Etiologies of Addiction

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imitations and Clarifications

- hese are only suggestive assertions based on recent publish terature.
- ased on research utilizing a systematic review of literature, coupled with clinical experience.
- ncouraging more research and speculation.
- ocuses primarily on etiologies, rather than clinical implicatio lthough there will be some discussion.
- May not be applicable to every person with addictive disorders.
- ddiction is complex.
- mprove clinical approaches and reduce relapse rates.

The Problem

- 80% relapse rate during the first six months of treatment (Kassani, Niazi, Hassanzadeh, & Menati, 2015)
- 64% lapse in recovery after the first six months (Robinson, Robinson, 2014)

ner areas of research etiologies of addiction

- Maladaptive learning
- Response inhibition dysfunction
- Working memory limitations
- Value circuits dysregulation
- The role of the insula
- Sensory and motor functions related to cue induced triggers

Genetic Predisposition

- Agrawal et al. (2013) craving is a genetic dynamic
- A-synuclein in alcoholics (proteins linked to cravings)
- chuckit et al., (2012) high responders versus low esponders.
- ow responders require more alcohol for the desired effect.
- uli and Juli (2015) a common genetic pathway with moking, alcohol, and opioid use disorders.

opular Theories of SUD

- Incentive sensitization theory
- Reward deficiency syndrome
- Dysregulation of stress systems

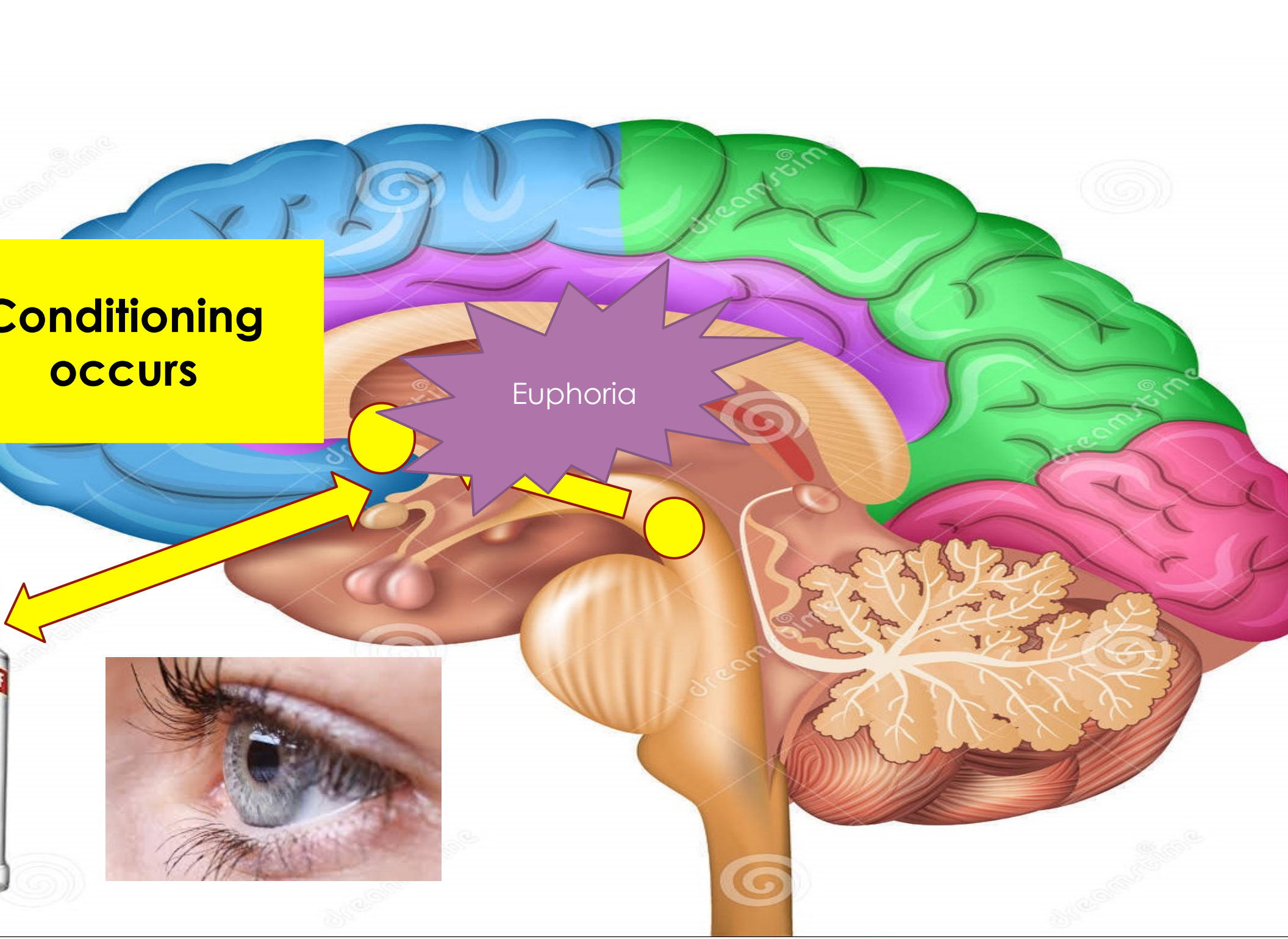
ncentive sensitization theory
Berridge & Robinson, 2016)

