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Apathy and motivation

Disorders of motivation such as apathy are common across brain disorders. Neurologists frequently encounter pathological apathy across a range of conditions, including neurodegenerative disorders such as frontotemporal dementia, Alzheimer's disease, Parkinson's disease and small vessel cerebrovascular disease. Unfortunately, we understand very little about the underlying mechanisms. In this talk, I'll put forward a conceptual framework to understand apathy by considering the processes that normally underlie motivated, goal-directed behavior in healthy people. I'll focus on the ability to generate options for behavior and effort-based decision making for rewards. Several lines of evidence now suggest that when we make decisions, we weigh up the costs involved against the potential rewards to be obtained. Functional imaging in healthy people reveals both medial frontal and ventral striatal involvement when we make such decisions. In patients with apathy, this evaluation is altered. They show blunted sensitivity to rewards and less inclination to invest effort for low rewards. Both these factors can be improved by dopaminergic medication in Parkinson's disease. These findings support the view that it is possible to provide a mechanistic account of apathy and also to obtain better understanding of brain systems underpinning normal human motivation.

