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by Founder and Chief Medical Officer Dr. Ernie Fletcher

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Neuroimaging techniques have come a long way in helping us understand the way substance use tricks the brain's reward system and impairs its functioning. In the hands of University of Kentucky researcher Dr. Alex Elswick, neuroimages come alive with surprising dramatic impact. That's because when Elswick makes a presentation—as he did in our most recent webinar—the primary subject of his research stands before you.

Elswick's lifelong study of addiction began long before he entered academia. By virtue of privilege, good luck, and an intense need to understand, Elswick brought to bear on his own addiction an unrelenting degree of self-awareness, as if he were outside himself watching his own self-destruction.

Thousands of people with lived experience now work in the field of recovery, including over 100 at the Voices of Hope recovery center Elswick co-founded in Lexington. But Elswick is part of a much smaller group whose integration of academia and lived experience promise to have enormous impact in the years to come.



ONE MAN'S JOURNEY

"Believe me. It's not that I'm choosing this. Because it's not what I want. I just can't make it stop."

Alex Elswick grew up in a good home—a doctor father, an accountant mother, nice suburban home, expensive private school. "Nothing bad ever happened to me as a kid. I wasn't neglected or abused. My parents didn't use drugs. They didn't divorce. But I inherited some risk factors that made me genetically predisposed for addiction."

Anxiety disorders appeared in childhood, including trichotillomania which, in Alex's case, focused on his eyebrows. "I would physically sit on my hands and say out loud, 'Alex, stop!' Then 30 seconds later, I'd be doing it again." Though his father was a physician and four uncles struggled with addiction, his family dismissed the hair-pulling as an idiosyncracy that would soon go away. That left Alex alone on his quest for self-medication.

First it was sports (especially baseball), followed by nicotine, alcohol, and marijuana. "Cannabis was perfect," says Elswick. "It was the medicine I needed for the problem I had, like a window into a whole new world."

Things began falling apart his freshman year at college. Arrested for possession, he went to jail, was thrown off the baseball team, and finally expelled altogether. "Then, about two months into probation, I had surgery to remove some wisdom teeth and was given oxycodone. I took it the way it was prescribed, but with my genetic predisposition to addiction, co-occurring mental health disorders, and the trauma of being arrested and expelled, it was like an opioid grenade lobbed into the middle of it all. Everything blew up."

Cycling between treatment and jail, abstinence and relapse, Alex became so adept at withdrawal that he no longer feared it. But that didn't mean he was in control.

WATCH THE VIDEO To view our May 2 webinar featuring Dr. Alex Elswick, simply...



"I was trying so hard to stop. Over and over I'd go to treatment, then use again the first day out. I knew I was alienating everyone I loved and ruining my future, but I couldn't stop. That's when I began to suspect that choice had nothing to do with it. That suspicion eventually led, many years later, to the realization that addiction isn't about drugs. It's about the part of the brain that's beyond the reach of logic, choice, or morality. It's deeper than we imagine; that's why it's so illusive."

MAN'S BEST FRIEND

Elswick has taken his dog Buddy on the same walk every morning for over two years. One day—and one day only— Buddy was given a treat by a neighbor. "But how many of those 700-plus days do you think Buddy pulls at the leash to get to the neighbor's front door? The answer is every day."



IT'S NOT THE DRUG, IT'S YOUR BRAIN

"One of my favorite places to start is to tell people that drugs don't cause addiction," says Dr. Elswick. "But a lot of people hearing that for the first time go kind of crosseyed. You can see them thinking, 'Well, if drugs don't cause addiction, what on earth does?""

The answer is the human brain, specifically the part created millenia ago that associates pleasure with survival and puts survival above all else. That part of the brain is forever on a merry-go-round of feelings, some minor and easily managed, others overwhelming, not necessarily because of an actual threat but because the feeling is associated with sub-conscious, primeval fears of being cast out or perishing altogether.

In that sense, we are all self-medicating from moment to moment in one way or another, whether it's a cookie to mitigate boredom, a compliment or accomplishment to assuage self-doubt, a familiar routine to calm anxiety, or something stronger—like cocaine or heroine—that in one fell stroke obliterates all past, present, and future pain.

