

The Neurobiology of Gambling: Actionable Tools for Recovery

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GAMBLING TREATMENT PROGRAM

CLEVELAND VA MEDICAL CENTER

OBJECTIVES



neurobiological study relevant to gambling behavior



neurobiological study relevant to gambling disorder



actionable behaviors useful for clients struggling with gambling

Gambling

Been here since earliest recorded cultures in human history

Multiple forms

Multiple venues

Legal

And illegal



- Normative behavior
 - Most have gambled
 - And now the Expansion



Gambling Problems

Range from .2-5.3%

Criteria include:

- Tolerance
- Withdrawal
- Repeated unsuccessful attempts to cut back or quit
- Impact psychosocial functioning
- Chasing

Gambling Problems

Vulnerability:

- ~60% genetic
- Neuropsychological
- Trauma experience
- Parents who condoned it
- Poverty
- Unemployment

Major risk now is access. Saturation.

Gambling Problems and Cognitions



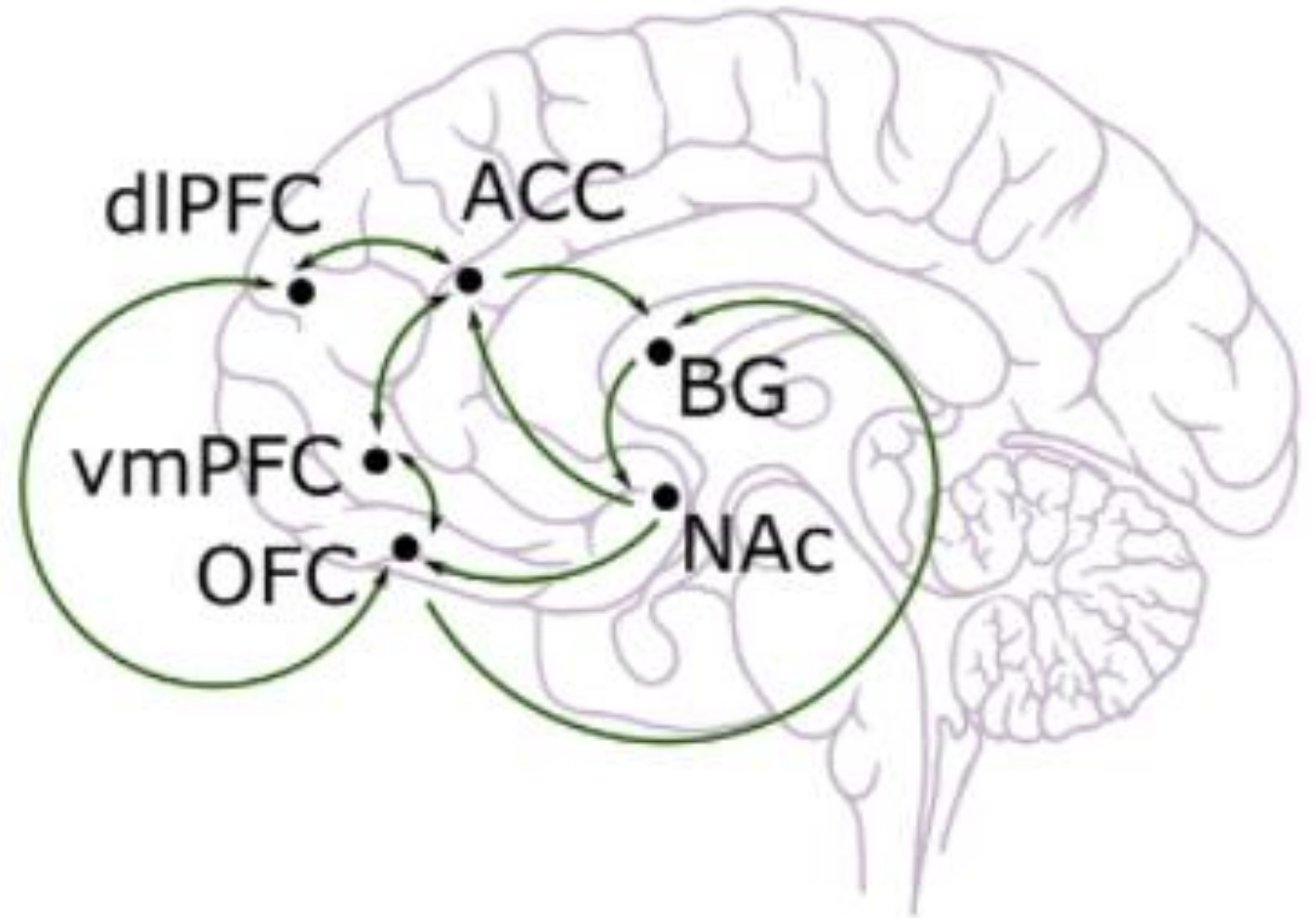
Gambling related cognitions

Irrational cognitions

Present in those who gamble and
those who don't

- Superstitions
- Gambler's fallacy
- Illusion of control
- Inaccurate processing of wins
- Losses, near wins, near miss
- Chasing

Gambling and Neurobiology



Gambling and Decision Making

	Gambling Disorder	Alcohol Disorder	Neither Disorder
Visuospatial working memory	Better	Worse	Better
Use of verbal information in working memory	Better	Worse	Better
Impulsivity	Worse	Worse	Better
Cognitive control and stopping action when rapidly responding	Worse	Worse	Better
Time estimation	Worse	Worse	Better
Planning	Worse	Worse	Better

Dopamine

Neurotransmitter implicated in reward and movement

Early humans move to seek out the reward for survival

We have a baseline rate of release

Is like a push pull between dopamine increase (rush-thrill-joy) followed by and marked drop (dip-pain-anxiety)

If we expose chronically to something that increases dopamine our natural levels will fall to compensate for that increase

Imagine Dopamine

Compassion for this struggle, dopamine deficit state

You may have found yourself picking up phone reflexively

Perhaps others are looking at it triggering you to do the same

Adaptive for behaviors to be reflexive, so we are not using brain space for decision making

Dopamine spike with the behavior, falls when putting it down triggering us to go back

