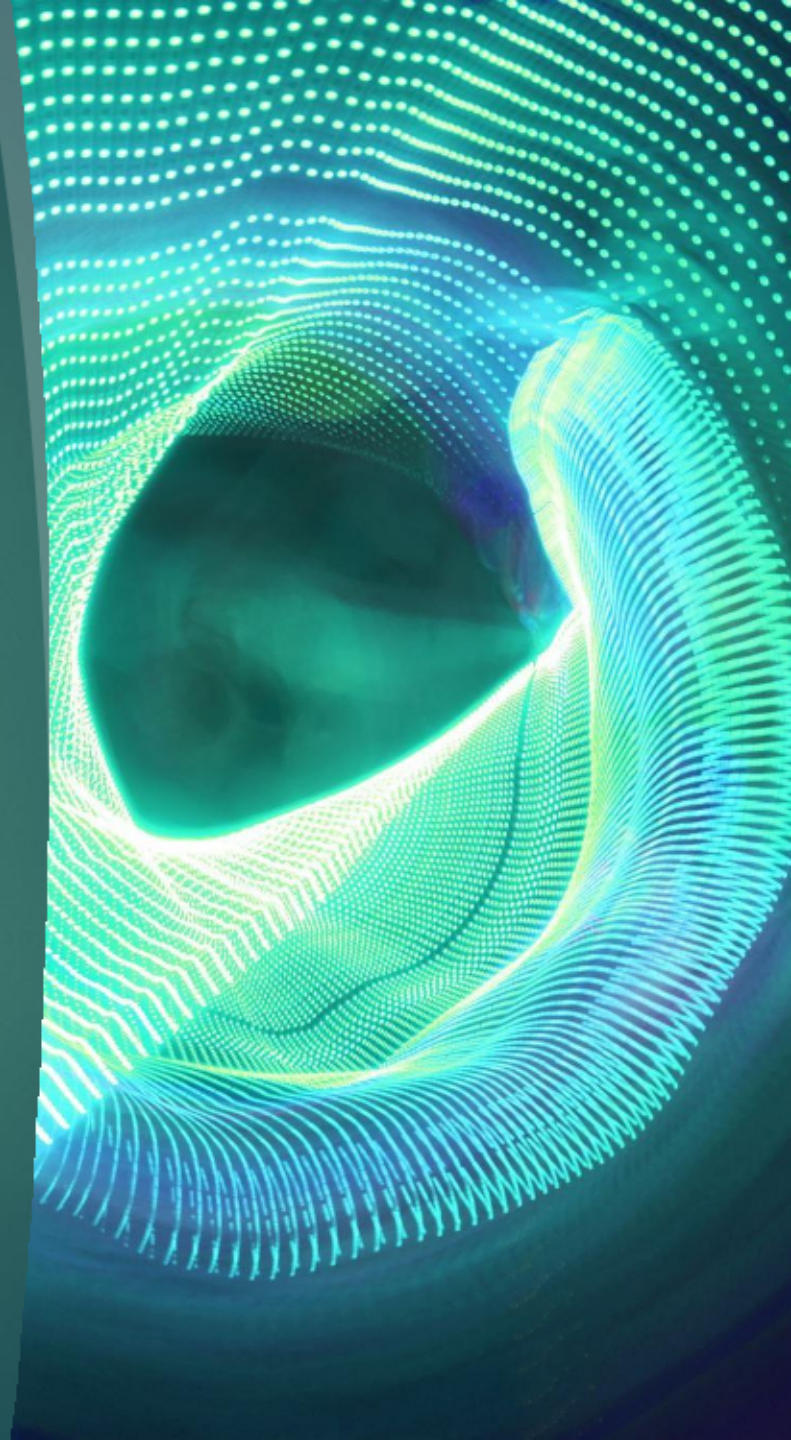


The Power of Plasticity

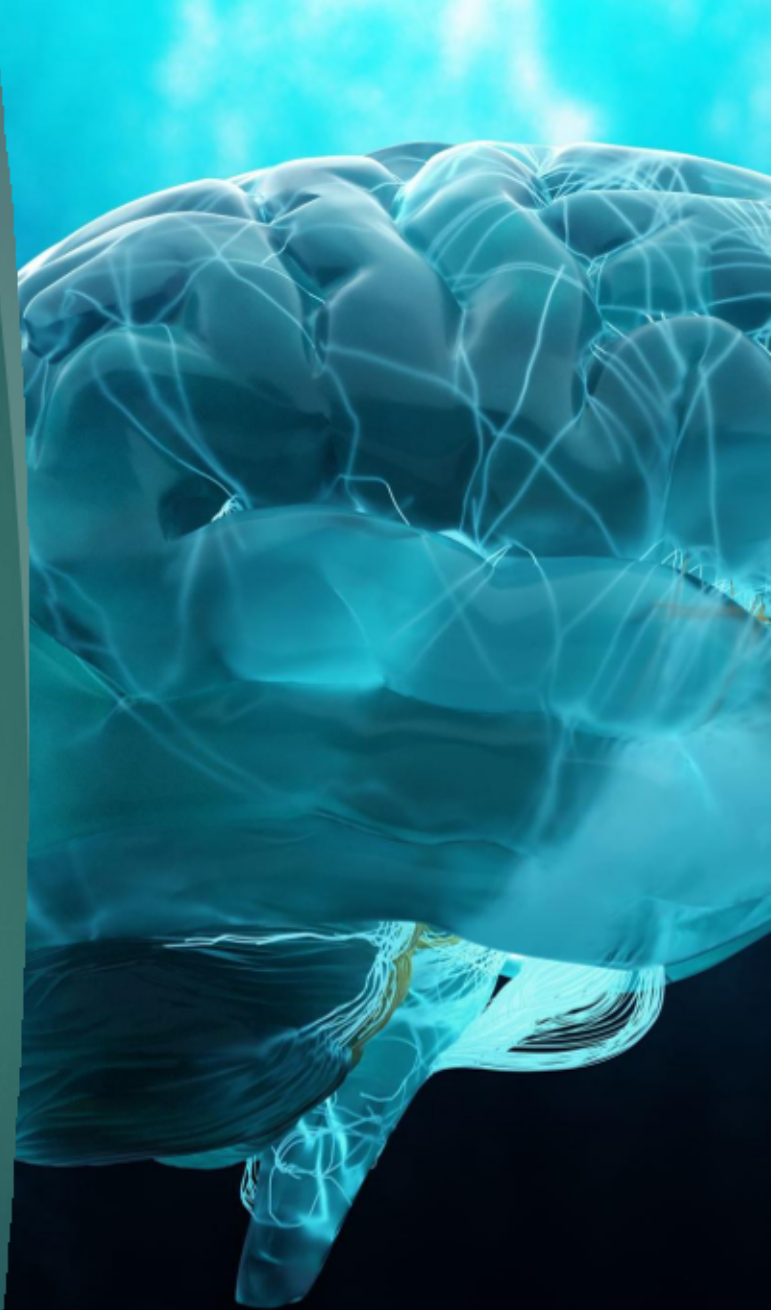
Paving New Neural Pathways for
Gambling Recovery

Ken Martz, Psy.D. ICGC-II, BACC



Overview

- ▶ Brain Function
 - ▶ Motivation
 - ▶ Reward
 - ▶ Memory
- ▶ External Factors
 - ▶ Trauma
 - ▶ Beliefs
- ▶ Chemistry
- ▶ Treatment





Ken Martz, Psy.D.

- Licensed Psychologist
- 30 Years experience in gambling disorder, substance use disorder and mental health treatment
- Former Special Assistant to the Secretary for the Pennsylvania Department of Drug and Alcohol Programs
- International bestselling author in addiction and mental health
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**Download
PowerPoint
HERE**



Question

- ▶ Are you willing to see things differently, for the next hour?
- ▶ How many new ways can you learn to use your brain to change your life?



A photograph of two clownfish swimming in a blue ocean over a coral reef. The clownfish are orange with white stripes. One is in the foreground, slightly to the left, and the other is in the background, slightly to the right. Two purple speech bubbles with black outlines are overlaid on the image. The first bubble, on the left, contains the text 'How's the Water?'. The second bubble, on the right, contains the text 'What is Water?'.

What is Water?