The fears driving substance use are unique to each person, but the way the brain works is universal. The same fight or flight response protects us all from perceived threats. Alcohol relieves social anxiety. Stimulants relieve depression by increasing energy or pleasure. Medicating chronic pain is so much a part of American culture that the over-supply and over-use of prescription opioids flew under the radar for years despite staggering loss of life.

So, yes, there are many paths to recovery. But the common denominator of all addiction is a million-yearold brain that evolved from the inside out with primal fears and desires at the core, overlaid but not overruled by later layers that can process contradictory information, think things through, and delay gratification. (Of course, it can also convince us we're under control when we may not be.)

"It's that part of the brain that leads adolescent children to make so many risky decisions," says Elswick. "It's not because they're stupid. They're all gas and no brakes for the simple reason that their brains haven't matured. The survival circuitry is fully functional at birth, but the regulatory circuitry requires a lot more time to develop."



THE REAL DOPE

Dopamine is a neurotransmitting chemical activated whenever we do something that makes our survival more likely, such as eating, drinking, bonding, or having sex. Elswick thinks of it as a beautifully elegant way of shaping behavior that can go horribly wrong when corrupted by chronic drug use.

"When I did opioids at 18, I experienced a huge and unnatural dopaminergic response. The more evolved part of my brain knew the consequences of using, but that didn't matter to my limbic system. All it cares about is survival which means all it cares about is how much dopamine it's receiving. The sensation is so strong that nothing else matters.

"That's why people who are addicted forego food, water, bonding, sex and everything else.

"So if you think talking about right and wrong and better choices will make a difference, think again."

WHAT WORKS AND WHAT DOESN'T

What's the cost of SUDs being routinely misunderstood, misdiagnosed, and mistreated? For Elswick, the answer's simple: relapse, relapse, relapse. And he should know.

"I went to seven different inpatient treatment centers without ever hearing a scientific explanation for addiction or what was going on in my brain. That's a shame because it destroys hope. When you have faith, make your best effort, and still fail, you start believing the stigma and the shaming. You start thinking there's no way out, you're doomed, and not worth saving."

Science is more hopeful, says Elswick, because it's more helpful. "You may be in the same place with the same pain, the same genetic predisposition, and the same risk factors, but at least you know what you're up against. There's hope in that."

Thinking of addiction as an acute rather than a chronic condition also sets us up to fail. One example is the 30day treatment center. "Tell people they'll graduate in 30 days and they naturally think, Great! I'll be cured and good to go on day 31. But if you use neuroimaging to look at their brain, you'll see it's just as depleted of dopamine as it was the month before. They can't feel any pleasure or benefit from exercise, meditation, eating a good meal, or meeting an interesting person. Once your dopamine level has been down-regulated, the only way to feel even remotely alive again is to use. And there's no way that level can be replenished in just 30 days."

Withdrawal, in other words, is over-rated and shortterm abstinence is only a beginning. What's needed is a complete continuum of care that allows people to build recovery capital while giving the brain the time it needs to heal, typically three to five years.

Elswick was lucky. By virtue of privilege and good fortune, he eventually found the help he needed. "The day I graduated from the Salvation Army, I went into an intensive outpatient program. So I had six months of inpatient treatment and then six weeks of intensive outpatient treatment to help me transition from a structured to an unstructured environment. I then started working individually with a therapist on my anxiety disorders. It was all ad hoc and haphazard, but it worked."



Elswick likens addiction to other chronic diseases like diabetes, hypertension, and asthma—all of which have similar 40 to 60 percent rates of recurrence. But his favorite analogy, as usual, comes close at hand: his own father's heart disease.

"The stent that saved his life was an acute procedure; they could have wheeled him out and been done with him. Instead, they enrolled him in eight weeks of cardiac rehab, called him after two weeks to make sure he'd filled his prescriptions and wasn't having any adverse reactions, scheduled a visit with a cardiologist a month later, and a follow-up with a primary care provider a month after that. That's the standard of care now for heart disease because insurance companies know it's more cost-effective. Give my dad only acute care and he's coming back with another problem. But manage his condition like the chronic disease it is with a nutritionist, an exercise program, and everything else—and you're saving money as well as lives. We just need to do the same with addiction."

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