Dopmaine Nation

Chapter 1:

- The author talks about how cheap dopamine is accessible all over the place.
  - Through digital media, gambling, //tec
- Talks about the patient who had addicttion with Mastuburation/ sex addiction.
- Author also talks about her addiction with Novels.
- She also talked about how alchol prohibition brought the health benefits when united states banned the alchol consumotion in the years from 1920-1933.
- our cpmpulsive overconsumption risks are not just demise but also that of our planet. The world's natural resources, are rapidly diminishing.
- Economists estimate that in 2040, the world's nature capital (land, forests, fuel, and fisheries) wil be 21 percent less in high incom countries and 17 percent less in poor countries.
- Mean while carbon emissions grow by 7 percent in high income countries and 44 percent in rest of the world.

Chapter 2:

- We are all running away from pain. some of us take pills, some of us surf while binge watching netflix. Some of us read romance novels.
- We will do almost anything to distract ourselves from ourselves. Yet al thus trying to insulate ourselves from pain seems only to have made our pain worse.

Chaoter 3:

- Main functional cells of the brain are called Neurons.

- They communicate each other at Synapses via electrical signals and neuro transmitters.

- Genetically engineered mice unable to make dopamine will not seek out food and will starve to death even when food is placed a few inches away from their mouth.
    - Yet if foood is put directly into their mouth, they will chew and eat this food, and seem to enjoy it.

- Eating chocolate the brain receptors are able to make
    - Dopamine release of 55%
    - Sex -> 100%
    - Nicotine —> 150%
    - Cocaine —? 225%
    - Amphetamine —> 1000 %
    - Adderall the medication used in ADHD also contribute to the release of 1000% Amphetamine.

- Imagine our brains contain a balance, a scale with a fulcrum in the center.
    - Pleasure and pain on the extreme ends.

- Important thing about the balance:
    - It wants to remain level.
    - It doesn’t want to be tipped for very long one side or another.
    - Hence, every time the balance tips towards pleasure, powerful self regulating mechanisms kick into action and bring it level again.

- Tolerance (Neuroadaptation):
    - We have all experienced craving in the aftermath of pleasure.

    - Reaching for a second potato chip or playing anothe round of video games

    - It’s natural to want to re-create those good feelings or try not to let them fade away.

- With repeated exposure to the same or similar pleasures stimulus, the initial deviation to the side of pleasure gets weaker and shorter and the after response to teh side of the pain get stronger and longer a process scientists called Neuroadaption.

- Neuroscientists NoraVolow, and colleagues have shown that hevay, prolonged consumption of high dopamine substances eventually leads to a dopamine deficit state.

- Exact page copied from the book:

    - In the approximately two years in which I compulsivelu consumed romance novels, I eventually reached a place where I could not find a book I enjoyed. It was as if I had burned out my novel reading pleasure center, and no book could revive it.

    - The paradox is that hedonism, the pursuit of pleasure for its own sake, leads to anhedonia, which is the inability to enjoy pleasure of any kind.

    - Reading had always been my primary source of pleasure and escape, so it was a shock and a grief when it stopped working.

    - My patients with addiction describe how they get to a point where their drug stops working for them. They get no high at all anymore. Yet if they dont take their drug, they fell miserable.

    - The universal symptoms of withdrawl from any addictive substance are anxiety, irritability, insomnia, and dusphoria.

    - Here is the good news, If we wait long enough, our brains readapt (usually) to teh abstence of the drug and we re-establish our baseline homeostatis.

- It is very good to know that learning also produces dopamine.

- Once we get the anticipated reward, brain dopamine increases well above the tonic baseline. But if the reward we anticipated doesn’t materialize, dopamine levels fall well below baseline, which is to say if we get the expected reward, we get an even bigger spike. If we dont get the expected reward, we experience an even bigger plunge.

- It is possible to detour the around these damaged areas by creating new neural networks.