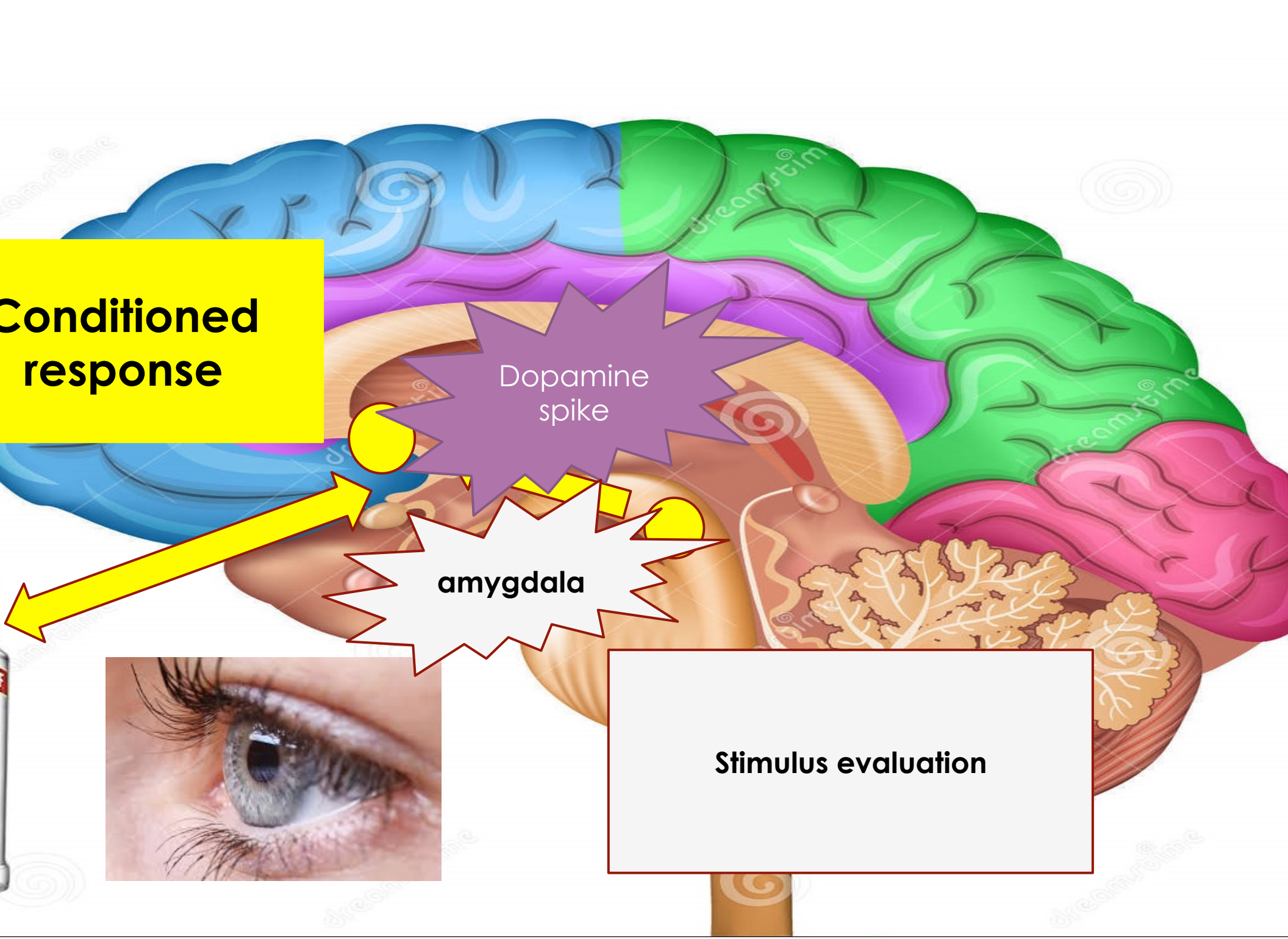
- Dopaminergic system (not hedonic)
- Dopamine (motivation, desire, wanting, rewards based learning)
- Endogenous opioids (hedonic, liking)

