

Neuroscience of Addiction: Disease or Decision?

Welcome!

- All lines are muted, so please ask your questions in Q&A

We will get
started shortly!

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Neuroscience of Addiction: Disease or Decision?



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Hosted by:
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CLINICAL SOCIAL WORKER

I have been a social worker for over 20 years in multiple areas of healthcare, primarily hospice. I have also worked in dialysis, home health, long term care and inpatient hospital settings. I also worked in higher education as Director of Field Instruction at my alma mater, Valdosta State University. I have been a clinical reviewer, for over 5 years, with Alliant Health Solutions. I have been married for 23 years and have 2 children, a daughter and a son.

I enjoy being outside with my 2 rescue dogs, family outings to local places of interest and time with my extended family as well. We are active in our church and participate in mission work throughout the year. I love many kinds of music and you may often find me cooking while enjoying some fun music.

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TRAINING AND TECHNICAL ASSISTANCE MANAGER FOR
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James Campbell has worked professionally in the human services field for over twenty-five years in a wide range of clinical settings and currently serves as the Training and Technical Assistance Manager for Southeast Addiction Technology Transfer Center at Morehouse School of Medicine. His passion is helping individuals, families, and communities heal and build on the strengths they possess. He is a member of both NAADAC and ACA, is a past president of APSC/SCAADAC, and is a nationally recognized author and speaker.

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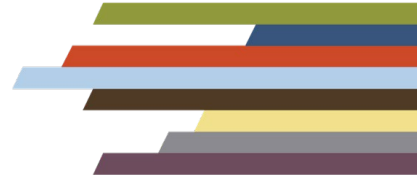
TTC

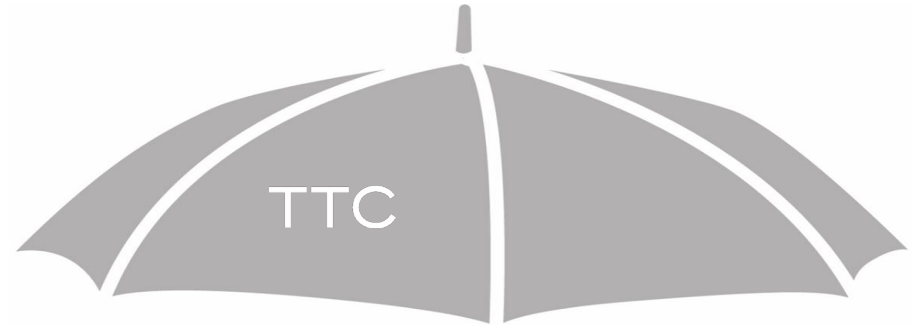
Technology Transfer Centers

Funded by Substance Abuse and Mental Health Services Administration



INTRODUCTION TO SAMHSA'S TECHNOLOGY TRANSFER CENTERS (TTC's)





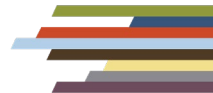
ATTC



MHTTC



PTTC



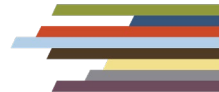
Purpose



The purpose of the Technology Transfer Centers (TTC) program is to *develop and strengthen* the *specialized behavioral healthcare and primary healthcare workforce* that provides substance use disorder (SUD) and mental health prevention, treatment, and recovery support services.

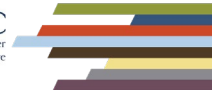


Help people and organizations incorporate *effective practices* into substance use and mental health disorder prevention, treatment and recovery services.



Southeast Addiction Technology Transfer Center (Southeast ATTC)

- One of 10 regional resource centers for addiction and recovery related training and technical assistance funded by the Substance Abuse and Mental Health Services Administration (SAMHSA).
- Located at the National Center for Primary Care at the Morehouse School of Medicine in Atlanta
- Serves the states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee



Learning Objectives

Participants in this session will be able to:

- Articulate in basic terms why substance use disorders are considered a disease
- Identify the cause, symptoms, prognosis, and treatment of addiction
- Verbalize the importance of appropriate medical language related to substance use

What is Addiction?

- If we asked the average person in your community to describe an “addict” to us, what are some of the things they’d be likely to say?

Question:

- Does this describe most of you or your loved ones?

Addiction is...

A lifestyle related health problem.

Let's look at another example.

Heart disease

- Has a genetic pre-disposition
- Involves choices we make
 - Choices are impacted by social influences
 - Choices are impacted by psychological influences
- When Biology and choices meet, there are predictable outcomes

Question:

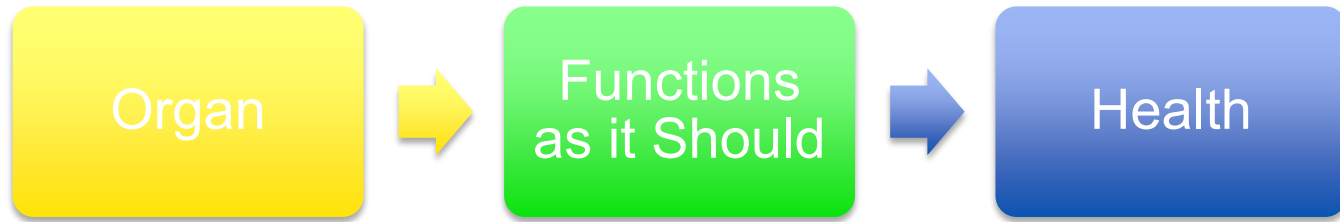
- Would most people say they can develop heart disease?

