

Regain your brain

Addictive substances ‘hijack’ the brain by depleting, mimicking or interfering with its neurotransmitter-based reward system.

Nutritionist and psychologist Patrick Holford describes how nutrition strategies can reduce craving and prevent relapse.

The vast majority of people have some level of desire or craving for, dependency on or addiction to, one or more substances. Some are mildly dependent on substances like caffeine, sugar or alcohol – they get on with life, perhaps experiencing some benefits as well as some downsides. Some have tried to stop taking the substance because they wanted to be healthier, but started using the substance again because of the discomfort this caused. Others have had their lives ruined by addiction, are desperate to quit and may have attempted to many times.

Others still have successfully quit an addictive substance, expecting to feel so much better but only to find, months or even years later, that they still feel lousy. Whichever of these apply, the chances are that they have experienced some level of what we call ‘abstinence symptoms’ – symptoms that emerge when the addictive substance is removed, but after the immediate withdrawal phase. They include cravings, hypersensitivity to stress, noise or pain, feeling empty, incomplete, anxious or ‘shaky’, having problems with memory or sleep, fatigue, mood swings, restlessness and impulsiveness or depression – in short, pain and misery.

It is these symptoms that often cause people to return to the addictive substance, whether it’s sugar, nicotine, caffeine, alcohol or cocaine – the reason why attempts to give up fail. But what if you didn’t experience these abstinence symptoms? What if you had no cravings, no mood swings, no sleep problems and had good energy and motivation?

This should be our normal state – when the brain is working properly it creates a sense of wellbeing and satisfaction. When you are taking in the right nutrients your brain rewards you. Craving, dependency and addiction are what happens when the reward system goes wrong.

Every addictive substance, from caffeine to cocaine, works because it mimics or increases levels of naturally occurring brain chemicals such as the neurotransmitters dopamine, serotonin and endorphins that are all part of the brain’s reward system. If you are reward deficient and you find a substance that makes you feel good, your brain gives you a pay-off and you are going to use that substance again.

However, the more a person consumes the more their brain adapts to the presence of these substances, until they must use larger and larger quantities to get the same effect, causing more and more changes in the brain. As neurons in the brain adapt to larger and larger quantities, the brain can become reliant on the mood-altering substance and increasingly shuts down its own production of neurotransmitters. By this stage, attempts to quit soon lead to a whole host of abstinence symptoms that tell the person they must have the substance – life is not worth living without it. The addictive substance has hijacked the brain.

One logical way out of this cycle is to feed your brain the concentrated building blocks – amino acids – of its own natural feel-good chemicals, the ones the addictive substance has replaced. Twenty years ago a series of trials – some placebo-controlled double blind – by Kenneth Blum, who first coined the phrase ‘reward deficiency’, illustrated the benefits of this approach. More recent research, published last year, gave either placebos or amino acids to cocaine addicts and pathological gamblers. The cocaine users who were given amino acids found their desire for cocaine significantly reduced and 59 per cent of the

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gamblers given amino acids stopped gambling.

The neurotransmitters adrenalin and noradrenalin, for example, are made of amino acids L-phenylalanine and L-tyrosine. They create arousal, energy, stimulation and mental focus, and symptoms of deficiency include depression and poor concentration. The substances used to compensate for this deficiency are caffeine, cocaine, amphetamines, tobacco, marijuana, alcohol and sugar. Dopamine is made of L-phenylalanine and L-tyrosine and creates feelings of satisfaction and comfort. Deficiency symptoms are lack of pleasure, motivation and reward, and fatigue and depression, compensated by use of alcohol, marijuana, cocaine, caffeine, amphetamines, sugar or tobacco.

Endorphins and enkephalins create physical and emotional pain relief, pleasure, euphoria and sense of wellbeing, and are made from the amino acids D-phenylalanine and DL-phenylalanine. Symptoms of deficiency include physical and emotional hyper-sensitivity and inability to feel pleasure, and are compensated by heroin, alcohol, marijuana, sugar or chocolate. Serotonin, meanwhile, is made from L-tryptophan or 5-HTP and creates emotional stability, self-confidence, pain tolerance and quality sleep, while deficiency causes depression, compulsiveness, worry, low self-esteem, insomnia and irritability, compensated by use of alcohol, sugar, chocolate, tobacco and marijuana. So, if you're a habitual coffee drinker during the day, then crave a glass of wine or two in the evening, and would feel tired, depressed and less able to concentrate without them, then the amino acids that are most likely to help you would be L-phenylalanine and L-tyrosine.