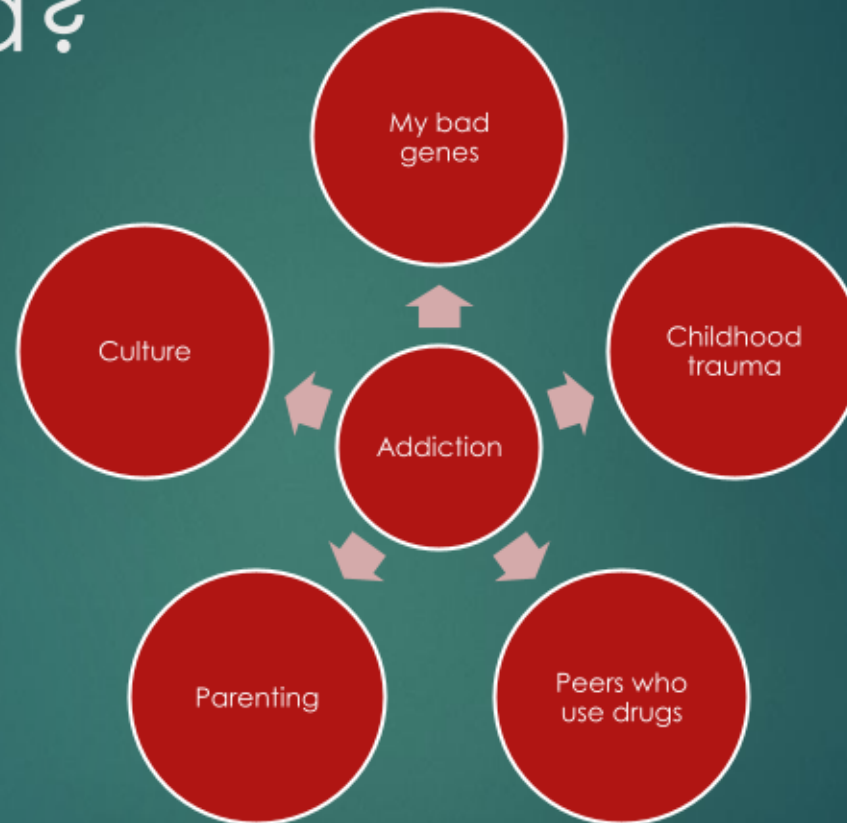
How's the
Water?

ASAM Definition

ASAM Definition of 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 behaviors.
- ▶ 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.

How does one become addicted?

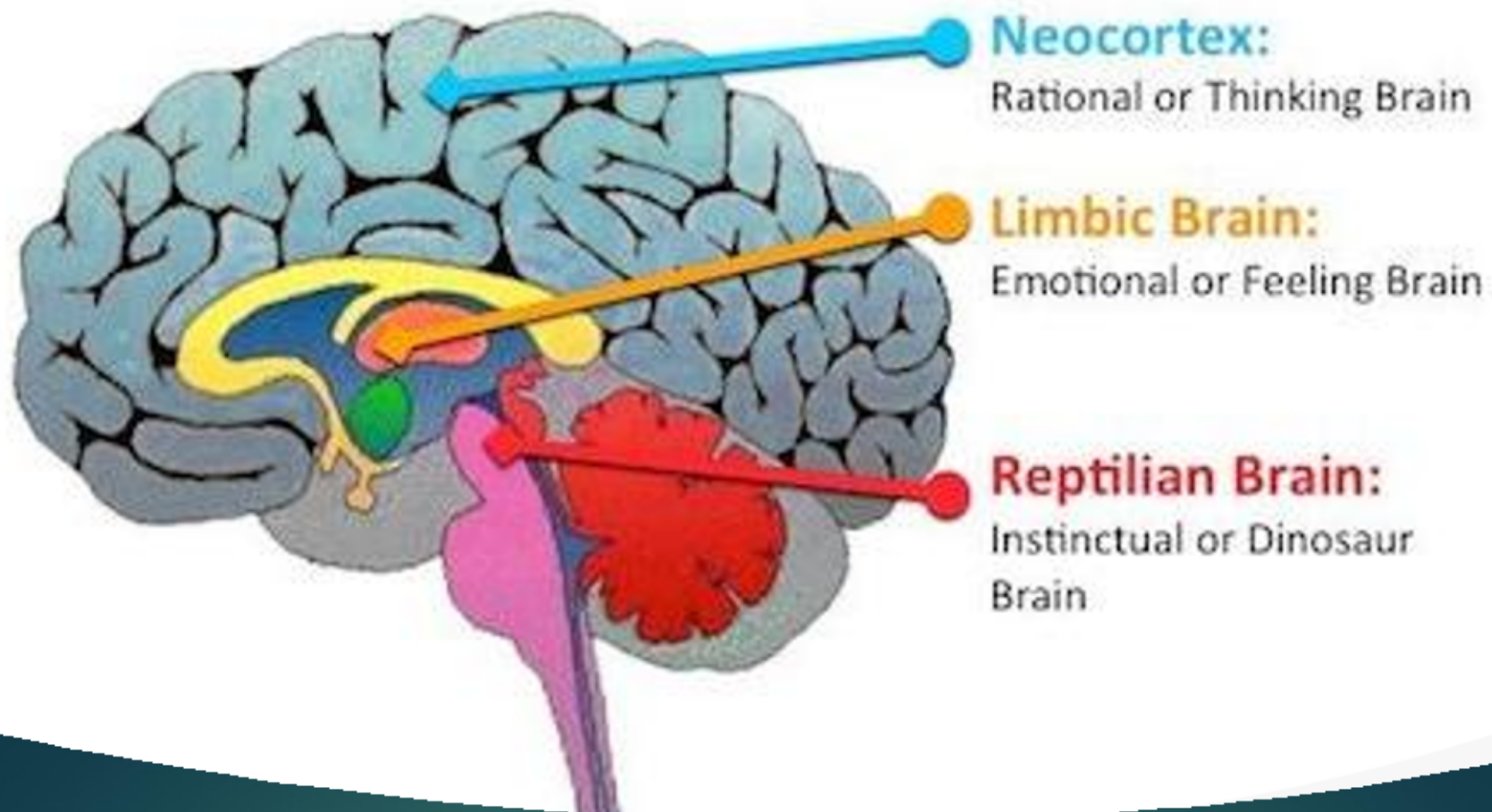


ASAM Definition of Addiction:

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What are Causes of Gambling Addiction?

Causes	
<u>Biology</u> Genes, Biochemistry, Brains, Autopilot Learning	
<u>Relationships with Others</u> Peer Pressure, Trauma, Family, “Enabling”, Isolation, Lies	
<u>Relationship with Self</u> Shame, Guilt, Negative Beliefs, “Hate Self”	
<u>Relationship with Higher Power</u> Lack of Connection with Personal Values, Anger/Shame with God	



Motivation

Motivation

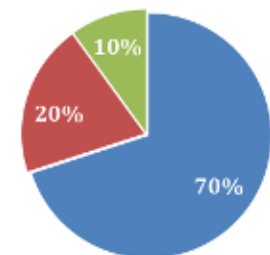
Triune Brain- Neuroscientist Paul MacLean

- Reptilian Brain:
 - Instinctual responses: Fight, Flight, Feeding
 - Thought: I must have this or I'll die.
 - Basal ganglia
- Limbic Brain/Mammalian Brain:
 - Motivation:
 - Thought: I want/"need" it.
 - Amygdala, cingulate cortex
- Neocortex/Paleomammalian Brain
 - Cognition, planning
 - Thought: I'd rather have this than that.
 - Neocortex

Task: Leverage higher thinking

The Brain

■ Reptilian ■ Mammal ■ Academic —



Motivation

Reptilian Brain:
Rapid Action/Reaction



Rational Brain:
Slower Thinking/Planning



Motivation

Reptilian Brain:

Rapid Action/Reaction

Rational Brain:

Slower Thinking/Planning

Drugs: I need it!

Drugs: I need it?

Vs:

My kids

My spouse

My job

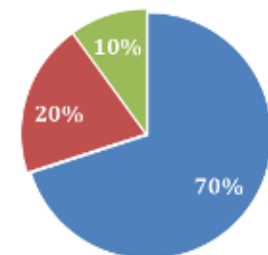
My freedom...