- This means although the brain changes are permanent, we can find new synaptic pathways to create healthy behaviors.

- As per science, every pleasure exacts a price, and the pain that follows is longer lasting and more intense than. the pleasure that guive rise to it.

- With prolonged and repeated exposure to pleasurable stumuli, our capacity to tolearate pain decreases, and our threshoold for expereicing pleasure increases.

Chapter 4: Dopamine Fasting:

- Any drug that simulates our reward pathway the way cannabis does has the potential to change our brains baseline anxiety.

- What feels like cannabis treatingg anxiety may in fact be cannabis reliving withdrawl from our last dose.

- Abstinence is necessary to restore homeostasis, and with it our ability to get pleasure from less potent rewards , as well as see the true cause and effect between our substance use and the way we are feeling.

- A four week abstinence is good to go the homeostasis.

- Younger people recalibrate more than older people.

- Remember to observer your thoughts without judgement

- The trick is to stop running away from painful emotions, and instead allow ourselves to tolerate them. When we are able to do this, our experience

takes on a new and unexpected rich texture.

- Doc mentions that she has seen again and again in clinical care, and in her own life, how the simple exercise of abstaining from our drug of choice for at least four weeks gives clarifying insights into our behaviors.

Chapter 5:

- If the treatment to treat addiction is not organic, you might have to face with side effects whcih are caused due to shortcuts.
- High dopamine goods mess with our ability to delay gratification, a phenomenon called delay discoounting.
- Our tendency to overvalue short term rewards over long term rewards can be influenced by many factores, one of them is consumption of addictive behaviours and drugs.
- Cigaratte smokers are more likely than matched controls to discount monetary rewards,
    - The more they smoke and more nicotime they consume, the more they discount future rewards.
- Opoid addicted study participants referred to a future that was on average 9 days long.
- Healthy controls referred to a feature that was on average 4.7 years long.
- This striking difference illustrates how temporal horizons shrink when we are under the sway of an addictive drug.
- Another variable contributing to the problem of compulsive oberconsumption is the growing amount of leisure time we have today and with the ensuing boredom.
- But once somebody start using cannabsis, he wasn;t governed by reason; he was governed by the pleasure pain balance.
- In the famous stanford marshmellow experiment, the childern who waited

for more than 15 minutes, to get the second marshmellow, In those 15 minutes, they used ot do activities like

- Covering eyes and turning away to physically bind themselves.
- Tugging on pigtails suggests physical pain as a distraction.
- Some are stroking marshmellow.
    - The child instead of turining away from the desired object, made it a pet, far too, precious to eat, or atleat to eat impulsively.
    - **Binding ourselves is a way to free ourselves.**

Chapter 6:

- First any drug taht presees on the pleasure side has the potential to be addictive.
- Doctor had many patients who had told her taht their psychiartic medications, while offering short term relief from painful emotions, also limit their ability to experience the full range of emotions, especially powerful emotions like grief and awe.
- One patient also mentioned that lows are worth it to feel human.
- From Doctor Anna Lembke:
    - The medications can be life saving tools, and I m grateful to have them in clinical practice, But there is a cost to medicating away every type of human suffering, and as we shall see, there is an alternative path that might work better:
      Embracing Pain.

Chapter 7:

- The author talks how a cold water exposure can be greatly beneficial.
- The subject in the use case used to feel high every time he used to bath with cold-water.

    - This is one of the example of how pressing the pain side of the balance can lead to it’s opposite - pleasure.

