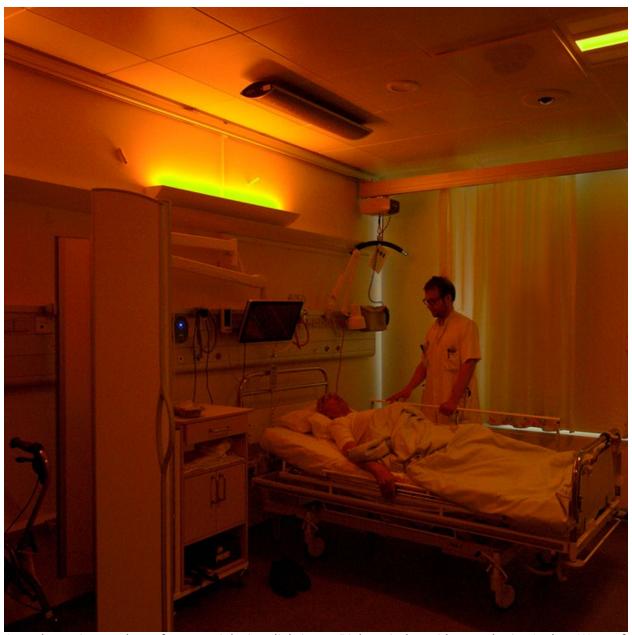# Hospital: Lighting helps stroke patients deal with fatigue, depression

Copenhagen study shows that circadian-tuned LED brights and spectrum can help, although it might depend on how you measure things.

Mark Halper
Feb 19th, 2020

A stroke patient under soft warm nighttime lighting at Righospitalet, with neurologist Anders West of the University of Copenhagen. (Photo credit: Image courtesy of Chromaviso.)

Studies of 90 stroke patients in a Danish hospital indicate that LED lighting tuned to mimic the patterns of daylight can have a positive effect on depression, fatigue, anxiety, and wellbeing, although there was some amount of inconclusiveness, and lighting made no difference in cognition improvement.

The results of the observations at the Stroke Rehabilitation Unit in Copenhagen's Righospitalet from May 2014 through June 2015 were only recently published in the journal *NeuroRehabilitation*.

Righospitalet is part of the Copenhagen University Hospital. The studies were conducted by the the University of Copenhagen's departments of neurology and neurophysiology and by the hospital's department of ophthalmology, using specialty lighting from Chromaviso, based in Aarhus, Denmark.

The scientists generally tuned lighting in patient rooms to deliver the brighter and more blue-rich makeup associated with natural daylight during the mornings and afternoons. They toned down the brightness and delivered warmer spectral content in the evenings.

At the same time they delivered ordinary hospital lighting to control groups.

Read more like this: [New studies show cycles of blue and red light promote circadian entrainment](#)

The team worked on the hypothesis that the tuned lighting would support human circadian rhythms associated with the 24-hour cycle of day and night, whereas ordinary hospital lighting and indoor confinement deprives patients of circadian normalities and can thus cause physiological disturbances.

All patients were hospitalized for over two weeks.

In one study focused on fatigue, they concluded that "fatigue was significantly reduced in rehabilitation patients exposed to naturalistic lighting during admission." They based their conclusion on a couple of questionnaires, one called the Multidimensional Fatigue Inventory questionnaire, and the other the Rested Statement, noting that the experimental groups reported less fatigue compared to the control group.

However, by another measurement, the Pittsburgh Sleep Quality Index, "no differences were detected between groups in sleepiness or subjective sleep quality," wrote the authors, led by Anders West from the neurology department.

Read more like this: [Blue-light study shows promise in healing mild TBI](#)

If those results were encouraging but mixed, the same could be said of a separate set of observations looking at a combination of depression, anxiety, wellbeing, and cognition.

"Depressive mood and anxiety was reduced, and wellbeing was increased in the (experimental) group at discharge compared to the (control group)," the authors reported.

However, "no difference was found in cognition," the authors stated.

The team applied the Hamilton Depression Scale, the Major Depression Inventory, the WHO-Five Well-being Index, the Hospital Anxiety and Depression Scale, and the Montreal Cognitive Assessment to determine the results.

"This study is the first to demonstrate that exposure to naturalistic light during admission may significantly improve mental health in rehabilitation patients," they concluded, adding that "further studies are needed to confirm these findings."

Chromaviso has been very active in lighting tuned to health and recovery, in areas including [dementia](#), [psychiatric disorders](#), [brain trauma](#), [surgery](#), and others.

MARK HALPER *is a contributing editor for LEDs Magazine, and an energy, technology, and business journalist (markhalper@aol.com).*