

THE HACKING OF THE AMERICAN MIND, by Robert H. Lustig, MD, MSL, Book Report and Commentary by David G. Schwartz, MD, Part I, January 28, 2019

Yes, the corporate hijacking of our biochemistry and neurological function for profit, with government's silent consent, has seduced us into addictive behaviors that have made our people fatter, sicker, addicted, broke, depressed, stupid, unhappy, and isolated.

Our main vulnerability to this intrusion is the conflation of pleasure with happiness. A common feature of addiction is confusing the two. They are not mutually exclusive, but they are often in opposition. The food industry, Madison Avenue, Wall Street, Las Vegas, Silicon Valley, and Washington D.C. have taken advantage of this common confusion and have promoted pleasure as a counterfeit happiness, resulting in mass addiction. See my article in the archives, "Is Society an Addict?"

Dr. Lustig, a pediatric endocrinologist, has portrayed a significant part of this problem, sugar addiction, and especially the targeting of children to market this toxic substance in his book, Fat Chance, and in the documentary, "Fed Up." See my articles about them in the archives.

Now he has presented a much more comprehensive discussion of the whole area of addictive behaviors related to food, alcohol, caffeine, internet technology, social media, and materialistic consumption. He wanted to understand better the public health and public policy issues, so he also went to law school late in his career. He now can give a better overview of how we got sicker, with the assistance of the "hacking" of our thinking and behavior by industry.

To free ourselves from this clever manipulation, we need to make a distinction between pleasure and happiness. The two are mediated by distinctly different pathways in the brain. The author goes into great detail about the neuro-endocrine actions and pathways, which may seem a bit laborious and complex reading for the average person. I will try to summarize as briefly and clearly as possible, these two emotions and the complexities of how they are expressed.

Pleasure says, "That was great. I want more." Happiness says, "That is great. I don't need any more. I'm content." In French, the word for happy is "content."

Pleasure is driven by a reward pathway in the brain, mediated by a neurotransmitter, dopamine. When a certain behavior like consuming caffeine or sugar, or having sex, results in the release of dopamine from the ventral tegmental area (VTA), to act on the nucleus accumbens (NA), then endogenous opioid peptides (EOP) are released, resulting in the consummation of pleasure, or the reduction in pain or discomfort. This is the reward for the behavior. This motivates doing more of the same behavior, creating a desire to have more of that reward. (As in, "You can't eat just one potato chip.")

This is the basic mechanism of how the reward system works; however it is more complex than this. There are many factors, such as genetics, hormones, body fat, and

stress, that all affect how much dopamine we have or are able to produce, resulting in sluggishness from not enough dopamine, to irritability and aggressiveness from too much dopamine, or just the right amount.

The reward pathway is a basic survival mechanism that gives us the motivation to do our daily activities needed for living. The problem arises when we focus too much on pleasure and comfort, and we do too much of this behavior. Releasing too much dopamine too frequently results in the receptors in the cells of the NA being down regulated, so there is less pleasure experienced with the same amount of dopamine. This is for the survival of these cells, to not cause their death by over-stimulation.

If we continue to binge on ice cream and really want to experience that same amount of pleasure from that bowl of ice cream that we had before, we have to eat two bowls instead of one. This example is a gross approximation of how down regulation works. In addiction science, this is called tolerance. It takes more of a “hit “ to get the same level of satisfaction. Now there is less pleasure in life altogether from this down regulation, because all the other behaviors that give pleasure (shopping, video games, etc.) are no longer giving so much pleasure as before, because of the down regulation of the cells in the NA. This results in craving for more of the things that give pleasure, and a person usually has a favorite substance or behavior, which, in this case, ice cream. This craving is called withdrawal. Now we have the criteria for addiction, especially if the behavior is obviously detrimental to one’s well being, and if the person continues doing this over and over in increasing amounts or frequency, while still knowing it is harmful. The person then wants to stop but feels helpless, unable to stop. That is when want becomes need. “If you scratch, you keep on itching.” Now the person needs that behavior or substance just to feel normal. Before the behavior was started, the person had felt better than he or she does now, without that need.

If the behavior continues to increase in intensity, as with an alcoholic drinking more and more, eventually the cells in the NA do die, and although the remaining cells could up-regulate again after long abstinence, the NA will never be what it once was, a very uncomfortable way of being for the rest of one’s life. I think of some of my patients who quit cigarettes and never desire them again, and then there are others who, after years of abstinence, still crave them, because the receptor cells have died and will never come back. The sooner one quits the addictive behavior, the more success in the long run.

Many large industries take advantage of this vulnerability, and they are glad to provide these addictive substances and activities, at a cost. Not to blame them entirely for getting people hooked, as people have found their own addictive behaviors and substances without any help, but industry just makes everything worse. Then when they market sugar and electronic media to minors, they must bear some responsibility. Unfortunately, too much of our economy’s productivity and growth is based on feeding people’s addictions and on treating the illnesses, poverty, and crime caused by these addictions. A more positive economic system would focus on facilitating people’s experience of happiness, yielding more constructive products and services that enhance health and education, repair infrastructure, regenerate soils, and grow organic agriculture

and creative, sustainable living activities and occupations, and create better quality of life.