Dopamine is the movement toward the phone

Even anticipating it can spike dopamine

Dopamine and Gambling

Ease of access

Ease of play

Speed of play

Lights, sounds, attractive surroundings

People winning

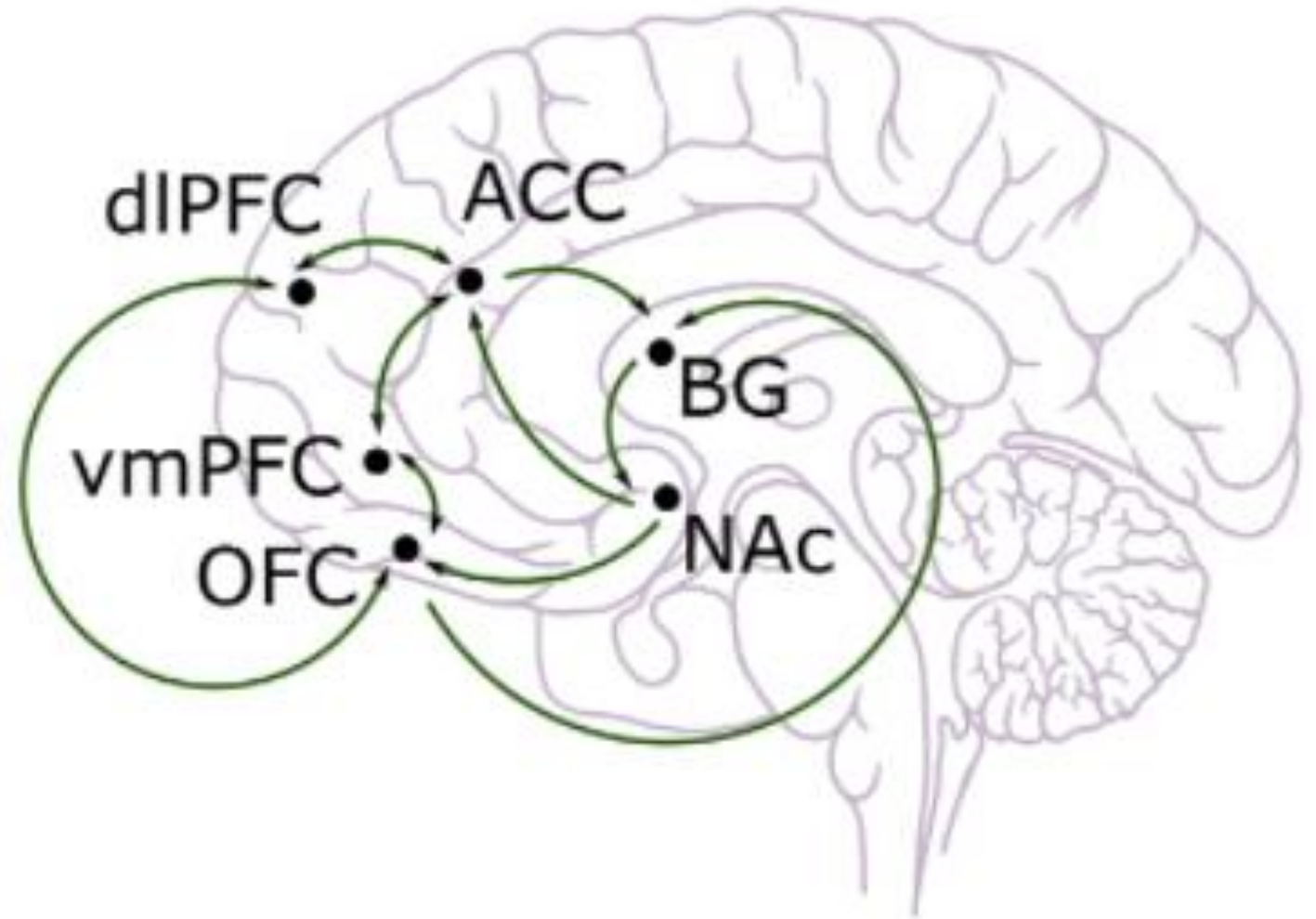
People losing

Near miss

Comps

Even anticipating it can spike dopamine

Gambling and Neurobiology



What can we do?

Dopamine Reset



What to
consider



Recognize

- People struggle with recovery:
 - boring and aversive
- Our culture is forward tilt, experience life
- All survival needs are met, some people will lean into friction/action
- Feel a restless seeking stimulation
- So, with all needs met we lean into gambling



Pleasure pain balance

- Pleasure and pain co-located in same part of brain
- Works as a balance, to find homeostasis
- Pleasure then stop and come down, feel loss or pain then desire for more



Pleasure pain balance

- Addiction is the progressive narrowing of the things that give us pleasure.
- Being able to get pleasure from many things, little and big, is a good thing, supports a healthy tuned system.
- People in recovery from gambling have great wisdom
- Key is finding adaptive ways to support this balance get it and awareness of things too potent, that tip the balance to hard, fast and long
- Resilience and flexibility
- Some pain some pleasure


Pleasure pain balance

- A day at a time
- Brain wired for the 24-hour period
- Longer we get lost: anxious or grandiose
- Link one day to another, get a chain of days, super motivating
- Think about the moment
 - Connection with the what needs to happen in the environment.





Pleasure pain balance

- Acknowledge life is hard
 - The me too is important
 - Shared suffering
 - Recalibrate expectations.
 - Lower the bar
 - Intensity had to find an outlet
 - Conceptualize role of spirituality. Acknowledge our imperfections
- 

Start with..