ncentive sensitization theory

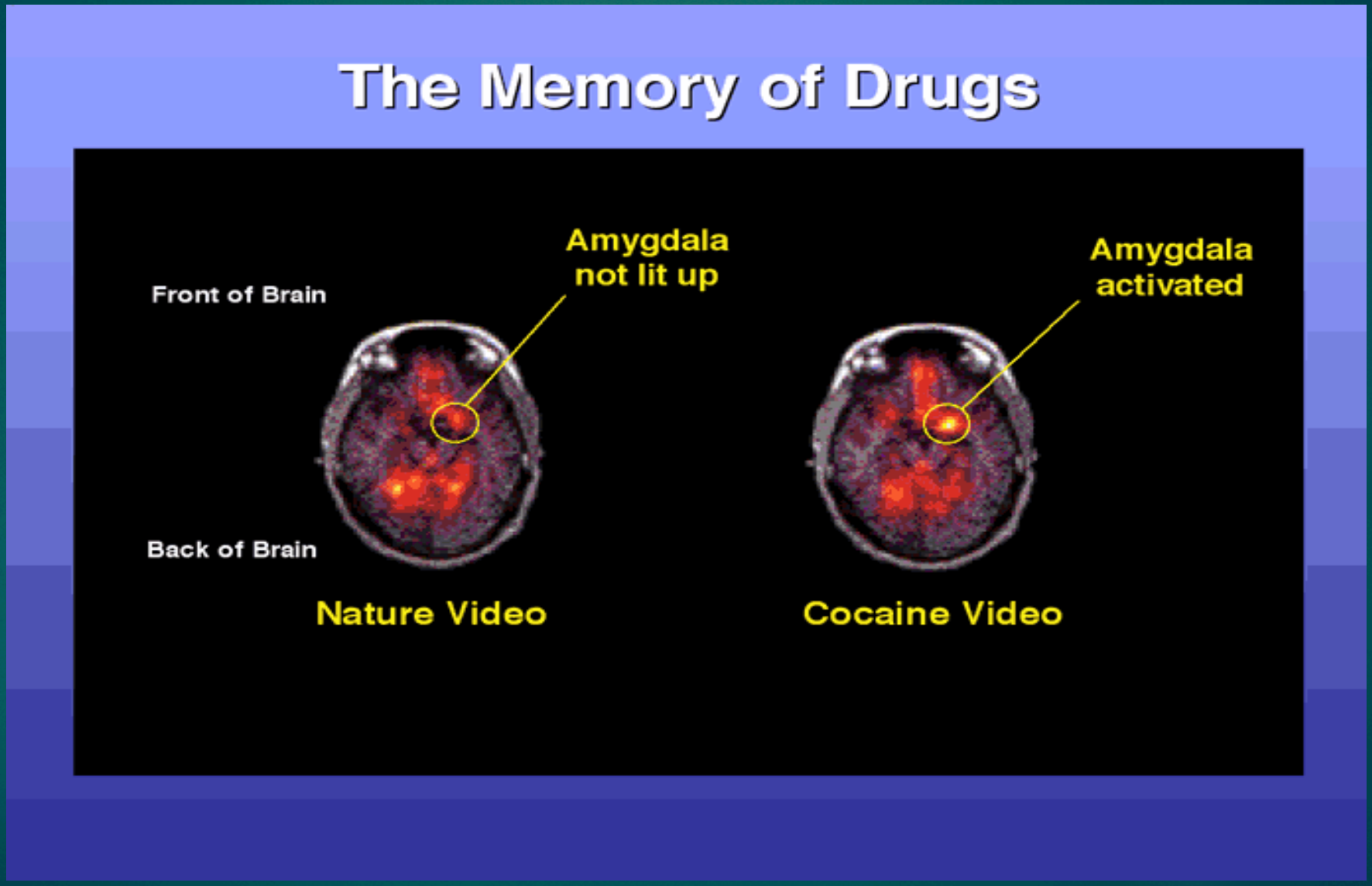
erridge & Robinson, 2016)