Of course, it's not quite as simple as that. Your ability to turn these amino acids into neurotransmitters, and the ability of those neurotransmitters to be 'read' by the brain, also depends on other nutrients such as B vitamins, minerals and essential fats. In our book *How to quit without feeling s**t* we have a specific strategy for each addiction, backed up by a specific supplement regime – you can also find summaries of these strategies on the website www.how2quit.co.uk.

Supplementing amino acids

Eating protein is the best way to get essential amino acids for a normal healthy person, but taking amino acid supplements is the best way to guarantee a person in a state of reward deficiency is receiving the optimal amounts to rebalance their neurotransmitters. One of the advantages of taking supplements containing individual amino acids is that they are more easily absorbed this way. Certain amino acids compete for absorption, so if you supplement with tryptophan, for example, you will absorb more into the bloodstream if you take the supplements without eating protein-rich food at the same time. Taking the supplements with a carbohydrate food, such as fruit, may be even better because the presence of carbohydrates is known to help the absorption of amino acids. The minimum effective starting dose for most of these amino acids is 500mg per day and can be increased gradually to 3,000mg per day (except for 5 HTP, which ranges in dosage from 50 to 400mg per day, and L-glutamine, which ranges in dosage from 500 to 15,000mg per day). It's best to start with a lower dose and increase it until you feel the benefits. Most people respond to the daily dose being divided into two or three doses a day.

Brain support nutrients

The process of turning amino acids into neurotransmitters depends on a process called methylation, which is dependent on B vitamins, especially folic acid, B12 and B6. A person's methylation ability is determined by measuring homocysteine in the plasma – substance misusers typically have raised homocysteine levels, indicating a greater need for these B vitamins. The reception of neurotransmitters is also dependent on an adequate supply of essential fats, most notably the omega 3 fats EPA and DHA. Among substance misusers, the higher the plasma EPA the lower the anxiety scores, and the higher the plasma DHA, the lower the anger scores.

IV nutrient therapy

For those with serious addictions, the inclusion of intravenous nutrients given after they have been through detox and delivered via a daily drip, usually for six days – based on a person's specific addiction and neurotransmitter imbalances – greatly speeds up the recovery from abstinence symptoms. This is especially helpful for addictions that mess up the digestive tract, either because the person doesn't eat properly, as in the case of stimulant drugs, or because the nature of the substance and its effects on the gut, as in the case of alcohol or heroin.

The critical question, of course, is does it work? At Bridging The Gaps, a treatment centre in Virginia that has incorporated this approach alongside conventional addiction recovery treatment, we gave a group of clients nutritional therapy, including specific supplements and diet, and compared them with a group also given IV nutrient therapy.

At the end of the month, those given oral nutrient therapy had reduced their abstinence symptoms (based on the scale of abstinence symptom severity) from an average score of 88 to 40 – a 55 per cent drop, while those also given the IV nutrient therapy had a 75 per cent drop – from an average of 114 to 29. Those receiving the IV nutrient therapy had a 69 per cent reduction after the six days of IV treatment. The hypothesis here is that if you feel so much better then you're less likely to relapse. Most treatment centres expect around 80 per cent to relapse.

Bridging The Gaps' Dr James Braly assessed the severity of symptoms commonly experienced in abstinence before the start of nutritional therapy, daily for six days, and again at 30 days. The group receiving intravenous and nutritional therapy had greater reduction in severity of symptoms at the end of six days than the group that had oral nutrients had at 30 days.

The centre also followed up 23 clients who had had serious drug and alcohol addictions and had received IV nutrient therapy, followed by diet and oral supplements, one year after their admission. Of these, 21 – 91 per cent – were still clean or sober after a year or more, and 16 had had continuous sobriety. These results are very encouraging and will, hopefully, inspire more research – the website www.how2quit.co.uk lists treatment centres offering this approach.

*Patrick Holford is CEO of the Food for the Brain Foundation
www.foodforthebrain.org*