Motivation

- ▶ Task: Leverage higher thinking
- ▶ Driving example:
 - ▶ Autopilot
 - ▶ Actively Navigating

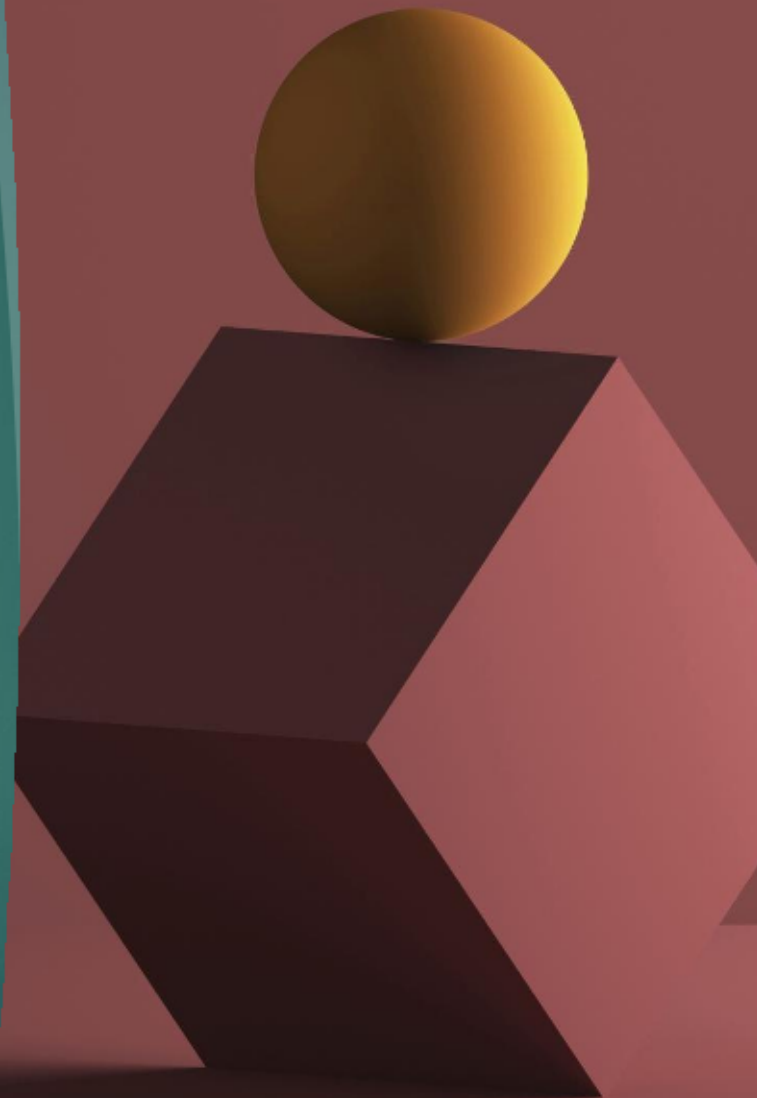
The Brain

■ Reptilian ■ Mammal ■ Academic —



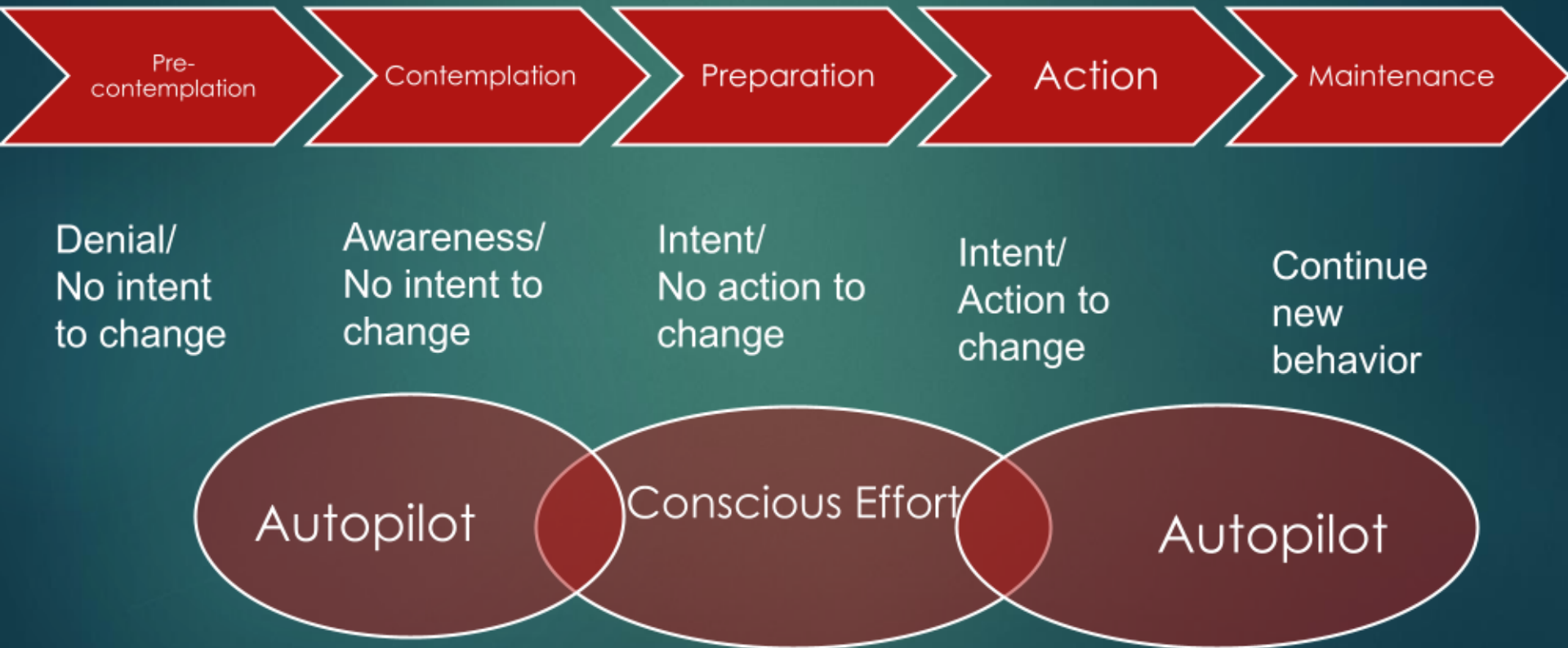
Motivation/Reward

- ▶ Intrinsic/Extrinsic Motivation/Reward
 - ▶ Intrinsic motivation comes from within the task itself (e.g. pleasure/relief provided by the substance)
 - ▶ Advantages: Intrinsic motivation can be long-lasting and self-sustaining
 - ▶ Disadvantages: Efforts at fostering intrinsic motivation can be slow to affect behavior and can require special and lengthy preparation.
 - ▶ Extrinsic is external (e.g. approval, payment etc.)
 - ▶ Advantages: Can increase compliance while internal motivation is developed
 - ▶ Disadvantages: Can lead to overjustification and a subsequent reduction in intrinsic motivation
 - ▶ Often treatment starts with external motivation and moves internal. Note these are relatively higher cognitive functions