- Sensitization of the reward pathway
- Incentive salience causing strong associations
- Long-lasting neuroplasticity
- Increases after abstinence
- “incubation of craving”


Conditioning occurs
Euphoria


Conditioned response
Dopamine spike
amygdala
Stimulus evaluation

Stress induced craving/neuroscience



Reward Deficiency Syndrome
(Blum, Gardner, Oscar-Berman, & Gold, 2015)

- DRD2 receptor gene
- Predisposed due lower amounts of dopamine
- Substance seeking (regulate imbalance)
- Irritability, dysthymia, and stress
- Reward cascade

ehavioral/brain response rewards in SU

- Reward deficiency syndrome: addiction risk due to inadequate levels of dopamine.
- Normal rewards do not this sufficient dopamine
- High salience of chemicals boost deficient dopaminergic systems to produce the desired effect.

Dysregulated stress systems (Koob, 2015)

- Substance abuse… activation of the hypothalamic–pituitary–adrenal (HPA) axis
- Decrease in dopaminergic release, thus promoting negative affect
- "it just doesn't work anymore"
- GABA and glutamate dysfunction

nterpersonal trauma

Multiple studies reflect well-predictable and high incidences of childhood insults predicting development of substance use disorders(Banducci, Hoffman, Lejuez, & Koenen, 2014a; Guina, Nahlas, Goldberg, & Farnsworth, 2016; Craparo, Ardino, Gori, and Caretti, 2014; Barahmand, Khazaee, and Hashjin, 2016).

Symptom	Sexual abuse	Physical abuse	Emotional
sion	x		x
e ideation	x	x	
Dysregulation	x		
aumatic stress			
er	x		
nce use disorder	x	x	
onal dysregulation		x	x
al behavior		x	
ssion		x	
d helplessness			x
elf-worth			x
ve affect			x

pamine and dysregulation/interpersonal uma

raumatizing events early in childhood ma disrupt the development of the dopaminergic system (Cuevas, et al. 2014)

mpairments inabilities to connect socially natural rewards).

pamine and dysregulation/interperso

- Fear salience due to trauma
- Abnormal development in dopamine systems and stress axis
- Increasing risk for SUD
- More research needed

