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**Inhibition in dot comparison tasks.**

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Summary: Dot comparison tasks are commonly used to index an individual's Approximate Number System (ANS) acuity, but the cognitive processes involved in completing these tasks are poorly understood. Here, we investigated how factors including numerosity ratio, set size and visual cues influence task performance. Forty-four children aged 7–9 years completed a dot comparison task with a range of to-be-compared numerosities. We found that as the size of the numerosities increased, with ratios held constant, accuracy decreased due to the heightened salience of incongruent visual information. Furthermore, in trials with larger numerosities participants' accuracies were influenced more by the convex hull of the array than the average dot size. The numerosity ratio between the arrays in each trial was an important predictor for all set sizes. We argue that these findings are consistent with a 'competing processes' inhibition-based account, where accuracy scores are influenced by individual differences in both ANS acuity and inhibitory control skills.

*Classification:* F22 F32 C32 C42

*Keywords:* inhibition; approximate number system; numerical cognition; dot comparison; visual cues

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