

# SWITCH FROM FLUORESCENT TUBES TO CHROMAVISO CIRCADIAN LIGHTING



*Light that follows our biological circadian rhythm and has clinically documented evidence*

# AGENDA

- 01** Chromaviso circadian lighting compared to conventional lighting
- 02** Consequences of conventional lighting
- 03** Effect of Chromaviso circadian lighting – staff
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- 05** Increased efficiency among staff
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# Chromaviso circadian lighting versus conventional lighting



## Tunable white

- White light
- Various color temperatures and intensities
- Adjusted when needed
- No evidence or health benefits

## White light

- Uniform white light
- Can possibly be dimmed
- No evidence or health benefits

Chromaviso  
circadian lighting

Tunable white

Dynamic light

White light

## Chromaviso circadian lighting

- Varies in intensity and color spectrum
- Shifts automatically 24/7/365
- Supports the body's natural circadian rhythm
- Based on clinically documented lighting protocols
- Evidence of health-promoting effects

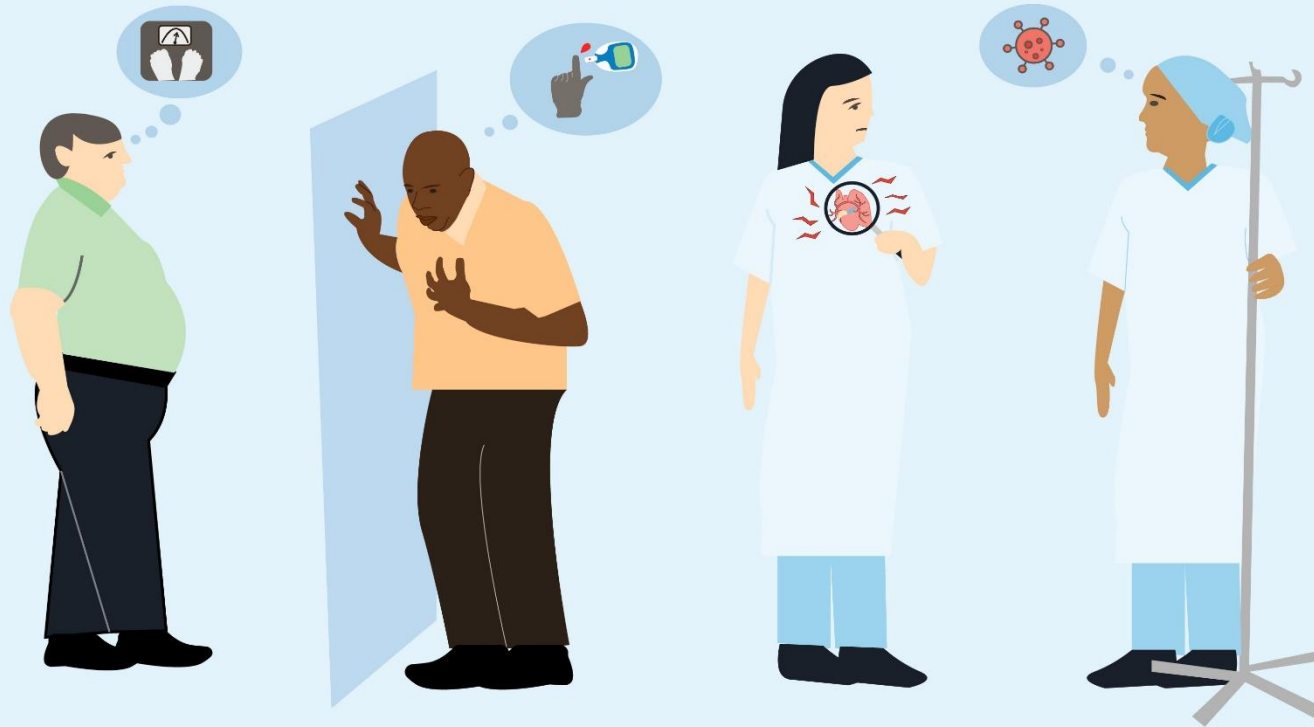
## Dynamic light













- White light in various shades
- Possibility to use RGB colors for ambience
- No evidence or health benefits