Dopamine and dysregulation/ nterpersonal

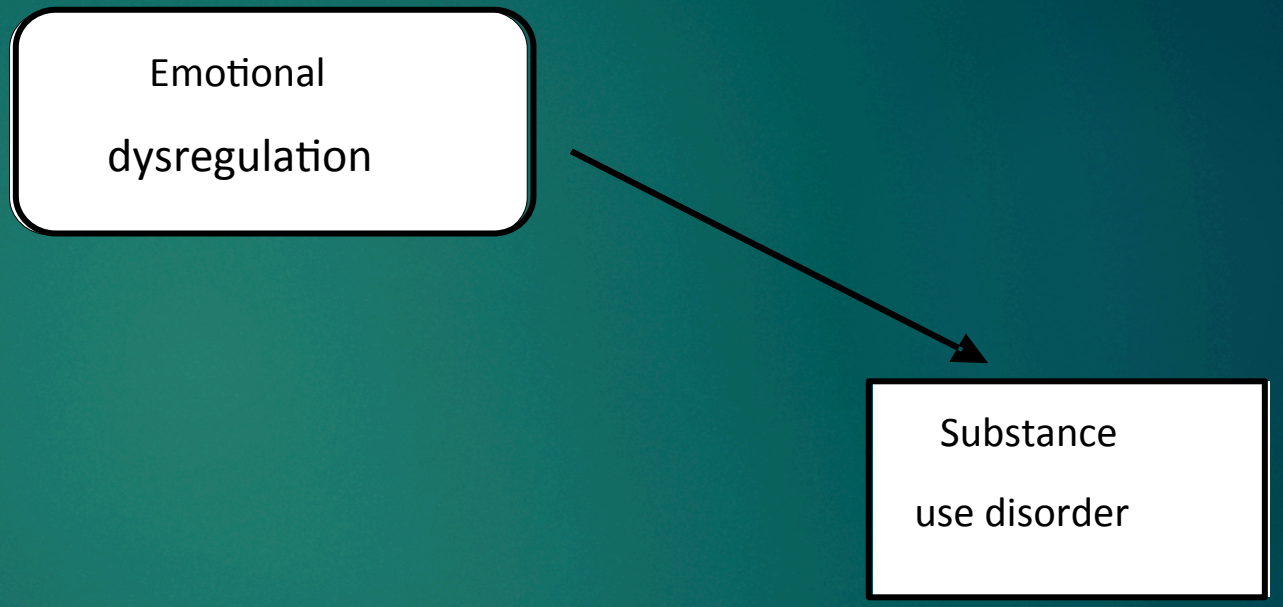
arental experiences dictate the development e dopaminergic system, as well as the stress pping system. This places individuals in a highly sceptible position to develop substance use sorder due to low amounts of dopamine, abilities to cope with stress, and difficulties onnecting socially.

motional regulation

- Emotional regulation (ER) is a mental strategy/process that facilitates control over affective mental conditions
- Childhood developmental key stage

(Dvir, Ford, Hill, & Frazier, 2014; Tang, Tang, & Posner, 2016; Parolin et. al, 2016).

motional dysregulation



Significant overlay in neurological mechanism

motional dysregulation

- Attachment issues
- Intergenerational transmission
- Interpersonal integrity
- Alexithymia

nderreported interpersonal ysfunction

- Trauma versus interpersonal dysfunction
- Intergenerational transmission (minimizing or unaware)
- Alexithymia (inability to report)
- Low motivation (noncompliance)

nterpersonal trauma

- Developmental trauma
- Trauma or lack of attunement exposure leads to dysregulation of stress system
- Symptoms of dysphoria and negative affect
- Substance use to mitigate the symptoms

Alexithymia

- 45% to 67% present with (SUD)alexithymia
- Difficulties identifying and describing emotions
- Extrinsic focus to regulate
- Similar to disassociation
- Complications in treatment

Attachment issues (Fletcher, Nutton, Brend, 2014)

- Addiction as an attachment disorder
- Suggested an association between addiction and insecure attachment
- Fearful avoidant attachment
- Substance acts as a substitutionary object
- Isolation exacerbates dysregulation

