

# Caffeine intake prevents risk taking after extreme sleep deprivation

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Caffeine use prevents increased risk taking that occurs after several nights of total sleep deprivation, according to new research. Results indicate that despite extreme sleep deprivation, participants who had consumed caffeine did not exhibit increased risky behavior on the Balloon Analog Risk Task (BART), a computerized measure of impulsive risk-taking.

Participants who received the placebo were unchanged from baseline on the cost/benefit ratio of the BART at 51 hours of sleep deprivation, but showed a significant increase in risk-taking by 75 hours. The caffeine group remained unchanged from baseline at either 51 or 75 hours of wakefulness and was significantly less risky than the placebo group at 75 hours.

According to principal investigator Maj. William D. "Scott" Killgore, PhD, research psychologist at the Harvard Medical School and Walter Reed Army Institute of Research, sleep deprivation may not have a simple linear effect on risk taking; however, there may be a 'breaking point' during which a person may show a drastic release in their ability to control or inhibit behavior. In this study, caffeine seemed to protect against that breaking point.

"People who were awake for three days straight became more impulsive and acted with less regard for consequences," said Killgore. "However, if they had consumed caffeine each night (about the equivalent of 1-2 cups of coffee every two hours from just after midnight until dawn), they

showed no increase in risky behavior."

The study involved 25 healthy volunteers (21 men, 4 women) between the ages of 20 and 35 years, who were deprived of sleep for three nights. In a double-blind administration, subjects received 200 mg [caffeine](#) gum or identical placebo gum bihourly each morning from 1 a.m. to 7 a.m. during the period of sleep deprivation.

At mid-morning, subjects participated in a behavioral task of risky behavior that requires expenditure effort (BART), during which participants were asked to inflate virtual balloons on a computer and try to 'cash in' their value before they popped. The bigger the balloon, the more money it was worth.

According to Killgore, findings of this study look at the most extreme range of sleep deprivation, so most people will not experience such effects under normal circumstances. However, findings from a previous study show that people who were chronically restricted to three hours of sleep per night for a week showed a progressive increase in risk-taking behavior during the same task. Thus, it is possible that a similar 'breaking point' occurs with longer periods of chronic [sleep deprivation](#), though further research is still necessary.

Source: American Academy of Sleep Medicine ([news](#) : [web](#))

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