Self-control is the ability to manage one's behavior. It comprises three basic components: prediction of response outcome, response inhibition and response adjustment. The psychopathology literature clearly differentiates between the ability to react to environmental (exogenous) and internal (endogenous) signals for self-control. In contrast, the neuropsychology literature does not differentiate between exogenously and endogenously triggered self-control. It is believed that three regions of the brain orchestrate self-control: the right inferior frontal cortex (rIFC), the dorsomedial frontal cortex (DMF) and the basal ganglia (BG). However, the exact role of each region in regulating self-control remains unclear. In a series of experiments at the Montreal Neurological Institute, we studied healthy participants and three groups of patients with focal lesions to these regions associated with self-control, using electrophysiological, electromyographical and behavioral methods. We showed that endogenously and exogenously triggered self-control rely on different neural substrates. Additionally, we successfully demonstrated differences in the functional contributions of the brain regions implicated in self-control. Our data has implications for understanding the neurological basis of psychopathologies associated with impaired self control.