



The Family Solution Finder

Study Guide



PHASE II

Get Educated about the Disease

Seminar # 7

Substance Use Disorder is a Brain Disease



Introduction

Informed Americans no longer view addiction as a moral failing, and more and more policymakers are recognizing that punishment is an ineffective and inappropriate tool for addressing a person's drug problems. Treatment is what is needed.

Addiction affects your brain's reward, motivation, memory, and related circuitry to the extent that your motivations are altered so that your addictive behaviors replace healthy, self-care behaviors.

Substance Use Disorder is a brain disease

Addiction is defined as a disease by most medical associations, including the American Medical Association and the American Society of Addiction Medicine.

Like diabetes, cancer and heart disease, addiction is caused by a combination of behavioral, environmental and biological factors. Genetic risks factors account for about half of the likelihood that an individual will develop addiction.

Addiction involves changes in the functioning of the brain and body. These changes may be brought on by risky substance use or may pre-exist.

The consequences of untreated addiction often include other physical and mental health disorders that require medical attention. If left untreated over time, addiction becomes more severe, disabling and life threatening.

People feel pleasure when basic needs such as hunger, thirst and sex are satisfied. In most cases, these feelings of pleasure are caused by the release of certain chemicals in the brain. Most addictive substances cause the brain to release high levels of these same chemicals that are associated with pleasure or reward.

Over time, continued release of these chemicals causes changes in the brain systems involved in reward, motivation and memory. When these changes occur, a person may need the substance to feel normal. The individual may also experience intense desires or cravings for the addictive substance and will continue to use it despite the harmful or dangerous consequences. The person will also prefer the drug to other healthy pleasures and may lose interest in normal life activities. In the most chronic form of the disease, addiction can cause a person to stop caring about their own or other's well-being or survival.

These changes in the brain can remain for a long time, even after the person stops using substances. It is believed that these changes may leave those with addiction vulnerable to physical and environmental cues that they associate with substance use, also known as triggers, which can increase their risk of relapse.



A chronic disease is a long-lasting condition that can be controlled but not cured.

About 25-50% of people with a substance use problem appear to have a severe, chronic disorder. For them, addiction is a progressive, relapsing disease that requires intensive treatments and continuing aftercare, monitoring and family or peer support to manage their recovery.

The good news is that even the most severe, chronic form of the disorder can be manageable and reversible, usually with long term treatment and continued monitoring and support for recovery.

References

CASAColumbia. (2012) Addiction medicine: Closing the gap between science and practice.

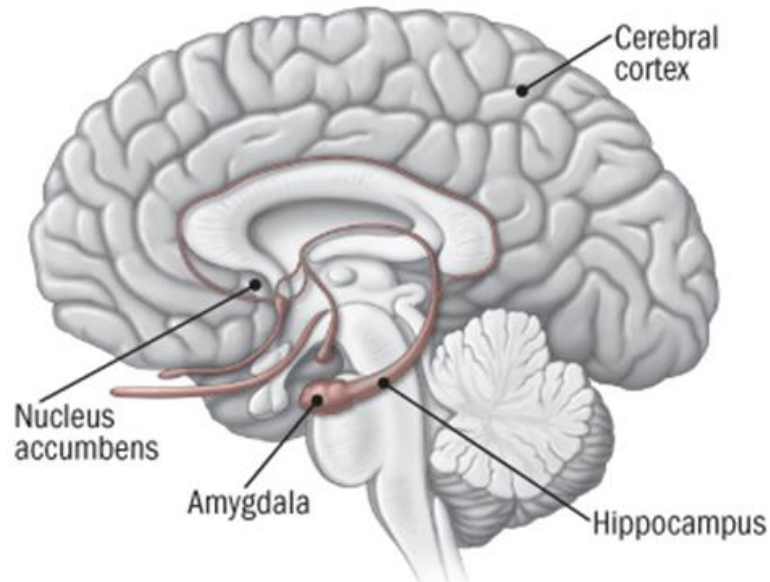
Addiction is like other chronic diseases in the following ways:

- It is preventable
- It is treatable
- It changes biology
- If untreated, it can last a lifetime

The brain can experience pleasure from all sorts of things we like to do in life; eat a piece of cake, have a sexual encounter, play a video game. The way the brain signals pleasure is through the release of a neurotransmitter (a chemical messenger) called dopamine into the nucleus accumbens, the brain's pleasure center. This is generally a good thing; it ensures that people will seek out things needed for survival. But drugs of misuse, such as nicotine, alcohol, and heroin, also cause the release of dopamine in the nucleus accumbens, and in some cases these drugs cause much more dopamine release than natural in a quantity that is too great, in a strength that is too much. It is overloading the system.



Brain's Reward Center



The brain's nucleus accumbens activated by alcohol ([Gilman et al., 2008](#))

Addictive drugs can provide a shortcut to the brain's reward system; by flooding the nucleus accumbens with dopamine. Additionally, addictive drugs [can release 2 to 10 times the amount of dopamine](#) that natural rewards do, and they do it more quickly and reliably.

Over time, drugs become less rewarding, and craving for the drug takes over; The brain adapts to the effects of the drug (an effect known as tolerance), and because of these brain adaptations, dopamine has less impact. People who develop an addiction find that the drug no longer gives them as much pleasure as it used to, and that they have to take greater amounts of the drug more frequently to feel high.

There is a distinction between liking and wanting the drug; over time, the **liking decreases** and the **wanting increases**. Individuals with a substance use disorder continue to seek and use the substance, despite the negative consequences and tremendous problems caused for themselves and for their loved ones, because the substance allows them to simply feel normal.

