

### **Understanding Sugar or Carbohydrate Addiction is the Key to Weight Loss**

Over the last couple of years, I have come to the conclusion that the biggest drug addiction in the Western world is to something most would think is harmless. Yet this seemingly innocuous substance causes major health problems and as a result is a huge burden to our healthcare system.

Whilst we all know about societal problems with tobacco, heroin or cocaine usage, carbohydrate addiction is a much bigger problem both in terms of numbers and health effects on our society.

Carbohydrates can be divided into several categories. These include monosaccharides (one sugar molecule), disaccharides (two sugar molecules), and starches (ten or more sugar molecules). Monosaccharides include glucose or dextrose (found in honey, dried fruits, grapes), fructose (found in sweeteners, dried fruits) and galactose as well as xylose which are often added in the processing of foods. The most common disaccharides are sucrose (found in sugar cane, cakes, biscuits, chocolate), lactose (found in milk) and maltose (found in cereals and energy bars). Starches (as seen in bread, rice, pasta and potato) are complex sugars and although they take longer to absorb than simple sugars they are seen in the same way by our bodies. Alcohol is not strictly a carbohydrate but rather is a sugar that has been fermented and therefore also contain a significant amount of energy. As there little other nutrients in alcohol it is often give the term 'empty calories'.

We are all different and each of us love different things that contribute to us being overweight. Some people drink too much alcohol, others love fruit, yet others eat too much bread. It is important we look at our diet and identify what our food weakness is and thereby address this problem.

Our bodies were not specifically adapted to eat carbohydrates. In fact, there was little or no carbohydrate in our diets 100,000 years ago. Whilst we have receptors for protein or fat to tell us when we have had enough, there are no such receptors for sugars. Therefore, when we eat meals containing predominantly protein or fat we develop a sense of fullness but when we eat meals which predominantly consist of carbohydrates the only way we can feel full is if our stomachs are over distended. We should therefore avoid eating meals which have a significant carbohydrate load as which such a meal we feel hungrier quicker and therefore want to eat sooner. This then leads to us to overeating and therefore to us becoming overweight.

Unfortunately, all sugars and carbohydrates are addictive and there are animal studies in rats which demonstrate that sugar is more addictive than cocaine. In one study, rats in one group were fed and became addicted to sugar, and in the other group they were fed and became addicted to cocaine. These substances were then withdrawn from each of the groups and their brains were analysed to determine the effect of withdrawal of these substances. The brains of the mice withdrawn from sugar lit up greater than those withdrawn from cocaine. This indicates greater withdrawal effects from sugar compared to cocaine. So remember the next time that you have not eaten for a while and you feel weak, tired, grumpy, jittery and cannot

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concentrate these effects are not because your blood sugar levels are low but rather because you are having a withdrawal from sugar. If you are overweight, you have fat stores and your body is capable of burning these stores to keep your body functioning.

In another animal study, one group of mice were overfed and not surprisingly became overweight and the other group were given usual amounts of food. They then starved the overweight mice and as predicted these mice lost their weight back to that of the group that was not overfed. They then allowed both groups of mice to eat as they pleased and the group that initially became overweight became overweight again.

Therefore anyone who is overweight or who has been overweight has to accept that they are a sugar (carbohydrate) addict and therefore have to be careful with their intake and types of food they eat for the rest of their life. It is very hard to lose weight. In fact, you have to try harder than someone with a drug addiction to lose weight successfully. Once you have lost the excess weight your battle has only just begun because as soon as you 'take your eye off the ball' your excess weight will return.

There are 3 ways we can finish our meals. The first way is to eat until we are full and feel sick. I do not recommend this and when I have eaten excessively, as I am sure many of us have, I feel very uncomfortable and regret that I have eaten so much. The second way is to eat until we feel content but no more. This sounds logical but it should be remembered that there is a time lag between when our stomachs are full and when our brain registers that we are full so during this time we will continue to eat and therefore eat more than what we should. The third way is to have the feeling like you want to eat more when you end your meal. This is the method that I recommend as I believe it teaches us restrict our intake and therefore assists us in losing weight.

It is important that we teach our tongue and mind to rely less on sugar as sugar stimulates our appetite. Water is the best drink and should be the drink of choice for anyone that is overweight. Often patients try and substitute sugar in their diet with artificial sweeteners which have no calories. They put these artificial sweeteners in the coffee and some even cook with it. I myself used to drink Pepsi Max or Diet Coke. We feel happy because there are no calories, yet the food or beverage tastes sweet. There is however a catch. When we taste something sweet our brain assumes that sugar will follow. When this does not occur our brain 'feels tricked' and overcompensates by eating more. There is evidence that people who consume artificial sweeteners put on weight rather than lose weight. I have now tried therefore to stop all drinks with sugar or artificial sweeteners. If I now want a drink with a fizz, I have sparkling mineral water.

