Brain Connections: The Neurobiology of Gambling Disorder

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Agenda

• Purpose of the project
• Structure of the clinical handouts
• Myths and Cool Concepts
• Integration into your practice
• The Video
• Questions/Feedback
• Second half: Practice!

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Brain Connections

We are often asked about the neurobiology of gambling:

“Why do I gamble when it isn’t fun anymore? I hate gambling but I keep going... why can’t I stop? Will I just switch addictions?”

But are we answering these questions accurately? Consistently?

We didn’t think so...

But who has time to find out the answers? And wouldn’t some person-centered handouts be fantastic?

We thought so!

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Knowledge Translation (KT)

• Research – Clinical Gap
  ➢ Neurobiology

• Clinicians and researchers can work together to actively translate current research into a client-friendly take-away
  – Up-to-date
  – Evidence-informed
  – Person-centered
  – Relevant

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The Handouts

How is problem gambling like an addiction to alcohol or drugs, from my brain's point of view?

Since I've stopped gambling, why does nothing else feel fun?

Why do people keep gambling even when it's not fun anymore?

Why is it hard to say 'no' to a gambling urge?

Why do people sometimes switch for gambling to another addiction?
**Structure of the Handouts**

**How is problem gambling like an addiction to alcohol or drugs, from my brain’s point of view?**

**The Reward Hub – ‘GO!’**

The Reward Network is made up of different brain regions that interact with one another. The **Ventral Striatum**, also known as the ‘Reward Hub’ (1), is an important part of this network. The Reward Hub’s job is to act as a gauge when a reward might come our way. It recognizes...
Activity: ‘Reward Hub’ or ‘Top-down Control Network’?
Which part of the brain do you think is responsible for each statement below?

1. I said ‘no’ to a gambling urge.
2. I’m imagining how I will spend my gambling winnings.
3. I really want to gamble right now – I think I’ll just take $20.
4. I want to gamble but I know that’s a bad decision so I won’t go.

Activity:
Can you see at what point the Habit Hub overrides the Reward Hub?

1. “This is my first time gambling – that was a fun night out!”
2. “I’ve gambled a few times this month and I’m excited to go again, whenever that might be.”
3. “I gamble every Friday night – it’s my main fun for the weekend.”
4. “I have been gambling every day for months... it’s not really fun anymore and I’m not sure why I’m still going.”
5. “I hate gambling but I feel like I can’t stop. The urges are so strong.”
Discussion Questions

**Going Further:**
How do you think your ‘pedal’ and ‘brakes’ have been affected by addiction? For example, do you find it harder to say ‘no’ to things that you know are not good for you? Do you have difficulties with boredom? Do you feel like nothing will ever be pleasurable for you again? What natural rewards or new experiences could you try in the next few days?

**Going Further:**
Can you relate to wanting to gamble even if you don’t like gambling anymore? Based on what you learned here, what can you tell yourself in order to get through an urge to gamble?

Why is it helpful to avoid gambling cues (e.g., seeing a gambling ad on TV) early on in treatment?

What good habits would you like to develop in your life?
Take Home Messages

This series answers key questions about problem gambling and the brain that often come up in treatment. Below are the take-home messages from each of these handouts. A take-home message is a brief summary of the handout's content along with some tips on how to make changes you can make if you are concerned about your, or a loved one's, gambling.

For more information on the five topics, please read the handouts in this series.

Stop and Go Networks: How is problem gambling like an addiction in alcohol or drugs, from the brain's point of view?

When cocaine rewards, the 'GDR' network can show less activity in people with addiction. This means that they might seek out unnatural rewards to activate the 'GDR' network and push the gas pedal to the extreme. This is why people with an addiction may not be as excited by natural rewards and they might also have trouble learning how new experiences could be enjoyable. In addition, people might not notice the need to stop an addictive behavior and, even if they do, their brakes may not work as well. Nonetheless, the 'GDR' and 'STOP' networks can change how they respond to natural rewards. The good news is that the brain is always changing. Keep rewarding yourself with natural, healthy activities in moderation. Repeat rewarding yourself with natural, healthy activities in moderation.

Liking vs. Wanting: Why do people keep gambling even when it's not fun anymore?

When someone has an addiction problem, there may be a shift in activity from the 'Reward Hub' to the 'Habit Hub', as the person becomes more addicted. A person may want to gamble more and not even enjoy it anymore. The brain is also very aware of the 'hunger' the reward gives. Once the brain begins to feel as good as it used to, because gambling is now a habit and helps give us the same pleasure as new experiences, instead, gambling might become a way to ease the discomfort of strong urges. The good news is that our brain learns quickly, so over time we can form new associations in helping develop healthy behaviors that we find pleasurable.

Urge: Why is it hard to say no to a gambling urge?

