Algorithm provides customized caffeine strategy for alertness
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According to the authors, caffeine is the most widely consumed stimulant to counter the effects of sleep deprivation on alertness. However, to be safe and most effective, the right amount must be consumed at the right time.

Last year at SLEEP 2018 in Baltimore, Reifman presented data comparing the algorithm with the caffeine dosing strategies of four previously published experimental studies of sleep loss. The current study extended his team's previous work by incorporating the automated caffeine-guidance algorithm in an open-access tool so that users can input several factors: the desirable peak-alertness periods within a sleep/wake schedule, the minimum desirable level of alertness, and the maximum tolerable daily caffeine intake.

With this added capability, the 2B-Alert Web 2.0 tool now allows users to predict the alertness of an "average" individual as a function of his or her sleep/wake schedule and caffeine schedule. It also enables users to automatically obtain optimal caffeine timing and doses to achieve peak alertness at the desired times.

This freely available tool will have practical applications that extend beyond the realms of the military and the research lab, noted Reifman.

"For example, if you pull an all-nighter, need to be at peak alertness between, say, 9 a.m. and 5 p.m., and desire to consume as little caffeine as possible, when and how much caffeine should you consume?" he said. "This is the type of question 2B-Alert was designed to answer."

The research abstract was published recently in an online supplement of the journal *Sleep* and will be presented Wednesday, June 12, in San Antonio at SLEEP 2019, the 33rd annual meeting of the Associated Professional Sleep Societies LLC (APSS), which is a joint venture of the American Academy of Sleep Medicine and the Sleep

Open access web tool: 2B-Alert Web 2.0

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