



## A ROLE FOR NUTRITION IN DRUG WITHDRAWAL PROGRAMS - A FIVE PART SERIES

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Recreational drug use is becoming an increasing concern in the western world. Many Australians have used or abused some form of recreational drugs in their lifetime, and while some will rarely use them again, an increasing number are becoming addicted. Social support services have been established to help deal with the emotional and psychological aspects of drug abuse. Complementary medicine has the potential to enhance these services and many counsellors and clients are now turning to complementary medicine practitioners for nutrition, herbal, dietary and lifestyle support.

As practitioners it is imperative to consider what makes an individual prone to drug abuse and addictive behaviour in order to nutritionally support them through a withdrawal program. This nutritional news series will help to identify susceptibilities and imbalances through profiling some of the more common substances of abuse such as: Opiates, Alcohol, Amphetamines, Marijuana and Psychedelic/Hallucinogenic drugs

### ***Part 1: Identifying imbalances in Opiate Addicts***

Opiates are a group of drugs that have a euphoric action upon the mind in that they create a feeling of elation. They are also well known pain killers that depress the central nervous system and constrict the pupils. Commonly used opiates include heroin, morphine, codeine and methadone.

### **Neurotransmitter balance in opiate addiction and withdrawal**

Opiate abuse can lead to an imbalance of circulating neurotransmitters; however this imbalance is not always consistent and will vary depending upon a number of factors unique to each patient:

**1) Individuality:** It is essential to consider a person's unique biochemical 'make up' when supporting them through a drug withdrawal program. A number of factors can contribute to different responses including genetics, nutritional deficiencies, poor digestion, xenobiotic toxicity, allergies and poor liver function to name a few. Research has strongly suggested a link between genetic variation in the DRD2A1 allele, dopamine dysfunction and addictive disorders. Presence of the DRD2A1 allele indicates a genetic susceptibility to low dopamine levels and an increased likelihood of addictive behaviours.

**2) Quality & quantity:** The actual frequency, quantity and strength of opiate intake should be considered in a support program. For example heroin has a stronger effect than methadone and is more likely to lead to a higher rise in endogenous opioid levels. Likewise it could be expected that a patient that takes heroin twice a week in small quantities would respond differently to a patient taking heroin twice daily in high dosages.

**3) Acute & Chronic Usage:** One of the major factors to consider is the difference between acute and chronic dosage. Recent studies have found that acute morphine administration increases serotonin transmission, however in contrast serotonin transmission is depressed during withdrawal from chronic morphine. Acute opiate use has also been shown to upregulate the dopamine pathway whereas chronic heroin exposure may produce a modest reduction in dopaminergic and serotonergic activity that could affect motivation state and impulse control respectively.

**4) Withdrawal:** During a withdrawal period you may expect depletion in the neurotransmitters that opiates elevate due to biochemical dependence. Preliminary animal studies in all rat brain structures have shown that the morphine withdrawal syndrome is accompanied by inhibition of serotonin activity. Withdrawal may also be associated with a reduction in dopaminergic and opioid activity.

Neurotransmitter	Acute	Chronic	Withdrawal
Dopamine	Upregulated	Downregulated	Downregulated
Serotonin	Upregulated	Downregulated	Downregulated
Opioids	Upregulated		Downregulated

### ***Heroin depletes antioxidant status and interferes with liver function***

It has been suggested that some of the side effects seen in heroin addicts are related to the affect that heroin abuse has on the pro-oxidant / antioxidant balance. Studies have found that the balance between oxidation and antioxidation in heroin addicts was seriously destroyed. Analysis has shown that with prolonged heroin abuse and with increased daily quantity in the heroin abusers, the plasma values of lipoperoxidation, nitric oxide and erythrocyte values of lipoperoxidation increased whereas the superoxide dismutase and glutathione peroxidase were gradually decreased. Glutathione is a major nutrient involved in phase II liver detoxification suggesting that heroin abuse may also lead to poor liver conjugation and detoxification.

