

Best time for a coffee break? There's an app for that

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(Medical Xpress) -- Caffeinated drinks such as coffee and soda are the pick-me-ups of choice for many people, but too much caffeine can cause nervousness and sleep problems.

Caffeine Zone software app developed by Penn State researchers, can help people determine when caffeine may give them a mental boost and when it could hurt their sleep patterns. The software takes information on caffeine use and integrates it with information on the effects of caffeine to produce a graph of how the caffeine will affect the users over time.

"Many people don't understand how caffeine levels in their bloodstream go up and how they go down," said Frank Ritter, professor of information sciences and technology, psychology, and computer science and engineering. "It's important to understand the effect that caffeine can have at these various levels."

Ritter, who worked with Kuo-Chuan (Martin) Yeh, assistant professor of computer science and engineering, said that if a person drinks a cup of coffee rapidly, they will experience a spike in mental alertness, but enough of the drug can linger in the [bloodstream](#) to cause sleep problems hours later.

The researchers used peer-reviewed studies as input data to determine that caffeine drinkers with between 200 and 400 milligrams of caffeine in their [blood stream](#) are in an optimal mental alertness zone. For sleep,

the researchers set a lower threshold of 100 milligrams. Drinkers may have [sleep problems](#) if they remain above this.

The researchers, who reported their findings at the 2011 Augmented Cognition International Conference, said people who drink too much caffeine, too quickly, may face other problems. A spike of caffeine above the optimal level can cause nausea and [nervousness](#).

Maintaining proper caffeine balance is important for many workers. For example, sailors on submarines must carefully watch their [sleep patterns](#) because their sleeping and waking patterns vary each day, Ritter said.

"If they, and others who drink coffee to stay awake, drink too much coffee on one shift, they may have trouble sleeping," said Ritter. "So, the next day, they'll drink even more [coffee](#) and have even more trouble sleeping."

To plot caffeine's effect with the app, drinkers type in information about how much caffeine they drank, or plan to drink, and when they plan to have a caffeinated beverage. They also can add how fast they drink the beverage.

The app can also help people determine when to modify their [caffeine](#) habits, so that they might choose to drink a decaffeinated beverage, or mix a blend of caffeinated and decaffeinated coffees.

The app is available on iTunes for free with advertisements and for purchase without ads. It only works on Apple devices -- the iPhone, iPod Touch and iPad.

Provided by Pennsylvania State University

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