# Lighting treats bipolar patients at Valen Hospital in Norway

## Research implemented in practice by Tone E. G. Henriksen

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Pioneering research results are now prompting the emergency department to implement circadian lighting for bipolar patients. The lighting is adapted to the individual treatment and the first experiences are positive.

Tone Elise Gjøtterud Henriksen has been researching dark and light therapy for bipolar patients since 2015 and is a leader in the field. The results have been peer-reviewed published in Bipolar Disorders and The Journal of Sleep Research among others.

”Studies show that blocking the blue wavelengths in the light in the evening and at night reduces patients’ manic symptoms and improves their sleep,” explains Chief Physician Tone E. G. Henriksen, Emergency Department, Valen Hospital, Norway.

The results confirm previous studies in dark therapy but are the first randomized, controlled study with blue-blocking. In the study, the blue light is blocked through special glasses that the patients are given. The International Society for Bipolar Disorders, ISBD, has subsequently developed an international recommendation to include lighting as part of the treatment of bipolar patients.

## Research implemented in practice

Valen Hospital wanted to implement the positive results in practice in the treatment of patients. This led to a collaboration with the lighting specialists from Chromaviso and the Italian researcher, Francesco Benedetti, to develop a light therapy room in the psychiatric emergency department to treat depressed patients. The evidence for the effect of light therapy in all types of depression is solid, and ISBD also recommends light therapy in bipolar depression. The integrated light therapy lamp can be controlled both in terms of color temperature and intensity for the individual patient. It was commissioned in March 2019.

“The light therapy room works very well, and it is used daily by patients. We offer it as an alternative or supplement to medication to all depressed patients. Research shows that light therapy alone can be as effective as medication alone. If the two are combined, a double effect is achieved,” explains Tone E. G. Henriksen. Although the systematic collection of data from the Emergency Department at Valen Hospital has not begun, Tone E. G. Henriksen sees positive effects of light. The lighting has also had a positive effect on the length of stay by the patients.

“We have experienced a shorter hospital stay for those patients who use the light therapy room. They are typically hospitalized 1-2 fewer days, out of the average hospital stay of 7-8 days. At the same time, patients are very happy with the lighting and they experience that they feel better. Patients also perceive it positively that they are not only taking medication,” explains Tone E. G. Henriksen.

The lighting treatment also helps patients who are experiencing a poor circadian rhythm, such as sleeping too long or too late.

## Circadian Lighting adapted to the phases of mania

In October 2019, Tone E. G. Henriksen chose to expand the implementation of the positive results by installing circadian lighting in a coherent section with both common rooms, corridors, and patient rooms. The patients are thus exposed to light/dark treatment around the clock, without having to take the blue-blocking glasses on and off, at certain times.

The bipolar patients are sensitive to light and the alternation between light and darkness has both a synchronizing effect on the circadian rhythm and can act as a trigger for both mania and depression, which directly affects the mood and energy, through the influence of neurotransmitters such as dopamine, norepinephrine, serotonin and the night hormone melatonin.

As a result, Tone E. G. Henriksen and Chromaviso’s lighting expert Torben Skov Hansen developed a circadian rhythm design specifically for this diagnosis, with five circadian rhythm protocols adapted to the patients’ individual course of treatment.

“We have worked with the dosing of the lighting and timing to hit the optimal lighting effect for the different phases of the disease course. Common to all patients is that they should have darkness at night and adequate light during the day. But exactly how much light and darkness depends on the phase. In the manic phase, patients need fewer lighting hours and more darkness, while patients in the depressive phase need more lighting for a longer period of time,” explains Tone E. G. Henriksen.

At Valen Hospital, it is the doctor or psychologist who prescribes which lighting protocol the individual patient should have. It happens at the daily treatment meetings, where medication is also prescribed.

”By using several light protocols during hospitalization, we achieve stabilizing the patient’s condition, as their disease is reduced,” says Tone E. G. Henriksen.

## Adapted to the patient’s diagnoses and disease phase

Chromaviso’s Circadian Lighting is called Chroma Zenit and is clinically documented at Rigshospitalet København and further developed into the psychiatric area at Psychiatric Center Copenhagen with Professor Klaus Martiny, with whom Tone Henriksen accompanied on an inspirational trip before choosing the final solution.

“I had heard about Chromaviso as a good alternative to Trondheim’s solution. Chromaviso is deep into the science and had the qualifications to develop the right lighting protocol. Their solution is also very flexible, and we can easily adapt the lighting as we gain new knowledge and new patient groups. It was crucial for us because if we bought a static system, it could quickly turn out to be less ideal,” explains Tone E. G. Henriksen.

## Standard in the future

In the future, Tone E. G. Henriksen expects that circadian lighting will become a regular part of treatment within psychiatry and other specialities.

> *“ We can shorten the treatment considerably, and we can treat severely manic patients with controlled light/dark periods ”*
>
> *- Tone E. G. Henriksen, Chief Physician, Emergency Department, Valen Hospital*

“The combination of lighting and medicine is good - and the need for medicine seems to be less when we use light and darkness instrumentally in the treatment. We can reduce the large doses of medication that patients receive over a long period of time. This is good because the medicine in this area has many side effects with potentially negative consequences for the general health of the patients. Of course, our goal is to get light and dark treatment everywhere when we see the positive effect it has on the patients,” says Tone E. G. Henriksen.

*Chromaviso’s circadian lighting is called Chroma Zenit and is based on a clinically documented lighting protocol.*

# Facts

## Research results in blue light blocking

- Blocking the blue light frequencies resulted in a rapid and large decrease in manic symptoms in bipolar patients in the manic phase (Cohen'd d 1.86) compared with placebo.
- The group of manic patients who received blue-blocking treatment had better sleep efficiency, less movement during sleep and fewer awakenings at night.
- ISBD recommends (as additional treatment to medications) light therapy for bipolar depression and dark therapy (blue-blocking) for manic states.

*Published in The Journal of Sleep Research, American Journal of Psychiatry, Bipolar Disorders, Tone E. G. Henriksen*

## Facts about Circadian Lighting

- Chromaviso's circadian lighting is called Chroma Zenit and is based on a clinically documented lighting protocol. The light develops in step with the day - in a long, smooth transition. At night, the light becomes biologically dark - a blue-free light, which is designed to create security and orientation for both patients and staff - without disturbing the circadian rhythm.
- Chromaviso is leading specialists in circadian lighting for psychiatry, intensive care/rehabilitation and dementia care. The circadian rhythm design is adapted to diagnoses and the specific environment - becomes an active part of the treatment. Chromaviso's lighting is found in more than 2000 projects at more than 100 hospitals throughout Scandinavia.