The Prevalence of Controlled Rest as a Countermeasure to Sleepiness on the Flight Deck

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Introduction

- Despite the introduction of flight, duty, and rest time regulations to reduce the risk of sleepiness, airline pilots often encounter elevated sleepiness during flight.
- To combat this sleepiness, in some instances, pilots can take a short nap on the flight deck (Controlled Rest, CR) to improve their alertness.
- Little is known, however, as to when and how often this countermeasure is used operationally.

Methods

- Pilots (n=43; 40 male; mean age ± SD = 44 ± 10 y) from a non-US carrier wore actiwatches and filled in an electronic sleep and work diary for approximately 2 weeks resulting in data from 240 long-haul flights.
- Self-reported in-flight rest periods were used to set rest intervals and sleep was estimated within these intervals using Philips Actiware 6.0.9 (Bend, OR) (Fig. 1).
- Wake threshold selection was set to medium; sleep threshold detection algorithm was set to 10 immobile minutes at sleep onset and sleep end.
- Timing of sleep periods was analyzed relative to home base time.

Results

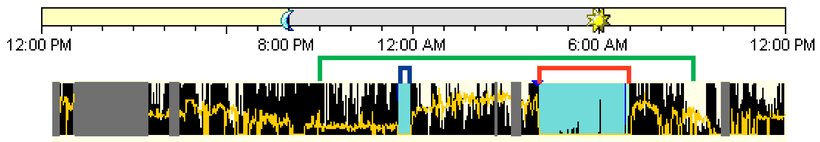

Fig. 1: Example actigraphy plot showing flight duration (green bracket), Controlled Rest (CR; blue bracket), and Bunk Rest (BR; red bracket). Black spikes: movement per 1-min epoch; Blue blocks: sleep episodes; Yellow line: light exposure; Grey blocks: invalid data.

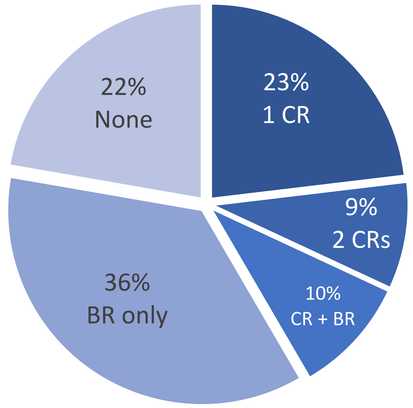

Fig. 2: Distribution of flights with different combinations of Controlled Rest (CR) and Bunk Rest (BR); N=238 flights.

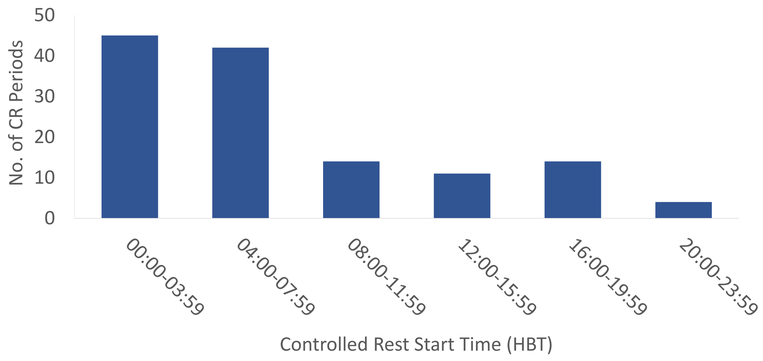

Fig. 3: Distribution of Controlled Rest start times relative to the home base time (HBT) of pilots.

Results (cont'd)

- Controlled Rest was taken on 45% (n=107) of flights (Fig. 2).
- On 21% of these flights (n=23), pilots reported taking two Controlled Rest periods (Fig. 2).
- Sleep, as estimated by actigraphy, was achieved during 79% (n=103) of Controlled Rest periods.
- The mean (±SD) duration of Controlled Rest periods was 42.6 (± 9.7) minutes with a mean of 24.8 (± 16.1) minutes of sleep estimated within these rest periods.
- 67% (n=87) of all individual Controlled Rest periods started during home base nighttime (00:00-08:00) (Fig. 3).
- On 22% (n=24) of flights with Controlled Rest, pilots also reported taking Bunk Rest (longer rest period in a designated onboard sleeping facility).

Conclusion

- The data from this airline show that Controlled Rest is commonly used as a countermeasure to sleepiness on the flight deck.
- Further analysis is required to determine what other factors contribute to the decision to take Controlled Rest, and how effective it is in reducing sleepiness on the flight deck.

Support

NASA Airspace Operations and Safety Program, System-Wide Safety Project