So when there is not enough happiness and too much pleasure and comfort seeking, this is where things get out of balance, and people are focused too much on the reward pathway, leading to further unhappiness, sickness, obesity, diabetes, dementia, depression, and poverty.

Now, if everybody were all happiness and bliss and no one cared about comfort or pleasure, that hypothetical extreme would mean that no one would have motivation to accomplish anything and would be in an extreme state of laziness. The novel Happiness, by Tom Ferguson, describes a self-help book that was actually effective. Millions of people read it and got happy, and world economies crashed. Then a few people got very upset about too much happiness in the world, with nobody doing much of anything. This is not likely to happen. There are enclaves of families or societies that have gone to this extreme, but that is rare.

In my personal opinion, I would prefer that we were more skewed in the direction of more happiness than pleasure and comfort. In fact there are whole countries in which people have a much lower material standard of living than we do, but they have better education, health and well being, and more social cohesion and tranquility, and higher ratings on the happiness score. Happiness and pleasure need to be balanced.

Dr. Lustig explains the happiness experience as mediated by the neurotransmitter, serotonin, and describes the behaviors that lead to higher levels of brain serotonin. This is not so discrete a pathway as that of dopamine. Serotonin's neurobiology is much more complex. There are many types of serotonin receptors that have different activities. The receptors in the brain are not in a discreet location, but scattered all over the brain. Most of the serotonin in the body is made in the gut and can't get into the brain, which has to synthesize its own serotonin from tryptophan. Most foods are low in tryptophan, but supplements can provide extra. The entry of tryptophan into the brain is in competition with the building blocks for dopamine. This is one of the many ways the dopamine pathway inhibits the actions of serotonin.

So optimal levels of serotonin in the brain are correlated with pleasant moods and not driven by the reward pathway. It seems the good mood is just there, not as an immediate reward immediately for any substance or behavior. And so, the good mood, contentment, or happiness is not addictive in the sense of resulting in tolerance or withdrawal. What brings about the good mood or happiness is a plethora of more complex behaviors.

Some substances help to increase brain serotonin. Tryptophan provides building blocks for making serotonin. Omega-3 fatty acids reduce inflammation in the brain. Inflammation interferes with the production of serotonin. Omega 3's also help endocannabinoids work properly, to prevent anxiety and depression. Processed food and sugar promote depression, probably by means of causing brain inflammation and interfering with serotonin production.

Happiness, contentment, helps to keep in check the reward pathway, but is it all due to serotonin? This is not so clearly described as the reward pathway that is driven by dopamine. In my perspective, there are more things than serotonin that contribute to an experience of happiness. You notice that I don't say anything about something producing happiness, as something produces pleasure. I see it as something that is just there if we don't disturb it. We were content before we desired something we didn't have, and looked for the reward. So I say that whatever enhances the experience of happiness, doesn't produce it, but allows it to be. The use of SSRI antidepressants to increase serotonin in the synapses of the neurons is an oversimplification of the treatment of depression. Surely, the serotonin increases, but so does the risk of suicide in some cases, with more energy available to act on impulses. An excess of serotonin can cause irritability, worsening depression, and impulsive aggression, and muscle tone and autonomic nervous system problems. If serotonin equaled happiness, then why are all these things happening from serotonin, which are never caused by too much happiness?

In regard to depression, the SSRI's can bring about a complete remission in only about 25% of those treated, and partial remission in others. Many studies show that the antidepressants work no better than placebo. Others show exercise giving as much improvement as the drugs. Some others show herbal treatments as effective. Then sometimes the increased serotonin from the drug can cause a manic episode, too much of a "high" mood, which I would suppose drives the dopamine reward pathway. Excessive gaiety, excited, overjoyed mood does not equal happiness, because it is not peaceful.

The effect of serotonin may be temporary. And then, over time, people often require higher and higher doses of the drugs. Tolerance? Down regulation of the serotonin receptors? Patients have difficulty tapering off the drugs, having many neurological symptoms and worse mood. Withdrawal? My view is that any time you use one single agent to treat a complex problem, such as depression that has many interlacing causes (not a deficiency you were born with, as the psychiatric community would like you to believe), you are asking for trouble. So the SSRI's, which increase serotonin, can be addicting drugs in my opinion, resembling the dopamine reward system. Not exactly the happiness route.

Refer to my article on A New Paradigm In Mental Health, how the increased use of psychiatric drugs in the last few decades has been correlated with more people permanently disabled with depression and psychosis. Also see my article on Peter Gotsche's book, Deadly Psychiatry. Suffice it to say that serotonin does promote happiness, but in a little different manner than the way dopamine causes reward.

In Part II, we look at what lifestyle patterns contribute to the experience of happiness and free us from the addictions to pleasure and comfort. Dr. Lustig discusses public policy issues such as the "death spiral" that our economic and political system is in, and ideas for changing policy. He recommends the 4 C's: Connect, Contribute, Cope, and Cook, to allow us to release our society and our individual selves from addictive behaviors and policies, and to allow us to be happy again.