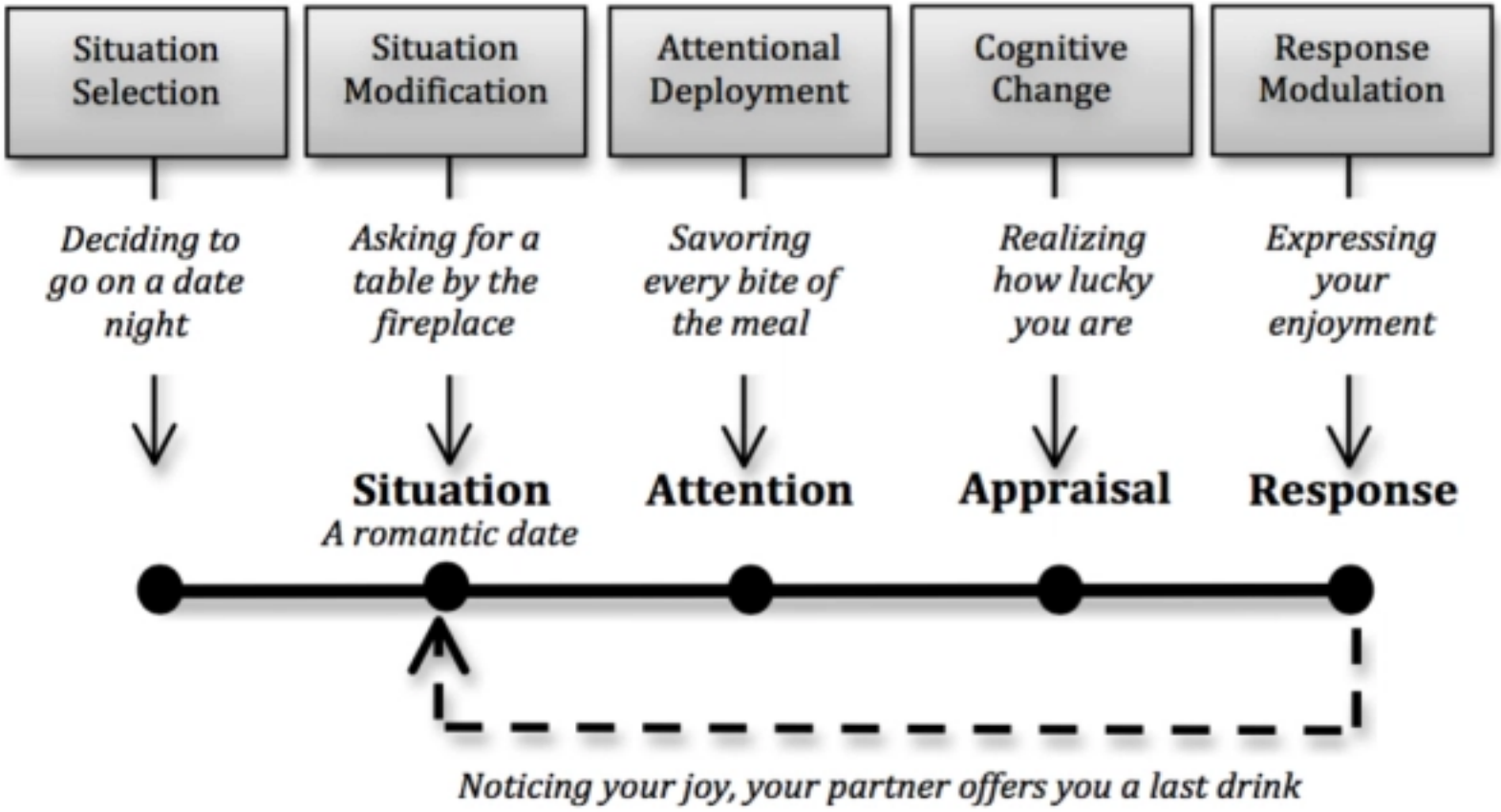
ntergenerational transmission

- Transmission of parental neurology
- In utero and/or environmentally
- Transference of trauma and interpersonal issues
- Holocaust exposure studies (Yehuda, 2015)
- Hyperactive stress systems

reatment for emotional
ysregulation

- ore research on which one of these domain is
  ore critical in addiction/relapse
- ealthy emotional regulation is contingent on th
  nctionality on all five domains.
- eatment modalities focusing on all the next
  fectiveness of treatment.

