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HEALTH INSIGHT: REWARD DEFICIENCY? THE COMMON THREAD CONNECTING ADDICTIVE AND COMPULSIVE TRAITS

8th June, 2006

Dr NICK HODGSON

Jack is depressed, and is becoming increasingly frustrated. And things aren't improving. Each time he tries to overcome his addiction to marijuana and then relapses, the feelings of failure, desperation, disconnection and hopelessness increase. But Jack's struggle isn't just destroying his own life. His sister Sue is tired: tired of Jack disappearing in search of fulfilment of his compulsive need for "relief"; tired of him reappearing in a dark, dishevelled, unwell and dirty state; tired of dealing with the calls from authorities telling her to come and get him; tired of the angry outbursts, the coughing and hacking through the night as Jack dries out once again.

Jack's niece Kath hates him: why does she have to have her junky uncle living in her home? Why can't he just get his life on track? Why can't the many rehab centres that he has checked into keep him clean? The last thing she needs is another dysfunctional male in her life - she is trying to break things off with her "loser" boyfriend and is fighting her own struggle with depression and anorexia. Jack's cousin Neil, on the other hand, thinks it's kind of cool having Jack around. He likes having someone around to share a smoke or the occasional joint with - when Sue's at work that is. Neil doesn't see any similarity between Jack's addiction and his own personal, "social" use of dope. But he has been finding it increasingly difficult to sleep at night, and has needed to have a few bongos by himself lately to relax. And the really bad trip he had a few nights ago at a party had made him scared: what was that stuff that his mates had given him? In the future he'd stick to the "safe" stuff. Anyway, he'd had one too many punch-ups at parties lately, and wouldn't miss that scene for a while.

The world around Jack doesn't seem to fit. He attends many job interviews for a better class of job but there seems to be an invisible field of discrimination against him. How many times has he been told that he's not the sort of employee they are looking for? So he ends up taking any kind of work that will accept him. Usually the sort where he doesn't get paid enough to repay all the debts he has accumulated: his car is soon to be repossessed unless he can catch up on the six months of instalments that he now owes. And all the phone and power bills that sit in a messy pile on his desk at Sue's place just don't seem to make sense. Things would be better if his last landlord hadn't insisted on confiscating his bond money. How can he owe so much, to so many people? And, to make things worse, his new bosses always seem to take him for a ride in the end.

Jack's story is not as uncommon as we would like to think. His condition can actually be described in one diagnosis: Reward Deficiency Syndrome (RDS). But there are many more faces to this one disorder. Research paper after research paper seems to be linking this same mind dysfunction with all of the impulsive, compulsive and addictive disorders. This means that there may be one common thread connecting Jack, Kath, Neil, and many, many others. The impulsive and compulsive disorders include the worlds' most concerning paediatric diagnostic trend - ADHD. Addictions range highly across the broad headings of drugs, food, sex, gambling, and work.

This revelation in medical understanding began several years ago now with the discovery of the "gene for alcoholism", the A1 Allele of the D2 Dopamine Receptor Defect. Subsequent studies confirmed this genetic trait and isolated related defects. The same biogenic flaws also started to be isolated in many other, seemingly unrelated, maladies - carbohydrate bingeing, addictions to other substances of abuse, pathological gambling, and ADHD.

This new model was seen as so important, and as such a paradigm shift in the foundational understating of these disorders, that an entire supplemental edition of the *Journal of Psychoactive Drugs*, the scientific journal initiated by the founders of the famous Haight-Ashbury Free Medical Clinics in San Francisco, was dedicated to outlining RDS. This 100 page feature was supported by over 400 scientific references.

For so many years, and even within many rehab circles still today, the predominant model of psycho-social dysfunction - poor choice making, bad peer-group selection, and the expectation of the history of an abused childhood or dysfunctional family upbringing - traps sufferers into an ongoing demand to learn better behavioural strategies, enforced agreements to strive to be a better "addict", and/or chemicals of choice being replaced with chemicals of



SHEDDING LIGHT ON THE SUBJECT OF ADDICTION? Dr Hodgson says research paper after research paper seems to be linking impulsive, compulsive and addictive disorders with Reward Deficiency Syndrome. PICTURE: David Schauer (www.sxc.hu)

TOP TEN TIPS FOR CONTROLLING RDS NATURALLY:
Regardless of how you are manifesting RDS - whether ADHD, impulsive, compulsive or addictive behaviours - the recovery steps are basically the same:

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prescription. There is no doubt that these can help and there is no doubt that these strategies save lives. But a house of harm minimisation is at best a half-way house of addiction maintenance. There is a more permanent home that awaits those who are willing to embrace a recovery model that includes strategies to repair the effects of Reward Deficiency Syndrome.

