

Sensory and Social Deprivation During a 3-day Dark Retreat



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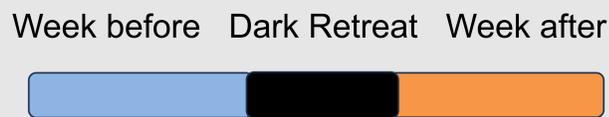
Introduction

- Dark retreat is an ancient contemplative practice in which practitioners enter complete darkness and social isolation with the goal of gaining spiritual insight through intensive exploration of first-person experience.
- Research Objectives:** Characterize the neurophysiological, psychological, and phenomenological effects of a 3-day dark retreat at Sky Cave Dark Retreat Center in Oregon, USA.
- Hypotheses:**
 - Subjective improvement in mood, embodied mindfulness, and psychological insight after the dark retreat.
 - Objective changes in sleep measures, circadian rhythms, and heart-evoked potentials¹ during dark retreat.

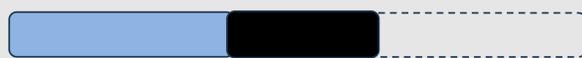
Methods

- Arm 1: $N = 6$ of 10 total participants
- Arm 2: $N = 10$ of 20 total participants (no physiological measures)

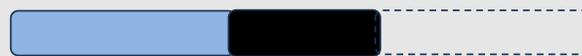
1. Oura ring



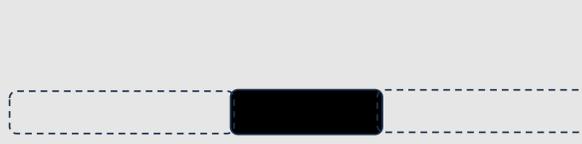
2. Muse EEG (sleep)



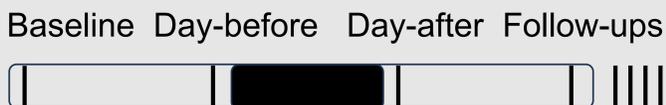
3. C3 + ECG (1 hr/day)