Question:

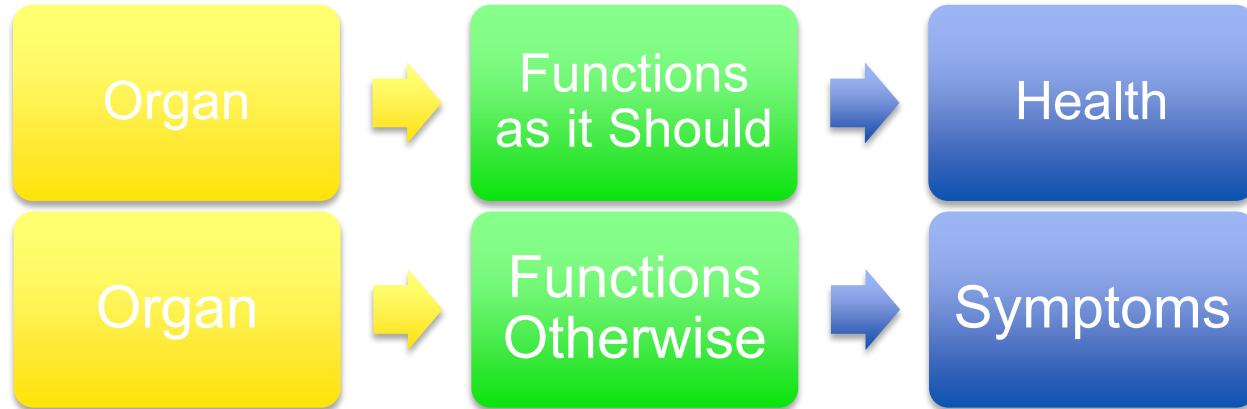
- Would most people say they could develop an addiction?

ADDICTION IS A BRAIN DISEASE

Disease Theory



Disease Theory



What is a Disease Anyway?

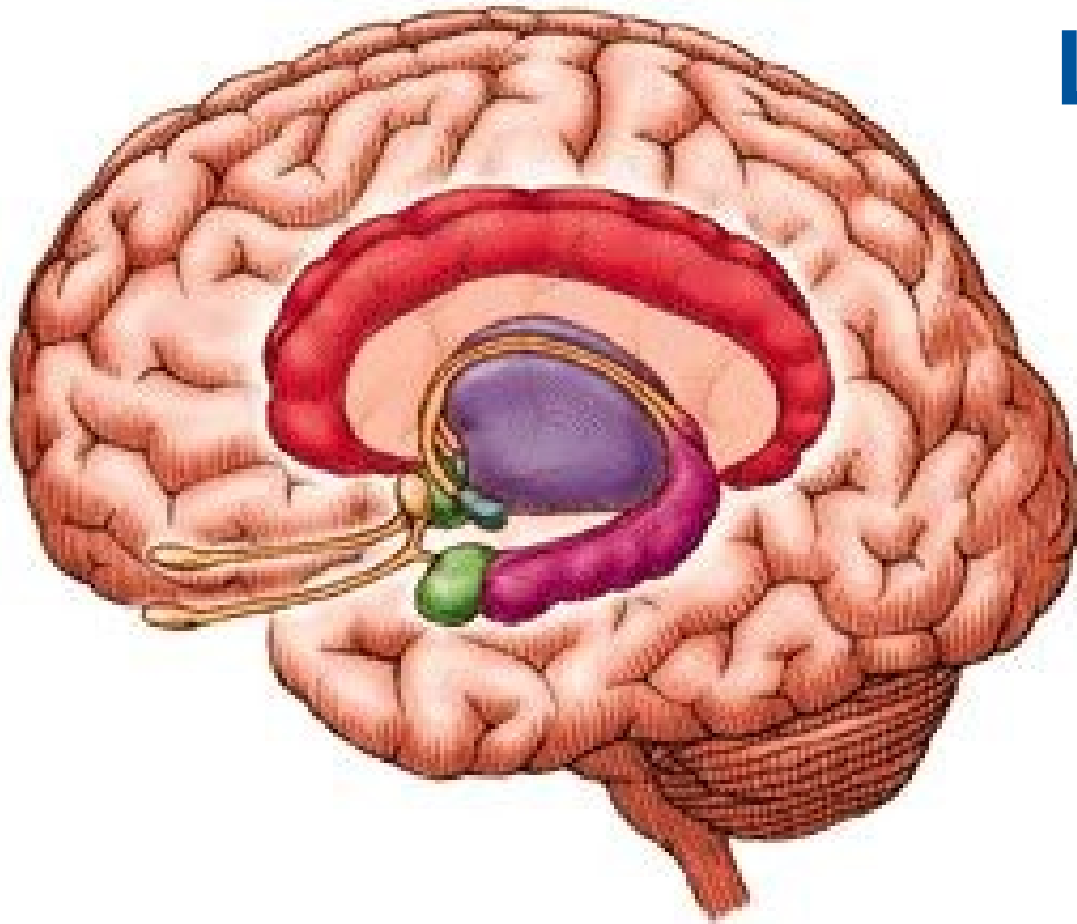
- According to the American Medical Association, a disease must have:
 - A cause (may or may not be known)
 - Symptoms
 - A prognosis
 - May have a treatment
 - May be chronic or not

The Cause

How does this happen?

Nature or Nurture?

Limbic Cortex



How Does this Work?

- Let's assume that an average person has a dopamine level of 10,
...and they try cocaine.
- Their body may read this as a dopamine level of 18 with 10 being natural and 8 being drug-induced.
- The body will want to get back to “normal”; so it backs off on its dopamine level to 8.

Oh-Oh.

- Now without the drug the “normal” level of 10 isn’t there! We’re at an 8!
- THIS IS A CRAVING!

So...

- The person either uses or doesn't.
- If the person does not use, eventually their natural level will usually return to 10.
- If they use the same amount, however, it brings the level back up to sixteen.

