



How the Brain Evaluates and Predicts Monetary Rewards

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Abstract We study the relations between decision-making and emotions in normal subjects and in patients with brain damage. The experimental task is based on a simple gambling situation. This task allows to characterize a subject's choice behavior in terms of the anticipated and actual emotional impact of a choice, as indexed by physiological responses and subjective ratings. By manipulating the subject's exposure to the outcome of the rejected alternative, fine distinctions could be made between emotions involving disappointment and regret. Normal control subjects report emotional responses consistent with counterfactual reasoning between obtained and non-obtained outcomes; they choose minimizing future regret and learn from their emotional experience. By contrast, patients with lesions of the orbitofrontal cortex do not report regret and do not anticipate negative consequences of their choices. These results suggest that orbitofrontal cortex has a fundamental role in experiencing regret.

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1. Introduction

Why do people prefer to buy 'blue chips'?¹

The answer stands in the fact that we would blame more ourselves if we lose money buying shares of unconventional stocks. This follows from the explanation given by Shefrin and Statman (1996) of the stock selection of individual investors: 'To understand how regret applies to stock selection, compare the pur-

¹ The 'blue chips' are the stocks of well-established companies. The term comes from the game of poker where the blue chips are the most expensive chips.