

## **This new addiction treatment helps the brain heal**

Substance abuse can have a wide range of effects on people's lives, including damage to the social, psychological and physical health of those who are addicted. Many treatment programs focus on helping addicts get clean, helping them rebuild relationships with friends and family, and helping them live healthier lifestyles.

What most treatment centers don't address, however, are the underlying psychological issues that lead to addiction and the long-term effects of substance abuse on mental health, nor do they offer therapies that help patients rebuild lost cognitive functions as part of their treatment programs.

"We know substance abuse causes damage to the brain. Alcoholism, for example, causes significant gray matter loss, and that can affect decision-making processes," said Tonmoy Sharma, CEO of Sovereign Health Group, a network of addiction and mental health treatment centers based in San Clemente. "With cognitive remediation therapy, our goal is to bolster and teach compensatory strategies. We can target certain functions, like attention or memory issues, and it has shown to help people stay in treatment longer."

Sovereign Health is one of the few treatment centers in the country that not only studies the cognitive deficits caused by drugs and alcohol but also offers cognitive remediation therapy as part of its treatment programs for addiction, behavioral health and co-occurring conditions.

The use of CRT in addiction treatment is still in the very early stages — it's more commonly used in patients recovering from stroke or traumatic brain injuries or in people suffering from psychological conditions like schizophrenia. But as addiction experts increasingly treat substance abuse as a mental health issue rather than a conscious choice or moral failing, neurological tools such as CRT are becoming more common.

"Overcoming addiction is more than just wanting to stop," said Veena Kumari, chief scientific officer at Sovereign Health. "There are underlying brain issues that drive addiction, and once that becomes more accepted, CRT should become more widespread in addiction care."

### **What is CRT?**

Despite its complicated-sounding name, CRT is simply the use of computer games, puzzles and other brain-training activities to exercise specific cognitive functions, like working memory, attention and forward planning. The same types of brain-training activities, though less targeted to specific cognitive deficits, are widely available to the general public online and are touted as a way to keep the brain healthy and active as people get older.

This approach is based on the concept of neuroplasticity, by which the brain can reorganize itself, creating new neural pathways to compensate for damage and loss of function. For an example of neuroplasticity, consider a right-handed man who has a stroke that leaves him unable to use the right side of his body. Over time, the man can learn how to write with his left hand instead. This is possible because the brain can remap itself, adapting to overcome the injury.

The same is true for the subtler cognitive deficits caused by substance abuse. “If a person breaks their hand, they must do physical therapy to regain full function of the hand,” Sharma said. “The rationalization is the same for CRT — it’s like physical therapy for the patients’ minds after the damage caused by substance abuse.”

One hurdle that facilities like Sovereign have encountered is a lack of CRT programs designed specifically for addiction care. “We can use general programs to focus on working memory or impulsivity training,” Kumari said. “At the moment, I’m designing a new set of games. Some will be for attention, memory, impulsivity and so on. And we’ll make them dynamic so people can do one level, then move on to a higher level and continue improving.”

### **Treating addiction as a cognitive dysfunction**

For decades, addiction care has been available mostly in the form of 12-step programs treating substance abuse as a poor choice or moral failing that those struggling with addiction must overcome. Only in the last 15 years has an understanding emerged of addiction as a disease resulting in a problem with brain function. Thus, the movement to employ tools such as CRT in addiction care is part of a larger need to treat substance abuse in the same way doctors do any other chronic medical condition.

“[Those of us in the addiction treatment field] argued very hard for parity, but now we have to ask: Are we at par with other medical specialties?” Sharma said. “Addiction is a chronic illness that is currently being treated with episodic care. When someone has diabetes and they go to the hospital with high blood sugar, we don’t blame the patient for relapsing. That patient has a lifelong condition that is either under control or not under control, and they get insulin along with diet and weight loss counseling from a nutritionist. We need to do the same for substance abuse.”

To do that, Sharma said facilities like Sovereign should evaluate patients’ cognitive health from the beginning by measuring brain function and making appropriate assessments to diagnose any underlying behavioral health issues, all before determining the right path for treatment.

“Most facilities don’t even measure cognitive function. It has been completely ignored in addiction treatment,” Sharma said. “That’s like going for physical and the doctor doesn’t take your blood pressure. We need to make sure cognitive difficulties and deficits are addressed.”

### **How does CRT fit into a treatment program?**

CRT is just one of many tools that can be employed as part of an ongoing addiction treatment program, and there’s some evidence that it may even increase the effectiveness of other therapies. “It’s about helping people control their behavior,” Kumari said. “We’ve found that using CRT along with cognitive behavioral therapy — CBT, a form of talk therapy — not only helps them get better, but also to understand why they got better.”

What that means is that people in treatment may participate in CRT exercises to help improve their cognitive function, and that improved cognitive function leads to improved decision-

making abilities and makes them more receptive to other types of therapy such as CBT, which can help people confront the inner thought processes that lead them to feel distressed or to make destructive choices.

“Using the two treatments together lets people discuss the strategies they used after their training sessions, and that’s more effective than simply doing the training on its own,” Kumari said. “Learning takes place, and that learning is applied to other situations in life.”

Ultimately, CRT is a promising and safe tool that may help substance abusers who have suffered memory loss, impulsivity control or the ability to plan for their futures by improving their cognitive abilities.

“There is a big role for CRT in drug addiction,” Sharma said. “It has been shown to improve engagement in treatment. It also helps with abstinence, helps people stay longer in treatment, and it helps people gain insight into their situations. Given all these benefits, we need to think seriously about what we can do.”

—*Travis Marshall for [Sovereign Health Group](#)*

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