

BREAK FREE

with

OSCAR BAMUHIGIRE

Is cocaine as addictive, dangerous as other drugs?

Question: Dear Counsellor,

Cocaine is becoming a common drug these days, even among teenagers. Is it addictive or harmful like other drugs?

Ben, Kibuli

Answer: Cocaine is an addictive and harmful drug. Most people become addicted to it after using it regularly because, according to a 2010 study published in the journal *Trend in Neurosciences*, they become less sensitive to things that naturally make them happy (natural reinforcers) and substitute them with cocaine. This makes it difficult for them to be happy without the drug.

The study further explains that the brain circuits that deal with stress becomes more sensitive, causing increased displeasure and negative moods when the person is not taking the drug. These are what we call withdrawals. As a result, the researchers say the addict focuses more on using the drug to feel better, instead of relationships, food or other natural rewards.

Once addicted, they will begin to feel the need to take more of the drug than they initially used to, just to get the same feeling. That is according to a 2012 study published in the journal *Current Medicinal Chemistry*. This tendency, called tolerance, is the major cause of cocaine drug overdoses, which can be fatal.

Regular use of cocaine causes increased irritability, restlessness, panic attacks, paranoia and, in some cases, even full-blown psychosis.

Recovery often requires treatment with the help of an addiction counsellor and a self-help group.

Will cocaine damage my friends brain?

Question: Dear Counsellor,

Some of my friends take cocaine and I am worried that it could affect their brain. Can cocaine cause brain damage?

Cindy, Kampala

Answer: Johns Hopkins University scientists carried out a study involving mice and found that cocaine kills brain cells by triggering a process known as "overactive autophagy," in which brain cells eat and destroy themselves.

In this study, the researchers examined nerve cells in the brains of pregnant mice that were being used in the study. They found out that the cells which had been exposed to cocaine ate themselves up and died. The researchers explained that this process of autophagy in healthy cells functions as a normal process of self-cleansing, through which cells rid themselves of debris that accumulates in their membrane-contained "bags". These bags meld with other bags that are filled with acid, which destroy the contents of the bags.

Under normal circumstances, this process does not cause cell death, but when one takes cocaine, it accelerates, spirals out of control, and the cell kills itself. "Autophagy is a very delicate process," said Dr. Prasad Guha, one of the researchers in the study, "Controlled autophagy is used to clean up cell debris and help cells to survive. However, uncontrolled autophagy is detrimental."

Fortunately, the researchers were able to come up with a drug that can counter these effects of cocaine. One of these is a compound called CGP3466B, which is known to prevent cellular suicide or out-of-control autophagy. "It is important to know the exact mode of cell death," Guha explained. "We now know that autophagic cell death is exclusive for cocaine's neuronal toxicity, so developing drugs against autophagy could be beneficial."

The findings were published in the journal *Proceedings of the National Academy of Sciences*, 2016.

Oscar has about 20 years of continuous sobriety and 18 years experience as an addiction counsellor