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Brain structure may hold key to long-term sobriety

By Matt Andazola

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Many recovering addicts eventually relapse, says therapist Kerin Groves, but a certain type of person can put drugs down and never touch them again.

"I think that person is fundamentally different brainwise and personalitywise" from someone who relapses, says Groves, who works with Conflict Management Inc. in Albuquerque.

A 2009 study may prove her right. Researchers at the University of New Mexico and the Mind Research Network have identified possible differences in brain structure between those who relapse and those who do not — differences that may eventually lead to new rehabilitation techniques.

The study began, says Vincent Clark, the research network's scientific director, with the same observation Groves has had in her practice: Some addicts fail to stay abstinent while others seem to do so easily.

"The big question is, why is that?" Clark says. "Is there something different about the people who are successful?"

Clark's study examined 45 recovering cocaine or methamphetamine addicts over six months, during which 23 of the subjects relapsed.

When the study period ended, Clark says he and his team compared MRI brain scans of the relapsed users and the abstainers.

Almost invariably, scans of the abstainers showed greater activity in the posterior cingulate, a part of the limbic cortex near the brainstem.

The limbic cortex is an older, primitive part of the human brain, Clark explains, contributing to functions like emotion and attention.

"One of the things that it does is interpret the world around you in terms of how it affects your health and safety," he says.

After also looking at the psychological histories of the subjects, Clark says relapsing addicts usually reported having had episodes of mania — periods of intense energy and activity that can last all day and all night without the use of outside chemicals.

That is important because the study's subjects were addicted to stimulants, which produce heightened, artificial states similar to mania. Clark says the correlation suggests that recovering stimulant addicts who relapse have a natural, stronger inclination for cocaine or methamphetamines from the start.

The differing brain structures also suggest a group of people who are less able to recognize what leads them to use again.

"That could be key," Clark says, "that they just aren't using the part of the brain that could help them evaluate different types of situations."

When taken together, a lack of activity in the posterior cingulate and a history of mania were 90 percent accurate in predicting relapses, he says.

Taking over the brain

Essentially, Clark says, addictions — especially to stimulants — hijack one of the brain's most primitive functions.

The reward pathway of the brain creates a sense of well-being when the brain senses you have done something to keep yourself alive. For instance, if you are thirsty and drink a glass of water, your reward pathway lights up.

"Cocaine and methamphetamines activate this pathway so thoroughly that those networks have to think that this is the best thing for your survival you have ever encountered," Clark says. "And it's completely wrong."

Most other mind-altering drugs, including opiates and alcohol, function basically the same way.

Often, though not always, addictions form as a means of self-medicating a mental health problem, says Michelle Croteau, an Albuquerque therapist. For instance, someone who is undiagnosed bipolar might rely on a depressant like alcohol to counteract the disorder's periods of mania.

Self-medicating is most apparent in people who relapse cyclically, says Abigail Purvis, a nurse at the Recovery Services New Mexico methadone clinic.

"You realize you're dealing with more than just, 'Hey I want to get high,' " she says.

Recovering addicts who never relapse do exist, and may even be the majority, Groves says, but relapses are certainly not uncommon. She says they are sometimes part of recovery.

And there's a difference between slip-ups, with few or no consequences, and more common, full-blown relapses.

"Typically when people relapse, they really do it up good," Groves says. "They crash. They hit bottom."

Of course, "hitting bottom" means different things to different people — such as losing a job, being left by a spouse or landing in prison — but Groves says the clarity it brings can be crucial to the dedication required of relapse-free sobriety.

No overnight process

The recovery process is usually long and difficult, Croteau says, and a sign of impending relapse is overconfidence.

"If you already think, a week or two or a month into this, that you're through for life, that's a red flag," she says.

Croteau says the feeling can lead someone blindly into a trigger — a person, place or situation associated with their drug use or underlying mental health issues.

Real recovery requires effort and constant vigilance for these triggers, she says.

Purvis agrees, saying drug use, like any habit, is easy to slip back into if a person isn't paying attention.

For example, Purvis shares the story of road work near her home that made her normal driving route impossible. In the first two days of construction, she was careful to avoid it. But on the third day, she says other concerns were on her mind, "then all of a sudden, I'm driving the old way."

Using tough love

After a relapse, the therapists say they first evaluate its seriousness — in case hospitalization is necessary — then its causes.

Groves says relapses should be handled with compassion but not without consequences. That is especially true for addicts' friends and family to remember, she says.

The reality is many people will relapse, Croteau says. It's just a matter of training people to avoid their triggers as much as possible, and giving them an action plan if they can't.

And if further studies prove Clark's research correct, some people are innately better at handling their triggers than others.

The knowledge could, he says, create new therapy methods. But if relapses can be traced to differences in brain structure, medical technology may need to provide treatment options other than therapy.

"(Addiction) is at a very primitive level," Clark says. "It's not at a level that you can talk to."

And while some people struggle with it their entire lives, Purvis says hard work brings hope for recovery.

"It's been a lot of years," she says, "and I've seen a lot of people get sober."

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