How the brain recovers from addiction is an exciting and emerging area of research. There is evidence that the brain does recover, after one month of abstinence, the brain looks quite different than the healthy brain; however, after 14 months of abstinence, the dopamine transporter levels (DAT) in the reward region of the brain (an indicator of dopamine system function) return to nearly normal function ([Volkow et al., 2001](#)). That's good news.

There is limited research on the brain's recovery from alcohol and marijuana use. However, recent studies have shown that some recovery does take place. For example, one study found that adolescents that became abstinent from alcohol had significant recovery with respect to behavioral disinhibition and negative emotionality (Hicks et al., 2012). Lisdahl and colleagues propose that this could mean that some recovery is occurring in the prefrontal cortex after a period of abstinence.



The Reward System Changes

Everything we know about addictive drugs suggests that they work through precisely these mechanisms. All addictive drugs activate the reward system by directly raising the levels of dopamine. Although each addictive drug also has its own unique effects, which is why alcohol feels different from cocaine or heroin, stimulation of the dopamine component of the reward system seems to be a common denominator. When addictive drugs enter the brain, they artificially simulate a highly rewarding environment.

The feelings provided by the drugs activate the “wanting” system just the way a cute person or tasty food would, and the dopamine released influences memory and executive function circuitry to encourage the person to repeat the experience. With every use, the enabling circuits become stronger and more compelling, creating an addiction. Recent imaging studies of the brains of addicts while they were anticipating a fix show that the planning and executive function areas of the prefrontal cortex become highly activated as the addict’s plan for the upcoming drug reward.

As an interesting aside: A new area of study is the mathematical modeling of the reward by economists. It should not be a surprise that the mathematical models that predict our consumption of cards, food, and perfume could be applied to more basic reward phenomena, and a group of mathematicians have shown that these models predict a wide range of normal human behaviors.

The field of “behavioral economics” has become one of the most exciting forefronts of neuroscience research. Some scientists have proposed that addiction hijacks the normal reward circuitry and so disrupts the normally perfectly quantifiable relationships between reward and behavior.

The level of addiction to a drug can vary immensely, depending on the characteristics of the drug. If a person uses a drug such as cocaine or amphetamine, which produce a profound dopamine release, the addict’s reward system experiences surges of activation. With repeated use, the circuitry adapts (perhaps becomes tolerant) to dopamine, and normal pleasures, such as sex, become less pleasurable compared with the drug.

In alcoholics, using neuroimaging we can see decreases in the brain’s receptors for dopamine. Since it is hard to study human addicts before their addiction, we have a bit of a “chicken and egg” problem with this finding; we do not know which came first, the low receptors or the addiction. We do know from a recent rat study that raising the level of dopamine receptors by a sophisticated molecular strategy (transfection with a virus) caused rats to decrease their alcohol intake.

Some addictive drugs, such as nicotine, might seem rather innocuous, because they do not produce a profound “buzz” or euphoria. How can nicotine be as addictive as it is? We know that nicotine is a reliable dopamine-releasing agent, although the amount of dopamine released is small with each use. People smoke or chew quite frequently, however, providing the brain many exposures to the drug, allowing the reward system to modify the brain to crave the drug and take action to get it.



The powerfully addicting effects of nicotine demonstrate that the conscious “liking” of the drug experience is not the most important effect of addictive drugs. Most smokers describe nicotine as relaxing, or anxiety reducing, but not as particularly pleasurable.

This dissociation between liking the drug experience and taking drugs is described by most addicts. Many addicts will say that their initial experiences with addictive drugs were the best they ever had, and they have spent the remainder of their addiction seeking out a similar high. Addicts do report that when they stop, they go through a period when they are unable to experience pleasure from normally pleasurable activities; this is called “anhedonia.”

But the result of the addiction is more than simply missing pleasure, as bad as that is. In an established addiction, the brain’s executive centers have become programmed to take all action necessary to acquire the drug. The person begins to crave the drug and feel compelled to take whatever action—spend money, rob a mini-market, steal from his parents—is necessary to get the drug and the high levels of dopamine that come with it. After a while, seeking out the drug can become an automatic behavior that the addict does not even enjoy.

And yet, the reasons that addicts keep using drugs are more complicated than activation of the reward system by dopamine. We think that long-lasting changes in the production of certain brain molecules are at work. Until recently, researchers patiently focused on single molecules, one at a time, to evaluate their potential role in addiction. Using this approach, we learned how to identify molecules that changed as an addiction developed and remained altered for a long time after drug use stopped, in concert with the long-lasting cravings that people experienced. Some of the molecules identified, such as the dopamine receptors, were expected, but others were not. For example, growth factors that produce long-lasting structural changes in the brain may also contribute to the changes in brain function associated with addiction.

Scientists now know that the best way to produce long-lasting changes in the brain is to regulate the production of proteins by activating or silencing their genes. With the new ability to track changes simultaneously in thousands of brain molecules, we have started looking for patterns of change in genes. Some of the single molecules targeted earlier, such as proteins like CREB and delta fos B, themselves coordinate production of families of genes.

Furthermore, these families change over different time frames. CREB is important during the early phases of cocaine use but becomes much less important once addiction is long established. The fos family of proteins is the opposite: many more are changed after long-term exposure to cocaine.



These changes do not go away quickly. The biological memories of the drug can be as profound and long-lasting as any other kinds of memories, and cues can activate the executive system to initiate drug-seeking years after the most recent previous exposure.

So addiction is far more than seeking pleasure by choice. Nor is it just the unwillingness to avoid withdrawal symptoms. It is a hijacking of the brain circuitry that controls behavior, so that the addict's behavior is fully directed to drug seeking and use. With repeated drug use, the reward system of the brain becomes subservient to the need for the drug. Brain changes have occurred that will probably influence the addict for life, regardless of whether or not he continues to use the drug.