Questions...

- Is it still higher than the natural high?
- Is the high as good as before?
- What is the body likely to do to its natural level of dopamine?

What happens over time?

- 10 8 6 4 2 0 0 0
- 8 8 8 8 6 4 2 1
- 18 16 14 12 8 4 2 1

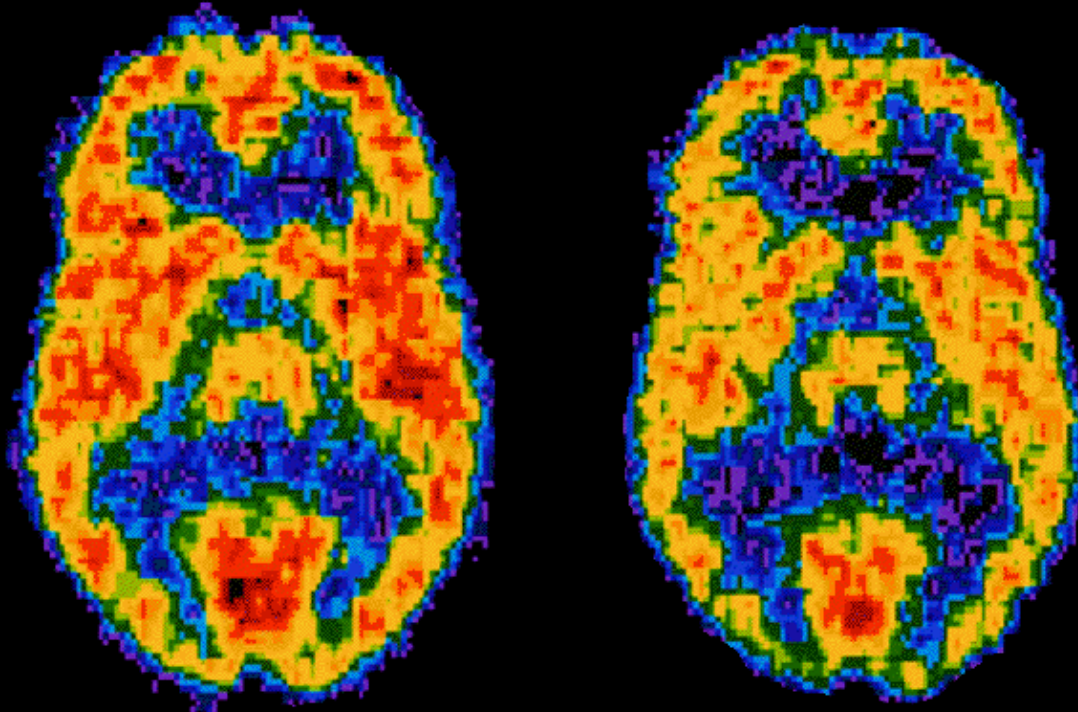
Question:

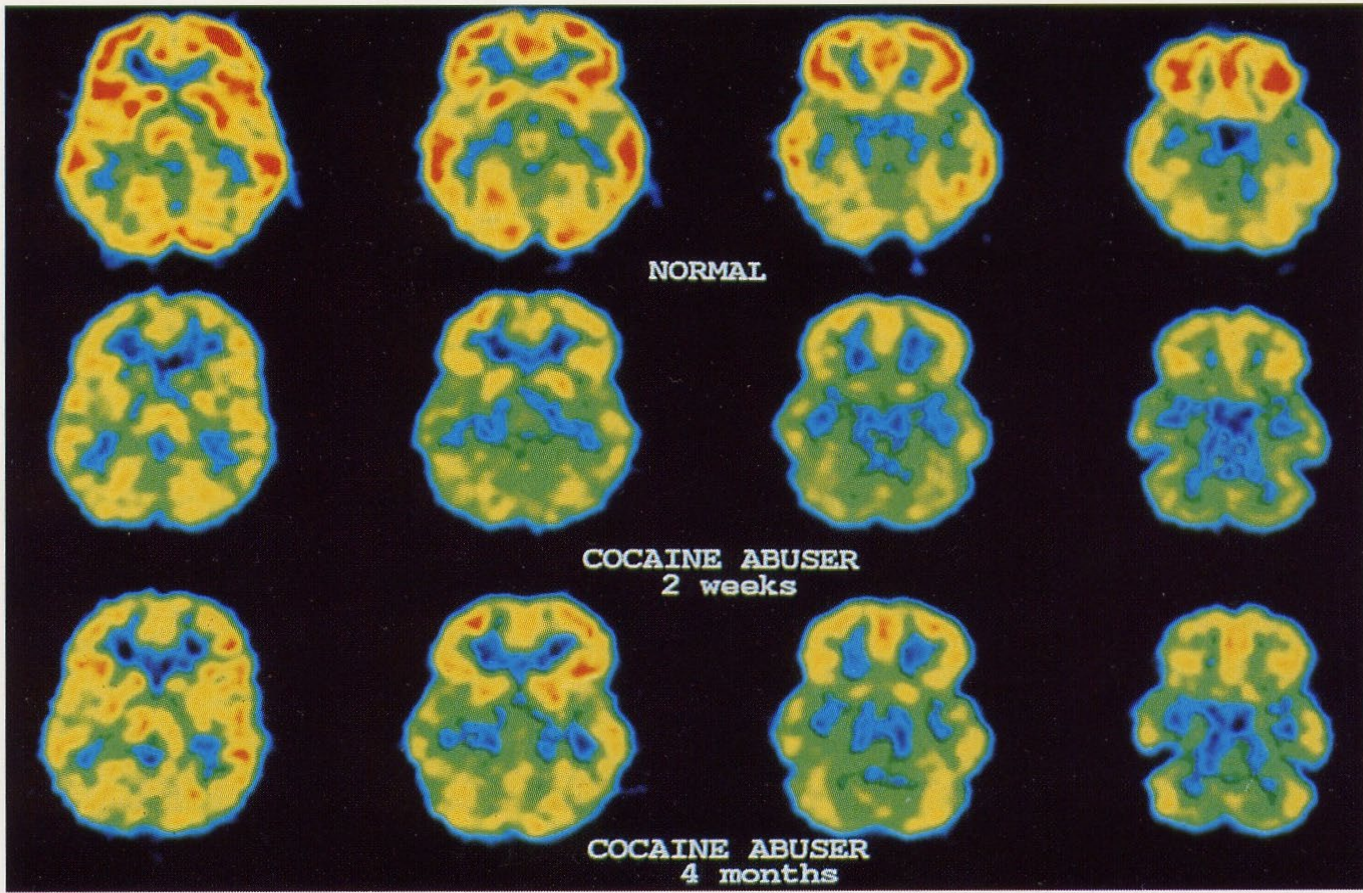
Why don't they just quit?

