# WHAT'S YOUR DAILY CUPPA' DOING TO YOUR BODY?

**Let's steam it over**

We’ve all done it. After a late night of tossing and turning, you wake up blurry-eyed and aggravated. You only have one craving in your mind, a steaming cup of tea or coffee to kick-start your day. Have you ever thought about the chemical reactions that mug is having on your body? Hopefully this should cover it all.

As you traverse through your average day your **Central Nervous System** (CNS) releases a neurotransmitter called **adenosine**, which, as one of its many functions, regulates your sleep-wake cycle by slowing down nerve activity. With a sufficient build-up of adenosine within the brain, it will begin to signal a feeling of fatigue to the rest of the body.

So how does caffeine alleviate this? Consumed caffeine is absorbed by the body’s small intestine and passed into the bloodstream. Due to its structural makeup – being both water and fat soluble – it is able to penetrate the blood-brain barrier. Caffeine’s molecular structure closely resembles that of adenosine and that enables it to fit in and block the brains adenosine receptors, acting as a **competitive inhibitor**. This intensifies cellular activity within the body, simultaneously increasing the body’s heart and breathing rate. Additionally, the activation of neural circuits within the brain causes natural stimulants such as adrenaline and dopamine to be released.

After a period of continuous coffee consumption however, the brain grows additional adenosine receptors to try and maintain equilibrium. Understandably, more caffeine is required over time, to block a number of the newly grown receptors to produce a similar desired effect.