

Relapse and Blood Sugar Dysregulation

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Information about the reality of sugar addiction, and the negative effects of sugar consumption, is beginning to flood the media. In this article, I will explore the relationship between sugar intake, blood sugar levels and addiction relapse. I will make an argument for the position that the behaviors of missing a meal, and/or consuming a high sugar diet, are primary relapse triggers for all recovering addicts.

Of course, we need more serious research to investigate the concept that sugar intake is harmful to addicts' goals of long term abstinence. However, preliminary research has already clearly shown that low or dropping blood sugar levels lead to cravings (and ultimately, to relapse) in clients with both process and chemical addictions. This blunt fact is substantiated by scientific theory, and also by many years of clinical experience, in my practice and those of many other chemical dependency clinicians around the world. (Mathews, Chapter 7)

Symptoms of low blood sugar, caused by a combination of adrenalin release and a hungry brain, include anxiety, shaking, sweating, heart pounding, and emotional reactivity such as irritability, anger and tears, "brain fog," fatigue and insomnia. When these symptoms are found in people with "dry drunk syndrome" and premenstrual syndrome (PMS), restoring blood sugar levels through appropriate food, or the use of L-Glutamine, may completely eliminate these symptoms.

In fact, clinical experience leads us to suspect that women addicts are much more likely to relapse during the last phase of their monthly menstrual cycle. As estrogen drops towards day one of the cycle, blood sugar becomes more dysregulated, leading to all the above symptoms. A drop in serotonin levels, also due to dropping estrogen may need to be addressed as well.

How could sugar, and low blood sugar, exert such a strong, negative effect on addiction recovery efforts? The brain absolutely requires glucose to function. Although the brain's mass constitutes only 2% of an average body's weight, the cerebrum utilizes 20% of the carbohydrates that are consumed in any 24 hour period. Moreover, the brain does not

have the capacity to metabolize its own source of energy, and can store very limited amounts of sugar. Therefore, the brain requires a steady supply of fuel.

Blood sugar level is a metabolic process that is tightly controlled in the body. When we eat food, carbohydrates are broken down into glucose, which passes into the blood stream and raises blood sugar levels, in the length of time shown in the *glycemic index*.

The glycemic index lists how long it takes for the carbohydrates in a particular food to be absorbed into the bloodstream, compared to the amount of time necessary to absorb white, refined table sugar. Thus, sugar is 100 (the highest rank) on the glycemic index, a cup of cornflakes is 84, and apples are 35. Foods with lower scores are absorbed more slowly, and produce smoother changes in blood sugar levels.

Protein, fiber and fats generally slow down digestion, and reduce the rate of glucose absorption. Refined sugars and starches typically rank high on the glycemic chart. They raise blood sugar levels rapidly, as does tobacco. Surprisingly, pure alcohol is 0 on the glycemic index, and actually lowers blood sugar levels, through a variety of mechanisms. (Lehninger, pg 762)

When we eat, and sugar is released into the blood stream, the pancreas releases small amounts of insulin. Insulin attaches to the sugar molecules, escorts them to nearby tissue cells, and asks the cells to store the sugar. In non-diabetic people, the cells readily accept the sugar molecule, and store it for future need.

Then circulating blood sugar levels drift downward, and insulin goes away. When blood sugar levels dip close to baseline, the brain signals us that it is again time to eat, and people find a source of food by which to raise blood sugar levels. This cycle usually takes about 4 hours, and blood sugar concentration is supposed to rise and fall in a gentle wave, throughout the day.

However, at least 80% (if not more) of all alcoholics, (Milam) premenstrual women, those who habitually eat large amounts of sugar/refined carbohydrates, and patients from alcoholic families, have *dysregulated* blood sugar metabolism, termed ***reactive hypoglycemia*** by many in the health professions. In these cases, the pancreas appears to release excessive amounts of insulin, leading to a precipitous drop in blood sugar, which then may even fall below the normal baseline.

Two very significant metabolic changes happen at this point. First, the adrenal gland releases adrenalin in an attempt slow down this precipitous drop, by stimulating the release of some stored sugar back into the bloodstream. Second, as the drop in blood

sugar continues, the now starving and unbalanced brain sends out urgent signals for the body to do whatever it takes, to bring blood sugar levels back into balance.

This message can easily translate into a powerful craving for quick energy sources such as alcohol or sugar, but this signal just as easily could lead to a craving for the drug or addictive behavior of choice, since an addict's brain has previously been conditioned to look to its drug of choice to restore equilibrium. Thus, the alcoholic craves alcohol, the sugar addict craves sugar, the smoker craves a cigarette, and the sex addict craves sex! This relapse-inducing craving especially occurs if a meal is missed, and simply too much time has passed since the brain has last been fed.

What, one may ask, does sex for the sex addict have to do with low blood sugar, other than a conditioned attempt to restore equilibrium? There are several answers. The first answer has to do with access to the brain's problem solving skills. When adrenalin is released, the sympathetic nervous system is activated. One result of this activation is less blood flow to the prefrontal cortex, the cognitive center where plans are made, skills accessed, consequences assessed, and instinctive fight/flight reactions are triggered.

Thus, with low blood sugar, a typical and powerful physiologic trigger for use and relapse is encountered. An addict may be working a strong recovery program, and has learned new and helpful skills. However, at that "hypoglycemic moment," access to those skills is physiologically blocked, and the conditioned response of reaching for the drug/behavior of choice is activated, to release stress-managing neurotransmitters.

