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Presentation title: The striatum and adult psychopathy

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Background: Psychopathy is a significant predictor of violent recidivism. Prior studies on the neural basis of psychopathy have inconsistently reported increased volumes of the striatum in psychopathic adults. Questions also remain on confounding clinical conditions and generalizability to females. This study tests the hypothesis that striatal volumes are increased in adults with psychopathic traits, and that this relationship is mediated by stimulation seeking and impulsivity.

Methods: Striatal volume was assessed using magnetic resonance imaging in 108 adult community-dwelling males alongside psychopathy using the Psychopathy Checklist – Revised. Subsidiary analyses were also conducted on a small sample of females.

Results: Striatal volumes were increased 9.4% in psychopathic individuals compared to controls ($p = .01$). Correlational analyses similarly showed that increased striatal volumes were associated with higher levels of psychopathic traits ($p = .001$). Effects were observed for all striatal regions, controlling for age, substance dependence and abuse, antisocial personality disorder, attention deficit hyperactivity disorder, social adversity, and total brain volume. Psychopathy in females was also significantly associated with increased striatal volume ($p = .02$). Stimulation-seeking and impulsivity partly mediated the striatal-psychopathy relationship, accounting for 49.4% of this association.

Conclusions: Findings from these two samples replicate and build on initial studies indicating striatal enlargement in adults with psychopathy. Results are consistent with the notion that striatal abnormalities in individuals with psychopathy partly reflect increased sensation-seeking and impulsivity, and support the hypothesis of abnormal reward processing in psychopathy. As psychopathy is a risk factor for violent behavior and a consistent predictor of recidivism, knowledge of the neurobiological underpinnings of psychopathy may help us better understand the mechanisms underlying desistance.