# Consequences of conventional light

Too little light during the day and too much light at night



-  Poor and fragmented sleep
-  Reduced performance capacity
-  Appetite at the wrong times, risk of overweight
-  Weakened immune system
-  Increased risk of miscarriage
-  Hormonal disturbances
-  Increased risk of cancer
-  Increased risk of diabetes
-  Increased risk of heart disease
-  Low mood and frustration
-  Increased risk of depression
-  Disruptions and activities at the wrong times



# Effect of Chromaviso circadian lighting – patients

- Reduces depression, anxiety, and fatigue
- Improves sleep and memory
- Shorter hospital stays, faster recovery
- Reduced need for medication



**80%**

Experience improved  
sleep habits



**72%**

Experience better  
sleep quality



**75%**

Experience better quality  
of life



**80%**

Experience greater calm



**52%**

Experience improved  
mood / reduced  
depression



**52%**

Experience less fatigue



# Effect of Chromaviso circadian lighting – staff

- Reduces sick leave
- Improves working conditions and increases well-being
- Better sleep and feeling more rested
- Increases efficiency and performance
- Attracts and retains staff



**79%**

Experience greater well-being



**75%**

Experience less fatigue



**75%**

Experience more energy



**79%**

Experience increased well-being



**72%**

Experience less eye fatigue



**21%**

Reduction in sick leave



# Evidence for Chromaviso Circadian Lighting



## Clinical studies

Stroke Unit, Rigshospitalet Glostrup, Anders Sode West

**90 patients:** Reduces depression and fatigue more effectively than medical treatment.

**49 %** less depression  
**46 %** increased well-being  
**28 %** reduced anxiety

Circadian lighting has the same effect as antidepressant medication after a stroke

Neurosurgical Intensive Care, Aarhus University Hospital, Leanne Langhorn

**20 patients:** Improved sleep and memory. Reduced hospital stay, depression, and medication use.

ROOM-LIGHT, Psychiatric Center Copenhagen, Klaus Martiny

**150 patients:** High acceptance and usage. Reduced hospital stay, depression, and medication use.

Clinical Research Center, Hvidovre Hospital, Kristina Aggergard

**35 residents and 35 staff:** Improved sleep, circadian rhythm, and well-being.



## Qualitative studies

Aarhus University Hospital and Rigshospitalet, Leanne Langhorn

**Pilot study with 26 nurses on rotating shifts:** Better sleep, feeling more rested, and improved work environment.

Stimulation Room, DemensCentrum, Jeanette Jepsen

**46 residents:** Improved mood, increased attention, and enhanced memory. Reduced aggressive behavior during physical and mental distress.

Odense Municipality, Herluf Trolle

**Nursing home:** Improved activity levels among staff. 21% reduction in sick leave. Less nighttime wandering among residents. Better sleep and well-being.

**21% lower sick leave**

**68% less aggressive behavior**

# Increased efficiency among employees

## PRODUCTIVITY



### The effect of circadian lighting:

- Increased efficiency
- Reduced sick leave
- Improved staff well-being and loyalty
- Easier recruitment of employees

## WORK ENVIRONMENT



### The impact of circadian lighting:

- Reduced stress
- Increased energy
- Reduced headaches
- Improved mood
- Reduced depression
- Increased comfort and well-being

## SUSTAINABILITY



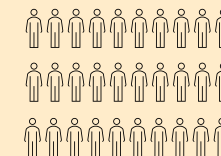
- Environmental and social responsibility that supports your ESG reporting
- Can be integrated into your CSR strategy
- Optimized energy consumption
- Reduced energy use by more than 60%
- Improves certification opportunities

Increased efficiency by 2.5%

## Salary costs



300 employees



Average gross salary  
for the nurses

€55.000

Total annual  
salary cost

€16.500.000

## Annual savings: circadian lighting

€16.500.000 x 2,5%

= €412.500



# Return of investment

## Assumptions:

- 300 employees
- 1000 luminaires
- Price per luminaire based on LED technology:
  - Chromaviso circadian lighting: €442
  - Alternative lighting solution: €160

## Not included:

- Savings from shorter hospital stays
- Savings from reduced medication use



### Circadian lighting

Number of luminaires: 1000  
Price per luminaire: €442

$$1000 \times €442 = €442.000$$

### Alternative lighting solution

Number of luminaires: 1000  
Price per luminaire: €160

$$1000 \times €160 = €160.000$$

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**The difference:** € 442.000 - €160.000 = €282.000

