Nutrition and Addiction – promoting recovery through nutritional and lifestyle interventions

Pavilion Conference, Wednesday 5th May 2010
Elspeth Stewart & Helen Lynam

Overview of treatment and substance misuse
Dr Marcus Roberts, Director of Policy & Membership, Drugscope
Dr Roberts began the day by providing an overview of drug treatment strategies from the perspective of someone involved in development of policy rather than clinical or therapeutic care. He provided a short history of adult drug treatment and how there has been a steady increase in awareness in the need for drug services. It is estimated that for every £1 spend on drug intervention, £3 is saved in the long run in areas such as reduced crime, welfare support and health. In 2007, the National Treatment Agency for Substance Misuse, an NHS special health authority, spent £800,000,000 on drug treatment. Although they ‘met all of their targets’ the actual number of people who achieved complete recovery (abstinence) was not significant. The reality is that drug treatment programmes are required to strike a balance between abstinence and harm reduction.

Policy and drug programmes should now focus on improved quality of life and not just addressing drug-related crime. Helping individuals to reintegrate into society through housing support, finance skills, social activities, rekindling relationships with others and importantly, learning the skills to purchase and cook healthy food.

Mental health problems are prevalent among Drug and Addiction Service Users – a third of which had no contact with health services to address these issues. Dr Roberts also discussed smoking and how Drug and Addiction Service Users and staff both have very high rates (70-90%). Very little support is currently offered to help address this.

Despite increasing awareness and research into the benefits of good diet and nutrition for recovery, the primary clinical guidance document relating to addiction treatment, Drug Misuse and dependence: UK Guidelines on Clinical Management (2007), only makes one mention of nutrition. It states that ‘Drug misusers may suffer from poor nutrition but should only receive oral nutrition support if there are clear medical reasons to do so. They should be given advice on diet and nutrition, especially if drinking heavily’.

Dr Roberts encouraged more involvement and felt that there is a good case for an increased focus on food and nutrition within drug services.

Biochemistry of addiction and implications for nutritional management
Oscar (Umharo) Cadogan, Nutrimenta, Nordic Clinic, Copenhagen
Mr Cadogan works with both mental health and addiction patients in Denmark so was speaking from experience as a clinical nutritionist. To start off, he discussed the long-term changes that happen to brain biochemistry as a result of substance use. Over-stimulation leads to reduced plasticity, ultimately leading to a brain that is ‘wired for addiction’. Nutrition is a good tool to help ‘restart’ the brain and support the process of recovery. Supporting improved neuroplasticity allows an individual to learn new ways to deal with situations and gain more from programmes such as CBT, designed to help break habits.

The addiction response is a result of stimulation of the reward circuitry. When the brain receives positive stimulation from an activity, it prioritises that activity. In the context of drugs, this can result in drug misuse but also a dilution of the level of pleasure experienced from ‘every day’ activities such as time spent with loved ones, watching a sunset or achieving a goal. As these things become less ‘rewarding’ the motivation to chase them can subside.

Both exercise and good nutrition can help improve neuroplasticity – omega 3s were just one example given. Making changes to behaviour in the clinic is very different to maintaining these changes in life as there are many factors that lead an individual to return to drug-seeking behaviour. Stress is a major factor and so a key aspect of recovery is a diet and lifestyle designed to reduce stressors and support the stress response.

Mr Cadogan went through the main drugs that are abused and the effect that each of these has on different neurotransmitters and receptors, e.g. serotonin, dopamine, cannabinoid receptors. He also spoke about the nutrients (e.g. B vitamins, Mg, Zn) that support these neurotransmitter pathways and help to improve receptor function. One thing that appeared to be consistent across all drugs is disruption of glutamate levels in the nucleus accumbens – a primitive area of the brain linked to reward, pleasure, addiction, aggression and fear, among other things. Changes to this part of the brain may contribute towards symptoms experienced by drug users such as increased paranoia and defensiveness - the primitive responses to a situation take priority over a higher-level cognitive response.