Now back to a question we posed earlier: "How are dangerous habits related to addiction?" Researchers are discovering that behaviors such as promiscuous sex, gambling, and overeating have some commonality with drug addiction, and you can probably imagine why. Nature did not create the brain reward circuit to help us get high on cocaine; this system evolved to help us eat and reproduce, behaviors that are complex but necessary to life. Published: April 1, 2005 Authors: Cynthia M. Kuhn, Ph.D., Wilkie A. Wilson, Ph.D

Building up Tolerance

Added to the fact that the addicted person develops a tolerance to the high—requiring more to try to achieve the same level of euphoria—is the fact that the person does not develop a tolerance to the emotional low they feel afterward. Rather than return to "normal," the person reverts to a deeper state of dysphoria.

When becoming addicted, the person increases the number of drugs, alcohol, or the frequency of the addictive behaviors in an effort to get back to that initial euphoric state. But the person ends up experiencing a deeper and deeper low as the brain's reward circuitry reacts to the cycle of intoxication and withdrawal.

You can drink enough alcohol for a period that you can develop a tolerance to some of its effects. If you drink long enough, you may find that drinking the same amount you usually drink does not produce the same effect.

In other words, if you have developed alcohol tolerance you have to drink increasingly greater amounts of alcohol to feel the same affects you used to feel with fewer drinks.



Ability to control Impulses Affects Judgement

Impaired Control and Judgment Problems

ASAM says that behavioral manifestations and complications of addiction, due to impaired control, can include:

- Engaging in more addictive behavior than you intended
- Increased time lost from work or school
- Continued substance use despite physical or psychological consequences
- Narrowing of your addictive behavior repertoire; for instance, you only drink one brand of a certain type of alcohol
- Lack of readiness to get help, despite admitting a problem

In the healthy brain, dopamine is released in response to natural rewards, such as food or exercise, as a way of saying, “that was good.” But drugs hijack dopamine pathways, teaching the brain that drugs are good, too. For example, some drugs have a structure similar to other chemical messengers in the brain, allowing them to bind to brain cells and release dopamine. Therefore, taking a drug produces a euphoric feeling, which in turn strongly reinforces drug-using behavior.

Drugs release two to 10 times the amount of dopamine that natural rewards release. How much is released depends on the type of drug; amphetamines, for example, release more dopamine than cocaine. As a result, the increased and sometimes constant influx of dopamine means feelings of reward, motivation or pleasure are also increased.

But if substance use continues, the brain produces less dopamine and/or reduces the number of brain structures that receive dopamine. Thus, dopamine’s impact on the reward network diminishes, along with the individual’s ability to experience pleasure.

This explains why individuals who chronically abuse drugs or alcohol begin to appear lethargic, unmotivated and depressed, and report a lack of pleasure in things that were once pleasurable. To counter this, they increase their substance use in an attempt to feel the same pleasure they used to. This only exacerbates the problem, creating a vicious cycle of needing to take the drug in order to regain dopamine levels, then later needing to increase the dose, and so on, an effect known as tolerance.



Ability to Think Things Through Correctly

However, once the brain has been changed by addiction, that choice or willpower becomes impaired. Perhaps the most defining symptom of addiction is a loss of control over substance use.

Recent reviews characterize addiction as a two-stage process. **In the first stage**, the individual's occasional drug taking becomes increasingly chronic and uncontrolled. The neurological source of these symptoms is drug-induced reduction of the brain's reward system ([Feltenstein and See, 2008](#)). Normally, increased dopamine signaling within this system—specifically, produces pleasurable feelings that cause a person to seek and perform life-sustaining activities, such as, eating, and having sex.

Drugs of abuse hyperactivate this system, triggering abrupt and large increases producing intense sensations that motivate additional drug taking. ([Feltenstein and See, 2008](#)).

Individuals in the second stage of the addictive process present additional clinical features, including withdrawal symptoms during early abstinence, persistent vulnerability to relapse, and alterations in decision making and other cognitive processes. [Kalivas and Volkow \(2005\)](#)

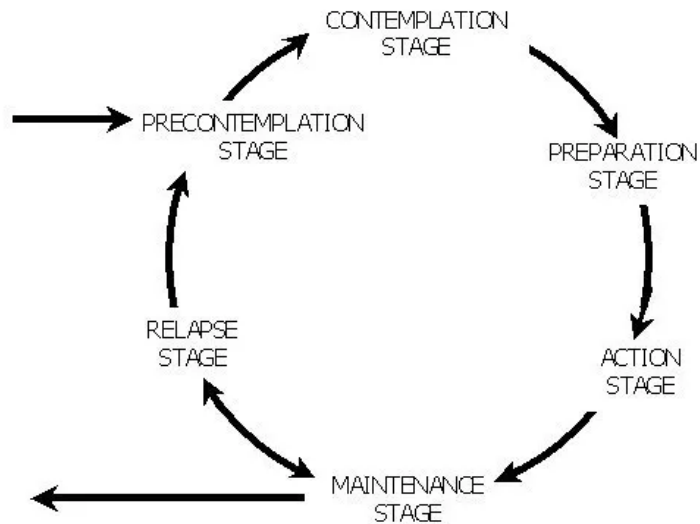
The full extent of drugs' impacts on cognition is not yet known, but research indicates that addicted individuals have alterations in brain regions including the underlie declarative memory—the memories that define an individual, without which it would be difficult to generate and maintain a concept of self ([Cahill and McGaugh, 1998](#); [Eichenbaum, 2000](#); [Kelley, 2004](#); [Setlow, 1997](#)).

