

THE HACKING OF THE AMERICAN MIND, Part II, A Book Report by David G. Schwartz, M.D.

In Part I we discussed the difference between pleasure and happiness, the brain pathways associated with each, and how the pleasure – reward pathway often results in many addictive behaviors that are encouraged by several industries and our economic system. Part II is about how stress magnifies the dopamine - reward pathway, and how we can strengthen the happiness effects and get free of the addictive behaviors.

Toxic stress results in excessive cortisol, which can be damaging to the memory centers in the brain and to the Prefrontal Cortex (PFC). Cortisol also gives more dominance to the Amygdala, a part of the brain that processes fear and anger. All this strengthens the dopamine pathway. The PFC has the “executive function” that moderates everything and helps us use “common sense.” It puts the brakes on too much reward behavior. So toxic stress harms the PFC and thus promotes the reward pathway.

In the book, The Upside of Stress by Kelly McGonigle, (See my article), she says positive, beneficial stress is when you see the situation as a challenge, and possibilities for making a difference, and you have social support in it. Toxic stress is when you feel helpless, alone, and stuck in the situation. Dr. Lustig points out that many people’s jobs are in the latter situation. Employees can be more productive if they are not subjected to toxic stress, and people are less prone to addictions.

So what enhances our experiences of happiness and dampens the addictive dopamine reward system? Some countries have Gross National Happiness as a goal. Some countries manage their political and economic systems to enhance happiness. They may have a lower material standard of living than ours, but have better education, health care, and social connections. Our Declaration of Independence considered the pursuit of happiness as one of our inalienable rights, but it never got into the Constitution. In our country, we have allowed corporations almost unlimited power over our economy and political systems, with the profit driven goals to get people as addicted as possible to sugar, processed foods, shopping, texting, email, gambling, entertainment, video games, social networking, and the acquisition of more and more stuff and material wealth. The government subsidizes agribusiness to grow crops for the production of junk food, and does not protect children from the marketing of these addictive substances to them, and does not promote organic agriculture.

So what can we do to take back our minds from the hacking by industry, to release ourselves and our children from the addictive behaviors, to restore our health and well being, and to discover real happiness? Dr. Lustig sets out a marvelous menu of 4 C’s: Connect, Contribute, Cope, and Cook.

Connect is religion, social support, and conversation. Religious and spiritual organizations promote awareness of transcendence, connection with a higher power, reduction of anxiety about death, and they give meaning and purpose. Spiritual practices not only promote spiritual growth, but they help us to know happiness now (which is also

spiritual growth.) Religions promote altruism and the dampening of hedonic desires, but also their major contribution is the social connection they provide. Social connection is one of the major markers for health and longevity. Social contact activates the PFC, thereby dampening down the amygdala, reducing toxic stress and cortisol, and increasing endogenous opioid peptides, which further reduces release of stress hormones. Ten minutes of talking to another person per day can reduce the risk of dementia. Social support is associated with positive emotions and higher levels of serotonin. Low social support correlates with low serotonin.

Performing acts of compassion can cheer someone up, and this causes mirror neurons in the giver to capture the other person's joy, and to activate similar feelings in the brain of the giver. "Interpersonal Synchrony" is a process in which one person's actions alter the experience and emotions of the other, and the PFC is activated to let go of fear and to allow good feelings. Studies show that before Facebook was founded in 2004, social networks could spread happiness.

What about social media now? Studies show that the more often people use Facebook, the less subjective well-being they experience. During the same time period studied, if they had real face-to-face connection, their sense of well being improved, yet the Facebook effect of less well-being still persisted. Feelings of envy from reading about others' positive feelings worsened the moods of the readers, comparing themselves with an unrealistic and untrue ideal. I think sometimes people feel excluded from an elite (imaginary) group of superior people, and we know that exclusion results in depressed mood. Social media also shuts down the PFC. Do on line connections cause fewer direct interpersonal interactions? Some people use it as a substitute for real connection. Others use online social communication out of loneliness, to get a fix. This generates reward, and reinforces online use. Then when people stop using these media, they experience withdrawal, as they would with sugar, alcohol, or nicotine.