Restoring glutamate levels within the nucleus accumbens seems to be beneficial to most recovering drug users as it helps with improved neuroplasticity. This can be done with a combination of L-glutamine powder and N-acetyl-cysteine(NAC). The NAC provides cysteine, a rate-limiting amino acid, which must be exchanged with glutamate at the synapse in order for the glutamate to be released. Without the NAC, the L-glutamine is not as effective, as sufficient levels do not reach the synaptic junction. NAC is also likely to support glutathione levels and therefore detoxification, another important area for someone with a history of drug misuse.

Mr Cadogan stressed that a ‘broad brush approach’ is required. Focusing on just one neurotransmitter or aiming for a quick fix is not going to bring results. Implementing good dietary habits (regular healthy meals), taking exercise and supporting an individual to address aspects of their life which may draw them back into old habits are all an essential parts of recovery. Look at glycaemic control, gut function and detoxification. Through more targeted nutritional programmes, steps can be taken to support more ‘normal’ neurotransmitter function, improve brain plasticity and therefore improve the effects of other behavioural interventions such as CBT and reduce the cravings.

Mr Cadogan’s presentation was informative and detailed. He provided a lot of information around the specific effects of both drugs and nutrient intervention. It would have been great if references had been included to underpin the content delivered.
employment etc), parental crime and antisocial behaviour, alcohol or substance misuse in the home, unemployment, substance misuse. But not all people exposed to these factors end up as violent offenders.

Dr Moore’s work is based around Cardiff with a population of 300,000 and an average of 50,000 young adults going out drinking every weekend. Violent behaviour, knife crime and substance misuse is all par for the course. His observations were that the ‘average’ young offender was not necessarily addicted to just one substance such as heroin or crack cocaine but instead was quite content to take whatever was to hand – whether that be alcohol, cannabis, stimulants, caffeine, chocolate and even one known group who enjoyed fine single malt whiskey (stolen, of course).

Dr Moore cited research that demonstrated links between diet and behaviour – supplement trials in corrective institutions, food additives and ADHD, fish oils and sugar. His own research analysed data from the British Cohort Study, which began in 1970. Data was collected from births and families born in the UK in one particular week (n=17,415). Follow ups were done at age 5, 10, 16, 26, 30, 34 and to be done at 42. At age 10, respondents were asked how frequently they consumed sweets/chocolate and at age 34, self report violent offending data were collected.

The data showed that of those who reported to be violent offenders at 32, 70% reported to eat confectionary ‘nearly every day’ but in the non-violent subjects, this figure was only 40%. Other confounding factors included being male, not having post-16 qualifications, parental attitudes to parenting, history of child protection issues in youth. Interestingly, having access to motorised transport at age 34 protected against adult violence. Perhaps being the designated driver is not such a bad thing...

Dr Moore did not dwell long on the mechanisms that could be at play but spoke about the potential for blood sugar dysregulation and aggression. He mentioned the well-known research carried out in the 60s by Dr Walter Mischels using marshmallows and children (...eat one now, or two later) as a way to test ability to delay gratification. Those children who could not wait for the second marshmallow demonstrated to be at a much greater risk of a poorer outcome later in life. Using confectionary as a treat or not teaching a child about the necessity of deferred gratification may well contribute towards compulsive behaviour and delinquency.

**Cutting out the junk: healthy eating project at a secure unit for juvenile offenders**

**Jan Baxendale Support Services manager, Red Bank Community Home, St Helens, Merseyside**

Mrs Baxendale gave a personal account of what it is like to implement a healthy eating programme in a Local Authority Secure Children’s Home. This was a low security juvenile correction centre. Mrs Baxendale was very aware of the real link between food and behaviour but did not have nutritional expertise and sought the assistance of Martina Watts to help shape the programme. It should be noted that changes were introduced over a period of 3 years with further improvements still to come.

A complete shift in ideology was required and Mrs Baxendale invested in training for the catering staff to help them understand her intentions and why this was so important. Through the whole process, she only needed to change one catering staff member, at which time she brought in someone new who was employed with the project in mind and key to its success. The kitchen had to change the way it operated – fresh produce was to be ordered several times a week rather than being a weekly delivery predominantly frozen and dry store goods. She built relationships with a local butchers and grocer who could deliver. To afford the improved quality, it became more important to plan meals to cater exactly for numbers. Staff were instructed to give appropriate portion sizes in an effort to avoid wastage. Meals were no longer prepared in advance to sit in the bain-marie for hours and presentation was important - salads & fruit platters became attractive and attention to detail was given to plating up so that meals went out looking appetising (rather than ladles of food being slopped onto a plate).
Changes were made to the in-house canteen. Sweets, crisps, fizzy drinks and caffeinated drinks were replaced with healthier alternatives. Salt shakers were removed from the tables and pepper shakers, filled with flavourless powder, were replaced with pepper grinders, as would be used in a good restaurant.

