

Wack-A-Mole Task

- Wack the Mole (WTM) is a version of the Go/NoGo paradigm, a response inhibition task (Casey et al, 1997).
- WTM is designed to examine how parametrically manipulating preceding context (the number of Go trials) affects inhibition of a preponent response (NoGo trials). (Durstun et al, 2002)
- As the number of Go trials increases, the salience of the “go” response increases. Thus, increasing Go trials is expected to increase the conflict between the two responses and require greater cognitive control.

Task design

- Subjects are asked to press a button in response to visually presented stimuli (a mole), but to avoid responding to a less frequent non-target (an eggplant).
- The task consists of four runs, which lasted on average 2 min and 21 seconds each. Each run contains an average total of 53 trials, with an average of 42 go trials, resulting in an average of 12 NoGo trials per run.
- The type of NoGo trial (with 1-7 preceding Go trials) was weighted such that more Go trials preceded NoGos in the first and last runs. The order of presentation of the different types of NoGo trials was pseudorandomized. Stimulus duration was 1500 milliseconds. The interstimulus interval is 5 seconds.

References:

- Casey, B. J., Trainor, R. J., Orendi, J. L., Schubert, A. B., Nystrom, L. E., Giedd, J. N., Castellanos, F. X., Haxby, J. V., Noll, D. C., Cohen, J. D., Forman, S. D., Dahl, R. E., & Rapoport, J. L. (1997). A developmental functional MRI study of prefrontal activation during performance of a Go-No-Go task. *Journal of Cognitive Neuroscience*, 9, 835–847.
- Durstun, S., Tottenham, N. T., Thomas, K. M., Davidson, M. C., Eigsti, I. M., Yang, Y., Ulug, A. M., Casey, B. J. (2003) Differential patterns of striatal activation in young children with and without ADHD. *Biological Psychiatry*, 15, 871-878.