Relapse is Expected

Image: Elizabeth Hartney, 2011

There are four main stages in the addiction journey related to relapse: pre-contemplation, contemplation, preparation, and action. Additional stages of maintenance and relapse are also included.

These stages can be represented as a cycle, and it is suggested that people go through these stages in sequence. People can jump about between stages, go backward and forward, and even be in more than one stage at a time.



An individual may go through multiple attempts to stop using a substance before realizing that addiction is a factor. However, when addiction is diagnosed, it is possible to interrupt this cycle of addiction, abstinence, and relapse by getting professional treatment that is backed by research showing its ability to help. Multiple methods, including cognitive and behavioral therapies, peer group support, and other physical and mental health treatments can encourage the person to develop tools for managing this chronic, recurring condition.

As with the medications and therapies used to treat asthma and diabetes, the treatments in addiction rehab are designed to help the person learn to manage a chronic substance use disorder and reduce the likelihood of relapse to drug use. With motivation and experienced, certified help, these individuals can learn to interrupt the addiction cycle and move forward into the sustained abstinence that heralds recovery and results in a more positive future.



Substance Use Disorders are a Chronic Disease

Scientific advances over the past 20 years have shown that drug addiction is a chronic, relapsing disease that results from the prolonged effects of drugs on the brain. As with many other brain diseases, addiction has embedded behavioral and social-context aspects that are important parts of the disorder itself.

Therefore, the most effective treatment approaches will include biological, behavioral, and social-context components. Recognizing addiction as a chronic, relapsing brain disorder characterized by compulsive drug seeking and use can impact the families overall health, it impacted everyone in all aspects of family life.



The Family Solution Finder Workbook



Families Impacted By Opioids

Education, Caring, Networking

Learning Track II

Getting Educated About the Disease

Seminar # 7

“Substance Use Disorder is a Brain Disease”

Learning Seminar #7

“Substance Use Disorder is a Brain Disease”

Instructor	Seventh stage of opening awareness about the family is to identify why do our brains get addicted.
Audience	Identifying what are the different between normal brain reward system, and rewired brain in addiction. What role does the different parts of the brain preform.
Exercise	Exercise #1: Identify how dopamine works. Exercise #2: What role do triggers play in addiction. Exercise #3: What can the family do to help their loved one deal with this disease.

SEMINAR GOALS:

1. The attendee will be able to name the three (3) primary parts of the brain that deals with the reward system.
2. The attendee will be able to identify in their family triggers that can cause relapse.
3. Using the information, identify within these exercises the family will complete their family plan of action with information needed to further develop their understanding to their loved one’s diagnosis and determine what impact this will have on the family members.

Each member of the family contributes to the family system. Their contribution to these exercises can help to create a more successful environment for their loved one to maintain recovery.

Substance Use Disorder is a Brain Disease

Lesson One: What happens to the brain that causes this disease?

Lesson Two: In what way is the disease “Chronic”?

Lesson Three: Why is this important to know, as a family member?

Extended Learning Video’s

Video One –Brain Reward: Understanding How the Brain Responds to Natural Rewards and Drugs of Abuse?

Video Two- Addiction Neuroscience 101

Video Three –Matrix Pt II Triggers and Cravings for More

Practical Exercise

Practical Exercise # 1 Parts of the Brain & Functions

Practical Exercise # 2 What is their Severity in this Disease

Master Family “Plan of Action” items

Identifying the triggers at home?

Introduction

What is drug addiction? Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. It is considered a brain disease because drugs change the brain—they change its structure and how it works. These brain changes can be long-lasting and can lead to the harmful behaviors seen in people who abuse drugs.

There are three primary areas for the family to focus regarding Substance Use Disorder being a chronic disease of the brain.

1. What happens to the brain that causes it to be a disease?
2. In what way is the disease “Chronic”?
3. Why is this important to know, as a family member?

In Part One Seminars included:

1. The family is a system and each family member seeks to support the other.
2. Family members have a role they play in the journey.
3. Complex trauma may have been a part of why the person abusing substances is involved in these behaviors.
4. There are different types of family therapy to assist the family members in addressing the issues that present in the journey.
5. There are many areas of support available throughout the community.

In Part Two Seminars Included:

1. Getting a Diagnosis.
2. Substance Use Disorder is a Brain Disease.
3. The Disease Progresses in Stages.
4. Relapse is Part of this Brain Disease Journey.

Part One was required so the family has a clear understanding of “Who they Are” and “How they Work Together”. In Part Two the family learns what is happening to their loved one.

Lesson One: What happens to the brain that causes this disease?

The brain is made up of many parts that all work together as a team. Different parts of the brain are responsible for coordinating and performing specific functions. Drugs can alter important brain areas that are necessary for life-sustaining functions and can drive the compulsive drug abuse that marks addiction. Brain areas affected by drug abuse include:

1. The **brain stem**, which controls basic functions critical to life, such as heart rate, breathing, and sleeping.
2. The **cerebral cortex**, which is divided into areas that control specific functions. Different areas process information from our senses, enabling us to see, feel, hear, and taste. The front part of the cortex, the frontal cortex or forebrain, is the thinking center of the brain; it powers our ability to think, plan, solve problems, and make decisions.
3. The **limbic system**, which contains the brain's reward circuit. It links together several brain structures that control and regulate our ability to feel pleasure. Feeling pleasure motivates us to repeat behaviors that are critical to our existence. The limbic system is activated by healthy, life-sustaining activities such as eating and socializing— but it is also activated by drugs of abuse. In addition, the limbic system is responsible for our perception of other emotions, both positive and negative, which explains the mood-altering properties of many drugs.