When introducing, she started with the girl’s wing and they received a talk about how nutrition can benefit weight, hair, skin and nails – using their concerns about body image to get them on board. They were then asked to contribute to the menu plans. At first, of course there was resistance, especially to the shrinking portion sizes but they very quickly adapted to the new meals. As the demographic and tastes changed with the comings and goings, kitchen staff were instructed to speak directly to the young adults, gather feedback and adapt the menu to suit their tastes. An effort was made to cater for vegetarians and those from different ethnic backgrounds.

Care staff were the biggest hurdle in making the project work. However, they quickly came around when they started to see the benefits. The young adults became more calm and well behaved. Their health and weight began to improve. It became possible to hold staff meetings with the wing managers without being interrupted by emergency ‘incidents’. The Night Book, logging overnight activities began to predominantly report ‘quiet night’. Ofsted reports show an overall improvement in rating with the centre going from ‘satisfactory’ in 2003 to ‘good’ in 2009.

Despite all that has been achieved, plans are coming together for further improvements. The children’s involvement is to increase, giving them an opportunity to learn how to make good foods, build confidence and gain new life skills in this area. The cafeteria area is planned to be redeveloped – giving an enjoyable eating atmosphere where people would want to be and the centre is aiming for an ‘outstanding’ with their next Ofsted report.

Is Food Addictive? Perspectives from the research and the patient

Jane Nodder, Senior lecturer and Clinic Tutor, School of Life Sciences, University of Westminster

Jane Nodder specialises in eating disorders and so it was appropriate at a conference on addiction that she addressed whether or not food could be considered as an addiction. Many people will say that they are addicted to food – is this actually possible, and how cruel is it to be addicted to something that you still have to consume in order to survive? You cannot avoid food as you can (with considerable help) drugs, tobacco and alcohol.

Jane Nodder shared a lot of research with us and it is fair to say that the views tend to be mixed. One researcher said “for some people, repetitive overeating and weight gain can be symptoms of food addiction, just as loss of control or inebriation results from excessive alcohol”. Another one said that food addiction can be categorised by “loss of control over food consumption, eating more frequently and eating larger meals which may be maladaptive and may be detrimental to someone’s life, can threaten health and where people can experience anxiety if they cannot eat”.

The diagnostic and statistical manual of mental disorders (DSMIV) does not include food addiction, though it is believed that the next issue which is currently in consultation will include binge eating disorder.

Most evidence for and against food as an “addiction” focuses on similarities and differences between food and drug cravings, for instance many believe that a true addiction requires a psychoactive substance which produces symptoms such as tolerance or withdrawal, research has shown that some foods may produce opiates in the body, whilst other research shows that food rich in fat and/or sugar or salt may promote neuronal changes under certain circumstances.

This was a theme which Jane Nodder then followed through, and using the seven criteria for substance dependence defined in the DSMIV she went on to look at research which might or might not support each criteria. These criteria are tolerance, withdrawal, loss of control, reducing intake, time consumption, effect on other activities and persistent use. After working through each one, she
summarised that certainly some of the criteria can be met by food however not necessarily for all people, which means that really more research is needed.

Jane Nodder then briefly shared with us the Yale Food Addiction Scale, published by Gearhardt in 2009, a useful document to become more familiar with.

To finish, Jane Nodder then took a functional approach, demonstrating how with any eating disorder and addiction there are imbalances in core clinical systems and taking a nutritional approach by getting macro and micro nutrient balances correct can make a major contribution.

**Allergy, Addiction and Avoidance**

**Anthony Haynes, Nutritional Therapist and Lecturer, The Nutrition Centre**

As always, Anthony Haynes brought energy and humour to his presentation which was also thought provoking, his approach was looking at the links between allergy and addiction and what we could learn from them both.

