practice recommendations from the ISBD task force on chronotherapy and chronobiology. \*Bipolar disorders\*, 21\(8\), 741-773.](#)
- [Henriksen, T. E., Skrede, S., Fasmer, O. B., Schoeyen, H., Leskauskaite, I., Bjørke-Bertheussen, J., ... & Lund, A. \(2016\). Blue-blocking glasses as additive treatment for mania: a randomized placebo-controlled trial. \*Bipolar disorders\*, 18\(3\), 221-232.](#)
- [Henriksen, T. E., Skrede, S., Fasmer, O. B., Hamre, B., Grønli, J., & Lund, A. \(2014\). Blocking blue light during mania—markedly increased regularity of sleep and rapid improvement of symptoms: a case report. \*Bipolar disorders\*, 16\(8\), 894-898.](#)
- [Henriksen et al., \(2020\). Blue-blocking glasses as additive treatment for mania: Effects on actigraphy-derived sleep parameters. \*Journal of sleep research\*, 29\(5\), e12984.](#)
- [Kimberly, B., & James R, P. \(2009\). Amber lenses to block blue light and improve sleep: a randomized trial. \*Chronobiology international\*, 26\(8\), 1602-1612.](#)

## Alternatives for blue blocking glasses

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There are no alternatives for blocking blue light from indoor artificial lighting. But supplementary to the blue blocking glasses computer and smartphone applications for reducing blue light can be used. They are also able to track sunset and sunrise times automatically so you don't have to set the more blue or red times manually. The following software is available:

- [f.lux](#) for macOS, iOS and Windows which is a third party app. Initial release [dates back to 2009](#).
- [iOS night shift \(builtin\)](#) for iPhones and iPad devices

- [macOS night shift \(builtin\)](#) introduced in macOS Sierra 10.12.4 or later
- [Windows night time \(builtin\)](#), introduced in Windows 10
- [Android Night Mode](#), unfortunately it is not available on many Android devices as it is not part of the Android operating system.
- [Ubuntu Linux Night Light \(builtin\)](#)
- [Linux Redshift](#) which can be used on other Linux desktops than Ubuntu/GNOME.

## Sleep and mood diary

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For some time sleep and mood diaries were kept to test the glasses. And report my experience with them.

Times marked (inaccurate) in this diary are an estimation because time schedule is written down from long term memory and not directly on the event.

### Day #1 (23 dec 2021)

Context: watched Christmas movie, had some deep conversations right before bedtime (not recommended for good sleep).

- T18:00 first time wearing the glasses
- T18:40 slight feeling between and above the two eyes headache reduction, reduced eye strain
- T19:00 feeling relaxed and heavy
- T19:10 got some chills, slight feeling of sleepiness
- T19:30 almost total muscle relaxation, body tenses are dissolving
- T20:00 no change
- T20:15 took a hot shower, got some chills put the glasses immediately back on when dried
- T20:50 feeling total sense of calmness
- T21:30 had some deep life discussions with a close family member, very talkative
- T23:50 still no signs of sleep come on, got support from 1mg Lormetazepam
- T02:40 woke up
- T04:00 slept again
- T05:00 woke up
- T06:15 got out of bed feeling still tired

## Day #2 (24 dec 2021)

Context: watched some documentaries

- T18:15 put on glasses
- T18:30 felt natural relaxation set in
- T19:30 got sleepy cold chills
- T20:30 felt very heavy and peaceful, third eye massage and eye muscle relaxation
- T22:30 did go to bed fell asleep approximately after 30 minutes. Note: when glasses were taken off and moved through the rooms of the house a weird feeling was experienced. All was VERY blue and felt the rooms felt energetic and vibrant. Psychedelic like feeling.
- T00:00 woke up peacefully, no feeling of sleepiness. Took Lormetazepam 1mg
- T04:00 (inaccurate) woke up peaceful and rested
- T06:45 woke up, no recall of memory when falling asleep again. Probably slept from T05:00. Felt rested on wake up, and eye strain has dissolved. Feeling overall relaxation.

## Day #3 (25 dec 2021)

Context: Christmas Day. Family breakfast and Dinner. Did some household helping. Took a long walk in the cold before putting on the glasses.

- T13:45 still feeling relaxed, and my eyes feel much better today like if they were massaged
- T19:45 put on glasses
- T20:30 feeling relaxed, glasses seem to dim the living room light significantly
- T21:00 legs and feet seem to get heavy
- T21:40 laying on the couch, reading some articles. Feeling if I lay in a warm bath this is interesting.
- T22:00 did go to bed

## Day #4 (26 dec 2021)

Context: Boxing day. Visited my grandma and had some good conversations.

- T07:00 slept very good since a long time. Taking Lormetazepam was not necessary.

Sleep was not disturbed and almost slept in a single go.

- T15:00 felt very good, no sign of hypomania or depression. Landed on zero level of mood.
- T17:00 felt my eyes where still rested and light headache was not present anymore
- T21:00 went to bed early, done with all for today

## **Day #5 (27 dec 2021)**

Context: Went to visit an old friend, and had deep conversations between 13:00 and 16:30.

- T07:00 woke up without alarm, because of some noises in the house from family waking up. Felt very rested, a little comatose feeling.
- T11:00 feeling very relaxed and focused, took a bath and did some writing and research
- T22:30 went to bed, felt a elated because of the deep conversations
- T04:00 (inaccurate), woke up a few times and could not sleep for one hour.

## **Day #6 (28 dec 2021)**

- T07:00 Felt rested on wake, total sleep approximate 6 hours
- Relaxing day, did some shopping, bathing, nap and reading and writing
- T19:00 put on the glasses

## **Day #7 until #10**

This data has not been reported. But sleep quality is improving, most probably also due to higher Olanzapine dosage. Overall mood rating was 3 (out of 5).

## **Day #9 (31 dec 2021)**

T08:30 woke up and slept for approximate 10h. The quality felt very deep. I always have some wakeup problems when Olanzapine is 5mg or more. Which can take one to two hours after getting out of bed.

## **Day #10 until #41**

This data is missing because minor depression was experience, busy at work and

hypomania chaos in my head. I didn't use the glasses during the depression but when the second episode of hypomania occurred I used the glasses every day. Using the glasses 2-4 hours before bed felt very relaxing and calming.

## **Day #42 (11 feb 2022)**

This morning I woke up at 6:00h and felt rested on wake and slept for approximate 9h. I did put on the glasses to keep the zen-like feeling after rested on wake. The time when I take of the glasses is about 7:30 so I can get energised to start my normal day.