

Once You've Missed This Much Sleep, Caffeine Will No Longer Save You

By Paige Towers • June 14, 2016 at 12:24pm

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You haven't slept well for three nights. You're a soldier, or a shift worker, or a new parent or an insomniac. And when you reach for that caffeine on the fourth day, you're hoping for a miracle — something to keep your eyelids glued open, something to up your reaction times from slothlike to still functioning. But a pot of coffee, a few cans of Redbull or even a few cans of Rip It — the military's goto energy drink

— won't save you

from the effects of sleep deprivation.

After just two nights of restricted sleep, caffeine will most likely kick in to clear out that adenosine from your blood and improve your performance and alertness. After three nights, however, it looks like caffeine's curative properties won't save you: a new study

— the abstract of which was recently published in the journal *Sleep*, conducted by the

Walter Reed Army Institute
of Research

and presented at Denver SLEEP 2016— shows that after three nights of
restricted sleep

(in this case, five hours of sleep a night), 200 mg of caffeine twice a day had zero effect.

It appears that three nights is the tipping point: once your brain is that tired, 400 mg of caffeine isn't sufficient enough to prevent performance decline.

The placebocontrolled study consisted of 48 healthy adult participants who had their sleep restricted to five hours every night for five consecutive nights. Each day, 400 mg of caffeine (or a placebo) was administered — half in the morning, the other half in the afternoon. During the experiment, participants underwent a daily set of cognitive tests, including the commonly used Psychomotor Vigilance Task (PVT), which measures visual reaction time.

While data showed that caffeine vastly improved the non placebo subjects' response times and general performance during tasks after the first and second night of bad sleep, it appears that three nights is the tipping point: once your brain is that tired, 400 mg of caffeine isn't sufficient enough to prevent performance decline.

But if you're thinking that upping the amount of caffeine you consume is the quick fix here, think again. The maximum daily amount of caffeine intake considered safe by is 400 mg — or roughly four cups of brewed coffee, five 8.4 oz cans of or two and a half 16 oz cans of What happens after that? You might start to experience nervousness, irritability, upset stomach, fast heartbeat and even muscle tremors.

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Mayo Clinic

Red Bull, Rip It.

Considering that caffeine is relied upon by the sleepy masses as a nofail stimulant, this study may impact how the military and others view sleep deprivation and performance decline. In the future, if it's at all possible, maybe "here, drink this cup of coffee," will be replaced by, "here, lie down and sleep."