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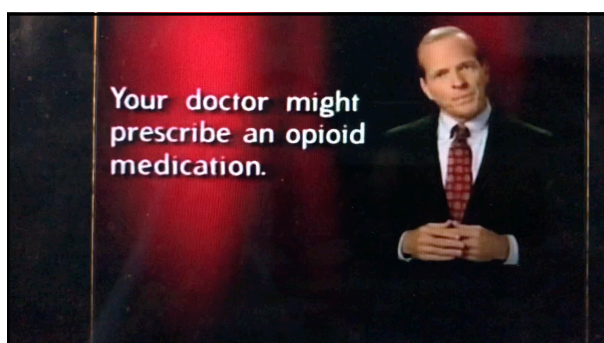
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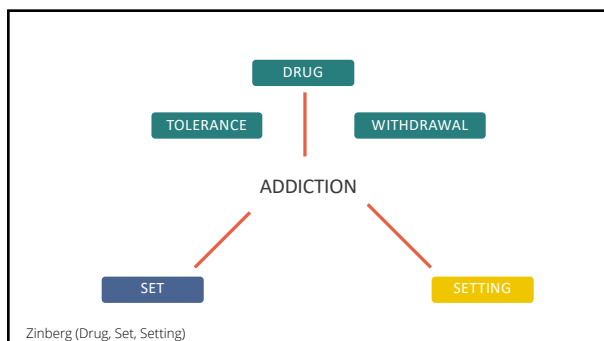
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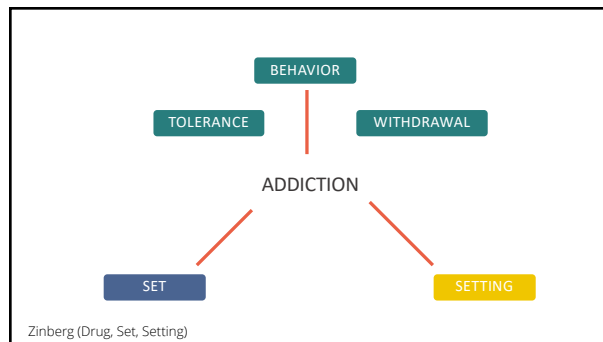
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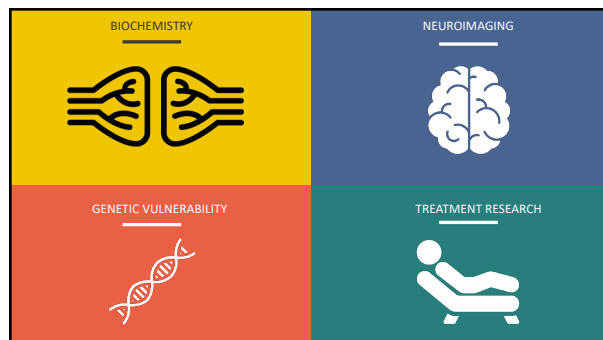
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**BIOCHEMISTRY**

- Neuroscientists have speculated that the anticipation of gambling produces a dramatic increase in release of dopamine into the synapse.
- Anticipatory dopamine response may constitute a common underpinning of gambling disorder and substance use disorder.
- Among people with gambling disorder, dopamine release during a simulated gambling task is associated with increased excitement levels and worse gambling decisions.



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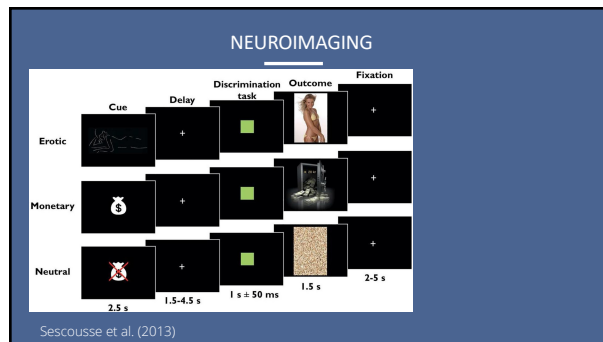
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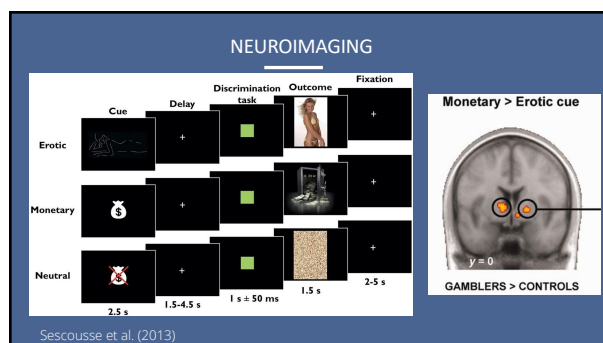
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**NEUROIMAGING**

- People with behavioral addictions, just like people with substance addictions, show decreased activation of the ventromedial prefrontal cortex, which is implicated in the processing of risk and decision making.
  - This might make it harder to resist cravings.

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### GENETIC VULNERABILITY



- People with gambling disorder have elevated rates of first-degree relatives with substance use disorders, suggesting a possible shared genetic vulnerability.
- Relapse to drugs of abuse and other addictions may be due to dopamine receptor super-sensitivity.
  - A particular dopamine receptor genotype might be linked to excessive release of dopamine in anticipation of learning a gambling outcome.

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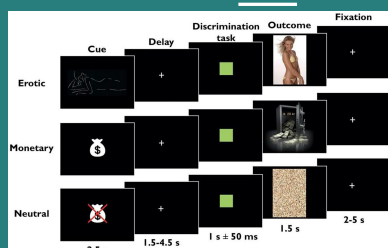
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### TREATMENT RESEARCH



Schmidt et al. (2021)

- Gambling disorder participants in treatment (CBT)
- Reward anticipation phase: opposite those observed among non-treatment seekers

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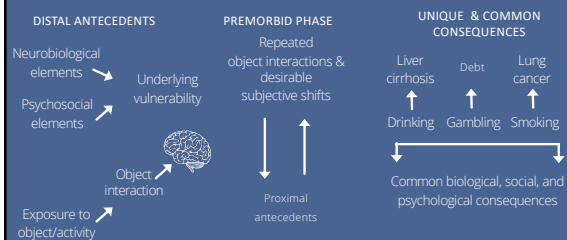
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### THE SYNDROME MODEL OF ADDICTION (SHAFFER ET AL., 2004)



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### CASE STUDY

- Interest in gambling from a very young age
- Suffered physical abuse
- Rapid escalation
- Concurrent substance misuse
- Did not disclose gambling in therapy
- Came very close to suicide at 30?



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### LIFETIME PREVALENCE (U.S.)

<b>SUBSTANCE USE DISORDERS</b>	<b>GAMBLING DISORDER</b>
9.9% (Grant et al., 2016)	0.6% (Kessler et al., 2008)
<b>INTERNET GAMING DISORDER</b>	<b>COMPULSIVE SEXUAL BEHAVIOR</b>
?	3-6% (Kuzma & Black, 2008)

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### PROPOSED DEFINITION OF BEHAVIORAL ADDICTION

- A repeated behavior leading to significant harm or distress. The behavior is not reduced by the person and persists over a significant period of time. The harm or distress is of a functionally impairing nature.
- The behavior is not better explained by an underlying disorder (e.g., a depressive disorder) and isn't the result of a coping strategy.

Karddefelt-Winther et al. (2017)

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