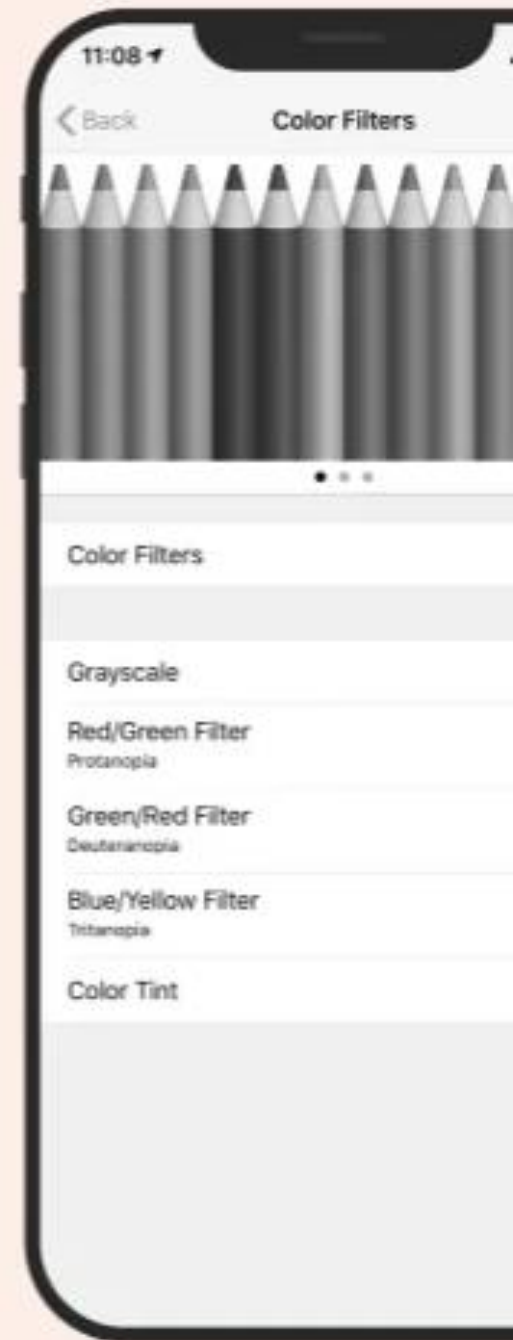


Self-binding

- Develop an individualized set of behaviors
- Creates space between desire and use
 - Money protection
 - Self-ban
 - Meetings
 - Change your route
 - ...
- Strengthens the cortex



Self-binding



Self-binding

- Develop an individualized set of behaviors
- Practice creating space between desire and use with other behaviors
 - Looking at your cell phone
 - Removing apps
 - Change to grayscale
 - Craving for a piece of chocolate
 - Sit through the craving
 - Watching the next episode
 - Unplug
 - Saying yes means saying no to something else



Simplify

- Our cultural narrative is “Find your passion”
- This is very difficult for some people
- Cal Newport
 - So Good They Can't Ignore You,
 - Not about thinking or planning it but get passion from growth mindset.
 - Develop a skill, getting better with feedback
 - Deep work,
 - Get away from media and tech switching
 - Imagine a world without email


Community

- Linking to others
 - 12-step
 - Group and individual therapy
 - Communities
- Intense bonding is linked to dopamine
 - Addicted to 12-step or groups? OK, why not?
 - The oxytocin in bonding and spiritual connection with humans creates a dopamine hit


Community

- Awareness of seeking intense experience
- May be wired for intensity
- Feeling filled and at peace and or want more
- Adaptive and balanced or not
- Community can keep your balance
- Johari's Window.