The brain is a communications center consisting of billions of neurons, or nerve cells. Networks of neurons pass messages back and forth among different structures within the brain, the spinal cord, and nerves throughout the rest of the body (the peripheral nervous system). These nerve networks coordinate and regulate everything we feel, think, and do.

1. **Neuron to Neuron** - Each nerve cell in the brain sends and receives messages in the form of electrical and chemical signals. Once a cell receives and processes a message, it sends it on to other neurons.
2. **Neurotransmitters** -The Brain's Chemical Messengers, The messages are typically carried between neurons by chemicals called neurotransmitters.
3. **Receptors** - The Brain's Chemical Receivers The neurotransmitter attaches to a specialized site on the receiving neuron called a receptor. A neurotransmitter and its receptor operate like a "key and lock," an exquisitely specific mechanism that ensures that each receptor will forward the appropriate message only after interacting with the right kind of neurotransmitter.

Drugs are chemicals that affect the brain by tapping into the communication system and interfering with the way neurons normally send, receive, and process information. Some drugs, such as marijuana and heroin, can activate neurons because their chemical structure mimics that of a natural neurotransmitter. This similarity in structure "fools" receptors and allows the drugs to attach onto and activate the neurons. Although these drugs mimic the brain's own chemicals, they don't activate neurons in the same way as a natural neurotransmitter, and they lead to abnormal messages being transmitted through the network. Other drugs, such as amphetamine or cocaine, can cause the neurons to release abnormally large amounts of natural neurotransmitters or prevent the normal recycling of these brain chemicals. This disruption produces a greatly amplified message, ultimately disrupting communication channels.

Similarly, long-term drug abuse can trigger adaptations in habit or non-conscious memory systems. Conditioning is one example of this type of learning, in which cues in a person's daily routine or environment become associated with the drug experience and can trigger uncontrollable cravings whenever the person is exposed to these cues, even if the drug itself is not available. This learned "reflex" is extremely durable and can affect a person who once used drugs even after many years of abstinence.

Chronic exposure to drugs disrupts the way critical brain structure and its ability to interact, to control and inhibit behaviors related to drug use.

Continued abuse may lead to tolerance and that may lead to higher drug dosages, this may lead to addiction, which can drive a user to seek out and take drugs compulsively.

Drug addiction erodes a person's self-control and ability to make sound decisions, while producing intense impulses to take drugs. When we say intense, we mean very intense.

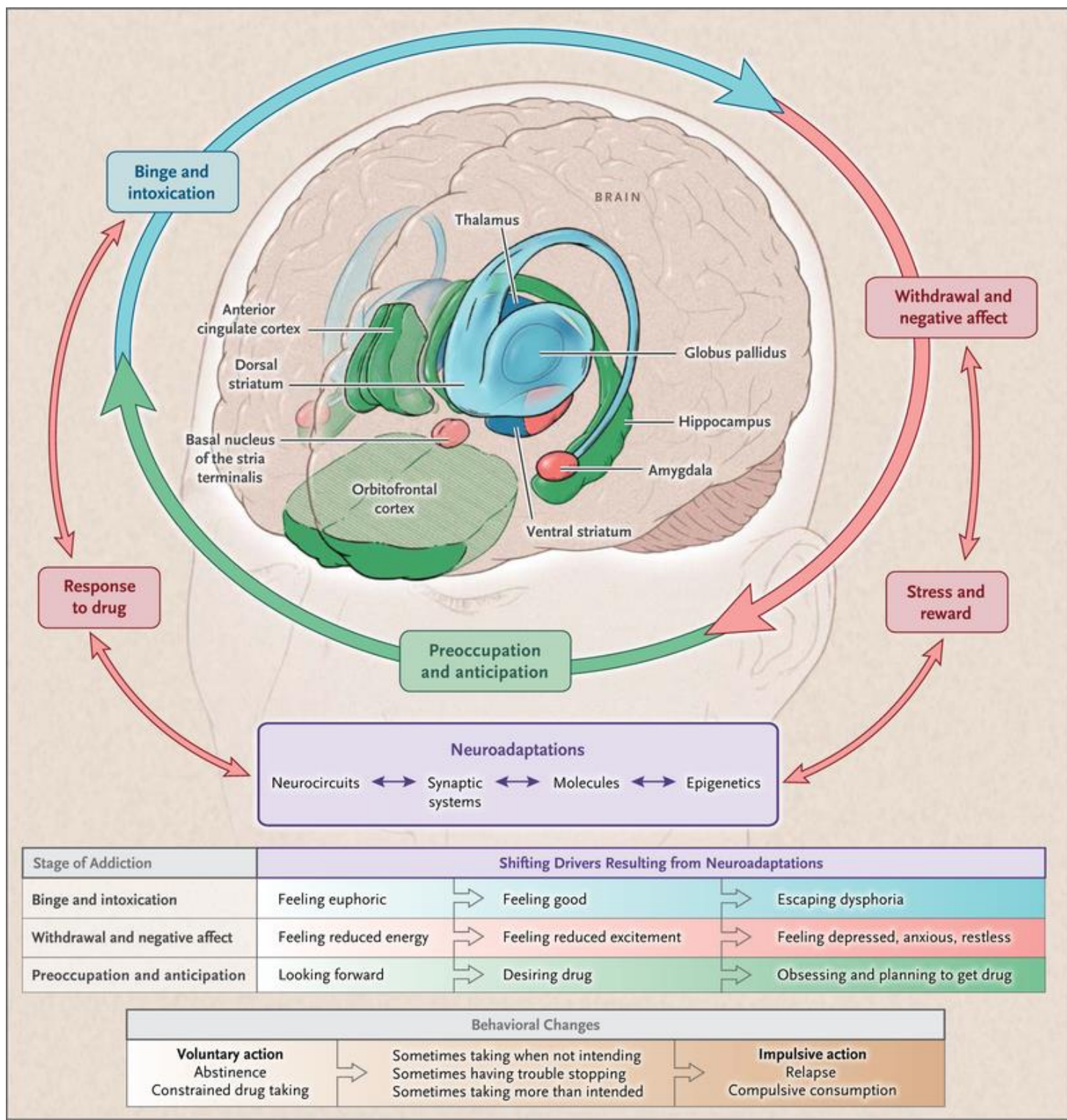
Our brains are wired to ensure that we will repeat good life-sustaining activities. Whenever this reward circuit is activated, the brain notes that something important has happened that needs to be retained. This is what teaches us to do it again and again without thinking about it. Because drugs abuse stimulates the same circuit, we learn to abuse drugs in the same way, again and again. It's about the neuronal channels have changed to override logic and seek rewards.

