Using Light Exposure to Improve Sleep and Circadian Health for People with Alzheimer's Disease

Erik Page, William Huang, Dave Harris, and Hank Ibser
AD/ADRD Focus Pilot Core

BLUE IRIS LABS

MassAITC
Massachusetts AI and Technology Center
for Connected Care in Aging & Alzheimer's Disease

Background

- Light exposure regulates circadian rhythms, impacting sleep.
- Bi-directional relationship:
  - Poor sleep -> AD/ADRD Progression
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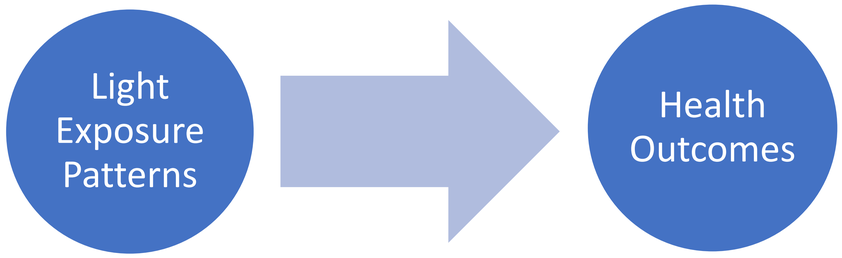
- Poor sleep, especially night awakenings, often forces a move from home care to institutional care.
- Strong evidence of the benefit of "bright days and dark nights" for AD/ADRD sleep, circadian entrainment, and overall health (see below).

Development – The Speck Light Exposure System

- The Speck wearable continuously records the intensity and spectrum of light exposure.
- The Speck Connect app combines light exposure data with sleep tracking data to identify light exposure patterns that improve sleep.
- The Blue Iris Light Coach helps people to get better light exposure to improve sleep and health.



Results

- 28 Participants wore Speck light sensors and Apple Watches (for sleep metrics) during a 1-2 month a2 pilot study.
- 16 participants were "highly compliant" with at least 21 days in which they wore the Speck for at least 12 hours and gathered valid sleep data that evening.
- As a group, the participants showed positive correlations between getting "bright days and dark nights" and sleep metrics.

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Effect of light therapy on delirium in older patients with Alzheimer's disease-related dementia

Chenjun Zou [a], Xi Mei [b], Xingxing Li [b], Jun Hu [a], Ting Xu [a], Chengying Zheng [a]

Conclusion

"Our systematic review and meta-analysis revealed that light therapy significantly improved sleep and psychobehavioral symptoms in patients with AD."

Acknowledgments

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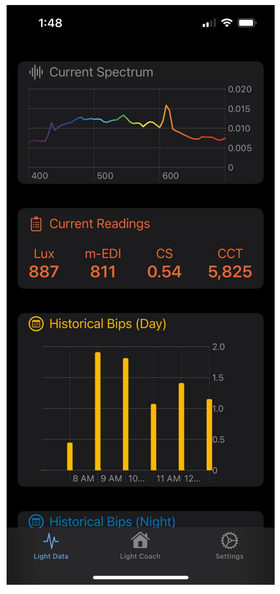
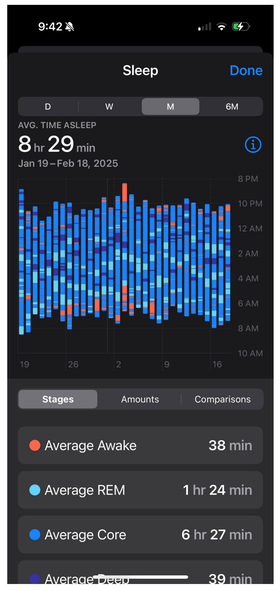
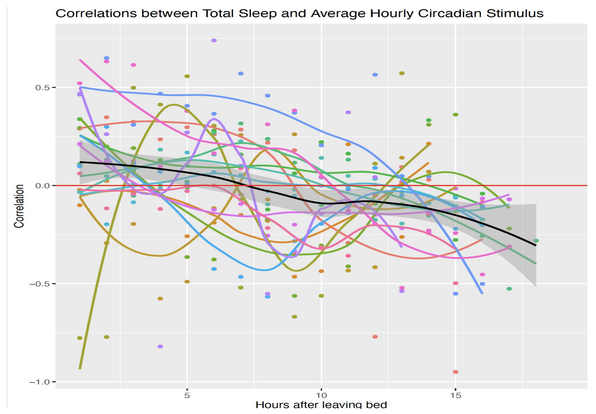
Measurable Signals



Measurable Outcomes





Commercialization

- In 2025, we plan to begin selling the Speck as a general wellness device designed to improve circadian entrainment and sleep for people with AD/ADRD.
- We will market directly to people with AD/ADRD and their families.
- We are also looking for healthcare partners (care facilities, providers, etc.) who are interested in helping people with AD/ADRD.