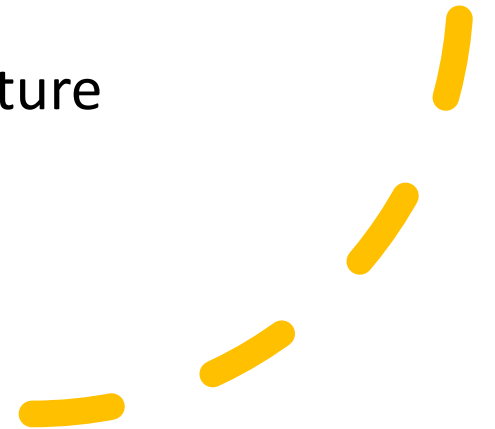


No matter how far you drive,
you are the same distance from the ditch.



Challenge

- We have natural capacity for lying
 - Poker players
 - Lying is adaptive as you compete for scarce resources, but not now
- Rigorous Honesty. Everything
 - Promote balance
 - Promote awareness
 - Foster connection
 - Truthful autobiography informs future



Challenge

- Rigorous honesty
 - Stimulating the frontal cortex (experimentally) caused people to be more honest.
 - Can truth telling do the same? Strengthen the frontal cortex as one practices truth.
 - Then making us more aware of balance of pleasure and pain, aware of overconsumption.
- Humble Courage



Challenge

- Rigorous honesty
 - Sharing vulnerabilities draws others in creating connections
 - Others are not alone
 - We are connected
 - Increases oxytocin and then dopamine



Challenge

- Rigorous honesty
 - Lie criteria in DSM



Challenge

- Rigorous honesty
- In an experience of reliability
 - Feeling confident in our world engenders truth telling
 - Trust
 - Safety
- In an experience of unreliability
 - We are less confident, unsure
 - Will lie for survival



Our Approach

- Motivational Interviewing
- Developing discrepancy between the pleasure seeking and values
- Pacing
- What are they ready for?
- Can pushing too hard lead to increased anxiety?
 - Lead to relapse?



Our Approach

- A clear look at denial
 - We love that word. Right?
 - Is a disconnect between the reward pathway and the frontal cortex that allow us to navigate the world according to our values, appreciating consequences.
 - Could it be that it is just not the time for them?
 - Can you see what you cannot see?



Challenge

- 4th step
 - Make amends
 - Cathartic and rewarding
 - Consider character defects
 - Prosocial shame, healthy dopamine release



Simple and
powerful
self-care




Moving

- Moving
 - Regulate stress and ultimately increases dopamine fueling optimism
 - Primes us to connect with others
 - People who exercise together feel closer to those they exercise with and to others generally
 - More sensitive to joy
 - One-hour 3x weekly of walking and strength training demonstrated increase in dopamine receptor availability



The Sun

- Looking at screens all day?
 - Triggers a pro-depressive circuit
 - Light at the right time of day elevates mood
 - Light at wrong time of day/night throws off pancreas blood sugar and metabolism
- 

Induce calm via breathing

- Inhale twice, through the nose, and then you exhale long once through the mouth.
 - Balancing the ratio of carbon dioxide and oxygen and the bloodstream in lungs,
 - Creating calm



Help sleep

- Get outside
- View sunlight early in the day
 - close to when you wake up
 - 2-10 mins
- Get some sunlight in your eyes in the evening as the sun is setting
- The sunrise/sunset sparks
 - Cortisol in the morning
 - Melatonin in the evening





Panoramic vision

- Opens you up
 - Shifts thinking
 - Helps capacity for problem solving
 - Decreases anxiety
 - Decreases depression
- Versus focusing tightly and locking in
 - Elevator mind



Optic Flow

- Walking, running, or driving, through space
- Gives both calming and invigorating and replenishing moment
- Elements of EMDR





Gambling

- Hyperstimulus designed to hijack
 - Time
 - Money
 - Commitments
 - Values
- Strengthen the frontal cortex
 - Through community
 - Through challenge
 - Through shared vulnerability



And we are in
this
together....

That's a good thing

