Caffeine & Performance *in the Operational Environment*

Did You Know?

- Caffeine is the most widely used psychoactive substance in the world.
- Caffeine can improve vigilance by 20-35%, reaction time by up to 70%, marksmanship by 25-30%, and other aspects of performance when used at appropriate dosages.

82% of active-duty U.S. Army Soldiers use caffeine daily.

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The source of caffeine can impact performance. For example, caffeine gum improves performance faster during sleep loss than a caffeinated beverage due to its faster absorption rate.

Taking caffeine in the right amount at the right time enhances warfighter performance.



Caffeine effects may vary based on individual sensitivity, level of sleep, and level of use for both caffeine and substances that interact with caffeine. Chronic caffeine use can lead to increased tolerance and reduced effectiveness.

How much caffeine do you consume? 5-hour Energy Shot Strong Brewed Coffee Monster Energy Drink Espresso Military Energy Gum Rip It Energy Shot Weak Brewed Coffee Black Tea Soft Drink Green Tea



200mg/2oz 175mg/8oz 160mg/16oz 150mg/2oz 100mg/piece 100mg/2oz 100mg/8oz 53mg/8oz 37mg/8oz

Caffeine, Sleep & Performance in the Operational Environment

THE VICIOUS CYCLE OF CAFFEINE MISUS

Caffeine disrupts sleep Insufficient sleep and poor sleep quality degrade performance

Caffeine improves performance

Sleep & Performance

- To derive maximum benefits while avoiding side effects of caffeine, take 200mg of caffeine every 6 hours upon waking/start of shift.
- When possible, avoid using caffeine 6 hours prior to bedtime.
- Save caffeine use for during operations to reach full effectiveness.

2B-Alert Algorithm

The 2B-Alert algorithm predicts performance based on sleep-wake patterns, time-of-day, and dose and source of caffeine. The tool also can provide caffeine dosing recommendations to optimize performance during a pre-specified time period in the future.

https://2b-alert-web.bhsai.org



Developed by the Behavioral Biology Branch, Center for Military Psychiatry and Neuroscience For more sleep resources, check out our website: https://www.wrair.army.mil/node/349 The opinions or assertions contained herein are the private views of the authors and are not to be construed as official. WRAR Walter Reed Army Institute of Research