4. Voice Recorder



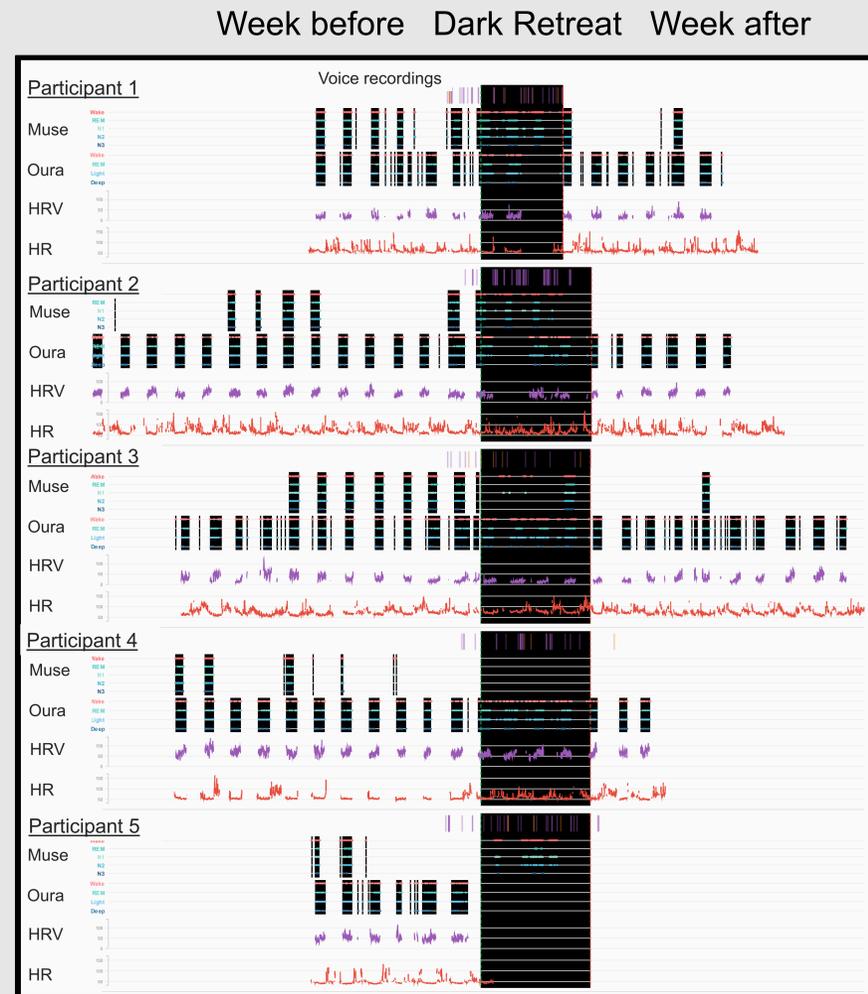
5. Questionnaires



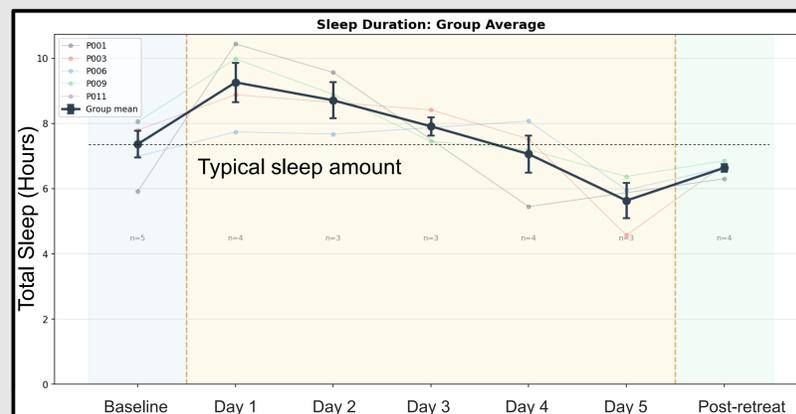
Follow ups at: 2 weeks, 1 month, 3 month, 6 months

Results

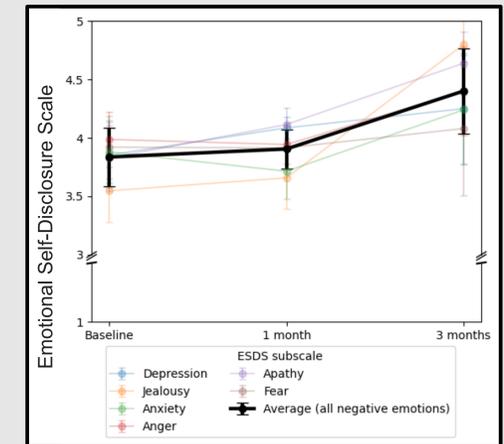
1. Muse EEG, Oura, EKG, and voice-recording data were collected prior to, during, and after dark retreats



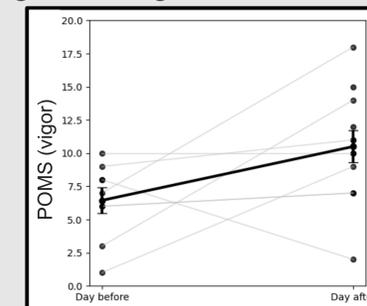
2. Participants slept more than usual during retreat.



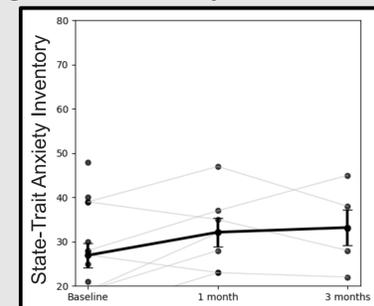
3. Participants expressed greater willingness to discuss negative emotions after retreat.



4. Participants reported greater vigor after retreat.



5. Participants reported greater anxiety after retreat.



Conclusions

- Preliminary results from a partial sample showed longer sleep periods during retreat and greater vigor after.
- Despite higher anxiety after retreat, participants reported greater willingness to discuss negative emotions.
- Ongoing analyses of verbal reports during retreat and heart-evoked potentials aim to characterize moments of heightened bodily awareness and meditative depth.

References

1. Nath, M., Becattini, V., Laukkonen, R. E., Ganesan, S., Hanley, A., Holecek, A., Simonian, N., Schoeller, F., Khalsa, S., Sacchet, M., & Regentte, N. (2025). Heartbeat-evoked potentials as a neural marker of meditative depth. Preprint on OSF.

Thank you to Unlikely Collaborators, Sky Cave Dark Retreats, and participants. Questions? Email danielmorris@u.northwestern.edu