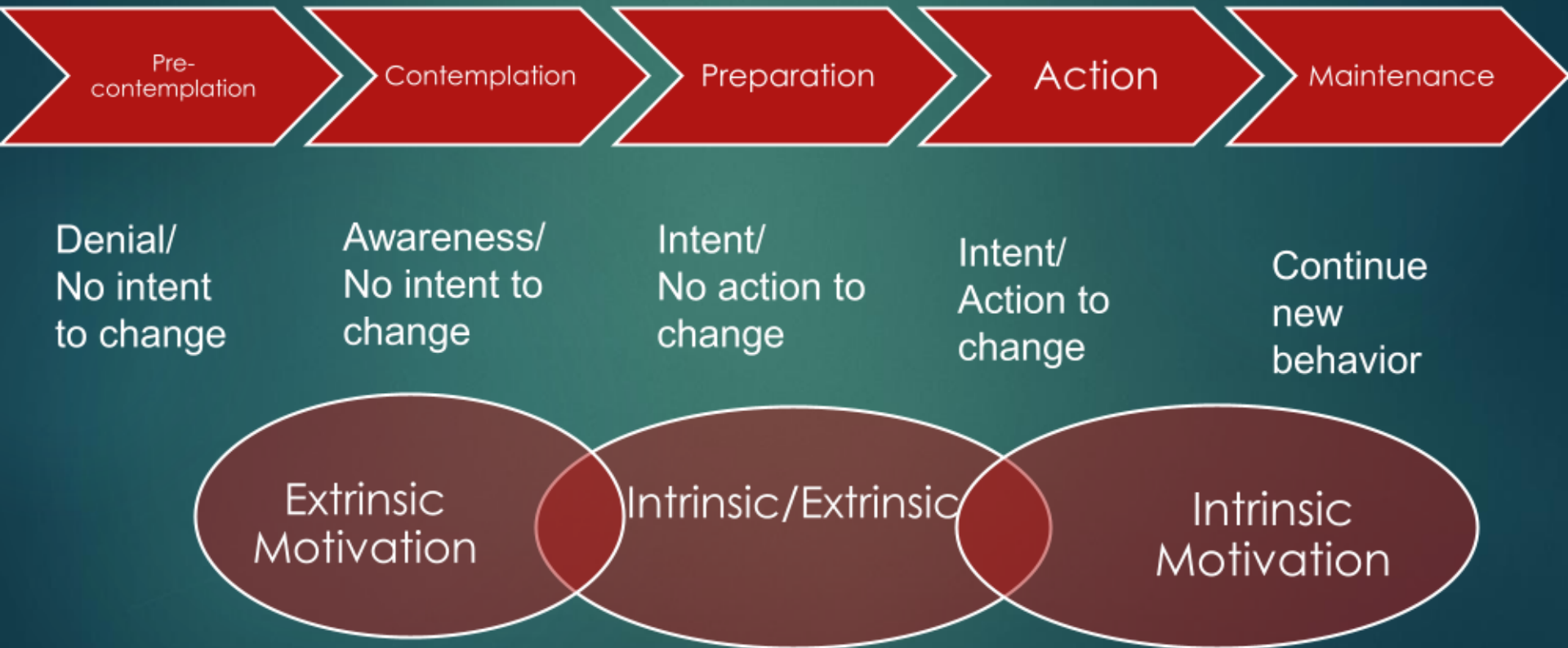
Motivation

► Stages of Change

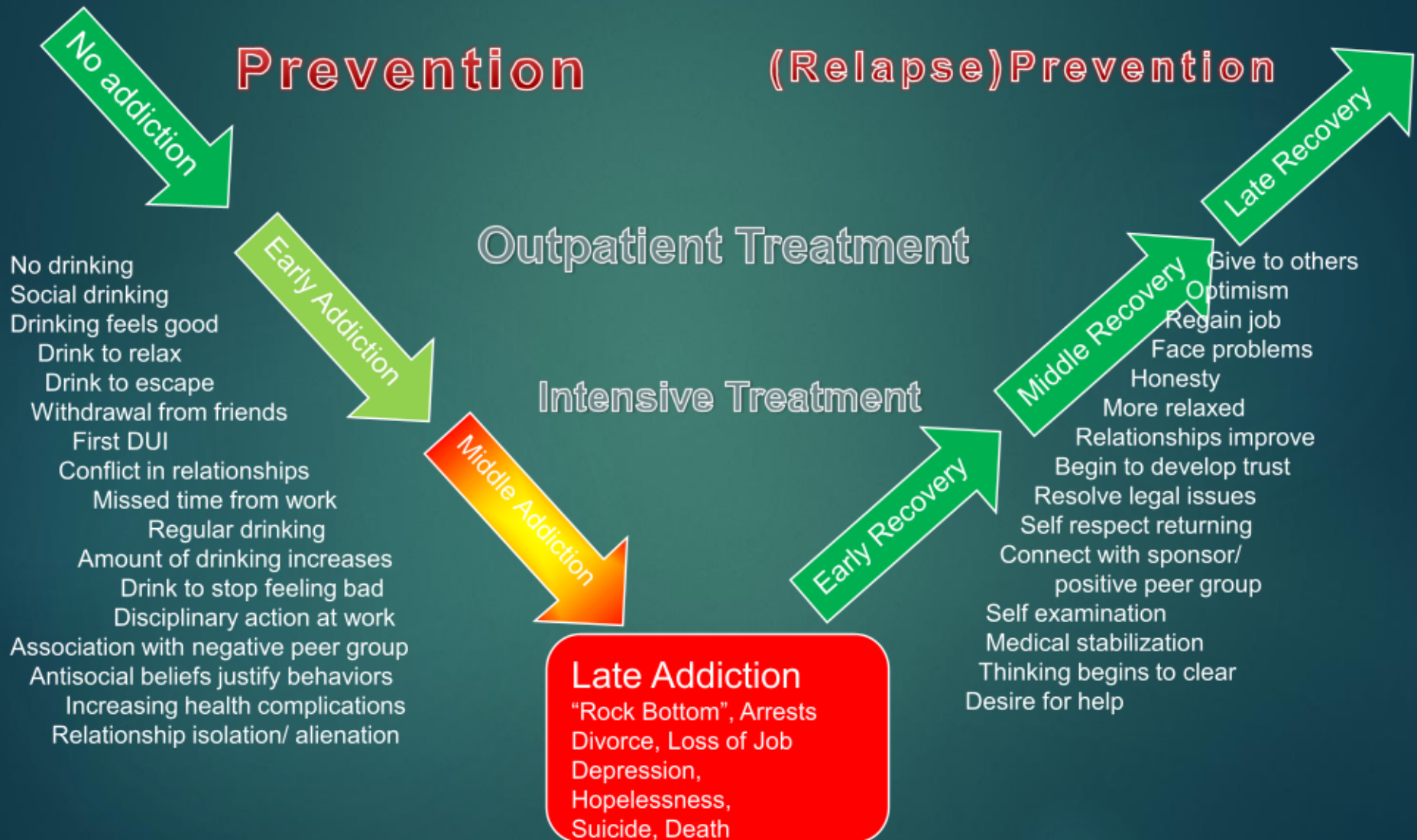


Motivation

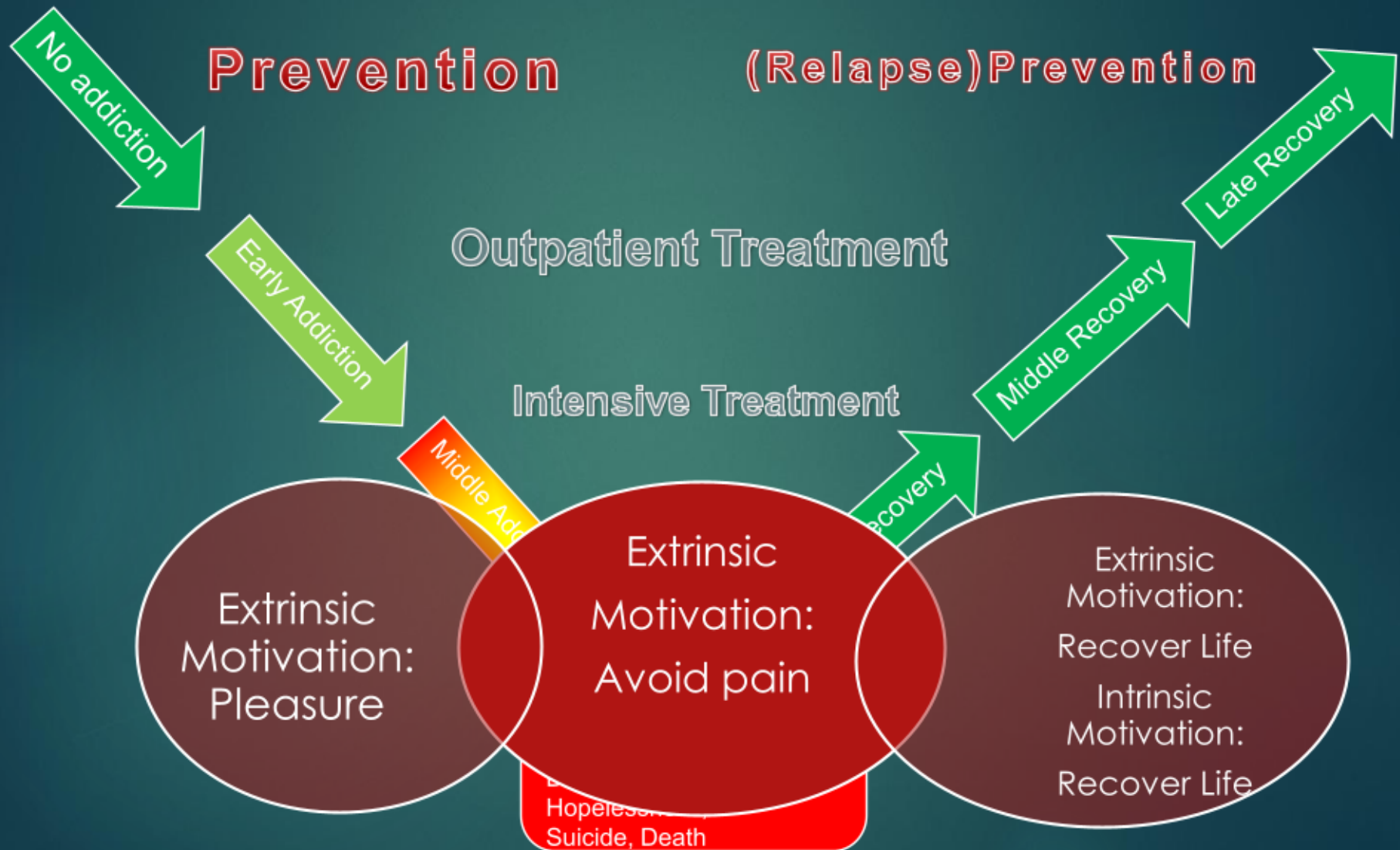
► Stages of Change



Progression of a Disease and Recovery



Progression of a Disease and Recovery



Memory



Learned behaviors

Life skills

Addiction behaviors



Recovery

Rehabilitation- Remember and restore prior skills

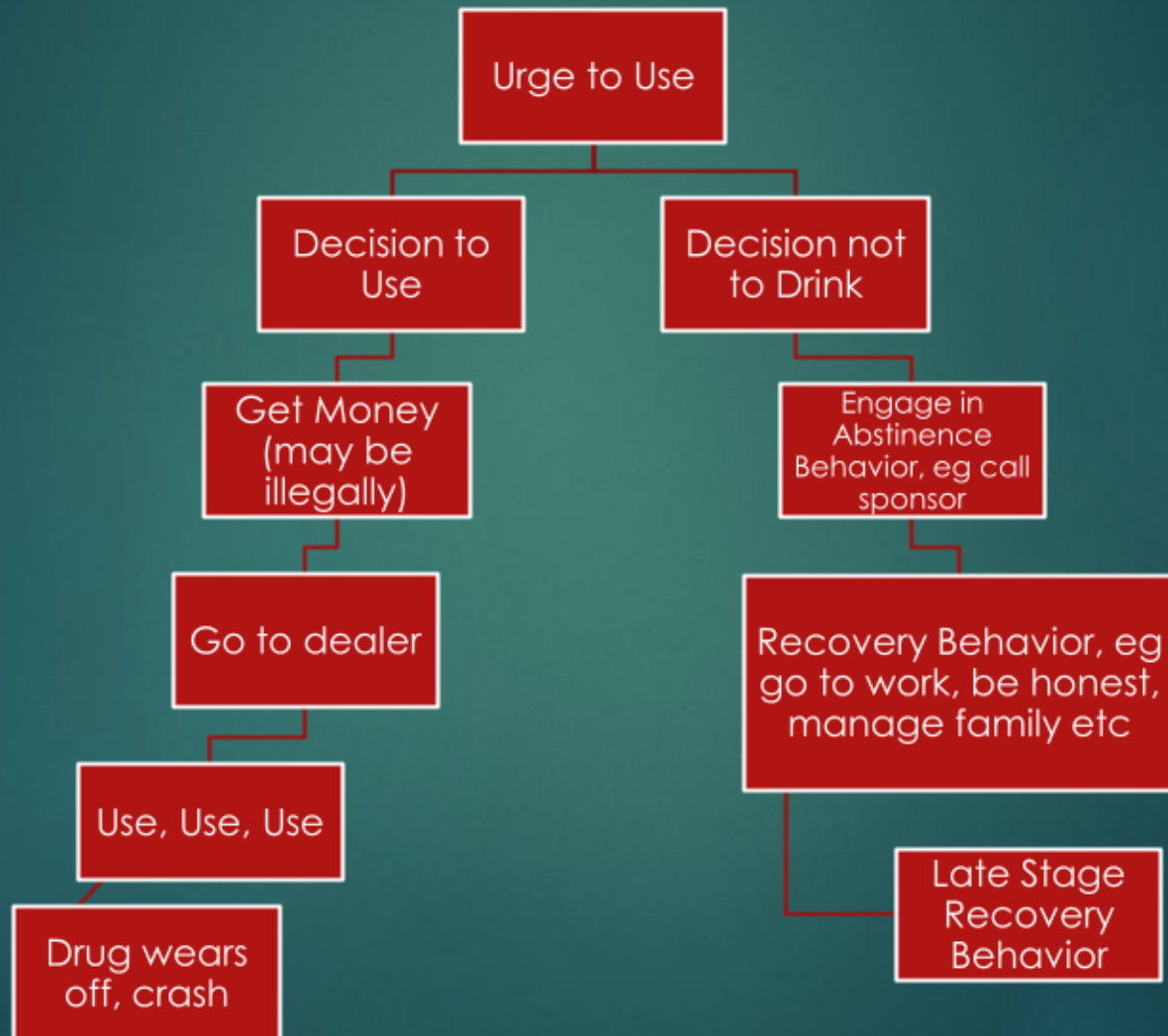
Habilitation- Learn new/effective skills

