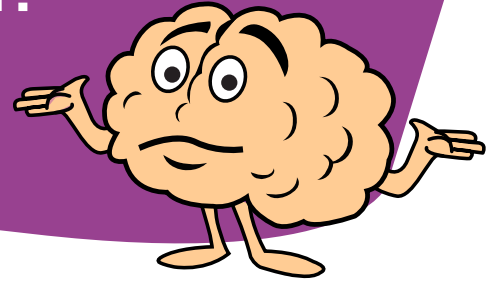


# WHY DO PEOPLE SOMETIMES SWITCH FROM GAMBLING TO ANOTHER ADDICTION?



Switching from one addiction to another is called **substitution** or ‘**cross-addiction**’.

When people try to change an addictive behaviour, they can sometimes switch to another addiction or unhealthy behaviour in the process. For example, when a person stops gambling, he might find himself smoking more cigarettes, using marijuana, taking prescription painkillers or bingeing on certain foods. He might even increase behaviours that can have addictive-like qualities such as sex, exercise, work, gaming or social media. You may have been told in counselling to be careful about substitution. This is because many people have experienced a substitution that has been damaging and your counsellor will want you to watch out for that danger.

Even though substitution can feel like ‘common knowledge’ in the field of addictions, there has not been a lot of research into why it happens. Let’s turn now to what research we do have about the overlap between addictions (see *Figure 1*).

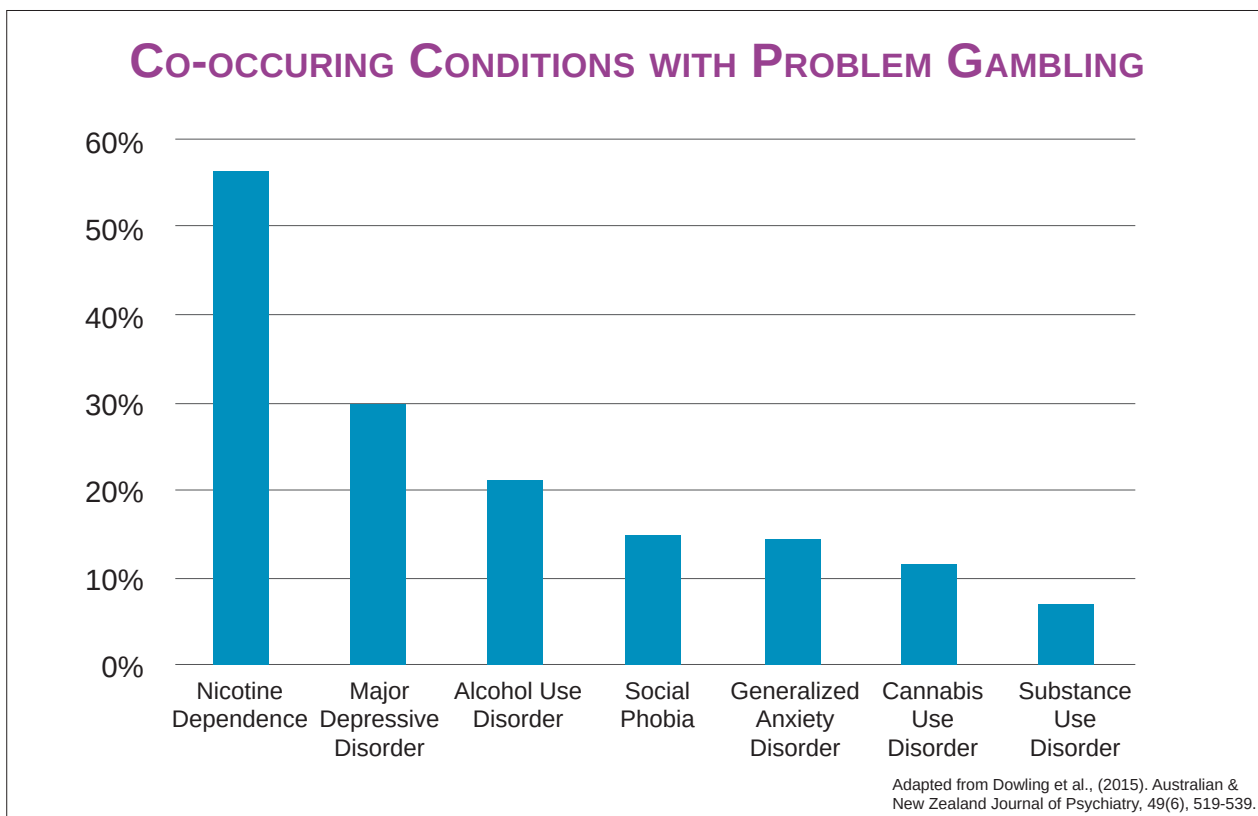


Figure 1

## 'STOP!' AND 'GO!' NETWORKS RE-VISITED

In another handout in the Brain Connections Series, *How is problem gambling like an addiction to alcohol or drugs from my brain's point of view?*, we saw that people with gambling problems and people with substance use problems show reduced 'GO!' (Reward Hub) network activity. They are less excited by natural rewards compared to unnatural rewards. We also saw similarities in the 'STOP!' network (Top-down Control Network) amongst heavy smokers and people with gambling problems, suggesting that it is hard for these groups to 'put on the brakes' when they need to stop.