motional regulation



motional regulation

- **Situation selection** involves making a choice anticipating the probability of or absence of an emotional response. The nature of the response can be positive or negative.

motional regulation

- **Situational modification** is also based off the choice. The choice is a matter of altering the situation to affect the emotional consequences.

motional regulation

- **Attention deployment** is the directing or redirecting of attention anticipating a shift in affect for more desirable conditions.

motional regulation

- **Cognitive change (CBT)** involves modulation or governing the evaluation of the situation. The therapeutic reframe is an accurate description of this domain.
- Research suggests SSRIs may improve this phase

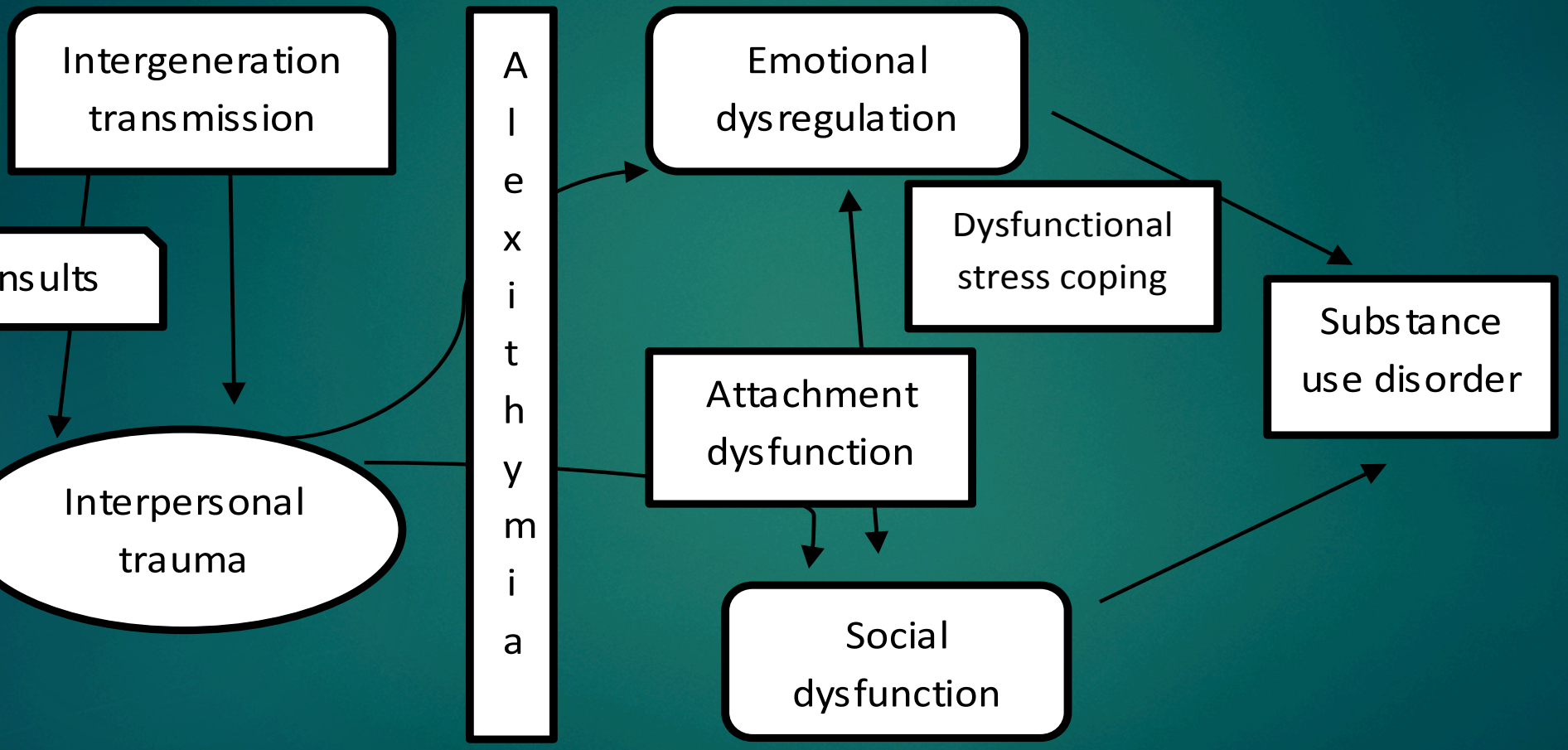
motional regulation

- **Response modulation** is essentially the reaction or response. This includes extrinsic coping mechanisms.

motional dysregulation

- Recognition and description of affect(alexithymia)
- Difficulties in regulating negative affect
- Low motivation to endure uncomfortable feelings
- Poor choices in response(Spence and Courbasson, 2012

odel for comprehension of substrates of substance use disorders



Clinical implications

- The nebulous role of alexithymia