I had not thought of it this way before, why social media connectivity results in negative moods. It appears to me now, that it is similar to using a single agent, like a drug, to address a complex health problem that needs comprehensive solutions. Social media is taking one aspect of social connectivity, the information sharing. An emoji is quite deficient for sharing feelings. How can you develop empathy when you can't see the nuances of facial expression, body language of the other person, you can't touch him or her, and can't have a lively instant conversation? This is a narrowly limited process, when a multifaceted approach is required to have a real social connection. A major part, and maybe even a majority of interpersonal communication, is nonverbal.

Dr. Lustig quotes Sherry Turkle, psychologist, scholar of science and technology, at M.I.T., that college students now have a 40% loss of empathy since the beginning of the use of smart phones, and also, solitude is no longer available for many children with cell phones. The sentinel achievement of childhood is harnessing solitude and turning it into personal and spiritual growth. "If we don't teach our children to be alone, then we doom them to always be lonely." In Dr. Lustig's Peoples Pharmacy radio broadcast, he said, "Children need to be bored," in order to be creative and to think productively. Most

children now do not have opportunity for boredom, with constant entertainment and input of information.

Dr. Lustig says, “Those are the children I see in my clinic today. They are the ones who prefer to text than talk, who can only communicate through Snapchat and won’t make eye contact. They are the ones whose iPads have assured them that they never had, and never will have, a dull moment. And that is a whole lot of unhappiness.” To me, that looks like being led around constantly by a reward, enforcing the dopamine pathway, and eclipsing the happiness experience. To me, happiness is a state of being that does not come from directly getting or doing. Happiness is something that’s always there if we do not disturb it.

The second “C” is Contribute. Many studies have shown that the materialistic mindset is correlated with discontentment, the opposite of happiness. The more you get, the more you want. This focus on more and more material wealth is in the reward pathway. A certain amount of money is needed to get out of poverty, but beyond that, higher amounts of wealth by itself does not make people happier.

When people do things for the greater good, it is serotonin that is increased, not dopamine. When people have jobs in which they can be proud that they are doing things that benefit others and society, they have more life satisfaction and contentment. If the job treats people unfairly, puts people in harm’s way, requires pointless redundant work, violates the workers’ ethical values, has negative effects on society, the workers feel unhappy and discontent, and are likely to look for things that drive the reward pathway, to go for liquor or sweet desserts.

Happy people are more likely to do good. People driven by dopamine are more likely to do harm. This was confirmed by experiments in which drugs were given to increase dopamine (resulting in more harm to others or indifference) or drugs to increase serotonin (more beneficial acts toward others). Many other studies showed that positive emotions resulted from people helping others.

The author quotes Winston Churchill: “We make a living by what we get, but we make a life by what we give.” The admonitions to be helpful to others is not just a gimmick to get people to cooperate, so society can function better, and it is not just a nice platitude to make us think we are good people. It actually does increase the experience of happiness. There is a spiritual practice in Yoga teachings to do something good, for which you never will get a reward, appreciation, or even recognition. Examples: An anonymous donation, or in a public restroom, if you are alone, do a little cleaning of the sink or counter, etc. Notice how you feel afterward.

The 3<sup>rd</sup> “C” is Cope. Sleep, exercise, and mindfulness. Most of this is common sense. All these reduce stress and allow happiness to take over, yet most people don’t do them. Mindfulness in particular is being aware of what is going on in the moment, learning to observe without interpretation or judgment, especially observing one’s own thoughts and feelings. It is a form of meditation. (See my article in the archives on Jon Kabat Zinn’s

book, Mindfulness For Beginners). Mindfulness results in decrease in toxic stress, more activation of the PFC. Meditators have increase in size of parts of the brain related to awareness and memory.

