

Vaportzis, E., Georgiou-Karistianis, N., Churchyard, A., & Stout, J. C. (2014). The type of concurrent task affects dual-task performance in Huntington's disease. *Journal of Neurology, Neurosurgery and Psychiatry*, 85.

Abstract

Background

Huntington's disease (HD) is associated with difficulty in dual-tasking, which is performing two tasks at the same time.

Aims

We investigated whether different dual-tasks and levels of difficulty are affected in people with early HD.

Methods/Techniques

Twelve HD participants and 12 controls performed four pairs of dual-tasks. Each task within each dual-task had easy and hard levels. Pair 1 was circle tracing with counting backward: participants traced a circle while viewing (easy) or not viewing their arm (hard), and counted backward in twos (easy) or threes (hard). Pair 2 was simple choice reaction time (CRT) with digit forward: participants viewed single letters and responded to two (easy) or four target letters (hard) while repeating 4 (easy) or 5 (hard) digits forward. Pair 3 was complex CRT with digit backward: participants viewed 3X3 matrices of Xs and Os. They responded whether 3 Xs (easy) or 3 Xs or 3 Os (hard) appeared in a row, while repeating 3 (easy) or 4 (hard) digits backward. Pair 4 was cancellation with auditory tasks. Participants circled the target letter O on a sheet with distractor letters: other letters (easy) or the letter Q (hard). Concurrently, they reported the number of high-pitched sounds from a series of high-pitched sounds (easy) or a combination of high- and low-pitched sounds (hard). We measured speed and accuracy.

Results/Outcome

Participants with HD were slower and less accurate across all task conditions, compared to controls. Dual-tasks were performed slower and less accurately than single tasks; and harder levels slower and less accurately than easier levels. Differences reached statistical significance either in terms of speed or in terms of accuracy within each task pair.

Conclusion

Our findings suggest differential effects of dual-task performance on HD versus controls, and highlight the importance of considering different performance measures, as the relationship between HD and these measures may be different.