One of the first statements he shared with us, was that “food allergy may occur without addiction, but generally addiction is always accompanied by allergy”. At first this seemed a difficult concept to take on board, however he then said that an addictive prone person tends to have an allergic history and that alcoholics are found to be allergic to either the grains or yeast from which their favourite whiskey is brewed. He also mentioned that coffee drinkers can be allergic to the coffee bean or the man-made chemicals used in production, and smokers who are clearly addicted are allergic to one or more components of cigarette smoke.

Following on from Jane Nodder’s presentation, Anthony Haynes suggested that food allergy is rarely suspected by the victims because instead of causing adverse reactions, the person normally feels a positive effect, just as coffee drinkers may need a lift in the morning, those allergic to wheat, orange juice or sugar will get the kind of allergic-addictive “pick me up” from their addictive food.

The example of cigarettes is a powerful one, at the outset when an individual tries their first cigarette, they generally find it disagreeable and may even experience clinical symptoms. If the individual persists to ignore these symptoms and discomfort, the body slowly adjusts itself to this obvious poison, in fact the body becomes so accustomed to adapting to the tobacco that it then becomes dependent on it to maintain this new equilibrium. So it is actually the physiological compensation for allergy which results in addiction, however after years of smoking the body’s ability to adapt and mask symptoms eventually breaks down as like any biological system our bodies can only take so much and then there is decomposition and frank allergic symptoms can result.

Anthony Haynes then talked us though the theories of the mechanism for these actions, the immunological antigen endorphin theory and the dopamine theory and then talked more about food intolerances and the signs and symptoms they produce. The gold standard for testing for allergies was elimination for 28 days and then reintroduction, however he emphasised that in the case of known IgE allergies reintroduction was not appropriate.

To finish Anthony Haynes explained how N-acetyl cysteine (NAC) appears to restore levels of glutamate in the nucleus accumbens, leading to reductions in drug seeking behaviour and may be a useful supplement alongside vitamin C and tyrosine, a dopamine precursor, when looking to support someone wanting to withdraw from allergy – addiction causing substances.

**Understanding Institutional Discrimination**

**Laurie Trott, PhD, MSc, BA, CACDP**

Laurie Trott stood in at short notice and gave an alternative and enlightening view on how addiction can be seen. Dr Trott used to be in charge of equal opportunities at the Metropolitan Police and when he started off giving us definitions and dimensions of discrimination, as interesting as it was, I was struggling to see how this was going to be made applicable to addictions. For instance he shared with...
us that discrimination can be committed consciously or unconsciously, it can be done by including someone or by excluding them, it can be done with intent or by accident, and it can be done by an individual or by an organisation.

Dr Laurie then turned to the story of Duncan, his son – with a family history of migraines, depression, psoriasis and asthma, he was diagnosed as a child with ADHD. Switching to the Feingold diet made a dramatic difference to Duncan and then after being diagnosed with dyslexia, omega 3 supplementation produced what was described at his school as “unprecedented improvement”.

At 15 years old, Duncan started to smoke cannabis and then at the age of 16 he was admitted to an adult ward in a psychiatric hospital. Dr Trott then went on to share with us his family’s frustrations at how his son was treated. He was put onto strong medications creating side effects, they refused to acknowledge private test results and refused to give him supplementation of omega 3, zinc and B6. Even though he had food intolerances, specialist diets were refused and a private test showing he had the human herpes virus was refused treatment until the GP eventually stepped in.

Previous research by the family had led them to believe that Duncan has pyroluria and this was why they wanted to supplement him with B6 and zinc. They had tested him and also correlated his behaviour to some of the symptoms of pyroluria, for instance 20% of people with pyroluria have bi-polar, 30% have ADHD, 40% have alcohol dependency, 50% have autism and 70% can have schizophrenia. Given that pyroluria is prevalent amongst ethnic groups, for instance those of Irish decent, failure in the hospital to deal with this was in effect a form of discrimination against certain groups.

There is good news for Duncan, once Dr Trott made a formal complaint his treatment changed and 8 years on, Duncan has been symptom free for 2.5 years, he lives independently and unsupported, he is health and happy and about to start work.

Dr Trott offered to help support anyone or anyone’s clients to make formal complaints if they felt that they were being discriminated against – a generous offer indeed.