Overweight patients often ask me how much weight they should lose. Ideally you should be the weight you were when you finished high school. That is assuming you

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had a healthy weight when you were young. For many patients this seems an impossible task but weight loss should be taken slowly. As long as people who are overweight burn slightly more energy in the day than what they consume they will be successful. I ask my patients to try and achieve 0.5 to 1.0 kg weight loss per month. For a very overweight person this weight loss may take many years.

I have had patients that have successfully lost weight say their young grandchildren take time to adjust to them as they are no longer as cuddly. Some people are even asked if they have cancer because they look very different. It is better however to 'look' like you have cancer but feel really well rather than to feel like you have got cancer because you are so overweight but 'look' good. Anyone who has lost a significant amount of weight has excess skin. When you blow up a balloon and it is then deflated it never looks the same as a new balloon. But remember, it is more important how you feel rather than how you look or what others say. People who have lost a significant amount of weight move around much more easily, have less shortness of breath and have a better quality of life. They also feel much happier and are proud, as they should be, of their success in losing weight.

Poor people in third world countries are skinny not out of choice but because they have to work very hard and have very little food to eat. I try and tell patients that whilst they may 'live like a king' they should 'eat like a pauper'. That means simple food and only eating the amount that is necessary. Two keys things I tell my patients to try and lose weight are to not eat when you are not hungry, that is do not eat just because someone asks you to, and when you are hungry to try and eat less. The biggest temptation to overeating is usually when you are at home. I therefore tell my patients that if their pantry is full it is harder to lose weight. Very poor people also open their pantry at night but because it is empty, they then close the door and go to bed. One patient jokingly said her pantry was stocked better than Coles. She was very overweight. Some of my patients try and give up sweets but replace this with large servings of fruits. Remember eating too much fruit (or for that matter fruit juice) means consuming large amounts of sugar as all fruits contain sugar.

When patients come back for review and have put on rather than lost weight they say 'We tried to exercise more and eat less. Why did I put on weight?' Dieticians often state that patients routinely underestimate how much they eat and over estimate how much exercise they do. Because dietary restriction is so difficult, I also know why they are unsuccessful as they tried 'only a little bit' instead of trying harder than someone with a drug addiction.

There are now many phone apps to help you record exactly much you consume and accurately record how much exercise you do. Often people struggling with their finances keep a budget of all their income and expenses. This assists them in budgeting. Likewise, such phone apps give a record of our energy intake and expenditure and therefore also help us to successfully budget our food intake and activity expenditure. They help us identify areas where we are consuming too many

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calories and allow us to make informed decisions as which unhealthy food habits we need to target.

Patients often ask 'How long do I need to diet for?' I remind them a diet is for a specific purpose, for example, to lose weight to attend your daughter's wedding, after which you do not care what happens. Rather, I say they need to make a lifestyle change that they can commit to for the rest of their life. This is the only way to achieve long lasting weight loss. There are no magic medications or remedies to lose weight. But there is a multi-billion industry falsely promising easy weight loss.

To some extent weight loss is about learning to conquer the feeling of hunger that every time we are hungry or stressed that we should eat to our heart's content. Weight loss is about learning to make do with less. I remind patients that poor people do not get the opportunity to eat excessively just because it is their birthday or it is Christmas. What they eat for the day depends on what they have earned for the day. If they do no work for the day, they get to eat very little. I remind my patients that in their case their income is not what is in their wallet but what they physically did for the day. A poor person who is not able to find work for the day is equivalent to us on holiday lying on the beach all day or sitting in a plane on a long-haul flight. Our intake likewise needs to be adjusted to these situations. If we keep telling ourselves, we will eat what we want today because we will burn it off tomorrow, we are doomed to fail. The sad reality for most of us is that tomorrow never comes.

In 2006 I was very overweight. I did a huge amount of exercise over 5 months and my diet remained roughly the same. I lost a staggering 21 kg and dropped my weight from 84 kg to 63 kg. My weight when I started medicine at the University of Melbourne was 66 kg. Life got busier again and my weight slowly increased to 71 kg. I had been ever since trying unsuccessfully to lose weight again. Each time I told a patient to lose weight I was also telling myself so it was very frustrating to myself personally that I could not succeed. I became determined to lose weight when I was correctly told that I was overweight and this was because I was eating too much. I realised I had to apply all the principles I had been telling my patients to myself.

I then conducted a weight loss experiment on myself. I wanted to see how much weight I could lose in a week with exercise. From a baseline of 1-2 hours of exercise a week I did a huge week of exercise which included 270 km on my mountain bike, 250 km on my road bike and an 8 km jog. This equated to 24 hours exercise for the week. I also tried to eat the same or slightly less than before this exercise filled week. My biggest temptation was to white rice so I switched to roti (a flat Indian bread) which I did not like as much and therefore would eat less. After 1 week of this extreme amount of exercise I had lost only 0.7 kg. This is not surprising as it is said that you need to play tennis for 44 hours to lose 1 kg of fat.