What happens if you stop treatment before learning a skill?

What happens if you stop treatment after learning a skill but before practicing it?

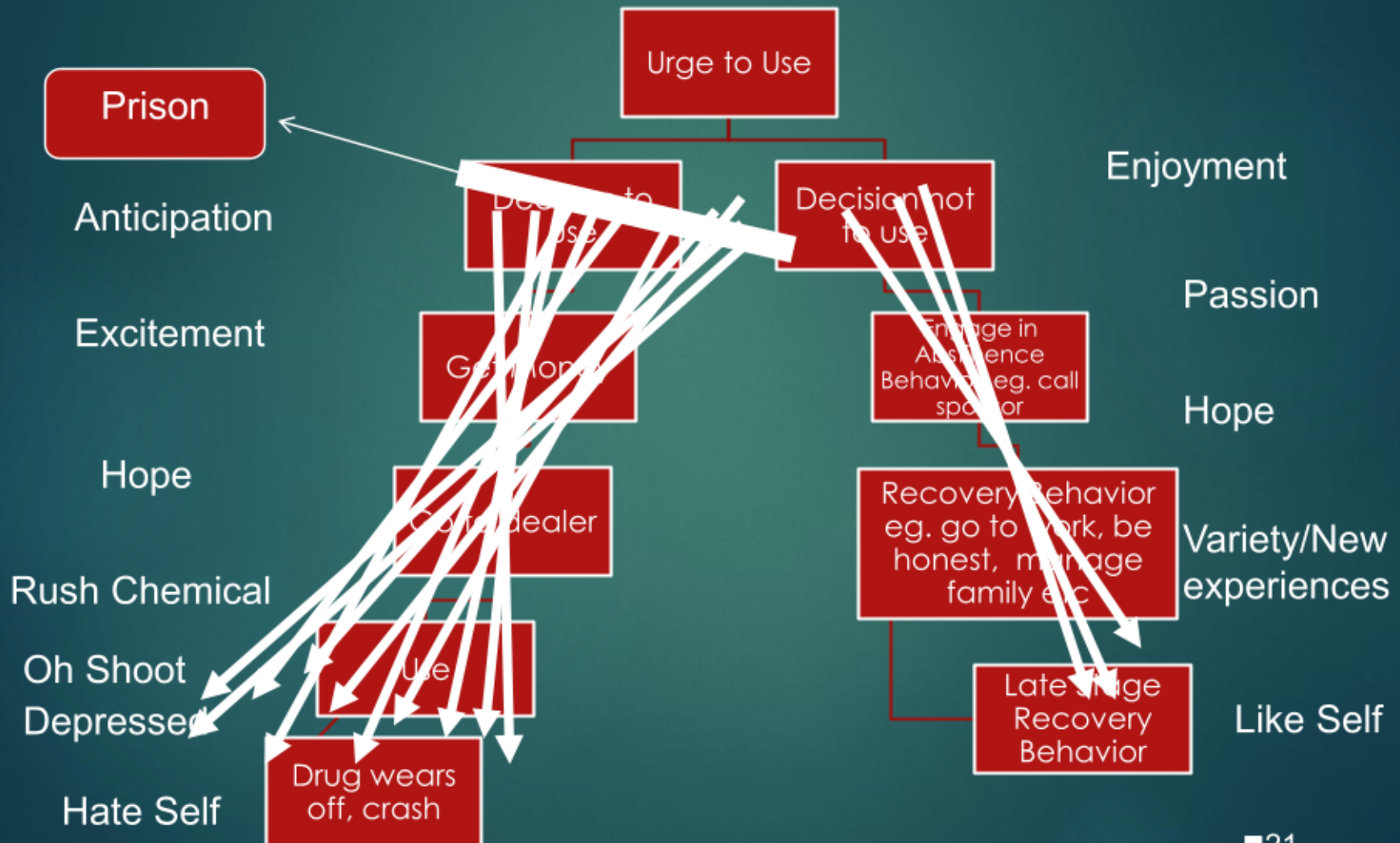
Biology

Example of 2 Brain pathways



Biology

Example of 2 Brain pathways



Biology

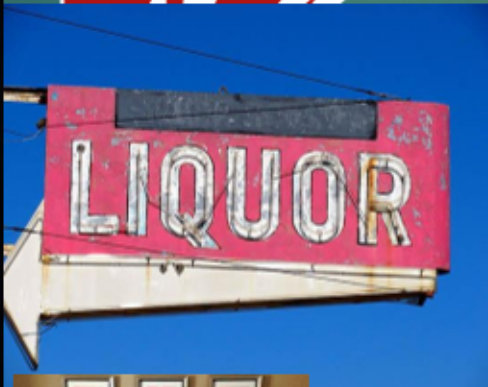
Example of 2 Brain pathways



ge to Use



Decision not



Recovery
eg. go to



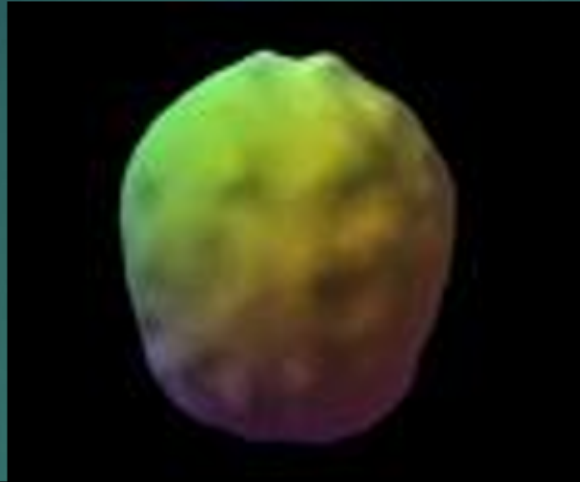
Drug v
off, c



Behavior



Which Brain do You Want?



