

# Instincts, thinking and coping



The meso-limbic emotional centre provides us with the ability to act instinctively. The dopamine reward system, or *reward pathway* and the *fight or flight reflex* is found in this region. It is a part of the brain that is centred on the here and now; it is not interested in long term goals, deciding on alternative ways of doing things, or delaying gratification.

The Pre-Frontal Cortex on the other hand, is a system that acts as the balance to the impulsiveness of the meso-limbic system. It attempts to control rash actions, weighs up long term costs and benefits, and takes context into consideration.

It is the ongoing relationship between these two systems that determine how and when emotions and instincts are expressed and controlled.

In its simplest form, the core struggle that takes place in recovery is between “will power” and the temptation to use again. These feelings of temptation are referred to as cravings or urges, and they are invariably “triggered” by various cues in our environment (i.e. things that we have learned to associate with using drugs or alcohol).

## Dopamine and reward

In the centre of the brain, within the limbic system, sits the reward pathway, which is responsible for driving our feelings of motivation, reward and behaviour.

The central job of the reward pathway is to make us feel good when we engage in behaviours that are necessary for our survival. These beneficial behaviours include eating, drinking and sex.

The reward pathway involves several parts of the brain, the ventral tegmental area (VTA), the nucleus accumbens (Nac), and the prefrontal cortex.

When activated by a rewarding stimulus (food, water, sex, cannabis), the neurotransmitter dopamine is released by the VTA, the dopamine cascades along the reward pathway, allowing the brain cells within the pathway to communicate.

In addition to making you feel good when you engage in beneficial behaviour, the reward pathway is responsible for trying to make sure you can repeat the behaviour. It does this by connecting to regions of the brain that control memory, learning and behaviour.

Recreational drug use results in repeated release of high amounts of dopamine, which in turn affects the reward pathway directly through heightened dopamine receptor activation.

Prolonged, abnormally high levels of dopamine induces changes in the brain: Downregulation of receptors makes us less sensitive to dopamine- other things literally become less rewarding compared to the drug of choice.

Meanwhile other changes in the learning and decision making areas of the brain lead to the drug of choice becoming the first and last option in dealing with stress, emotions, boredom, sleeplessness...

## Pavlov's Dogs

Ivan Pavlov was a Russian scientist working at the turn of the last century. His most famous experiment identified the *classical conditioning paradigm*, which has become known as the Pavlovian Response. A biologist, he was initially researching the digestion system of dogs. As you would expect, his dogs drooled every time he gave them food. Then he noticed that if he repeatedly rang a bell before he fed them, the dogs eventually started to drool at the sound of the bell, even if no food followed it.

Pavlov had discovered that he had conditioned the dogs to automatically respond to the sound of the bell. This became known as the *classical conditioning paradigm*.

Bear in mind that the dogs had no conscious control over whether they would drool or not- it is almost as though their bodies had been *programmed* to behave this way: By repeating the pattern of bell-food-pleasure over and over they had learned to associate a pleasurable reward with the sound of the bell to the extent that their bodies were reacting spontaneously when they heard the bell, their physical reactions being 'dictated' by the reward pathway.

### However...

- The experiment also showed that the *conditioned response* is **TIME LIMITED**-that is, the dogs would soon stop salivating if no food arrived.
- Not only that, but if over time the dogs were never fed when the bell rang they stopped associating the bell with food altogether and they no longer salivated at all when they heard it. The pattern of bell-food-pleasure had been broken and the bell had ceased to be a stimulus, it had become **EXTINGUISHED**.

*If you continue to use when you feel a craving, the trigger will be kept active*

*BUT if you keep on managing to cope with the craving without using the trigger will become extinct*

### Who (or what) rings your bell?

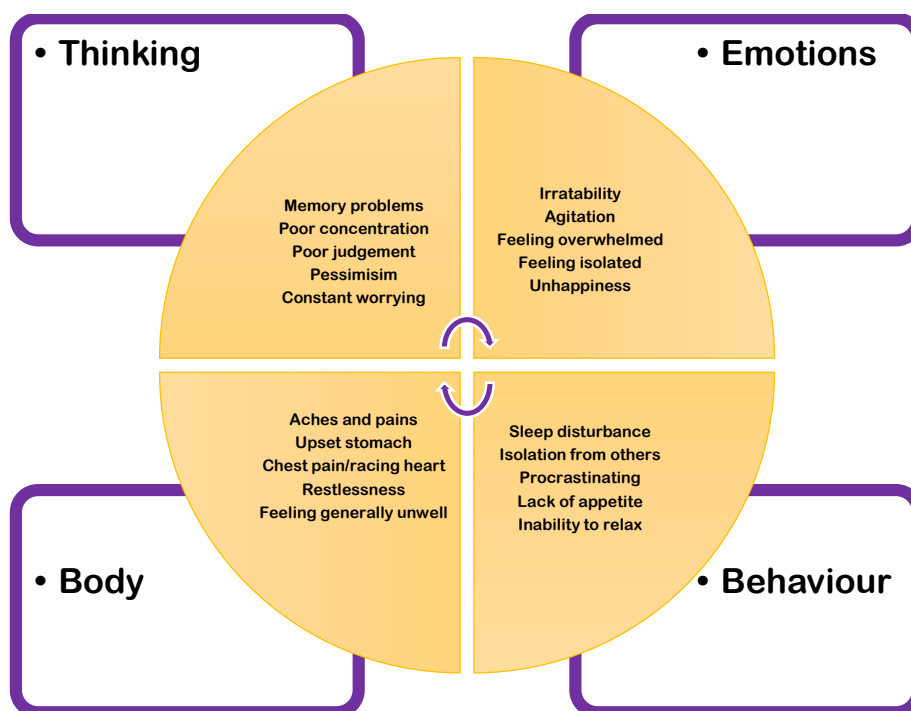
Pavlov's experiment can be a useful model to understand how triggers work.

Using Pavlov's experiment we can liken the **food** to **drugs or alcohol**, **salivating** to **craving symptoms**, and the **bell** to a **trigger**.

The dogs only had one trigger- the sound of the bell, but very often people find that they can have many different triggers for their cravings. These can include; being around people you used to use drugs or alcohol with; having money or getting paid; objects like pipes, spoons and foil; certain social situations; and certain emotional states, such as anxiety, depression, or happiness.

## Stress and Cravings

As we will discuss in the stress session, common symptoms of stress include:



Depressants such as opiates and alcohol can often initially be used to cope with these symptoms- but eventually your brain and body will adapt so that it needs these substances to cope physically and emotionally with life. If you then permanently remove the option to use these substances how can you then cope with the stresses that life will eventually throw at you?

Are there similarities between the symptoms of stress and symptoms of cravings?

Why is this?

### REMEMBER:

Even when you are suffering from an extremely intense craving that is causing you a lot of distress, if you can manage not to give in to the craving it will eventually go away. AND if you continue not to give in, the trigger itself will become extinct- it will stop being a trigger.

Remember - It's just a craving, it won't kill you.

Cravings are like ocean waves.  
They get stronger up to a point, and then they weaken and start to go away.