Much like a diabetic who has inherited a genetic predisposition to metabolic problems in their blood sugar balances, an RDS benefactor (they are estimated to be 20-30 per cent of the population) has inherited a predisposition to metabolic problems in the mind's molecules of emotion. We all have a "brain reward cascade" which, if operating properly, is a chemical chain reaction of "neuropeptides" which excite or inhibit each other to result in feelings of wellbeing, focus, attention, reward, satisfaction, enjoyment, clarity and fulfilment. Put blockages in that brain reward cascade and we develop a mind that lacks the ability to achieve reward and the attached functions, feelings and emotions.

Jack was lucky; he had been helped by some good people. His older brother Rod had been a solid influence and had helped to "clean up" Jack on a number of occasions. He lived too far away to be there all the time but his background in success thinking, and his influence on Jack to clean up his diet, take some vitamins, and drink much more water had helped to improve Jack's general health - but the addiction remained. The counsellors meant well and Jack didn't mind talking about the struggles he had as a teenager - he felt like he had never totally fitted in to the "normal mould" and it was therapeutic to get some of this stuff off his chest. And the financial adviser was helping him to get his debts repaid a little at a time. But then his sister had insisted that he go and have a chat with a natural health practitioner who had been receiving training from overseas in radical and alternative treatment strategies for people just like himself.

Jack knew this guy, Dr Justin, from years before, and had seen him when his back got really sore. He'd always felt better after some back manipulation so figured he had nothing to lose - after all, his back had been killing him, he couldn't stand straight sometimes, and the headaches had become increasingly severe and common. But Dr Justin was insistent that the treatment program that he would offer Jack wasn't just about his sore back. He believed Jack needed to commit to persisting with the treatment for weeks instead of the usual days, and that he was going to provide a mixture of therapies that nourished and repaired the mind chemical deficiencies due to Jack's RDS.

Each time Jack visited, Dr Justin he received a new type of chiropractic adjustment, called "torque release technique". Instead of having his neck and low-back twisted and "cracked", it was like Justin was shooting little bolts of energy into his spine with a hand-held device. It wasn't uncomfortable, Jack always felt really relaxed and almost sleepy after his adjustments, but he was sceptical at first because he didn't feel like his back was getting the instant pain relief that he had experienced previously. But over the next few weeks the pain in his back and the headaches gradually subsided, and Jack felt like the fog in his mind was mysteriously clearing.

Justin's assistant would then give Jack a type of ear treatment, where she ran a high pitched device over his ear lobes, leaving him with a buzzing and at times sharp sensation. This treatment was called auriculotherapy and had apparently evolved out of ear acupuncture, after European research had proven that it was nerve pathways that were being stimulated instead of meridian channels. This probably explained why they were using an electrical treatment instead of needles: the assistant said that it was micro-current technology, supposedly best for balancing nerve and brain function. Jack didn't really care: he really liked the auriculotherapy because it made him feel so relaxed, like he'd just had a nap. And for some strange reason, Jack's cravings and withdrawals seemed so minimal compared to the other times he had attempted to go cold-turkey.

Then Jack felt he made real breakthrough. Dr Justin had given him a bottle of vitamin-type capsules that Jack had to take three times a day on an empty stomach. These capsules contained amino acids, minerals and a few vitamins - stuff that Justin said were the building blocks of the mind chemicals that were deficient in the majority of RDS sufferers. Jack couldn't be sure that it was the capsules, or whether it was the combination of things that he was trying, but seemingly days after starting the "nerve food" as Justin called it, his mind just seemed clearer and more focused. He even sat at his desk and organised the pile of bills into the order in which they most needed to be paid.

Dr Justin was seemingly always on Jack's case about keeping his mind healthy as well: he'd recommended some

Make a conscious decision that today is time to get back in control of your life and mind - if you're not ready, then no-one can help you;

Find a chiropractor that uses torque release technique – this is a newer, gentler form of chiropractic adjustment that has been proven to drastically improve recovery outcomes, and helps to kick start the brain reward cascade which actually starts in the spinal cord;

Find a practitioner that does auriculotherapy, or failing this acupuncture: both have long-standing histories in helping recovery and significant scientific evidence of effectiveness;

Access (with professional advice) some nutraceuticals which should include the amino acids: L-Tyrosine, D- and L-Phenylalanine, 5-Hydroxytryptophan, and L-Glutamine, and preferably some magnesium and chromium. Take these in high doses on an empty stomach to maximise their availability to your nervous system;

Purchase some binaural beat meditation CDs to assist your brain to enter theta and even delta brain waves. Listen to these in stereo headphones;

Drink heaps of filtered and alkalisied water to help detoxification;

Take some multivitamins/minerals preferably in a "green superfood" form along with a probiotic to help repair the chemical and metabolic damage resulting from abuse;

Consult a counsellor and or 12-step support group to facilitate emotional and psychological recovery;

Start to focus more on your spiritual side - worship your Creator, pray, meditate, and connect with healthy people; and,

Do all of the above simultaneously to maximise the synchronicity and to attack all angles of your RDS at the one time.