Saying 'no' to an urge is not always easy. This is because changes in the brain that occur when gambling has become a problem can cause a problem. Many parts of the brain are involved, including the 'Satiation' which makes you over-sensitive (to gambling cues), the 'Dopamine' (involved in interest) and 'GDR', and the 'Habit' (a larger, but less intense). This is why an urge to gamble can feel like a powerful, full-body experience and why willpower alone (without other strategies in place) may not be enough to stop you from acting on an urge. The good news is that staying in treatment and adopting new strategies from gambling can lead to fewer urges and less sensitivity to gambling cues. Talk to your counselor about other strategies that might work best for you.

Substitute: Why do people sometimes switch from gambling to another addiction?

The early stages of recovery from problem gambling are associated with diminished which is the reduced ability to experience pleasure. This is a consequence of being an individual may have a very low mood, high gambling urges, and experience a loss in pleasure from natural rewards. The good news is that the brain can also change again during recovery. You may start to enjoy natural rewards again. These improvements take time so it is important to keep practicing healthy activities you enjoyed and trying out new activities.

Substitution: Why do people sometimes switch from gambling to another addiction?

Sometimes people switch to another addiction when trying to cut back on gambling. This is because activity in the 'Reward Hub' and the 'Dopamine' is reduced, which could lead you to pursue unhealthy behaviors and petty small, immediate rewards over larger, delayed ones. Be careful with these quick fix rewards that can hijack your attention and cause you to substitute one damaging behavior with another. The strongest and best rewards often take time but are well worth the effort.
Clinical handouts

- Use in individual or group counselling sessions
- Guidance may be required
- Biggest impact when used in a session to enhance therapy

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Myth Busters and Cool Concepts

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Myth Busters and Cool Concepts

• The ‘brakes and pedal’ analogy works!
• Research shows that people with gambling problems do have inconsistent pedals (reward hub activity) and brakes (top-down control network)

Handout 1

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What Do You Think?

True or False?

A surplus or deficiency of dopamine is responsible for problem gambling

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Myth Busters and Cool Concepts

It’s not all about dopamine!

Figure 1

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Brain systems: Reward Hub and Habit Hub

Reward Hub (Ventral Striatum)

- allows us to experience pleasure

Habit Hub (Dorsal Striatum)

- helps establish habits

Reward and Habit Hubs stop working in harmony

- Over-awareness of gambling cues = strong urges to gamble BUT habit is less pleasurable/automatic!

(Figure 1, Handout 2)
Becoming overly aware of gambling cues

- We rapidly associate stimuli with reward
- Sound of a slot machine or feel of a poker table is associated with a reward (money)
- Keep pressing the gas pedal to feel pleasure
- Results in the formation of a habit (Habit Hub in charge)
- Attention gets easily hijacked by gambling cues

*Figure 3* INCREASED ATTENTION TO GAMBLING CUES AS PROBLEM GAMBLING DEVELOPS.
Strong urges to gamble ensue
Myth Busters and Cool Concepts

Going from ‘Liking’ to ‘Wanting’

(Handout 2)
TAKE HOME MESSAGE: As a person develops an addiction problem, there may be a shift in brain activity from the ‘Reward Hub’ to the ‘Habit Hub’ and a shift from ‘liking’ to ‘wanting’. A person may want to gamble and not even like it anymore. The brain is also overly aware of the gambling cues which can trigger powerful urges to gamble. But gambling won’t feel as fun as it used to because gambling is now a habit and habits don’t give us the same pleasure as new experiences. Instead, gambling might have become a way to ease the discomfort of strong urges. The good news is that our brain learns quickly, so over time we can form new associations to help develop healthy behaviours that we find pleasurable.
What Do You Think?

True or False?

When people switch from gambling to another addiction, it’s because they have an addictive personality.

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Myth Busters and Cool Concepts

Why do people sometimes switch from gambling to another addiction?

It’s not because of an addictive personality!

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➤ Turn to Handout 4

Figure 1

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Myth Busters and Cool Concepts

Waiting for a reward

"$10 now, of course!!"
Myth Busters and Cool Concepts

What you can say in response to ‘I have an addictive personality!’

(Take Home Messages on Handouts 4 and 5)

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Interoception

However, in addiction, you may not be in tune with what the Insula is saying. You might not pick up the signal at all or you might misinterpret the signal. For instance, you pass by a casino and you start sweating. The Insula might say ‘this is dangerous – stay away from the casino because bad things have happened here before.’ But, you interpret the sweating as a need to go gambling or that a win is near.
Individual sessions: Have handouts ready for when clients ask one of the key questions

Group sessions:
• 20 minutes of each of 5 weeks of process group to cover the handouts
• Read each verbatim, with some paraphrasing and emphasizing key messages
• Go through Activity section for a knowledge check
• Use Going Further section for group discussion
The Video!