- Is your biology now working for you or against you?
- Isn't it just a question of willpower?
 - Krispy Kremes
 - Drowned or murdered?

Addiction Disease or Decision?

on cocaine





NORMAL

COCAINE ABUSER
2 weeks

COCAINE ABUSER
4 months

When the Line is Crossed

Non-Addicted

- Non-User
- Experimenter
- User
- Misuser

Addicted



Drug = Drug

Drug = Survival

Vulnerabilities for Addiction

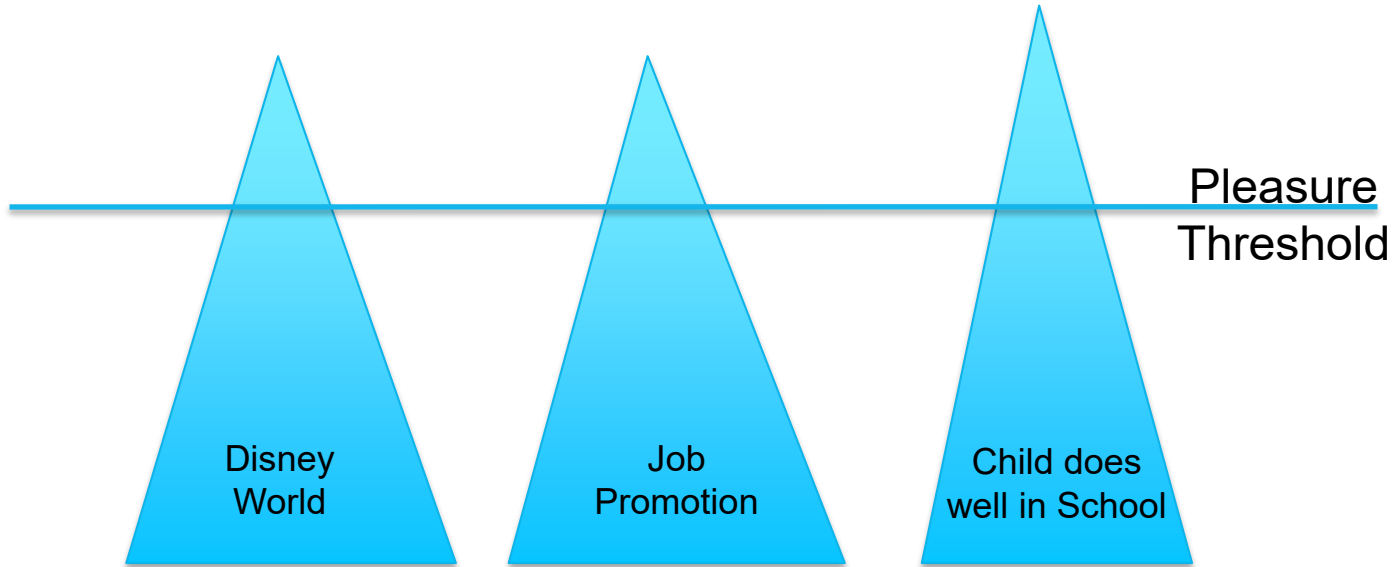
- Genetic
- Developmental/Emotional
- Psychiatric Co-Morbidity
- Chronic Pain
- Stress
- Early Physical or Sexual Abuse
- Witnessing Violence
- Drug Used
- Route of Administration
- Dose
- Frequency
- Length of Use
- Availability
- Acceptability (peers who use)

What pushes someone over the line is
stress?