- Example of dogs which got shocks and how they got habituated over the time,
    - The inference form the example is
        - By pressing on the pain side of the balance, might we achieve a more enduring source of pleasure?
    - How stange would appera to be this thing that men call pleasure!
    - And how curiously it is related to what is thought to be its opposite, Pain!
    - The two will never be found together in a man, and yet if you seek the one and ontain it, you are almost bound alwats to get the other as well, just as though they were both attached to one and the same head …
    - Wherever one is found, the other follows up behind.
    - In one of the author mentionings, In my case, since I had paim in my leg as a result of the fetters, pleasure seems to have to come follw up.
    - Worms exposed to tempartures above their preferred 20 degree celsius (In 35 celsius) lived 25 percent longer and were 25 percent more likely to surviver subsequent high tempartures than non exposed worms.
    - Among Japanese citizens living outside the epicenter of the 1945 nuclear attack, those with low dose radiation exposure may have shown marginally longer lifespans and decreased rates of cancer compared to un-irradiated individuals.
    - Note that the findings on the japanese citizens are controversial, and a follow up paper published on the prestigious Lancet disputed them/
- Exercise increases many of the neurotransmitters involved in positive mood regulation, dopamine, serotonin, norepinephrine, epinephrine, and

endocannabinoids, and endogenous opioid peptides.

- Exercise contributes to the birthof new neurons and supporting glial cells ecercise even reduce the likelihood of using and getting addicted to drugs.

- Exercise has a more profound and sustained positive effect on mood, anxiety, cognition, energy and sleep rather than any pill I can prescribe (Author)

- Pursuing pain is harder than pursuing pleasure.

    - It goes agnist our innate reflex to avoid pain and pursue pleasure.

    - We have to remember that we will feelpleasure after pain, and we are remarkably amnestic about thsi sort of thing. I know I have to relearn the lessons of pain every morning as I force myself to get out of bed and go exercise.

- Pursuing pain instead of pleasure is also countercultural, going aganist all the feel good messages that prevade so many aspects of modern life.

- What doesn't kill you makes you stronger.

Chapter 8

- Radical Honesty:

    - If practicing honesty can stimulate prefrontal cortical activation.

    - If stimulating the prefrontal cortex causes people to be more honest, is it also possible that being more honest stimulates the preforntal cortex?

    - Might the practice of telling the truth strengthen activity and excitability in the parts of the brain we use for future planning, emotion regulaiton and delayed gratification?

    - He responded, I have no definitive answer to it but I share your intuition that a dedicated neural process should be strengthened by repeated use.

- This is what happens during the most types of learning, according to Donald Hebb's old Mantra, What fires together wires together"?

- While truth telling promotes human attachement, complusive overconsumption of high dopmain goods is the anthesis of human attachment.

    - consuming leads to isolation and indifference as the drug comes to replace the reward obatained from being in relationship with others.

- Experiments show that a free rat will instinctively work to free another rat trapped inside a plastic bottle. But once that free rat has been allowed to self administer heroin, it is no longer intrested in helping out the caged ratyy, presumably too caught up in a opiod haze to care about a fellow member of it's spieces.

- People who tell stories in which they are frequently the victim, seldom bearing responsibility for bad outcomes. are often unwell amd remain unwell

- Author explained how truth writing helped her to overcome some of the anxieties which she was facing with ther mother and how the relationship with her improved over the time by practicing honesty.

- The author explained the University of rochester experiment,

    - Among the two control groups:

        - One group with promises kept alive.

        - Other group of childern where the promises are broken.

    - The group of childern in the controlled group where promises are kept alive, they are willing to wait longer to receive the award.

    - The group of childern in the controlled group of broken promises immeadietly want rewards.

- The same applies to the real life in childer, If parents keep promises to the childern, they feel safe, confident.

- You have an abundant mindset when you are surrounded by people with nice and honest people you feel secure with the future, and you always tend to be truthful.

- It makes intuitive sense that wehn resources are scarce, people are more invested in immeadiete gains, and are less confident that those rewards will still be forthcoming in some distant future.

- The question is, why do so many of us living in rich nations with abundant material resources nonethelss operate in our daily lives with a scarcity mindset.

- As we have seen too much material wealth can be as bad as having too little.
  - Dopamine overload impairs our ability to delay gratification.ice