We all have our habits - they can automate aspects of our behaviour. However, for people with obsessive-compulsive (OC) and related disorders, these habits become maladaptive, difficult to suppress, and are very problematic in terms of quality of life and ability to function. In this talk, I will consider how translational neuroscience has shed light on the neural and neurochemical mechanisms governing OC symptoms and their treatment. Research suggests that these symptoms can be conceptualized in terms of over-zealous habit forming circuitry and lack of top-down inhibitory control. I will consider grooming 'gone awry' (pathological hair-pulling) across different species, along with recently identified vulnerability markers in unaffected first-degree relatives of patients with OCD (candidate endophenotypes). I will also present novel as yet unpublished findings from a collaborative study with Dr. Adam Hampshire, identifying remarkable overlap in the neural abnormalities characterizing pathological hair-pulling and skin-picking.