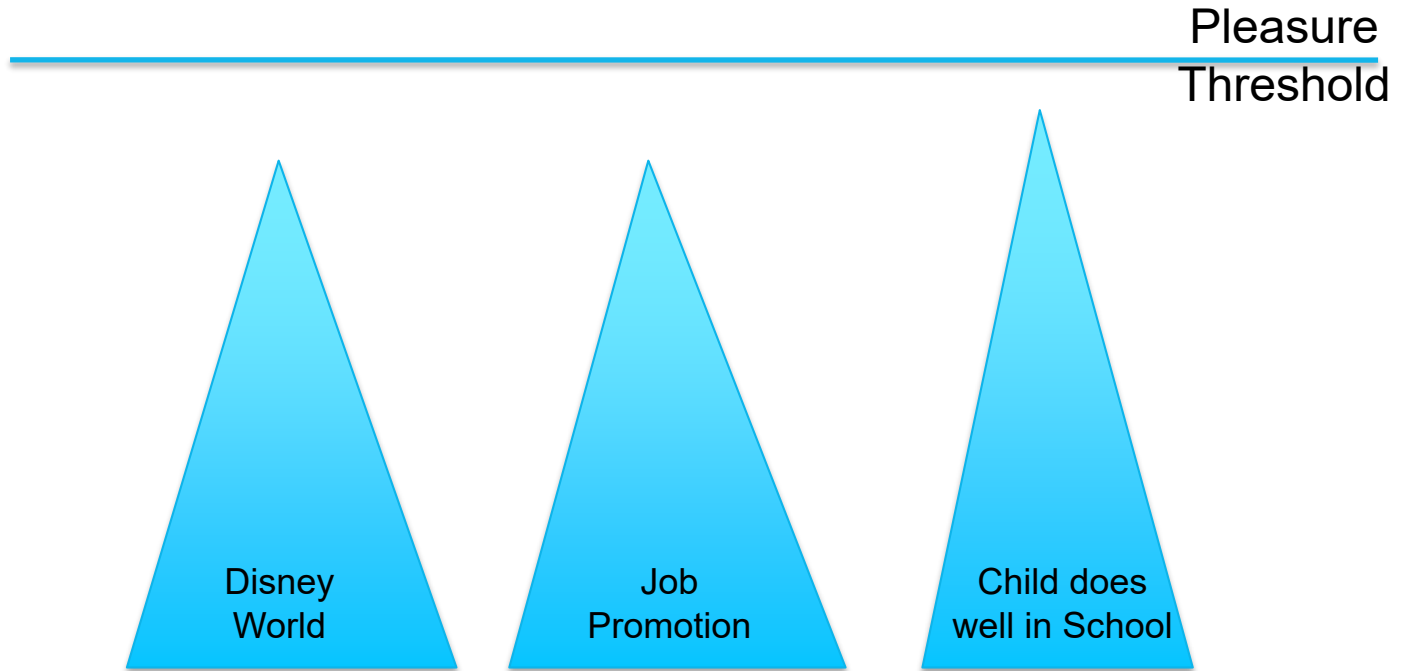
Chronic Stress

- Chronic levels of Stress Hormones cause a defect in the Limbic System of the brain (production of dopamine).
- This defect affects the brain's ability to properly perceive pleasure.