Normal healthy view.
Top down surface view.
Full, symmetrical activity



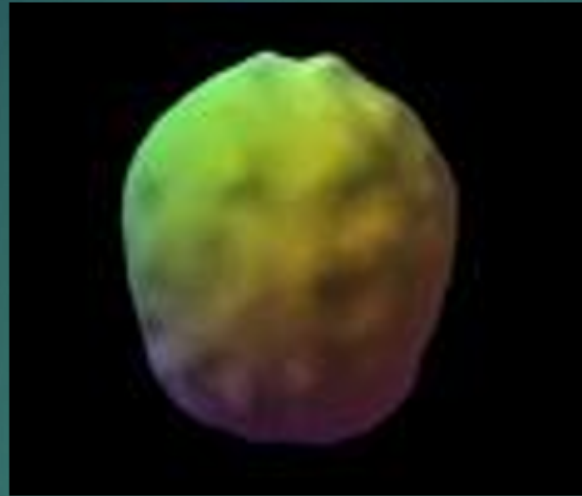
During substance use disorder



One year drug and alcohol free

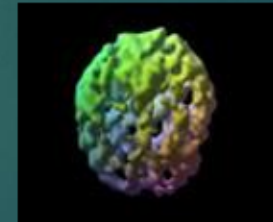
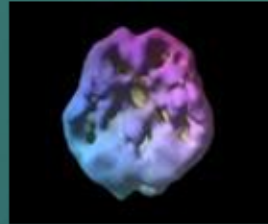
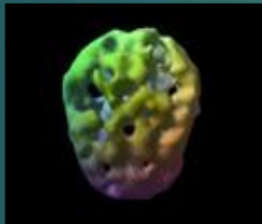
Notice the overall holes and shriveled appearance during use disorder and marked improvement with abstinence.

Which Brain do You Want?



Normal healthy view.
Top down surface view.
Full, symmetrical activity

Effects of other substances:



Long term
alcohol use

57 y/o 30 years
marijuana use
(underside view)

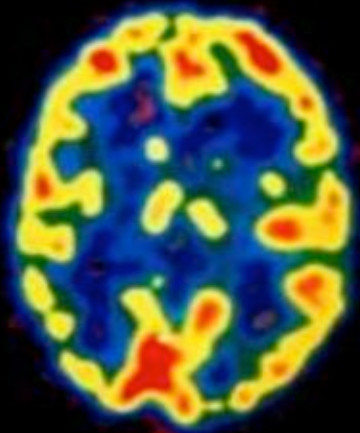
39 y/o - 25 years
frequent heroin use

40 y/o, 7 years on
methadone.
Heroin 10 years
prior.

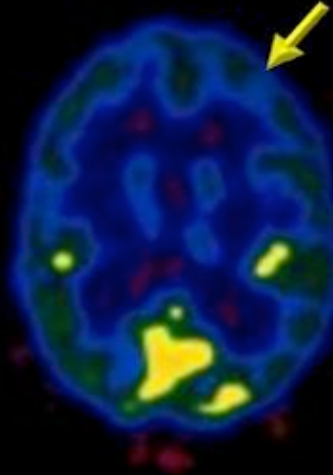
Which Brain do You Want?

The Cocaine Abuser's Brain

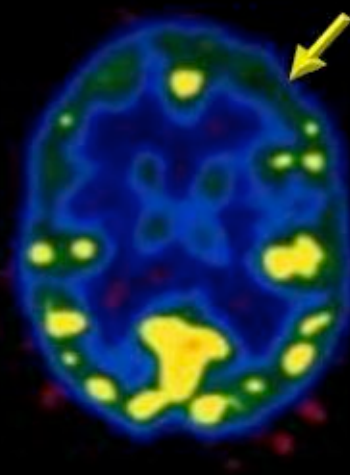
**Comparison
Subject**



**Cocaine Abuser
(1 week)**



**Cocaine Abuser
(3 months)**



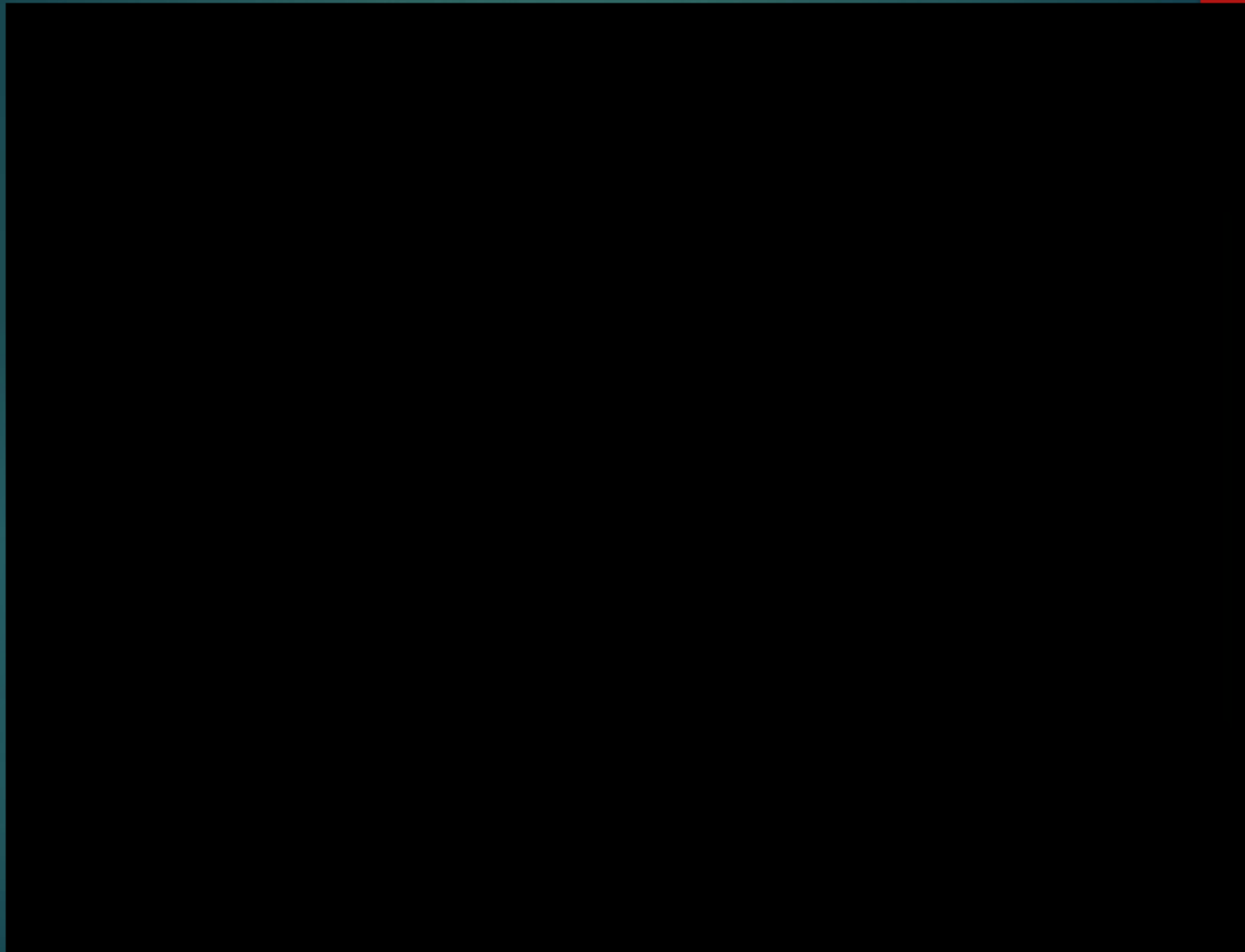
Low frontal metabolism may contribute to the loss of control seen in addiction