- Attunement and Mindsight (Clinical tools)
- Targeting emotional regulation dysfunctional domains
- Underreported interpersonal trauma, due to alexithymia
- Underreported interpersonal issues, due to intergenerational transmission

Alexithymia

Asking a client "how do you feel"?

- 45% to 67% present with (SUD)alexithymic
- Difficulties identifying and describing emotions

sycho-Drama Therapy

Psychodrama as an affective means of bypassing cognitive defenses to access the right prefrontal cortex, anterior cingulate cortex, and insula. This could be a possible means overcoming the alexithymic condition.

Dream analysis

- By-passing defensives and alexithymia

ocial engagement

- 12 step communities
- Refuge Recovery and Smart Recovery
- Mitigating isolation
- Unconditional positive regard
- Ventromedial PFC (atunement)

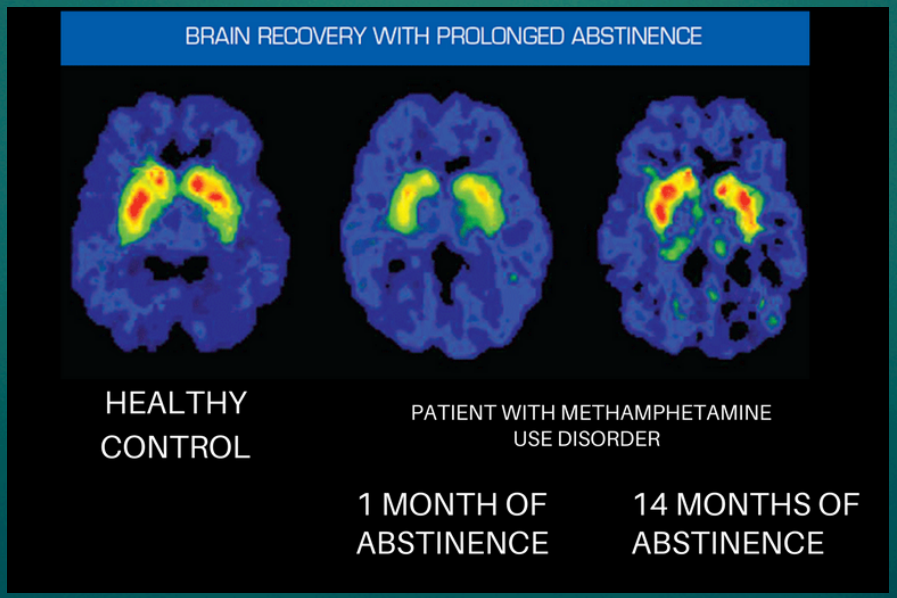
Improved functioning

VMPFC increase grey matter 2 weeks

Improved functions cingulate cortex, insula, dorsal PFC

35 weeks equal to control

Long term showed more grey matter than control group.



peculations and questions

- Is CBT and DBT fully sufficient for treatment of substance use disorder related to interpersonal trauma and alexithymia?

- Creative ways to improve working memory and engage the ventromedial prefrontal cortex and insula.