HOW DO I FIND OUT IF I HAVE RDS?

- ***You have completed the questionnaire in David Miller's book 'Staying Clean and Sober' and show signs of having RDS;***
- ***You have been diagnosed with ADHD with psychosocial testing by a suitably qualified health care professional;***
- ***You have a known addictive, impulsive or compulsive disorder;***
- ***You have been genetically tested (mouth cell swab) for the genetic trait (20-30 per cent of the population are positive);***
- ***You have had brain EEG or other electrical brain mapping tests showing the characteristic brain findings.***

meditation CDs that had special binaural tones to balance the brain waves. He was always checking on Jack to make sure he was keeping his appointments with the counsellor and financial adviser, tried to convince Jack to find a 12-step support group, and even suggested that Jack should find a church group to help support him.

The strategies that were being utilised in Jack's recovery were all based on an understanding that each piece in the treatment jigsaw fitted neatly together in an attempt to produce recovery of the brain reward cascade mechanisms. In the same way that many diabetics can keep their genetic predisposition at bay by making better dietary, lifestyle and emotional choices and by accessing health care services that support them with nutritional supplementation and coaching, a sufferer of RDS can access a range of strategies that nourish, repair, reactivate and release the mind-body towards a state of wellbeing. These strategies are featured in a new book called *Staying Clean and Sober* by experienced recovery facilitators, Merlene and Dr David Miller.

Others noticed the changes in Jack. Sue liked to see the return of colour to her brother's skin, and the dark rings under his eyes were fading. Kath was finding Jack easier to get along with and felt like she had gained an uncle and lost an enemy. Neil missed the free bongs that he used to score from Jack, but he too had started seeing Dr Justin to help him get back in control of his own growing dependency. And Dr Justin had made a whole lot of measurements of Jack's spinal and nerve function, and his stress and emotional states, and these too had all visibly improved.

Jack couldn't believe how much more comfortable and steady his recovery was going this time. It just seemed like he had the strength and clarity to be able to make better choices, even when he was in tempting circumstances. It was like he just didn't need a synthetic means of getting high and feeling good anymore. Perhaps his brain reward cascade was finally flowing again.

This article is based on a true case. Names have been changed for confidentiality.

The information contained in this article is of a general nature only. For advice on your specific situation, please consult your medical professional.

Dr Nick Hodgson is a chiropractor working in Victoria. Recognised by both the Chiropractors Association of Australia (Vic) for his service to the chiropractic profession, Dr Hodgson has been responsible for introducing the torque release technique (www.torque-release.com.au), auriculotherapy and addictionology training to the Australian chiropractic profession. Nick is a Fellow of the Holder Research Institute (F.H.R.I.), has completed five of the ten modules of the Certified Addictionologist (CAAd) program, and is the Australasian provider of Torque Release training. He is a member of the Chiropractors' Association of Australia (CAA) and the World Chiropractic Alliance (WCA), and sits on the WCA's International Board of Governors. Visit Nick online at www.healthtalk.com.au.

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Your Say

Comment left by Slightly Sceptical

You say near the start that alcoholism is genetic and "The same biogenic flaws also started to be isolated in many other, seemingly unrelated, maladies" - how does this fit in with the idea of RDS? Are you saying RDS is the real reason for these other complaints, or that RDS is genetic? And if it's genetic, how can it be fixed with manipulation and medication?

Comment left by Nick Hodgson

The genetic flaw - m/c is A1 Allele of the D2 Dopamine Receptor Defect, leads to faults in the Brain Reward Cascade: a) Not enough neuropeptide being produced, b) not enough nerve receptors, c) faults in the enzymes that break down the chemicals. Everyone who has defect (20-30% of population) will have some degree of RDS. Some people will discover that they can artificially "supplement" their reward system with substances or repetitive behaviours - starting as habit and abuse, eventually leading to addiction or compulsion. So RDS has a genetic basis, and RDS is the predisposition to addictive and compulsive disorders. All of the treatment modalities recommended are natural methods to feed and repair the brain reward cascade. Torque Release Technique is not manipulation, it is specialised location and correction of nerve interference in the spinal column - the brain reward cascade is initiated in the spinal cord. Amino Acids are not medications they are nutritional precursors to Dopamine, Serotonin, GABA etc.

