

Richards, J. B., Kline, T., Miller, D. B., Crean, J. P. & de Wit. Effects of 5HT lesions on response inhibition are ameliorated by amphetamine. Soc. Neurosci. Abstr. 26:1767, 2000.

Low 5HT has been associated with impulsive behavior, which may be related to a diminished capacity to inhibit behavior. One measure of response inhibition is the Stop Task, which provides an estimate of latency to stop (or inhibit) an ongoing response (Stop reaction time; RT). Children with Attention Deficit Hyperactivity Disorder, who are highly impulsive, are impaired on this task, and their impairment is ameliorated by the psychomotor stimulant methylphenidate. The present study used the Stop Task in rats to investigate the role of 5HT in behavioral inhibition. Rats received either intraventricular injections of the neurotoxin 5,7-DHT (100 mg/side, pre treatment with 30 mg/kg desipramine; N = 12), or vehicle injections (N = 10). The neurotoxin reduced 5HT levels to less than 5% of control levels in the striatum and hippocampus. 5HT lesions increased (slowed) Stop RT indicating an impairment of behavioral inhibition. Amphetamine (Sal, 0.25, 0.5, & 1.0 mg/kg), injected intraperitoneally 30 min before testing, dose dependently ameliorated the impairment in Stop RT in rats with 5HT lesions. These results support the validity of using the stop task in rats to explore the biological basis of response inhibition and impulsive behavior. (Supported by DA 10588 and DA 09133) *Supported by: DA 10588 and DA 09133.*