So, what can be done to correct this. One way is Cognitive Behavioral Therapy which seeks to help patients recognize, avoid, and cope with the situations in which they are most likely to abuse drugs.

- Contingency Management uses positive reinforcement such as providing rewards or privileges for remaining drug free, for attending and participating in counseling sessions, or for taking treatment medications as prescribed.
- Motivational Enhancement Therapy uses strategies to evoke rapid and internally motivated behavior change to stop drug use and facilitate treatment entry.
- Family Therapy (especially for youth) approaches a person's drug problems in the context of family interactions and dynamics that may contribute to drug use and other risky behaviors.

Behavioral treatments help engage people in substance use disorder treatment, modifying their attitudes and behaviors related to drug use and increasing their life skills to handle stressful circumstances and environmental cues that may trigger intense craving for drugs and prompt another cycle of compulsive use. Behavioral therapies can also enhance the effectiveness of medications and help people remain in treatment longer.

Did you know that a family system has direct impact on the environment of the person with substance use disorder? If this person is in treatment and then discharged from care, back into an unchanged family environment, it is likely the triggers which were present before treatment are still present in the family, after treatment. The family members will benefit from seeking Multidimensional Family Therapy while their loved one is in the treatment center. Doing this, has proven to reduce the likelihood of relapse by 69%.



Practical Exercise # 1 Parts of the Brain & Functions

In below three (3) examples, underline which does not belong to that brain function:

1. Brain Stem

Heart
Breathing
Paying Bills

2. Cerebral Cortex

Thinking
Planning
Make Decisions
Emotions

3. Limbic System

Drive a car
Eating
Socializing
Emotions

IN REVIEW:

The brain is a communications center. The nerve networks coordinate and regulate everything we feel, think, and do. Drugs are chemicals that affect the brain by tapping into its communication system and interfering with the way neurons normally send, receive, and process information.

Similarly, long-term drug abuse can trigger adaptations in habit or non-conscious memory systems. Chronic exposure to drugs of abuse disrupts the way critical brain structures interact to control and inhibit behaviors related to drug use.

Drugs will interfere with these brain functions and other functions to a varying degree.

Lesson Two: In what way is the disease “Chronic”?

Chronic diseases are long-lasting conditions that usually can be controlled but not cured. People living with chronic illnesses often must manage daily symptoms that affect their quality of life, and experience acute health problems and complications that can shorten their life expectancy. According to the Centers for Disease Control, chronic disease is the leading cause of death and disability in the United States, accounting for 70% of all deaths. Moreover, chronic conditions such as back pain, depression and addiction are often the main drivers of decreased productivity and increased healthcare costs. Data from the World Health Organization show that chronic disease is the major cause of premature death around the world, even in places where infectious disease are rampant.

The good news is through effective behavior change efforts, appropriate medical management, and systematic monitoring to identifying new problems, chronic diseases and their consequences can often be prevented or managed effectively.

Chronic disease management (CDM) programs are proactive, organized sets of interventions focused on the needs of a defined population of patients. Program design varies, but CDM programs are usually multi-component efforts that include planned visits to teach patients about their disease, coach them on healthy behavior change including medication adherence, and skills for self-management of chronic conditions in partnership with a coordinated, multidisciplinary care team. Interventions may be based on the Chronic Care Model, which identifies links to community resources, health system support, health care system redesign, self-management and provider decision support, and the use of clinical information systems as essential elements for health care systems to support high quality chronic disease care. CDM programs can support patients with illnesses such as diabetes, hypertension, heart failure, and depression, and can be delivered in various health care settings.

Addiction is a chronic medical illness and needs to be viewed that way if patients who suffer with addiction are to have a chance for proper treatment. DSM-V has changed the proper medical diagnosis of addiction from Substance Abuse or Dependence to Substance Use Disorder that can be considered mild, moderate, or severe. Like most chronic medical illnesses, there is no “cure” for addiction. It needs to be managed and mitigated by continuous treatment, usually requiring both behavioral and medication interventions. A common comparison is between addiction and diabetes [1]. We want patients who suffer with diabetes to have a consistent diet avoiding simple carbohydrates, choosing more lean meats and vegetables. Insulin and/or other medications are usually required to keep blood sugars under control.

In addition, we want patients to avoid people, places, and things that might trigger their dependence and often medication is required to keep the threat of deadly relapses from occurring. For alcohol, the medications may be acamprosate, disulfiram, or naltrexone.

For opioids, the medications may be methadone, buprenorphine, or naltrexone. For diabetes, there are physiological etiologies for the disease such as a of lack of insulin production or insulin resistance. For addiction, it is a heightened sensitivity and density of neuroreceptors for the addictive substance in the brain. Both have genetic predispositions. Both have elements of nature and nurture involved. Both have diagnostic criteria. Both have medications and other therapies indicated for treatment. Both have medication adherence issues, both require family member involvement to succeed.