Comment left by Mary

Dr Hodgson, is there any evidence that his genetic flaw (A1 Allele of the D2 Dopamine Receptor Defect) is linked with anorexia? If so where can we access relevant information?

Comment left by Nick Hodgson

Yes... I suggest you "google" the terms anorexia and dopamine.

Here are a couple of references:

- 1) Bergen AW, EtAl. Association of multiple DRD2 polymorphisms with anorexia nervosa. *Neuropsychopharmacology*. 2005 Sep;30(9):1703-10.
- 2) Bosanac P, EtAl. Serotonergic and dopaminergic systems in anorexia nervosa: a role for atypical antipsychotics? *Aust N Z J Psychiatry*. 2005 Mar;39(3):146-53. Review.
- 3) Lienard Y, Vamecq J. The auto-addictive hypothesis of pathological eating disorders. *Presse Med*. 2004 Oct 23;33(18 Suppl):33-40. Review. French.
- 4) Frank GK, EtAl. Increased dopamine D2/D3 receptor binding after recovery from anorexia nervosa measured by positron emission tomography and [¹¹C]raclopride. *Biol Psychiatry*. 2005 Dec 1;58(11):908-12.
- 5) And according to the Mayo Clinic's web-site: "Biological. Some people may be genetically vulnerable to developing anorexia. Young women with a biological sister or mother with an eating disorder are at higher risk, for example, suggesting a possible genetic link. Studies of twins also support that idea... There also are some hints that serotonin — one of the brain chemicals involved in depression — may play a role in anorexia." <http://www.mayoclinic.com/health/anorexia/DS00606/DSECTION=3>
- 6) Alteration in dopamine function may affect the value of perceived rewards, or perhaps make it difficult to associate good feelings with things most people find rewarding, Dr. Kaye explained. Consequently, people with anorexia nervosa may appear to be obsessive about certain stimuli that may be uniquely rewarding to them, but may not be able to respond well to stimuli related to food or pleasure. "This finding may help us better understand brain dopamine function across a whole spectrum of disorders, with respect to its contribution to the avoidance of food and other stimuli in anorexia nervosa on one end, and the desire for stimuli, such as in food and drug use on the other," <http://www.sciencedaily.com/releases/2005/07/050708055534.htm>

Comment left by Tanya

Does a GP do the genetic test and what should one ask for when seeking to have this test completed?

If I wish to do more research on the link with the genetic flaw and food addiction could you provide some references please.

Comment left by Dr Nick Hodgson

Hi Tanya, If you or the person you are referring to has a diagnosed eating disorder or other addictive or compulsive disorder then there is little benefit in doing the genetic test: If you have diabetes there is no need to test if you have the gene for diabetes; and similarly if you have an addictive or compulsive based disorder then there is little benefit in testing if you have the gene for this disorder!

The specific test for the Dopamine deficiency most commonly seen is a buccosal mouth swab genetic test for DRD2 variant. I have found that it is easier to find someone to do the brain mapping studies (EEG) here in Australia than the genetic testing: Besides if you are going to seek treatment to assist recovery, these studies can measure your improvement - a genetic test will not change regardless of how far into recovery you are.

Some search terms to help will be terms like: Dopamine, RDS, Brain Reward, Reward Deficiency; addn these to the name of the addictive or compulsive disorder you are investigating: This will usually bring up lots of relevant hits.

Here is a couple of links that are relevant to your question:

1) DNA by Mail: An Inexpensive and Noninvasive Method for Collecting DNA Samples from Widely Dispersed Populations.

Bernard Freeman, John Powell, David Ball, Linzy Hill, Ian Craig and Robert Plomin. Social, Genetic and Developmental Psychiatry Research Centre, Institute of Psychiatry. Behavior Genetics, Volume 27, Number 3, May 1997, Pg: 251 - 257

Abstract: As specific genes are identified that are associated with behavior, it becomes increasingly important for behavioral geneticists to be able to incorporate these genes in their research. Rather than using blood, DNA can be extracted from cheek swabs, which makes it possible to obtain DNA inexpensively by mail from large, widely dispersed individuals. The purpose of this paper is to recommend this technique to the behavioral genetics community and to present results of our use of this technique to obtain DNA by mail for 114 2-year-olds and 116 adults.

2) Hot-wired for addiction. ABC TV Science: Catalayst. July 14, 2005.

<http://www.abc.net.au/science/features/addiction/default.htm>

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