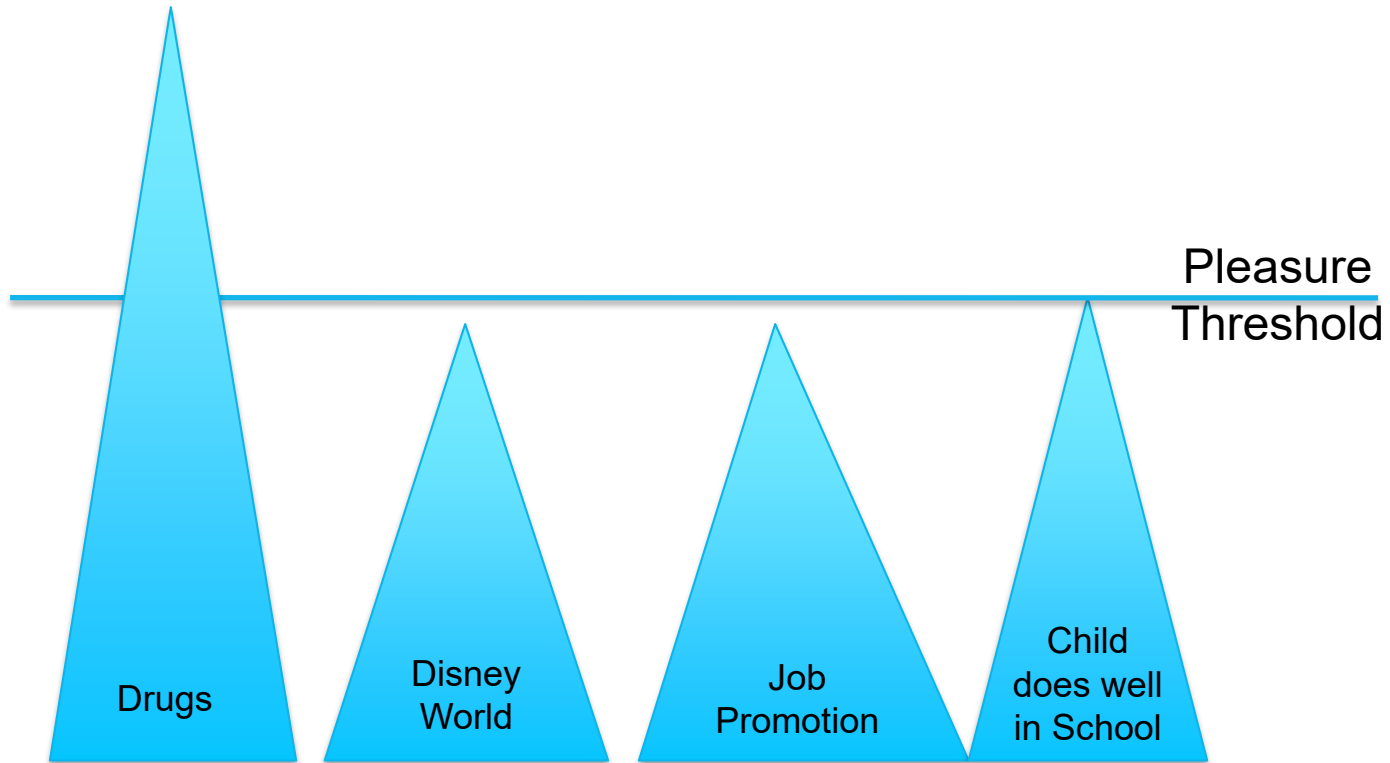
Pleasure Threshold



Stress Induced Defect



Add in Drugs



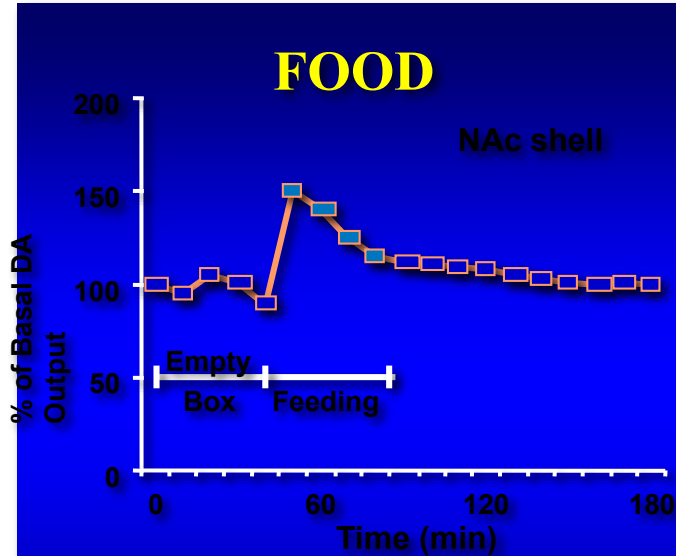
Stress = Craving

- Failure to account for “craving” is why the “Choice Theory” breaks down.
 - People with addiction can’t “choose” not to crave
 - Choice only measures addiction by external behaviors.
 - It ignores the suffering of the patient

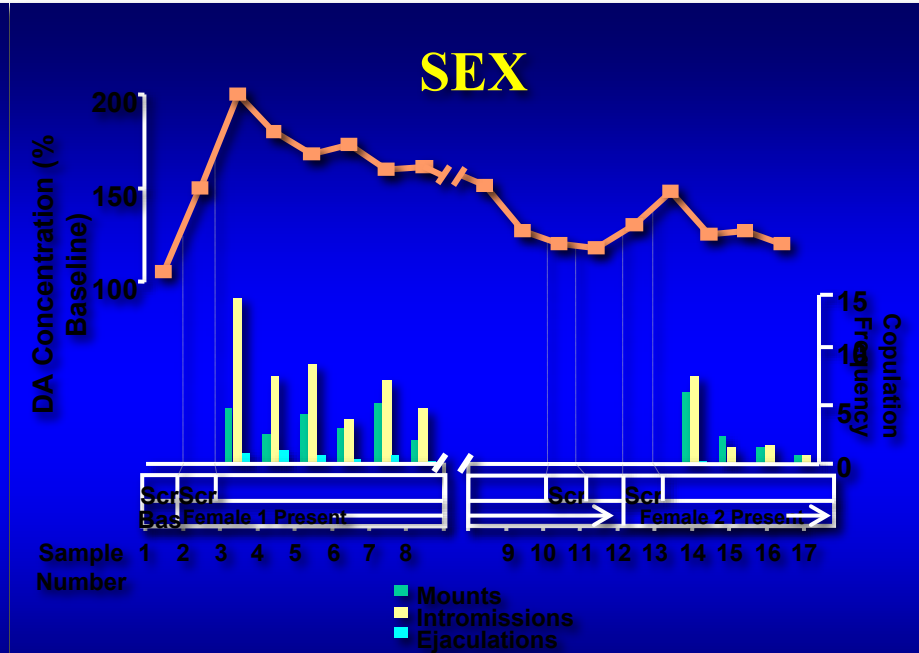
Behaviors Affect Dopamine Release

- Food (Bulimia / Binge eating)
- Sex
- Relationships (Other people / codependency)
- Gambling
- Cults
- Performance (“work-aholics”)
- Collection/Accumulation (“Shopaholics”)
- Rage / Violence
- Media / Entertainment

Natural Rewards Elevate Dopamine Levels



Source: Di Chiara et al.