Practical Exercise # 2 What is their Severity in this Disease?

This is a good internet site to visit and read: [www. https://www.verywellmind.com/opioid-use-disorder-22046](https://www.verywellmind.com/opioid-use-disorder-22046)

Given the Scale below, where is your loved one in the Severity of the disease. Confirm with your clinical staff on their rating.

There are different level of “plan of treatment” which correlates to the different levels of disease severity; Mild, Moderate and Sever.

DIAGNOSIS OF A SUBSTANCE USE DISORDER

The American Psychiatric Association diagnoses the severity of Substance Use Disorders by identifying the presence of problematic patterns using the criteria below occurring over a 12 month period.

1 AMOUNT

Take the substance in larger amounts & for longer than intended.

2 CONTROL

Want to cut down or quit but are unable to.

3 TIME

Spend large amounts of time obtaining the substance.

4 CRAVINGS

Experience cravings or strong desires to use the substance.

5 OBLIGATIONS

Repeatedly unable to carry out major obligations at work, school or home due to substance use.

6 SOCIAL

Continuing to use the substance despite persistent or recurring social or interpersonal problems or harm to relationships.

7 ACTIVITIES

Stopping or reducing important social, occupational or recreational activities due to substance use.

8 HAZARD

Continually using the substance in physically hazardous situations such as driving under the influence.

9 HARM

Consistently using the substance, despite knowledge of the substance causing persistent or recurrent physical or psychological problems.

10 TOLERANCE

Building a tolerance — the need for markedly increased amounts of the substance to achieve the desired effect, or a markedly diminished effect with continued use of the same amount of the substance

11 WITHDRAWAL

Feeling withdrawal symptoms — as either a characteristic syndrome or when the substance is used to avoid withdrawal

MILD

MEETS 2 to
3 CRITERIA

MODERATE

MEETS 4 to
5 CRITERIA

SEVERE

MEETS 6
or MORE
CRITERIA

DIAGNOSTIC & STATISTICAL MANUAL FIFTH EDITION

FOR MORE INFORMATION VISIT
www.recoveryanswers.org



Lesson Three: Why is this important to know, as a family member?

The family can help in many ways, and it will involve each member in the family to participate as a group, united in purpose and response.

1. Adolescent substance use needs to be identified and addressed as soon as possible. Drugs can have long-lasting effects on the developing brain and may interfere with family, positive peer relationships, and school performance. Most adults who develop a substance use disorder report having started drug use in adolescence or young adulthood, so it is important to identify and intervene in drug use early.
2. Adolescents can benefit from a drug abuse intervention even if they are not addicted to a drug. Substance use disorders range from problematic use to addiction and can be treated successfully at any stage, and at any age. For young people, any drug use (even if it seems like only “experimentation”), is cause for concern, as it exposes them to dangers from the drug and associated risky behaviors and may lead to more drug use in the future. Parents and other adults should monitor young people and not underestimate the significance of what may appear as isolated instances of drug taking.
3. Routine annual medical visits are an opportunity to ask adolescents about drug use. Standardized screening tools are available to help pediatricians, dentists, emergency room doctors, psychiatrists, and other clinicians determine an adolescent’s level of involvement (if any) in tobacco, alcohol, and illicit and nonmedical prescription drug use.¹⁹ When an adolescent reports substance use, the health care provider can assess its severity and either provide an onsite brief intervention or refer the teen to a substance abuse treatment program.
4. Legal interventions and sanctions or family pressure may play an important role in getting adolescents/adult to enter, stay in, and complete treatment. Adolescents with substance use disorders rarely feel they need treatment and almost never seek it on their own. Research shows that treatment can work even if it is mandated or entered into unwillingly
5. Substance use disorder treatment should be tailored to the unique needs of the adolescent/adult. Treatment planning begins with a comprehensive assessment to identify the person’s strengths and weaknesses to be addressed. Appropriate treatment considers an adolescent’s level of psychological development, gender, relations with family and peers, how well he or she is doing in school, the larger community, cultural and ethnic factors, and any special physical or behavioral issues.
6. Treatment should address the needs of the whole person, rather than just focusing on his or her drug use. The best approach to treatment includes supporting the persons larger life needs, such as those related to medical, psychological, and social well-being, as well as housing, school, transportation, and legal services. Failing to address such needs simultaneously could sabotage the adolescent’s treatment success.
7. Behavioral therapies are effective in addressing adolescent drug use. Behavioral therapies, delivered by trained clinicians, help an adolescent stay off drugs by strengthening his or her motivation to change. This can be done by providing incentives for abstinence, building skills to resist and refuse substances and deal with triggers or craving, replacing drug use with constructive and rewarding activities, improving problem-solving skills, and facilitating better interpersonal relationships.

8. Families and the community are important aspects of treatment. The support of family members is important for an adolescent's recovery. Several evidence-based interventions for adolescent drug abuse seek to strengthen family relationships by improving communication and improving family members' ability to support abstinence from drugs. In addition, members of the community (such as school counselors, parents, peers, and mentors) can encourage young people who need help to get into treatment—and support them along the way.
9. Effectively treating substance use disorders in adolescents requires also identifying and treating any other mental health conditions they may have. Adolescents who abuse drugs frequently also suffer from other conditions including depression, anxiety disorders, attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder, and conduct problems.²³ Adolescents who abuse drugs, particularly those involved in the juvenile justice system, should be screened for other psychiatric disorders.