I kept exercising intensely although not as much as I had done in the first week. I exercised for a total of 27 days consecutively where I did at least 2 hours per day. This equated to 1300 km on my bike and 6 half marathons. After this time, I had lost

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a total of 2.5 kg. Following this period, I was not able to exercise as much because of work commitments but became stricter with my diet. To my surprise although I was only able to exercise on 3 occasions over the next subsequent 2 weeks I was able to lose a further 3 kg.

I also conducted another experiment on myself. It occurred between 2 Christmas parties. There was a coronary care unit Christmas party which I attended to on Thursday evening. I ate and like most of the people there, I ate more than I needed to. The next morning, I performed a procedure in the private hospital and then I attended the public hospital as I was responsible for the catheter laboratory that day. I did not eat breakfast as I was not hungry. At lunchtime, although starting to become hungry, I decided to not eat for that day. I did this for a personal reason but I also wanted to test my will power. As soon as I made this commitment, the device representative that was present announced that he was bringing a beautiful Thai lunch for all the staff. I sighed but told him 'Thank you for your gesture and I am sure the staff will enjoy your lunch but I will not be eating. I will however sit with you all.' He asked what I wanted instead and I told him that I would have a sparkling mineral water. I watched my fellow staff eat and could smell the beautiful aroma of the food. I was also tempted each time I went to the coronary care unit as during this festive season there was chocolate everywhere. I opened the chocolate box, smelt the chocolate box and then put it down. I did not however eat any chocolate.

Once I finished work at the public hospital I then had to attend to two sick patients in the private hospital. There were further food temptations that evening but I was able to resist. I arrived home at 11.30pm. It had been a very long day as I had started work at 6.45am. I was pleased with myself that I was able to get through the day and perform all my duties without eating. I was able to concentrate fully during many complex procedures. All I had consumed during the day was water.

On Saturday morning I did a bike ride with my group. There is no doubt that I had little or no glycogen stores and was not as strong but I was still able to cycle the usual 50 km. After this bike ride we all attended a fellow cardiologist's house for Christmas breakfast. The breakfast was heavenly. There was no doubt that I burnt a lot of fat during this time as I had succeeded in fasting for 36 hours.

The healthiest people that is those that live into their 90s and 100s aren't people like me that try and use exercise to keep their weight down. The healthiest people are active people that do not go overboard with their exercise yet are able to keep their weight stable with dietary restriction. I now tell my patients that the most important muscles to use to control weight are the muscles that close our mouth (despite all adversities and temptations). To say no is therefore the hardest exercise but it is so important if we want to be successful in losing weight.

There is data to suggest that those that do not exercise at all are more likely to die because of health problems. Interestingly the lowest mortality rate is amongst people that are active without going overboard with their exercise. That is the lowest

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mortality is in people that do the equivalent of 5 hours of brisk walking per week. Those that exercise more than this have a higher mortality rate. Those that push themselves to extremes when they are older yet continue to eat badly not surprisingly have a relatively high incidence of heart attacks. When explaining sensible exercise to my patients I use the analogy of a car. I state when we buy a new car we can 'floor it' without any problem. When the car is old however there can be problems if we 'floor it'.

Given the fact that sugar is more addictive than cocaine does it not follow that we are doomed to fail in our quest to lose weight. This is not necessarily the case. It is important to understand how hard the task is and create a plan to succeed. It is important to find yourself an inspiration to succeed (as I did) or determine an important reason why you want to lose weight as this is what you will think about when you feel like giving up. Of course you may have occasional (for me it has been frequent) relapses but the longer you fight the more likely you will succeed.

I still love white rice and I have done very well to control my intake of this. I am however also addicted to chocolate and my next battle is with this. In late 2016 I purchased a block of 99% dark chocolate with the aim to stock this rather than milk chocolate in the house. After 6 months I finally finished the 100g block. If I can stick to very dark chocolate I know I will be successful in reducing my chocolate intake.

I have come to the conclusion that weight loss is 90% diet and only 10% exercise. It is very important that our lifestyle changes to very significantly reduce all sugars and carbohydrates in our diet. It is important that I am active without going overboard with my exercise. I will continue to try and incorporate periods of fasting on most days. I will have to keep working hard to get to my ideal weight of 60-63 kg. I know at my current weight of 64kg I need to lose more because I can still see fat on my abdomen. Last year my wife took our dog, Blaze, to the vet and was told if you can feel the ribs on him then he has a good weight. When I was told this I felt this is not only good advice for pets but should also apply to us.

I know at times I will relapse and my weight will go back up. Hopefully I can keep this to a small amount. I understand for me it is a lifetime task to keep to my goal weight. I am after all a sugar addict. This road will not be easy but I am prepared for the battle ahead.

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