The compass of pleasure by david j. linden | review

The Compass of Pleasure

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Humans have a complicated relationship to pleasure which we spend a considerable amount of time pursuing. Certain forms of pleasure such as rituals involving prayer, music, dance, and meditation are accorded special status. Intrinsic pleasures that can be initiated or increased by artificial activators like cocaine, heroin, or modest doses of nicotine or alcohol, are located in our brains transmitting a pleasure buzz from a wide variety of experiences.

I chose the book, The Compass of Pleasure because neuroscientist David J. Linden the author, explored the dark side of pleasure. He explained how the human brain can turn pleasures into addictions and habits so overpowering and pervasive that people will sacrifice almost anything just to get a fix. This kind of behavior makes us wonder why anyone would ruin their health, neglect their family, and spend themselves into poverty all in pursuit of an addiction. Linden says it all comes down to a single neuro-chemical – dopamine.

The terms I learned while reading this book includes:

- Stoic, meaning ability to endure pain or hardship without showing feelings or complaints.
- Painasymbolia, also called pain dissociation which is a condition in which pain is experienced without unpleasantness. Ventral tegmental area (VTA), which is a collection of neurons situated at the center of themidbrain that sends dopamine releasing axons to other regions of

the brain such as the amygdala, anterior cingulate cortex, dorsal striatum and hippocampus.

- Neuroleptics, meaning dopamine receptor antagonists.

Linden (2011), describes most experiences in our lives that we find as transcendent, whether illicit vices, socially sanctioned ritual or social practices as meditative prayer to activate an anatomically and biochemically defined pleasure circuit in the brain. He used past research studies as references.

Two postdoctoral fellows at McGill University conducted experiments that involved implanting electrodes in the brains of rats to activate their pleasure circuits. The electrodes were placed in positions that stimulated the medial forebrain bundle, the axons that excite the dopamine neurons of the ventral tegmental area (VTA). The electrode locations that produced the strongest pleasure were those that most effectively activated the dopamine neurons of the VTA.

Another experimental design from the book focused on the stimulation of the brain of a homosexual psychiatric patient using surgically implanted electrodes. Before the patient’s brain stimulation, he was made to view a film that featured sexual intercourse between a male and a female. He was sexually indifferent and angry about being made to view the film. After the pleasure circuit self- stimulation, he agreed to view the film again during which he became sexually aroused, had an erection and masturbated to orgasm. After he was discharged from the hospital, he had a sexual relationship with a woman for several months. During this period, his homosexual activity was reduced but did not stop completely.

In humans, rats, and other mammals, the reward circuit is interwoven with brain centers involved in decision making, planning, emotion and memory storage. When we find an experience pleasurable, it sets in motion several processes such as liking the experience and we associate both external and internal cues with the experience. These associations allow us to predict how we should behave to repeat or assign a value to pleasurable experience so that in future we can determine how much effort we are willing to expand and the risk we are willing to take to get them.

Linden (2011) defined addiction as persistent, compulsive drug use in the face of increasingly negative life consequences. He explained that the scientific definition of addiction is actually rooted in the brain’sinabilityto experience pleasure and that the dark side of pleasure is addiction. Addiction is associated with long-lasting changes in the biochemical, electrical, and morphological functions of connections within the medial forebrain pleasure circuit. These changes underlie many of the dark sides of addiction, including progressive tolerance, craving, withdrawal and relapse. Therefore, pleasure, addiction and memory are closely related, and directly interconnected.

Psychoactive drugs can be used in different social contexts; as medicine, religious sacrament, pure recreation, or to define oneself as part of a subgroup. Across cultures and over thousands of years of human history, people have consistently found ways to alter the function of their brains. Psychoactive drugs like cocaine, alcohol, and opiates strongly activate dopamine action in VTA target regions. Pleasure is central to some but not all psychoactive drugs.

Certain foods and certain drugs can activate the pleasure circuits. While obesity results from food addiction, food addiction shares many properties and biological substrates with drug addiction, including a strong heritable component and triggering by stress.