We recently received a BET 40K grant to develop a video to complement the handouts

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Driven to Gamble... Highway to Health

- https://www.dropbox.com/s/ssgrbwttj59mol0/ADGS_Brain_Connections_YouYouTube_1080p_04.mp4?dl=0

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How to Use the Video

1. For a counsellor to introduce some key neurobiology concepts in an accessible and interesting way in a session
2. For family members to watch at home or in-session to better understand the impact of gambling on the brain
3. For other stakeholders (the public, responsible gambling counsellors, researchers, health care practitioners) to learn key neurobiology concepts
4. To act as a ‘teaser’ to encourage reading the handouts which are more detailed
Your Thoughts?

• How do you think you would use the video and/or handouts in your practice?
• What are the questions that you get on the neurobiology of addictions?
• What might you do differently or say differently based on what you learned today?
Questions?

• Do you have any other questions about
  o Brain Connections
  o How to use these tools
  o The neurobiology of problem gambling
  o The knowledge translation process?

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Time for a Break!

- Let’s have a break before returning for the practice session!

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Agenda for Practice Session

- 2:40-2:45 – Overview of Practice Session (5 min)
- 2:45-3:10 – Handout Demonstration by Deirdre and Iris (25 min)
- 3:10-3:35 – Practice Scenario #1 (25 min)
- 3:35-3:45 – Large group debrief (10 min)
- 3:45-4:10 – Practice Scenario #2 (25 min)
- 4:10-4:20 – Large Group Debrief (10 min)
- 4:20-4:30 – Wrap Up (15 min)

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Purpose of the Practice Session:

➢ Try out one handout for yourself acting in the ‘helper’ role (counsellor/healthcare professional) – this is the best way to learn the content of that handout!

➢ Then, be in the ‘client’ role – see how it feels to be on the receiving end of the information

➢ After the experience, share your thoughts and ask questions!

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The Process

Process:

1. Watch the demonstration by Deirdre and Iris of Handout 1 (Go and STOP Networks)
2. Pair up (could be groups of two or three – the third person would be an observer of the other two)
3. First person acts as the helper and the second person takes on the role of the client in the scenario provided. First scenario uses Handout 4 and second scenario uses Handout 5
4. Practice will be 20 minutes and then 10 minutes to debrief as a group. Then switch roles and repeat!
Iris is a client who has recently started treatment for her addiction to slot machines. She has two weeks of abstinence under her belt but she is having very strong urges to go to the casino and win back the money she has lost. She misses the excitement of the casino and the ‘high’ that she felt when she was there. Her partner, whom she almost lost due to the gambling, is angry and does not understand how Iris could ever have become addicted to gambling since it’s not a drug that she consumes. On her bad days, Iris is having trouble seeing gambling as an addiction – she remembers it as a ‘best friend’ and the casino as her ‘sanctuary’ even though gambling has cost her thousands of dollars and trust with her partner.

At her session, Iris says to Deirdre, her counsellor, “I really miss gambling and I’m wondering if I can go back to it once in a while to take the edge off these urges. Is it really an addiction? Maybe if I went with just a small amount of cash it would be OK?”
Pair Up and Try Handout 4 Scenario

Instructions for ‘Counsellors’

• Read the scenario. To answer the client’s question, take him/her through the information in Handout 4 (*Since I’ve stopped gambling, why does nothing else feel fun?*), including the *Going Further, Activity and Take-Home Message* sections.

• Discuss with your partner the difference between how you would normally answer this question without the handout information and your answer using the handout. What did you notice? What were the benefits of the handout? Did you notice any drawbacks? Was there anything in the handout that you were not sure about or was difficult to use?

Instructions for ‘Clients’

• Read your background information in the scenario below. Use the information to get into your role and answer your counsellor’s questions.
Large Group Discussion

What did you notice?

1. Any differences between how you would normally answer this question without the handout information and your answer using the handout?

2. What were the benefits of the handout?

3. Did you notice any drawbacks?

4. Was there anything in the handout that you were not sure about or was difficult to use?

5. How might you incorporate the handouts into your practice?
Back to your pairs and Try Handout 5 Scenario

Instructions for ‘Counsellors’

• Read the scenario. To answer the client’s question, take him/her through the information in Handout 5 (Why do people sometimes switch from gambling to another addiction), including the Going Further, Activity and Take-Home Message sections.

• Discuss with your partner the difference between how you would normally answer this question without the handout information and your answer using the handout. What did you notice? What were the benefits of the handout? Did you notice any drawbacks? Was there anything in the handout that you were not sure about or was difficult to use?

Instructions for ‘Clients’

• Read your background information in the scenario below. Use the information to get into your role and answer your counsellor’s questions.
Large Group Discussion

What did you notice?

1. Any differences between how you would normally answer this question without the handout information and your answer using the handout?
2. What were the benefits of the handout?
3. Did you notice any drawbacks?
4. Was there anything in the handout that you were not sure about or was difficult to use?
5. How might you incorporate the handouts into your practice?

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Wrap Up

What happens next?

1. One thing I will start doing?
2. One thing I will keep doing?
3. One thing I will stop doing?

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Welcome to Brain Connections!

This website will help answer questions you may have about how gambling problems affect the brain.