Reticular Activating System

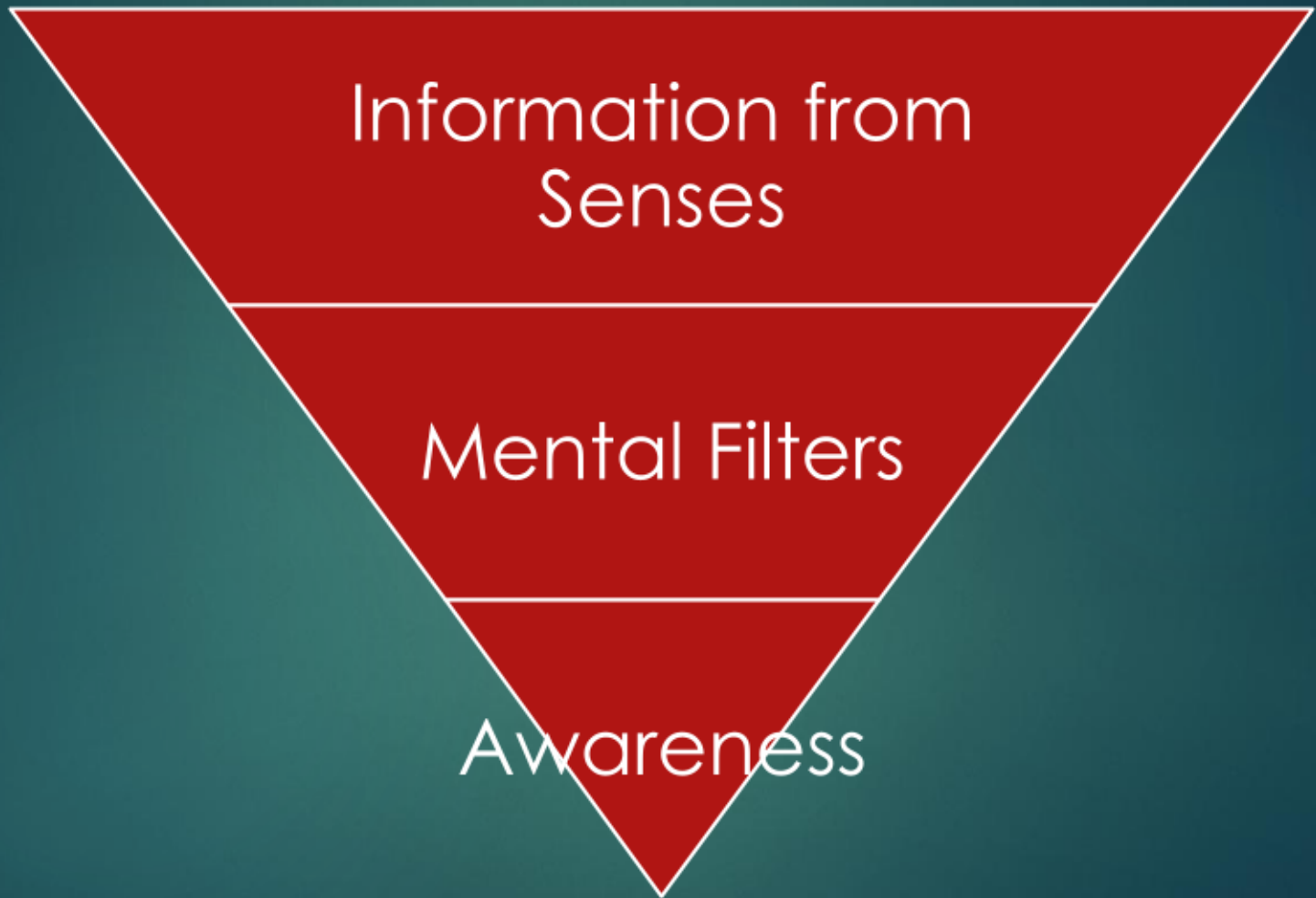


- Reticular Activating System
 - Switchboard filter for the brain
 - Protects us by highlighting most relevant information
 - Responds to most important information
 - Our own name
 - Our own voice
 - Novelty

Awareness and Concentration

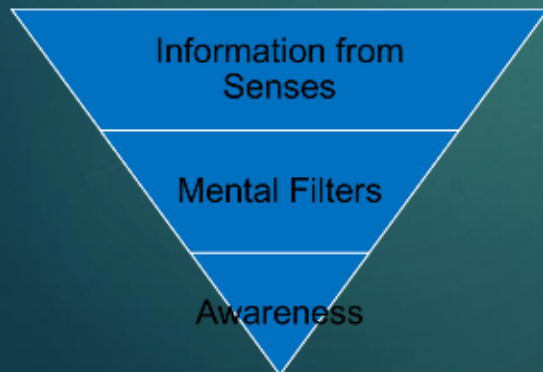


Mental Filters



Mental Filters

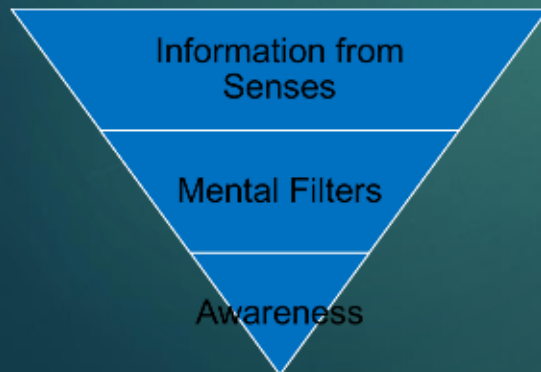
The Alcohol Experiment



Mental Filters

- State Dependent Memory:
 - It is easier to remember sad memories when you are sad and easier to remember happy memories when you are happy.

Can you see only the options you expect, or can you direct awareness to see option C, D, E...



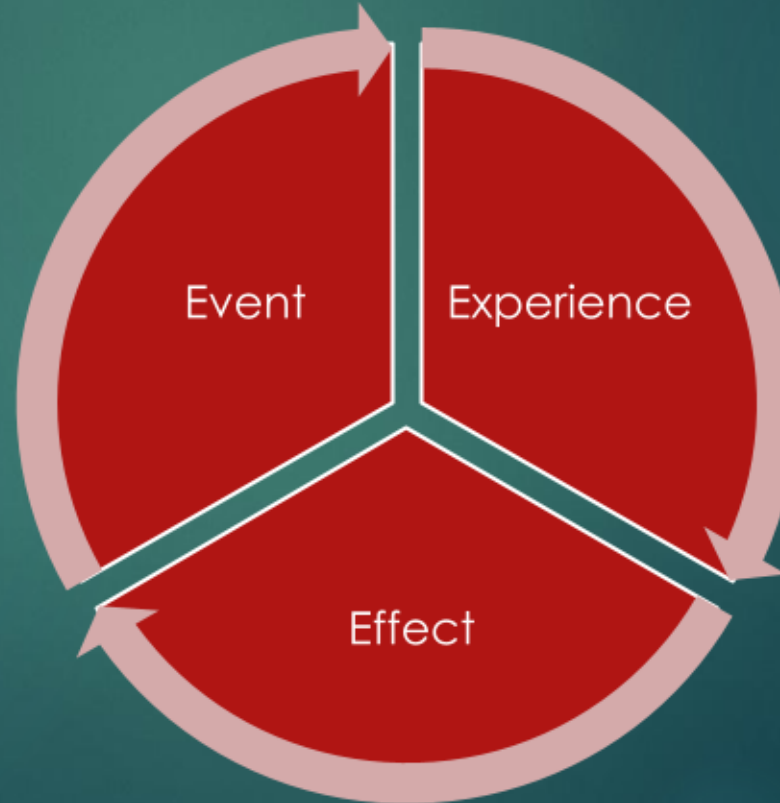
Trauma/Stress

Acute: e.g. Violent assault

Chronic: e.g. Ongoing abuse

Intensity: Low/high

Flashbulb Memory



Treatment



- Motivational Enhancement Therapy
- Cognitive Behavioral Therapy
- Dialectical Behavioral Therapy
- Acceptance and Commitment Therapy
- Trauma Recovery and Empowerment Model
- Seeking Safety
- Therapeutic Community

- Tools
 - EMDR
 - Energy Based: e.g. Emotional Freedom Technique
 - Hypnosis
 - Meditation/Yoga

Let's Repeat:
What are Causes of Addiction?
Which Do you Remember?

Causes	

Let's Repeat: What are Causes of Addiction? Which Do you Remember?

Causes	
<u>Biology</u> Genes, Biochemistry, Brains, Autopilot Learning	
<u>Relationships with Others</u> Peer Pressure, Trauma, Family, “Enabling”, Isolation, Lies	
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<u>Relationship with Higher Power</u> Lack of Connection with Personal Values, Anger/Shame with God	

What are Causes of Addiction?