Treatment for these problems should be integrated with the treatment for a substance use disorder. Family Services Vocational Services Mental Health Services Medical Services Educational Services HIV/AIDS Services Legal Services Assessment Evidence-Based Treatment Substance Use Monitoring Clinical and Case Management Recovery Support Programs Continuing Care Components of Comprehensive Drug Abuse Treatment The best treatment programs provide a combination of therapies and other services to meet the needs of the individual patient. Many adolescents who abuse drugs have a history of physical, emotional, and/or sexual abuse or other trauma. Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide

10. Sensitive issues such as violence and child abuse or risk of suicide should be identified and addressed. Many adolescents who abuse drugs have a history of physical, emotional, and/or sexual abuse or other trauma.²⁴ If abuse is suspected, referrals should be made to social and protective services, following local regulations and reporting requirements.
11. It is important to monitor drug use during treatment. This person recovering from substance use disorders may experience relapse, or a return to drug use. Triggers associated with relapse vary and can include mental stress and social situations linked with prior drug use. It is important to identify a return to drug use early before an undetected relapse progresses to more serious consequences. A relapse signals the need for more treatment or a need to adjust the individual's current treatment plan to better meet his or her needs.
12. Staying in treatment for an adequate period and continuity of care afterward are important. The minimal length of drug treatment depends on the type and extent of the person's problems, but studies show outcomes are better when a person stays in treatment for 3 months or more. Because relapses often occur, more than one episode of treatment may be necessary. Many adolescents also benefit from continuing care following treatment,²⁶ including drug use monitoring, follow-up visits at home,²⁷ and linking the family to other needed services. A relapse signals the need for more treatment or a need to adjust the individual's current treatment plan.

13. Testing adolescents for sexually transmitted diseases like HIV, as well as hepatitis B and C, is an important part of drug treatment. Adolescents who use drugs—whether injecting or non-injecting—are at an increased risk for diseases that are transmitted sexually as well as through the blood, including HIV and hepatitis B and C. All drugs of abuse alter judgment and decision making, increasing the likelihood that an adolescent will engage in unprotected sex and other high-risk behaviors including sharing contaminated drug injection equipment and unsafe tattooing and body piercing practices—potential routes of virus transmission. Substance use treatment can reduce this risk both by reducing the persons drug use (and thus keeping them out of situations in which they are not thinking clearly) and by providing risk-reduction counseling to help them modify or change their highrisk behaviors.^{28,29}

Points 1-13 REF: These 13 Principles of Adolescent Substance Use Disorder Treatment are taken from : Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide

The Story

The bi-chemical signature tells the truth. The dopamine rewiring in our brain, creates a new condition stimulation. Prediction of stimuli creates a new channel towards reward and our memory stores it for retrieval.

VIDEO ONE: This is an advanced level of learning, very technical



ASSIGNMENT VIDEO: On www.youtube.com/

Search Title: Brain Reward: Understanding How the Brain Responds to Natural Rewards and Drugs of Abuse?

Link: <https://www.youtube.com/watch?v=7VUIKP4LDyQ>

Duration: 9:11 min

VIDEO TWO: This is a moderate level of learning, technical



Search Title: Addiction Neuroscience 101

This is an overview of the neurobiology of addiction

Link: <https://www.youtube.com/watch?v=bwZcPwIRRcc&t=930s>

Duration: 23:29min

VIDEO THREE: This is an appropriate basic level for most audiences,



Search Title: Matrix Pt II TRIGGERS AND CRAVINGS FOR MORE

LINK: <https://www.youtube.com/watch?v=kqZak9ctzGo>

Family Plan of action

The triggers at home with the family?

What are your words that might become triggers?

What visual stimuli are present in the home environment?

What activities does the family do that might create triggers?

- 1.
- 2.
- 3.

What are the roles of each family member and how might they create triggers?

Reference Publications:

NIDA's Special Initiatives for Students, Teachers, and Parents Heads Up: Real News About Drugs and Your Body—A drug education series created by NIDA and SCHOLASTIC INC. for students in grades 6 to 12. www.headsup.scholastic.com

NIDA for Teens: The Science Behind Drug Abuse—An interactive Web site geared specifically to teens, with age-appropriate facts on drugs. www.teens.drugabuse.gov Drug Facts Chat Day— A Web chat between NIDA scientists and teens, held through school computer labs once a year during National Drug Facts Week (below). www.drugabuse.gov/chat

National Drug Facts Week— A week-long observance that encourages community-based events and dialogue between teens and scientists during National Drug Facts Week (below). www.drugfactsweek.drugabuse.gov/

Publications on Prevention and Treatment Principles Preventing Drug Use among Children and Adolescents: A Research-Based Guide for Parents, Educators, and Community

Leaders—NIDA's research-based guide for preventing drug abuse among children and adolescents provides 16 principles derived from effective drug-prevention research and includes answers to questions on risk and protective factors as well as on community planning and implementation.

Principles of Drug Addiction Treatment: A Research-Based Guide—This guide summarizes the 13 principles of effective treatment, answers common questions, and describes types of treatment, providing examples of scientifically based and tested treatment components.

Continue Your Study

The Family Solution Finder, Study Guide and Workbook

1. Learning Track One is about The Family: It's all about the family dynamic

Here the family learns about itself

2. Learning Track Two is about getting the family educated

Here the family learns about the individual and their disease

3. Learning Track Three is about getting the family organized

Here the family prepares for the demands and request that typically present in the journey of addiction

4. Learning Track Four is about getting the family networked

Here the family prepares a path to those known organizations they will likely need to access in the future.

5. Learning Track Five is about creating a family “Plan of Action”

In an ever-changing design, the plan of action is a place for the family to act as one with a single purpose to meet the goal of their family.