

**NINDS CDE Notice of Copyright  
Cued Movement Sequencing**

<b>Availability</b>	<b>The instrument is freely available here:</b> <a href="http://hdresearch.ucl.ac.uk/completed-studies/track-hd/">http://hdresearch.ucl.ac.uk/completed-studies/track-hd/</a>
<b>Classification:</b>	Supplemental.
<b>Short Description of Instrument:</b>	<p><b>Summary/ Overview of Instrument:</b> The Cued Movement Sequence task requires participants to press circles that are displayed in 12 vertical-pairs along the bottom of a touch screen. One circle of each vertical pair is illuminated at a time, sequentially from left to right. Participants press the circles as they are illuminated. Three cue conditions provide different levels of advance information. In the low-level cue condition, the next circle is illuminated when the finger is lifted from the current circle. In the medium-level condition, the next circle is illuminated when the finger presses the current circle. In the high-level condition, the next button is illuminated as the finger presses the current circle and the circle two over is also illuminated when the finger is lifted from the current circle.</p> <p><b>Construct measured:</b> Planning and movement sequencing.</p> <p><b>Strengths: Task is highly sensitive to changes in prodromal HD, both cross-sectionally and longitudinally.</b> Task has been tested at sites in the United States, Canada, United Kingdom, Australia, Germany, and Spain. Task is easy to administer.</p> <p><b>Weaknesses:</b> Touch screens may not always be sensitive to responses. External hardware interface devices may be more reliable for recording responses, and have been used in early studies of HD (see N. Georgiou and colleagues).</p> <p><b>Special Requirements for administration:</b> A computer with a touch screen or a hardware interface device similar to ones reported in the literature (see Georgiou and colleagues)</p> <p><b>Administration Time:</b> Varies on the ability of the patient. 6-8 minutes.</p> <p><b>Translations available:</b> There are no standardized instructions; the task can be administered in any language.</p>
<b>Scoring:</b>	If a button is incorrectly pressed or pressed twice, the trial is terminated and the occurrence recorded as an error. In each cue condition, mean time to complete a sequence (movement time) and the standard deviation of movement time is recorded for accurate trials.
<b>Psychometric Properties:</b>	<p><b>Validity:</b> Construct validity: Stepwise increases in movement times for low, medium, and high-level cue conditions suggest that the experimental manipulation influences planning demands.</p> <p><b>Sensitivity to Change/ Ability to Detect Change (over time or in response to an intervention):</b> In published cross-sectional (Stout et al., 2011) and internal analyses (PREDICT-HD), all 3 cue conditions are sensitive to changes in prodromal HD, especially in individuals who are closer to an expected diagnosis. Unpublished internal analyses of 7-year longitudinal data (PREDICT) show longitudinal changes in rate of change in prodromal HD for the low and high cue level conditions.</p>

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<b>References:</b>	<p><b>Key Reference:</b> Georgiou N, Bradshaw JL, Phillips JG, Chiu E, Bradshaw JA. Reliance on advance information and movement sequencing in Huntington's disease. <i>Movement Disorders</i> 1995; 10(4):472-481.</p> <p>Stout, J. C., Paulsen, J. S., Queller, S., Solomon, A. C., Whitlock, K. B., Campbell, J. C. et al. (2011). Neurocognitive signs in prodromal Huntington disease. <i>Neuropsychology.</i>, 25, 1-14.</p> <p><b>Other References:</b> Gladwin TE, 't Hart BM, de Jong R. Dissociations between motor-related EEG measures in a cued movement sequence task. <i>Cortex</i>. 2008 May;44(5): 521-536. Epub 2007 Dec 23.</p>
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