Causes	Solutions
<u>Biology</u> Genes, Biochemistry, Brains, Autopilot Learning	Medication, Meditation Exercise, Diet, Sleep, Stress Management Decisional Actions
<u>Relationships with Others</u> Peer Pressure, Family, Trauma, “Enabling”, Isolation, Lies	Limit Setting, Relationship Building, Honesty, Clear Communication Family/Couples Therapy Positive Peer Pressure
<u>Relationship with Self</u> Shame, Guilt, Negative Beliefs, “Hate Self”	Forgive Self, Gratitude Practice Engage in Healthy Behaviors Today Healthy Coping Skills Training
<u>Relationship with Higher Power</u> Lack of Connection with Personal Values, Anger/Shame with God	Define Values, Live by Personal Values Pray, Meditate, Other Spiritual Practice

Chemistry

- **Dopamine:**

- Motivation/Reward, Pleasure, Perseveration

- **Serotonin:**

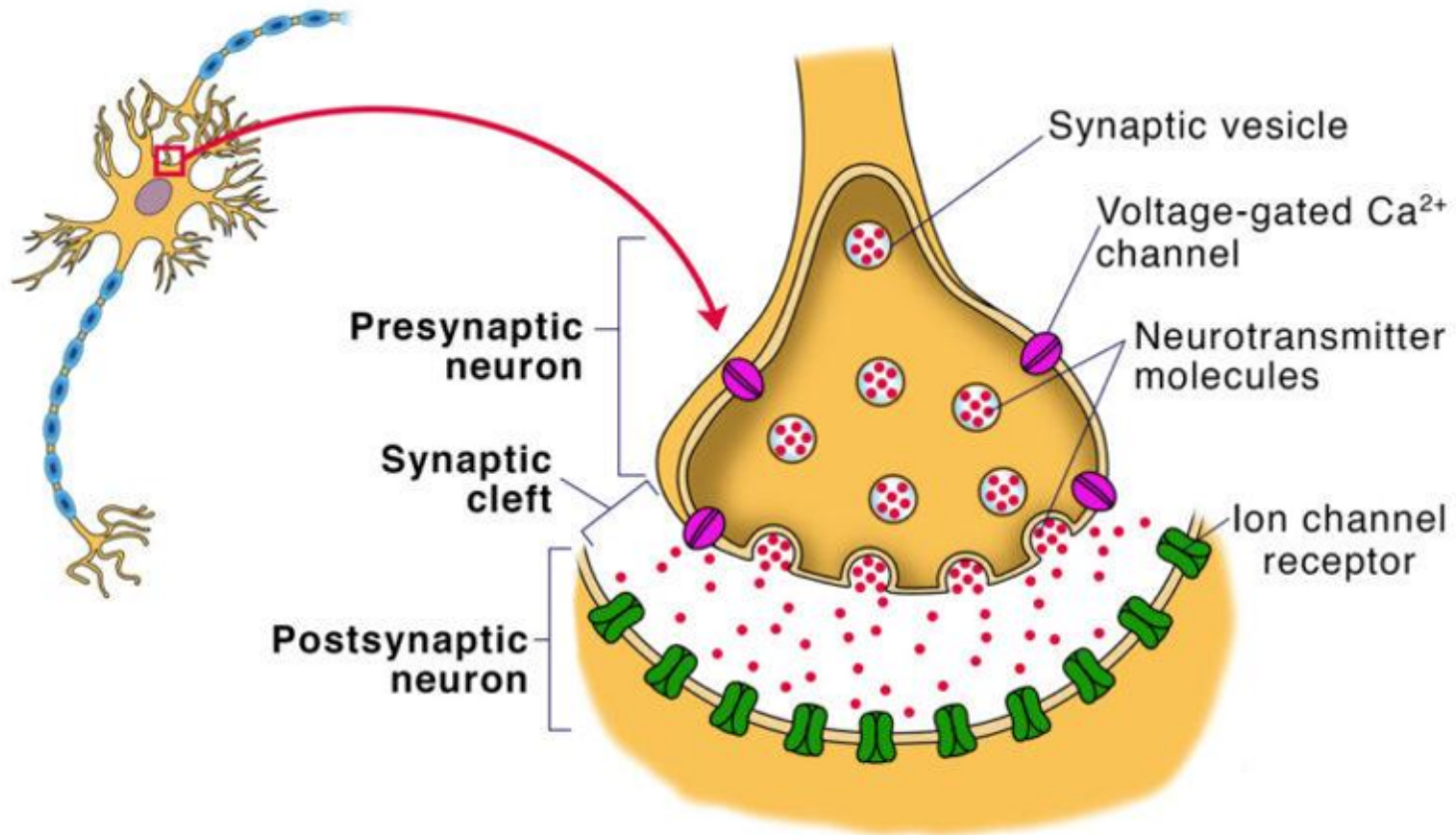
- Stop/Satiated



Upregulating/Downregulating Tolerance

Synapse

ScienceFacts.net



Relationships and the Brain?

- Relationships are key predictors in the success of treatment.

- Why?

- Mirror Neurons:

- What we observe in others is reflected in our brain
 - What if we observe other's anger? Judgment etc?

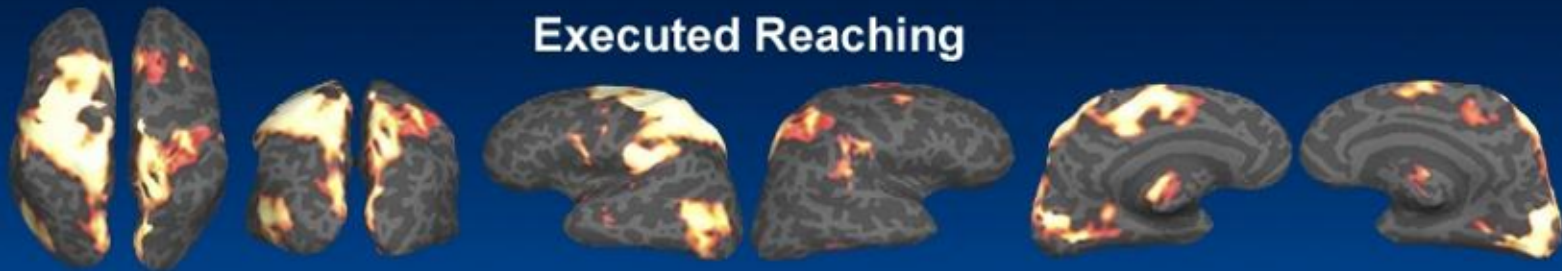
- Benefit:

- Observation is an effective learning tool.
 - What happens if a colleague/other group member is punished? Rewarded?

Relationships and the Brain?

Mirror Neurons

Executed Reaching



Observed Reaching



Beliefs

Core Beliefs Shape Reality:

- Filter incoming stimuli based on expectations
- Steer responses/behaviors
 - The world is a safe place
 - The world is a dangerous place
 - I need this drug.
 - I want this drug.
 - I want this life.
 - Whether you think you can or you can't, you are right.



Beliefs/Imagery

- ▶ Three Memories Exercise



Beliefs

► Three Memories Exercise

- The brain doesn't know the difference between fantasy and reality
- The body physiologically reacts to our images
- The body responds different to different emotional cues
- Emotions can change quickly and this may be the norm



Beliefs

► Three Memories Exercise

- Immediate reactions to our thoughts versus our stories
- Stories are metacognitions that become rules:
 - I am always depressed.
 - I can't do XYZ

Goal Setting and the Brain

- Direct the thinking to the positive/solutions
- Practice positive solutions: gratitude, pride etc.
- Brain does not understand “no”
 - Cannot stop addiction
 - Can create recovery
- Direct thinking to specifics
 - Use as many senses as possible to rehearse material
- Use Goal-Directed questions
 - What else can I do to help my recovery today?
 - What else can I successfully accomplish today?
 - How many things can I do today that I can be proud of?
 - How many new things can I do today to celebrate my recovery?

Goal Setting and the Brain



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- Compare to questions like:
 - Why did you do that?

Building A Practice



Form

1. Declaration
2. For the sake of
3. Detail practice
4. Reminder
5. Support

Example

1. I will,
2. for the sake of [whom],
3. I will [practice],
4. and remind myself by
[reminder],
5. with support from [whom]

Be Specific, Plan to follow-up afterwards

Sample Practice

I will, for the sake of Joe, my 42-year old spouse,

[Practice] Write three things I am grateful for in my journal every day, before bed.

[Reminder] I will remind myself by placing my gratitude journal under my pillow

[Partner] I will ask Janet, my best friend, to check in with me discuss with me how I am progressing every Monday morning once the kids go to school.

If I am successful, I get a hug from Janet, if not, I give Janet a hug.

Put it into Action



- ▶ Move from Reptilian brain to Mammalian brain
- ▶ Intrinsic/extrinsic motivation
- ▶ Brain circuitry takes practice to build
- ▶ Practice, Practice, Practice- Length of stay in treatment
- ▶ Awareness leads to change
- ▶ Move from auto pilot to conscious pilot
- ▶ Mirror neurons
- ▶ Imagery for Success
- ▶ Use questions that guide to these principles

Reminders

- ▶ What else can I do to effortlessly bring recovery to someone I care about?



Reminders

- ▶ Teach, train and practice behaviors to become stable
- ▶ Use effective language techniques
 - ▶ Goal directed
 - ▶ Own voice
 - ▶ Questions for novelty/growth





Contact Information

- ▶ Ken Martz, Psy.D. ICGC-II BACC
- ▶ DrKen@DrKenMartz.com
- ▶ www.DrKenMartz.com

- ▶ **Free Tools**
- ▶ <https://tiny.one/MTOOLS>

