

# What you get is what you see: How Reward Determines Perception

<https://neurodegenerationresearch.eu/survey/what-you-get-is-what-you-see-how-reward-determines-perception/>

**Principal Investigators**

**Institution**

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**Country**

European Commission

**Title of project or programme**

What you get is what you see: How Reward Determines Perception

**Source of funding information**

European Commission FP7-Seventh Framework Programme

**Total sum awarded (Euro)**

€ 2,494,525

**Start date of award**

01/05/2013

**Total duration of award in years**

5.0

**The project/programme is most relevant to:**

Parkinson's disease & PD-related disorders

**Keywords**

**Research Abstract**

The expectation of a reward is known to be the driving force behind adaptive behaviour and learning. The effects of reward arise in dopaminergic reward circuitry at the centre of our primitive brain, which guides our goal-directed behaviour and fosters motivational control. A lot is known about the motivational effect of reward, but its effect on attention and perception has only marginally been explored. Recent studies from my lab suggest that such an effect of reward on perception is substantial and, crucially, arises instantly and is not related to a person's motivation or strategy. Rewarding experiences change our brain: objects associated with reward appear to be more strongly represented in the visual cortex. This makes these objects to stand out from the environment. It makes that we perceive them, and focus on them, even when we try to ignore these objects. The research plan presented here will examine the neural response in early visual brain areas to objects associated with high versus low reward.

We will measure the response of the brain, specifically the dopaminergic reward circuitry, when a reward is delivered. To investigate how these effects depend on dopamine, we plan to conduct studies involving Parkinson's patients which allow us to directly manipulate the amount of dopamine in the brain. By means of deep brain stimulation, we link the effect even more tightly to the reward circuitry, by replacing reward by stimulation of this circuitry. As a final frontier we will relate individual reward sensitivity (a personality trait related to the mesolimbic dopamine system) to the development of addiction and risk seeking behaviour. The proposed research will have tremendous impact on the study of cognition, education, and (risky) decision making, as well as on a variety of clinical syndromes in which both attention and reward have been critically implicated, such as (drug) addiction and obesity.

### **Lay Summary**

**Further information available at:**

#### **Types:**

Investments > €500k

#### **Member States:**

European Commission

#### **Diseases:**

Parkinson's disease & PD-related disorders

#### **Years:**

2016

#### **Database Categories:**

N/A

#### **Database Tags:**

N/A