Orgasm is another pleasure buzz that may be weaker than cocaine but stronger than food. (Cite page here) It is a multifaceted experience with dissociable sensory and affective, emotional, and rewarding components. It is fiery, transcendent and unique. Orgasm strongly activates the dopamine-using medial forebrain pleasure circuit. Drugs that modulate dopamine signaling in the brain can regulate libido and orgasm. Epileptic seizures or brain stimulation with electrodes can produce orgasms that are devoid of pleasure or emotional feeling.

Gambling addiction is associated with reduced activation of the medial forebrain pleasure circuit. Genetic variants that suppress dopamine signaling, particularly in the medial forebrain, are associated with high rate of gambling addiction. For people who carry these gene variants, their muted dopamine systems lead to blunted pleasure circuits, which in turn affects their pleasure-seeking activities.

Intensive exercise can bring about short term euphoria, reduction of anxiety, and increases in pain threshold. Long term painful stimulus is associated with increased dopamine. Interestingly, charitable giving produces an activation of the pleasure circuit. The interaction of pleasure and associative learning in the medial forebrain pleasure circuit yields both beneficial and detrimental rewards. The ability of experience to produce long-term changes

in the pleasure circuit enables arbitrary rewards and abstract ideas to be felt as pleasurable, a phenomenon that ultimately underlies much of human behavior and culture. This same process is responsible for transforming pleasure into addiction.

Reading the compass of pleasure gives an insight on the function of the neurotransmitter dopamine in the brain and how the dopamine systems in the brain play an important role in pleasure seeking and addictive behaviors. I also learned that dopamine is responsible for most of our immoral behaviors and secret cravings. It is responsible for love, lust, adultery, motivation, attention, and addiction. The denial of pleasure can yield spiritual growth.

In practice, one can see beyond a person’s behavior, personal history, and environment to understand what goes on in the brain when uncontrollable habits such as addiction present themselves. Understanding the interaction between the pleasure circuits and dopamine in the brain help us as health care professionals to understand that addicts are not weak, defective human beings lacking in willpower but are rather people with brains that are chemically deficient.

According to Lundy-Ekman (2013, p. 239), “ Parkinson’s disease is the death of dopamine producing cells in the sustantia nigra”. Occupational therapy improves mobility and functional status in people with Parkinson’s disease. Intense resistance training produces greater muscle hypertrophy and functional gains than are produced by standard exercise.

According to Linden (2011, p. 127), there are variations in genes turning down the functions of dopamine signaling within the pleasure circuit. These variations in genes let people seek pleasure through different activities. These activities may be meaningful to a client while others may be addictions they may want to stop. Understanding the biology of pleasure circuits may help clinician’s such as occupational therapist better understand what an individual deems meaningful or pleasurable. Knowledge of forms of pleasure such as rituals, routines , music, dance and even meditations that are of meaningful to a client obtained during an occupational profile, helps therapist in planning interventions for clients. On the other hand, the therapist can also help create therapeutic interventions to help with addictions.

Linden (2011, p. 150), further explained that exercises has an anti-depressive effect, shows long term improvement in mental functions and slows cognitive decline that accompanies normal aging. Occupational therapists work with a variety of population and this piece of information makes it interesting to know that range of motion exercises and other forms of exercises provided during therapy may be able to improve mental functions and slow cognitive decline in normal aging.

Dopamine and serotonin are important neurotransmitters in the brain that influence many behaviors and movement patterns such as walking and coordination. Dopamine levels are associated with many neurological conditions such as Parkinson’s disease, psychosis and even attention deficits hyperactive disorders. Too much or too little dopamine can interfere with cognition, behavior, or motor skills. In practice, occupational therapists work

with clients with various neurological conditions by evaluating and analyzing the client, the environment and their meaningful occupational performance. Having insight into a clients deficits and its effect on occupational performance is important to therapist because it helps the therapist to be able to plan and provide therapeutic interventions aimed at improving cognition, coordination, mobility and functional status in clients.

References

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