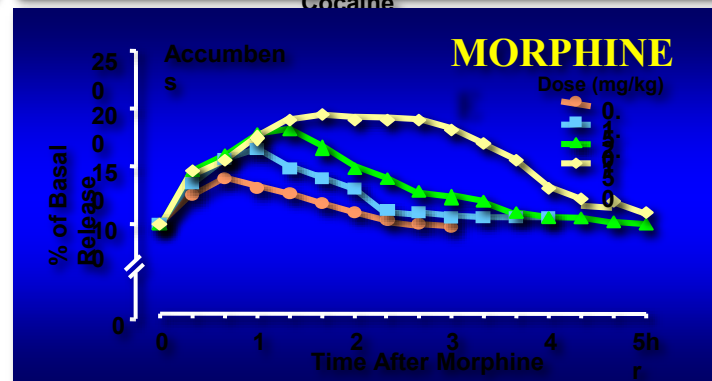
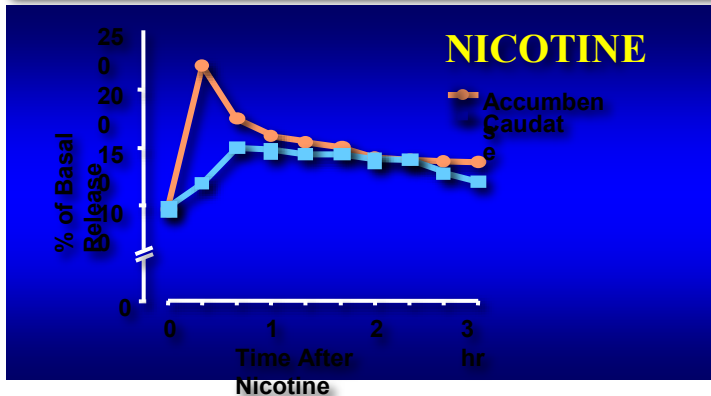
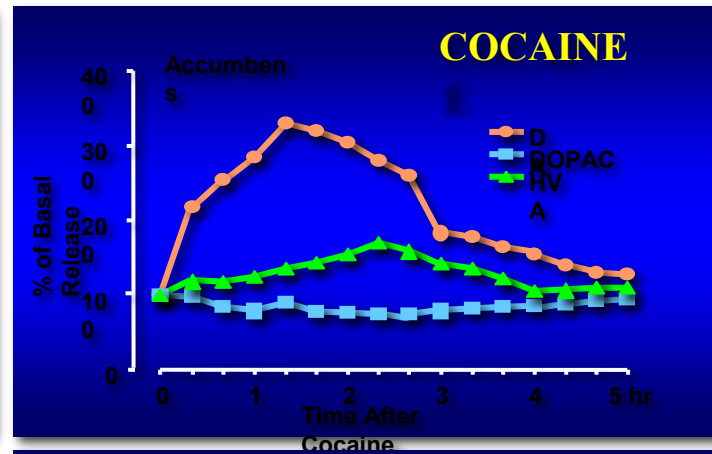
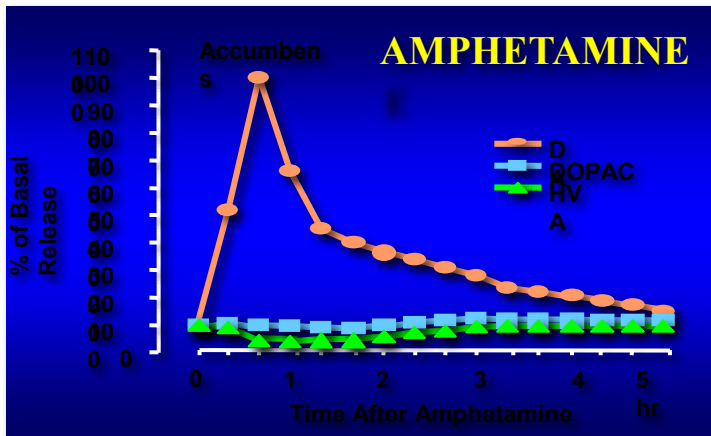


Source: Fiorino and Phillips

Drugs that Affect Dopamine Release

- Alcohol (Sedatives / Hypnotics)
- Opioids
- Cocaine
- Amphetamines
- Entactogens (MDMA/Ecstasy)
- Enthogens (Hallucinogens)
- Cannabinoids
- Inhalants
- Nicotine
- Caffeine
- Steroids

Effects of Drugs on Dopamine Release



Source: Di Chiara and Imperato (as adapted for National Institute on Drug Abuse Presentation)

Addiction Is...

- A dysregulation of the midbrain dopamine (salience/ reward) system due to unmanaged stress resulting in symptoms of decreased functioning.

Specifically:

1. Loss of control
2. Craving
3. Persistent drug use despite negative consequences

What is “Addiction”?

“Addiction is a primary chronic disease of brain reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behavior.

Addiction is characterized by inability to consistently abstain, impairment in behavioral control, craving, diminished recognition of significant problems with one’s behaviors and interpersonal relationships and a dysfunctional emotional response. Like other chronic diseases, addiction often involves cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death.”

American Society of Addiction Medicine, 2011

What is a Disease Anyway?

- According to the American Medical Association, a disease must have:
 - A cause (may or may not be known)
 - Symptoms
 - A prognosis
 - May have a treatment
 - May be chronic or not?

Symptoms



The Choice Argument

- Addiction can't be a "Disease" because it's a "Behavior"
- An addict can quit anytime, they just need the right motivation

What is a Disease Anyway?

- According to the American Medical Association, a disease must have:
 - A cause (may or may not be known)
 - Symptoms
 - A prognosis
 - May have a treatment
 - May be chronic or not?

Prognosis

What is a Disease Anyway?

- According to the American Medical Association, a disease must have:
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 - A prognosis
 - Treatment
 - May be chronic or not?

Treatment

What is a Disease Anyway?

- According to the American Medical Association, a disease must have:
 - A cause (may or may not be known)
 - Symptoms
 - A prognosis
 - May have a treatment
 - May be Chronic

Is Addiction Chronic?

Does This Mean it is Hopeless?

Absolutely not!

Acute vs. Chronic

- An “Acute” Condition has:
 - Rapid onset
 - Short course
 - May be severe
- A “Chronic” Condition has:
 - Gradual onset
 - Lifetime course
 - May have “acute” episodes

Types of Acute Conditions

The Acute Care Model

- Encapsulated set of service activities (assess, admit, treat, discharge, termination of service relationship).
- Professional expert drives the process.
- Services transpire over a short (and ever-shorter) period of time.
- Individual/family/community is given impression at discharge (“graduation”) that recovery is now self-sustainable without ongoing professional assistance.