### ***Tips for Supporting Patients during Opiate Withdrawal***

It is essential to consider the above aspects when tailoring nutritional support to the 'individual' who is withdrawing from opiates. For optimal support it is important incorporate programs with other modalities such as psychological & social support services or medical treatment.

## **Supportive Guidelines**

### **1) Support Neurotransmitter Balance**

\*Bio Concepts Mood Disorder Appraisal may help you identify possible neurotransmitter imbalance in your patients. To gain access call the practitioner hotline on: 1800 077 113 or visit [www.mda.bioconcepts.com.au](http://www.mda.bioconcepts.com.au)

#### **Upregulate Dopamine Synthesis**

Dopamine plays an essential role in reward and addiction. Low dopamine levels may lead to an increased susceptibility to addictive behaviours. Therefore supplementing with amino acids and nutrients involved in the production of dopamine (phenylalanine, tyrosine, B1, B2, B3, B6, Folate, Iron, zinc, magnesium and vitamin C) may be highly beneficial during a withdrawal program.

A recent study showed that combining medical treatment with an enkephalinase inhibitor (d- phenylalanine) and nutrients to support dopamine and other reward pathways (dl-phenylalanine, l-tryptophan, l-tyrosine, l- glutamine, chromium picolinate and pyridoxal-5-phosphate) may enhance compliance in methadone patients who are rapidly detoxified. Results found that the patients who received nutritional therapy with the narcotic antagonist were relapse-free for an average of 262 days compared with 37 days for those who took the narcotic antagonist alone. [1]

#### **Regulate Endogenous Opioid Levels**

Enkephalinase inhibition may constitute a novel and safe therapeutic approach to the opioid withdrawal syndrome. Supplementation with dl-phenylalanine at 1500-3000mg helps to inhibit enkephalinase (an enzyme that breaks down the body's natural opioids) activity.

#### **Support Serotonergic Activity**

As mentioned earlier morphine withdrawal has been associated with a reduction in serotonergic activity. The administration of L-tryptophan on the morphine withdrawal syndrome has been shown to activate the central serotonergic structures in animals. [4] Other animal studies have also shown that nutritional agents that increase brain serotonin levels such as 5-HTP abolish the rats preference for a morphine-associated environment. [2]

### **2) Support Drug Therapy**

Drugs that are used in detoxification programs have been shown to cause hepatotoxicity and impair mitochondrial function. For example high concentrations of buprenorphine (an opioid receptor partial agonist) impair mitochondrial respiration and misuse can lead to hepatitis. Therefore it is essential to support liver detoxification and mitochondrial function with nutrients such as glutathione, choline, methionine and Cysteine etc (For further information refer to our five part series on Liver Detoxification).

### 3) Support Antioxidant Balance

You can support antioxidant balance with nutrients such as glutathione, vitamin A, C, E, Zinc, Selenium and Quercetin

### 4) Maintain Healthy EFA Balance

Individuals with substance abuse may have poor EFA balance which can lead to inflammation, low brain levels of DHA and altered neurotransmitter balance.

### 5) Ensure Adequate Nutrients

Encouraging a healthy well balanced diet to meet the individual's nutritional requirements for protein, fats, carbohydrates and other nutrients is essential to recovery. Supplementation with a powdered multivitamin (for better absorption) may be necessary initially.

### 6) Be Cautious of Interactions

There can be positive or negative interactions between drugs, nutrients and herbs. Studies have shown herbs such as passionflower may be useful in managing mental symptoms during opiate withdrawal. There is a current lack of substantial research on the potential interaction therefore it is appropriate to monitor a patient closely whilst undergoing drug withdrawal programs.

If you have any questions regarding this article or related topics, please contact Jenny on

**Orthoplex toll free number: 1800 077 113**

**Dr Vera's Formulations toll free number: 1800 625 934.**

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