

Supplemental Digital Content 2

Nap Workshop & Sleep Psychoeducation

The Workshop on Napping behavior and sleep was designed to enhance recovery and relaxation management using behavioral strategies drawn from cognitive behavioral therapy for insomnia and circadian misalignment and in line with current shift work recommendations.

Jeon, B. M., Kim, S. H., & Shin, S. H. (2023). Effectiveness of sleep interventions for rotating night shift workers: A systematic review and meta-analysis. *Frontiers in Public Health*, 11, 1187382. <https://doi.org/10.3389/fpubh.2023.1187382>

Wickwire, E. M., Geiger-Brown, J., Scharf, S. M., & Drake, C. L. (2017). Shift work and shift work sleep disorder: Clinical and organizational perspectives. *Chest*, 151(5), 1156–1172. <https://doi.org/10.1016/j.chest.2016.12.007>

Murawski, B., Wade, L., Plotnikoff, R. C., Lubans, D. R., & Duncan, M. J. (2018). A systematic review and meta-analysis of cognitive and behavioral interventions to improve sleep health in adults without sleep disorders. *Sleep Medicine Reviews*, 40, 160–169. <https://doi.org/10.1016/j.smr.2017.12.003>

Edinger, J. D., & Means, M. K. (2005). Cognitive-behavioral therapy for primary insomnia. *Clinical Psychology Review*, 25(5), 539–558. <https://doi.org/10.1016/j.cpr.2005.04.003>

Part 1 – Sleep Physiology (~30 min)

Learning Objectives

- Understand why fatigue management is essential in high-demand professions.
- Learn the physiological functions of sleep and how it is regulated.
- Recognize the cognitive, emotional, and behavioral effects of sleep deprivation.
- Understand sleep architecture and individual sleep needs.

Content & Flow

1. **Why Fatigue Management Matters**
 - Examples from military, aviation, and other high-demand industries.
 - Rationale for inclusion in healthcare curricula.
2. **Why We Sleep**
 - Physiological roles: growth hormone release, immune function, toxin clearance, etc.
3. **Effects of Sleep Deprivation**
 - *Interactive:* Participants share personal fatigue experiences and link them to workplace “sleep culture.”
 - *Explain:* Cognitive, emotional, behavioral effects.
 - **Example:** Dawson et al., *Nature* (1997): 17 h awake $\approx$ 1 g/L blood alcohol.
 - *Demo:* Troop task or inhibition challenge.
4. **Sleep Regulation Processes**
 - Homeostatic process (“sandglass” analogy).
 - Circadian process (24 h temperature curve, afternoon dip).
5. **Sleep Architecture & Circadian Timing**
 - Hypnogram: SWS predominance early night, REM predominance late night.
 - Sleep stages explained with BIS comparison (link to participants’ clinical tools).
6. **Sleep Need**
 - Sleep duration across the lifespan.
 - Epworth Sleepiness Scale.
 - Chronotypes and short/long sleeper profiles.

Part 2 – Napping (~45 min)

Learning Objectives

- Understand naps as a countermeasure in fatigue management.
- Learn optimal nap timing and duration to maximize benefit and reduce inertia.
- Identify personal and workplace barriers to napping.

Content & Flow

1. Attitudes & Experiences

- *Interactive:* Open exchange on napping habits, barriers, and benefits (quiet rest, oversleep prevention, sleep inertia, night sleep impact).

2. Importance of Napping as Countermeasure in Shift Work

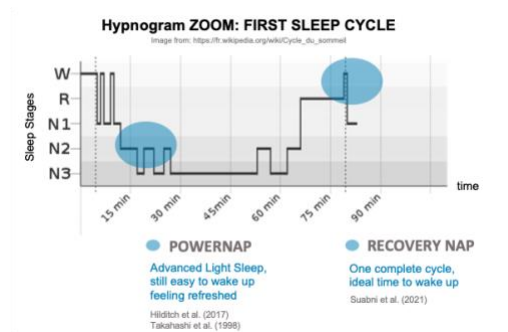
- Neuroprotective effects of sleep and potential role in neurodegenerative disease.

3. Sleep Onset Latency & Sleep Inertia

- Definitions and normal ranges.

4. Nap Types & Timing

- Hypnogram: first 90 min cycle; deep sleep onset ~30 min.
- Avoid waking in N3; target N2.
- NASA Nap (1995): 26 min total sleep within 35 min window.
- Definitions: power nap (~20 min sleep in a 30 min window) vs. full recovery nap (~90 min).



5. Evidence for Benefits & Training

- Domains: sports, military, healthcare, cognition.
- Nap efficiency protocols: reducing onset latency, increasing N2 duration.

6. Nap Practices

- *Interactive:* Position, light, noise, phone use, comfort strategies.

7. Nap Agenda Planning

- Identify fatigue-prone work periods and optimal nap windows.
- Visual peer examples with actigraphy and work schedules.

Part 3 – Relaxation & Activation (~30 min)

Learning Objectives

- Practice relaxation strategies to facilitate rapid sleep onset.
- Learn activation techniques to minimize post-nap inertia.

Content & Flow

1. Guided Relaxation Before Nap

- HRV biofeedback (~5–6 breaths/min).
- Progressive Muscle Relaxation (feet → face).
- Mental imagery (safe place).

2. Silent Nap Transition

3. Guided Post-Nap Activation

- Gentle stretching.
- Standing: tapping arms and clavicles.
- 10 squats to stimulate circulation and alertness.