Dr. Lustig takes to task the myth of “multitasking.” Only 2.5% of the population is able to multitask and perform well and keep the PFC active. People who multitask are more stressed, and blood flow to the PFC is decreased. In the past decade, multitasking with media by youth has increased by 119%. One Texas daycare center put a sign on the door for parents: “GET OFF YOUR PHONE!!! YOUR CHILDREN ARE GLAD TO SEE YOU! ARE YOU HAPPY TO SEE YOUR CHILD?”

Physical activity correlates with well being, and lack of it with greatest unhappiness. Exercise benefits nearly every system in the body, including neurological and emotional state, decreased stress, decreased visceral fat, and subsequent decreased risk for diabetes and cardiovascular disease.

The final “C” is Cook. If we cook our own food, we are less likely to eat processed food, additives, chemical pollutants, unhealthful fats, and sugar. It is social connection with others, it is contribution, and it is helping us to cope. There we have all the C’s in one activity. Unfortunately, too many people eat out too much of the time, and I think that is a major cause of the epidemics of obesity, diabetes, depression, and dementia. Michael Pollan’s book, Cooked, A Natural History of Transformation, shows how cooking shapes our world. This may be a future article. I recommend reading my articles on Dr. Lustig’s Book, Fat Chance. The main killer in processed food is sugar. Sugared beverages by themselves kill 180,000 people annually worldwide and account for about 10% of all disability-adjusted life years. Dr. Lustig has been active in promoting public awareness and public policy, to reign in false advertising and the marketing of sugar to minors, and to remove added sugar from the GRAS (Generally Accepted as Safe) designation. He is chief science officer for Eat REAL (eatreal.org), a non-profit organization that aims to reverse diet-related disease by changing the global food supply. See also my article on Diet For a Dead Planet.

I would also add a few things that can promote happiness, such as silent meditation, positive affirmations, laughter, play, music, dance, and the fine arts. They can help to interrupt the obsession with pleasure. Dr. Judson Brewer, M.D., Ph.D., directs the Center For Mindful Eating, and wrote The Craving Mind. He gives tips on breaking habits of going after the reward behaviors. A perspective on pleasure and pain that recognizes their connection is helpful. I quote Swami Satchidananda as saying, “Pleasure comes with pain as a tail. Pain comes with pleasure as a tail. They are two sides of the same coin. Know that the world is a mixture of pleasure and pain. Once you know that, you can play the game.” And, “Your happiness is greater than any of your pleasure or pain.” Our culture seems to make a rigid judgment that we should have as much pleasure as possible and as little pain as possible. Advertising tells us so. No wonder we have such a righteous quest for pleasure and comfort. This leads us to avoid healthful activities. Exercise can be uncomfortable and challenging. Rest and meditation can be boring. Healthful foods can be tough to chew, or strong, or bitter. If we avoid alcohol, tobacco,

pot, etc., we may have to feel our feelings that are covered over by these drugs. We may have to own our grief, frustrations, anxieties, fears, etc., and we may have to work on them to go through them so they don't control our thinking and behavior and limit our potential. We can be happy if we don't disturb our happiness by seeking false happiness outside ourselves in the form of excessive pleasure seeking.

Bruce K. Alexander, psychologist, and author of The Globalization of Addiction, makes a point that societies that have a lot of dislocation have much higher rates of addiction, when people lost their connection with their communities and purpose. In the rat experiments, a solitary rat gets addicted to morphine quickly, will pull the lever more frequently to get more morphine, but rats, being social animals, are not studied properly in isolation. A rat allowed to run with other rats may take one hit of morphine, but will not repeatedly go back for more. Thus we see that Dr. Lustig's first "C," for Connection can be a direct protection against the excessive use of the reward pathway. Alexander proposes that when people have belonging, identity, meaning, and purpose, they are much less drawn into addictions.

In summary, we can have pleasures and happiness together, and we need to have them balanced. Doing the things recommended in this book can help greatly with that and can do wonders for public health. To paraphrase Ben Franklin – Those who abdicate happiness for pleasure will end up with neither.