Furthermore, researchers Matthew Gailliot and Roy Baumeister have determined that "*self-control relies on some sort of limited energy source.*" Their research-

*"...suggests that blood glucose is one important part of the energy source of self-control. Acts of self-control deplete relatively large amounts of glucose. Self-control failures are more likely when glucose is low, or cannot be mobilized effectively to the brain (i.e., when insulin is low or cells are insensitive). Restoring glucose to a sufficient level typically improves self-control. Numerous self-control behaviors fit this pattern, including controlling attention, regulating emotions, quitting smoking, coping with stress, resisting impulsivity, and refraining from criminal and aggressive behavior. Alcohol reduces glucose throughout the brain and body, and likewise impairs many forms of self-control. Furthermore, self-control failure is most likely during times of the day when glucose is used least effectively. **Self-control thus appears highly susceptible to glucose.** Self-control benefits numerous social and interpersonal processes. Glucose might therefore be related to a broad range of social behavior."*
(emphasis added)

This situation causes a double problem. Coping skills are blocked by adrenalin, while self-control is diminished by a lack of energy and blood flow to the brain. So, a stressor that a well-fed addict could successfully cope with without relapsing, instead leads to a “slip” or relapse, in a person with low or dropping blood sugar. Even more disturbing is the reality that an external stressor is not even needed, for low or dropping blood sugar to lead to cravings, relapse and addictive use.

Traditionally in treatment circles, and especially in AA, sugar is touted as the cure for cravings. Candy, chocolate and sweetened coffee abound at recovery meetings. In addition, most residential programs make no effort to limit the amount of sugar and refined carbohydrates that are served to their clients. It is common for many people to gain weight within months of quitting their drug of choice - and we all know that, for people who are quitting nicotine usage, their greatest fear is gaining weight. What is actually happening in these situations, and is sugar truly useful for the recovering addict, or is the real case just the opposite?

How do we evaluate the AA sponsor’s recommendation that his sponsee should carry a bag of candy, just as a diabetic might? We believe that this approach actually encourages the switching of addiction from the drug/behavior of choice to sugar. Paradoxically, researchers have created alcoholic rats by feeding normal rats high amounts of sugar!

Moreover, sugar itself is an addictive and dangerous substance. Craving and physical withdrawal symptoms are common when people swear off sweets. Sugar has been shown to fire and deplete the same neurochemicals as do cocaine, heroin and ecstasy. As we have seen above, a major problem with this “quick fix’ approach is the fact that the blood sugar is likely to rise too high and too fast, leading to dramatic swings (the “yo-yo effect”), all day. These unpredictable mood and behavior swings can be literally crazy-making, and strongly induce relapse.

Furthermore, recent research strongly implicates sugar as a major suspect in the etiology of childhood cancer. Sugar also contributes to obesity and diabetes, and, as discussed above, creates a profound lack of serenity in sobriety and abstinence. Finally, switching addictions may support abstinence from the primary substance, but does not lead to true recovery. People who become “sugarholics” are still addicts.

Therefore, our recommendation is to teach clients how to manage their own blood sugar on a daily basis. Such management is actually quite simple to do, although it might require focus and periodic troubleshooting. We recommend that the day start with a breakfast of high protein, moderate complex carbohydrate foods, with high protein

snacks or meals, every four hours. There are many excellent books and articles available, which discuss how to make these dietary changes in a healthy and enjoyable way.

In general, premenstrual women should eat some food, especially high protein foods, every 3 hours to maintain blood sugar stability. For people who just forget to eat, seem to be too busy to eat, or have trouble finding access to appropriate food (Mountain Dew soda pop and potato chips definitely fall in the “inappropriate” category!), we recommend carrying good quality protein bars, and/or the amino acid L-Glutamine.

1000mg of L-Glutamine, placed under the tongue for fast absorption, can be utilized by the brain as fuel. L-Glutamine can eliminate a craving within minutes. It is also a GABA (gamma amino butyric acid) precursor, so L-Glutamine also reduces anxiety- both by raising GABA, and by stopping the adrenalin response to hypoglycemia. Also, people with unstable blood sugar tend to abruptly wake up in the middle of the night, due to an adrenalin surge, and find it impossible to go back to sleep because they feel so alert. Eating a small snack, or using L-Glutamine at this time, also works to decrease circulating adrenalin, and puts people back to sleep easily.

It is often very hard for people in general, and especially those in early recovery, to change their unhealthy ways of eating. Tools that we have found to be useful in building motivation and awareness include:

1. a food/mood/craving diary;
2. a list of hypoglycemic symptoms which clients check off;
3. a 6 hour glucose tolerance test;
4. using the Glycemic Index as a food ranking guide;
5. asking clients who have had a slip into addictive behavior to recall the last time they ate, and what they ate, before the slip occurred;
6. taking time in each session, to find out what a patient is doing to keep his or her blood sugar in balance.

Feeding oneself in a healthy, pro-recovery way, is an act of self-care that any clinician can persistently promote and support. We encourage clinicians to try these approaches with their clients, and track the outcomes. The *Alliance for Addiction Solutions*, a non-profit organization dedicated to promoting natural approaches to addiction recovery, is interested in compiling clinical research on the relationship between hypoglycemia and relapse. Please contact the author, if you or your agency would like to participate in this research effort. My office number is (303) 888-9617.

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