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

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