How does this affect substitution? Some researchers think that reduced Reward Hub activity could make a person vulnerable to other unhealthy rewards that can hijack this system. You might use unnatural rewards or extreme amounts of natural rewards to push the 'GO!' pedal and increase your feelings of excitement and pleasure, especially at a time when nothing seems to feel good anymore. For example, you might binge repeatedly on your favourite food (a natural reward), or constantly play a video game (an unnatural reward) just to make yourself feel better or as an escape.

At the same time though, reduced activity in the Top-down Control Network can make it harder for you to notice the 'STOP!' signals and put on your brakes (e.g., to hold back from a food binge or to stop gaming when you need to go to sleep). The result could be a new pattern of repeated rewarding behaviour that hijacks your attention and opens the door to another addiction.



### Now VERSUS Later

Another reason why substitution can happen is that it is hard to wait for a reward. This is because there are differences in how the brain codes immediate and delayed rewards. Individuals with problem gambling, in particular, show differences in how they value rewards and how the brain represents this value<sup>1</sup>. When we make choices about rewards, our Reward Hub lights up.

Imagine being asked to choose between getting \$10 now or getting \$100 next week – which option would you pick? Studies show that people with gambling problems are more likely to choose the smaller, but immediate reward over the larger, but delayed reward<sup>2</sup>. They may be less able to wait for the big reward, preferring to choose the reward in the here-and-now, *even though that reward is smaller* in value. Instant gratification wins out over patience for the larger but long-term reward.

<sup>1</sup> Miedl et. al., (2012). *Archives of General Psychiatry*, 69(2), 177-186.

<sup>2</sup> Amlung et. al., (2016). *Addiction*, 112(1), 51-62.

## So, WHY Is It HARD To WAIT For A REWARD?

Choosing a large (but delayed) reward activates the Reward Hub. However, as we already know, this system is compromised in people with gambling problems. Normally, the Reward Hub is in charge of telling us what money is worth. For instance, \$10 might be worth a lot of money to one person but not a lot to another. However, one study discovered that people with problem gambling show a disconnect between what they value (e.g., money) and how the Reward Hub codes that value when presented with a delayed reward option<sup>1</sup>. In this study, the Reward Hub in people with problem gambling did not properly show the personal worth of delayed rewards. This may explain why people with gambling problems have difficulty waiting for delayed rewards (such as good health or becoming skilled at a hobby) – they might not even see them as options or worthwhile pursuits. Substituting with small, instant gratifications can feel easier than waiting for long-term rewards.

The good news is that studies are beginning to show that Reward Hub activity can change after a period of abstinence from addictive behaviours. In one study, for example, after 4 months of abstinence, the Reward Hub of substance users began to respond properly to non-drug cues<sup>3</sup>. In the same way, having a healthy response to non-gambling rewards will help protect you from the dangers of substitution.

## ACHIEVING A BALANCED LIFE AND AVOIDING SUBSTITUTION

Part of achieving a balanced lifestyle and avoiding the dangers of substitution means not doing only one thing repeatedly, but having many different ‘branches’ on your ‘tree of life’, to keep things interesting and balanced (see *Figure 2*).

Many of the biggest rewards in life are delayed: they don’t occur right away and they require your investment in order to achieve. Think about the pleasure that comes from a hobby you have worked on for a while, a friendship you have invested in, or a promotion you receive after many hours of work – these are the rewards that last.

Instead of substituting gambling with another ‘quick fix,’ think about how you might start to cultivate a rich, meaningful and deeply rewarding life over the long-term.



Figure 2

<sup>3</sup> Balodis et al., (2016). *Neuropsychopharmacology*, 41(8), 2112-2121.

### ACTIVITY: 'NOW' VERSUS 'LATER'?

Circle whether each statement below refers to a 'Now' reward (immediate gratification and small) OR a 'Later' reward (delayed but larger).

- |   |   |
|---|---|
| 1. Eating a big piece of cake, even though you want to lose 10lbs.<br><b>Now or Later</b>           | 4. Checking a social media site every 5 minutes to see if somebody replied to your post.<br><b>Now or Later</b>                                 |
| 2. Having strong muscles after going to the gym twice per week for 3 months.<br><b>Now or Later</b> | 5. Getting a staff recognition award at work<br><b>Now or Later</b>   |
| 3. Watching your child graduate from college.<br><b>Now or Later</b>                                | 6. Declining an invitation to your best friend's wedding in order to go to your daily exercise class that you never miss<br><b>Now or Later</b> |

Answers: 1. Now; 2. Later; 3. Later; 4. Now; 5. Now; 6. Now

### GOING FURTHER:

Can you think of a time when you picked a 'Now' over a 'Later' reward? What were the benefits of waiting for the 'Later' reward? How can you apply what you have learned to your current situation?

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Do you see any substitutions (or potential substitutions) in your life that worry you?

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What branches on your 'tree of life' could be strengthened to make your life more rewarding?

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**TAKE HOME MESSAGE:** Sometimes people switch to another addiction when trying to cut back on problem gambling. This is because activity in the Reward Hub and the Top-down Control Network is reduced, which could lead you to pursue unhealthy behaviours and prefer 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 behaviour with another. The biggest and best rewards often take time but are well worth the effort.**



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