

## New-onset psychosis: Check caffeine use

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Caffeine belongs to the xanthine chemical group and its stimulant effects are the result of its competitive antagonism on adenosine receptors A1 and A2A in the CNS. Caffeine also slows the rate of dopamine reuptake and increases glutamate release, which theoretically could cause neuropsychiatric symptoms.<sup>1,2</sup> Toxicity ranges have been recorded at 150 to 200 mg/kg. Increased psychotic features in schizophrenia patients have been reported at doses as low as 10 mg/kg.<sup>1</sup> Earlier studies of caffeine use in patients with psychotic disorders reveal induction in thought disorders, social withdrawal, and euphoric activation<sup>3</sup>; however, these results have been variable.<sup>1</sup>

The American Association of Poison Control Centers reported 4,600 caffeine-related calls in 2005; one-half of involved patients age <19.<sup>4</sup> For a list of the caffeine content of 20 popular drinks, see this article at [CurrentPsychiatry.com](http://CurrentPsychiatry.com).

### Caffeine-induced psychosis?

My team recently treated a woman with prodromal psychotic symptoms for whom ingesting a high dose of caffeine precipitated a psychotic break.

Ms. P, age 19, presented to our Naval outpatient psychiatry clinic reporting a decline in her ability to organize her thoughts over the past 6 months. She said at times she experienced visual hallucinations and feeling that she was being followed but no one was there. Ms. P also stated she felt other people were talking about her and described ideas of reference. She described her prodrome as an unrelenting and existential interest in the number 33.

The patient drank 4 cups of coffee each day, plus an additional 3 to 4 cups of coffee and 2 to 3 Monster energy drinks on days she was on duty. Ms. P was ingesting approximately 21 to 22 mg/kg/d of caffeine. Basic lab and radiographic work were unremarkable. We asked her to reduce or discontinue her use of caffeinated beverages and return for follow-up in 1 to 2 weeks.

When Ms. P returned 2 weeks later, she said she had reduced her caffeine intake to a periodic cup of coffee or Monster drink. She reported improved sleep quality and quantity; moreover, she experienced a substantial decline in thought disruptions and paranoid thought patterns. However, over the next 4 weeks Ms. P's reality testing gradually deteriorated, so we prescribed ziprasidone, 20 mg/d, which dissipated her perceptual disturbances. Ms. P tolerated the low-dose antipsychotic and medically retired from military service.

#### References

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3. De Freitas B, Schwartz G. Effects of caffeine in chronic psychiatric patients. *Am J Psychiatry*. 1979;136(10):1337-1338.
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#### Disclosure

Dr. Whiting reports no financial relationship with any company whose products are mentioned in this article or with manufacturers of competing products. The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.

Caffeine in doses as low as 10 mg/kg have been reported to increase psychotic features in schizophrenia patients



Visit this article at [CurrentPsychiatry.com](http://CurrentPsychiatry.com) for a list of the caffeine content of 20 popular drinks

**Table**

## Caffeine content of 20 popular drinks<sup>a</sup>

Drink	Caffeine concentration (mg/oz)
Energy Citrus Vitamin Water	2.5
Coca-Cola Classic	2.9
Pepsi Cola	3.2
Dr. Pepper	3.4
Mountain Dew	4.5
Amp	8.9
Full Throttle	9
Tab Energy	9.1
SoBe Adrenaline Rush	9.5
Red Bull	9.6
Monster	10
Rockstar	10
No Fear	10.9
Jolt Cola	11.9
NOS	16.3
Wired X344	21.5
Fuel Cell	90
Powershot	100
RedLine Power Rush	140
Ammo	171

<sup>a</sup>For comparison, the caffeine concentration of McDonald's coffee is 9.1 mg/oz

**Source:** Reissig CJ, Strain EC, Griffiths RR. Caffeinated energy drinks—a growing problem. *Drug Alcohol Depend.* 2009;99(1-3):1-10.