### Annual savings from documented effect

$$€16.500.000 \times 2,5\% = €412.500$$

### Savings after 10 years

$$€412.500 \times 10 - €127.930 = €3.997.070$$

### ROI on the additional investment

$$€282.000 / €412.500$$

**ROI = 8 months**

The delivered fixtures are based on one of our two lighting solutions below, depending on the current need



Circadian lighting for areas  
with activity and occupancy  
during the daytime



Circadian lighting for areas  
with activity and occupancy  
24/7

# Luminaries

**HALO**



**GLOW**



# Control panel

The control panel features four distinct functions:

1. **ON** – Always circadian lighting
2. **OFF** – Turns off the light
3. **Standard/Task Lighting** – Light according to applicable standards
4. **Night Work Lighting** – Optimized for nighttime tasks





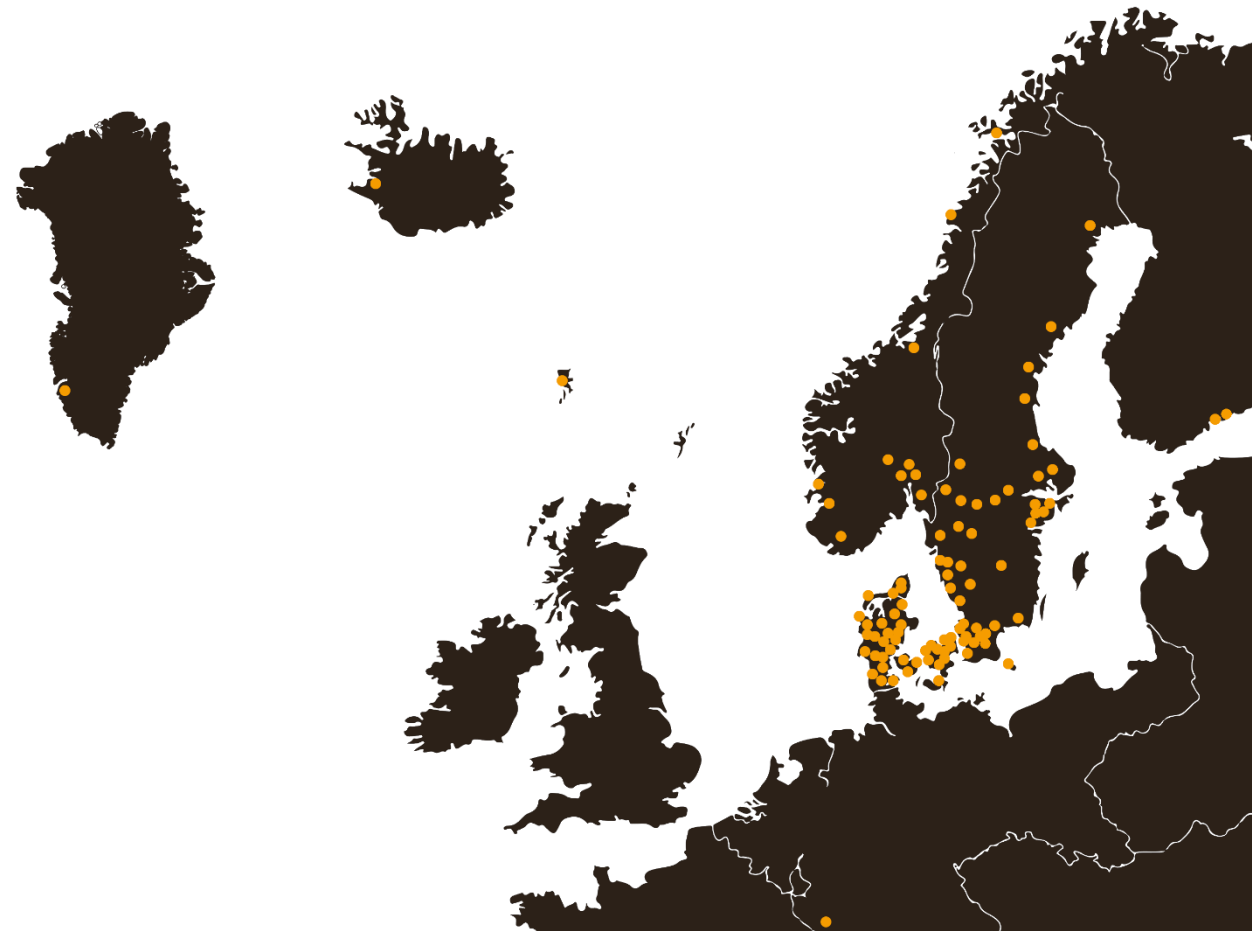
# References

**3000+ installations in Scandinavia**

**130+ hospitals in Scandinavia**

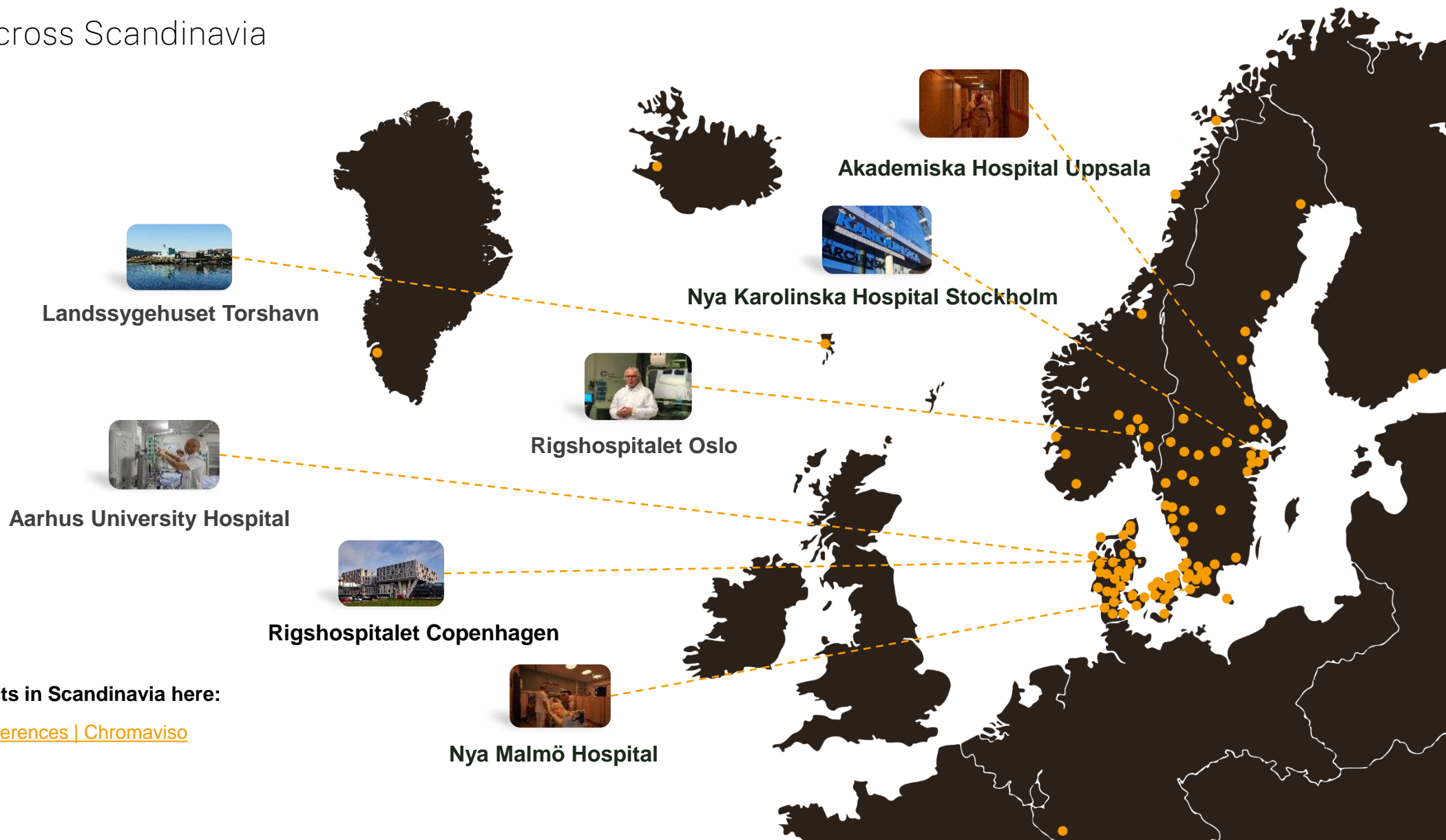
**18+ years of experience**

**100,000 residents, patients, and staff  
benefit daily from circadian lighting**



# References

From hospitals across Scandinavia



See a selection of projects in Scandinavia here:

[Our lighting projects and references | Chromaviso](#)