Types of Chronic Diseases

- Hypertension
- Diabetes
- Asthma

The Chronic Care Model

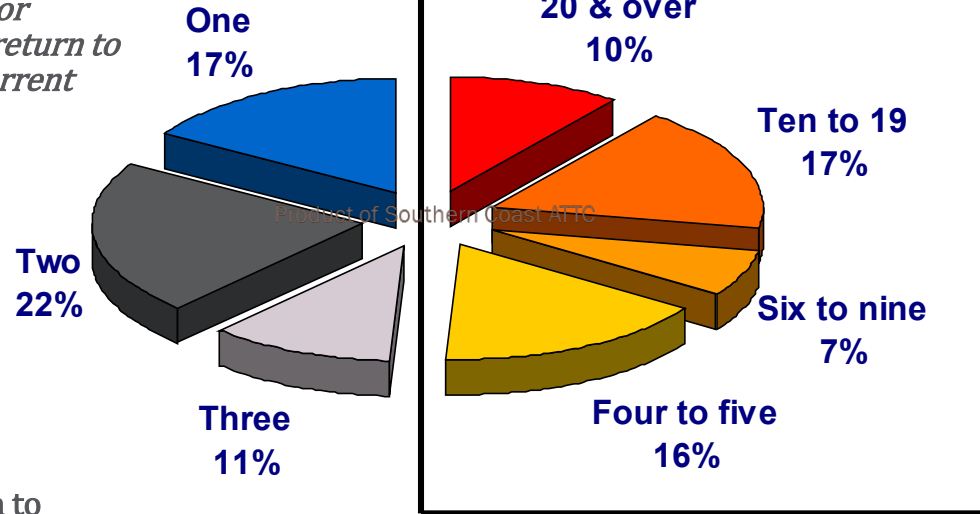
- Initial triage and stabilization, support services are varied and open ended most concentrated early on.
- Professionals serve as consultants. Goal is for course of treatment to be patient driven to achieve highest level of adherence.
- Services are open ended, routine follow-up the norm.
- Individual/family/community educated on the “process” nature of “treatment”. Goal is to facilitate improved quality of life and wellness for the patient in whatever way works best for the patient.

Treatment of Chronic Diseases

- Since the causes are usually multi-factorial, treatments must usually be multi-modal.
- Response rates are variable and depend on the patient, the treatment itself, and outside factors.

Addiction “Career”

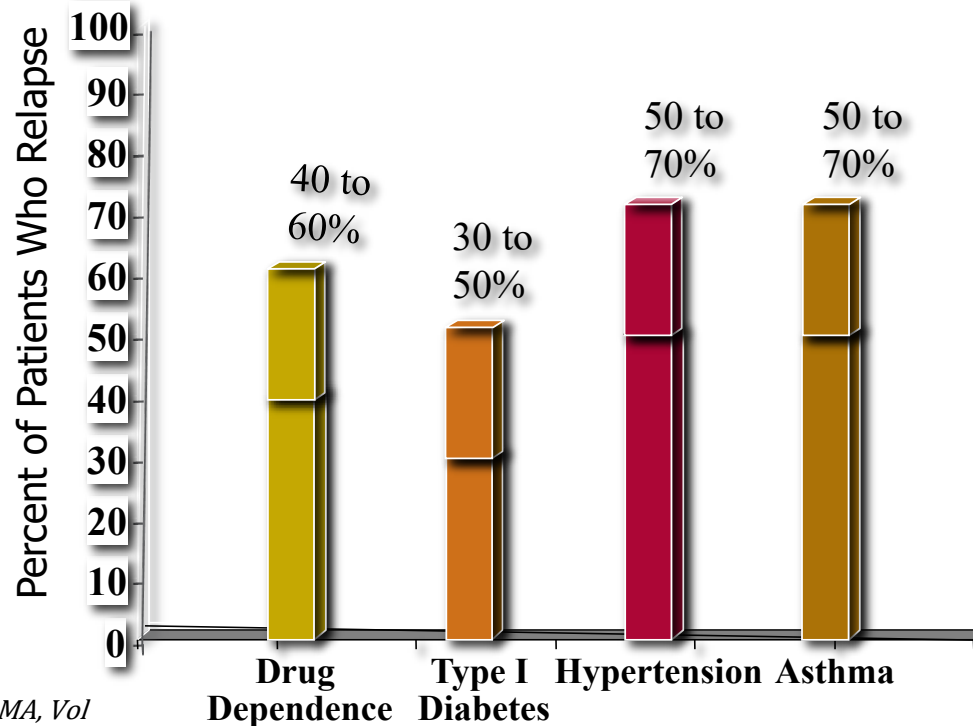
*Number of abstinent periods one month or longer followed by return to drug use prior to current abstinence**



50% reported 4 or more abstinent periods followed by a return to active addiction

*Outside of controlled environment, among those who report one or more such periods: 71% N=248 Laudet & White 2004

“Relapse” Rates Are Similar for Addiction and Other Chronic Illnesses



Source: McLellan, A.T. et al., *JAMA*, Vol 284(13), October 4, 2000.

Thoughts?

Resources

- www.daodas.state.sc.us - Treatment locations
- www.samhsa.gov - Educational Information
- www.drugabuse.gov - Educational Information
- www.cdc.gov - Educational Information
- www.attcnetwork.org - Educational Information
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- Perfect Marriage - Twenty Myths that Can Really Mess Up Your Relationships
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CMS 12th SOW Goals



Behavioral Health Outcomes & Opioid Misuse

- ✓ Promote opioid best practices
- ✓ Decrease high dose opioid prescribing and opioid adverse events in all settings
- ✓ Increase access to behavioral health services



Patient Safety

- ✓ Reduce risky medication combinations
- ✓ Reduce adverse drug events
- ✓ Reduce C. diff in all settings



Chronic Disease Self-Management

- ✓ Increase performance on ABCS clinical quality measures (i.e., aspirin use, blood pressure control, cholesterol management, cardiac rehab)
- ✓ Identify patients at high-risk for developing kidney disease & improve outcomes
- ✓ Identify patients at high risk for diabetes-related complications & improve outcomes



Quality of Care Transitions

- ✓ Convene community coalitions
- ✓ Identify and promote optimal care for super utilizers
- ✓ Reduce community-based adverse drug events



Nursing Home Quality

- ✓ Improve the mean total quality score
- ✓ Develop national baselines for healthcare related infections in nursing homes
- ✓ Reduce emergency department visits and readmissions of short stay residents

Making Health Care Better *Together*



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Making Health Care Better Together

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