Evidence for IP impairments in ADHD would
• Evidence for WM deficits in ADHD would
Experimentally manipulated IP and WM
Current Study
• Experimentally manipulated IP and WM
demands in children with ADHD.
• Evidence for WM deficits in ADHD would include significant reductions in WM performance as IP demands increased.
• Evidence for IP impairments in ADHD would include significant slowing of the rate of information accumulation (drift rate) as working memory demands increased.

**Method**

**Participants**
- 8-13 year old children
- Carefully diagnosed ADHD
- ADHD (n = 46) vs. Non-ADHD (n = 40)

**Tasks**
- **Animal/Emotion Span**
  - High WM, Low IP
- **Animal/Emotion Context Span**
  - High WM, High IP
- **Animal/Emotion Recognition**
  - Low WM, Low IP
- **Animal/Emotion Context Recognition**
  - Low WM, High IP

**Dependent Variables**
- WM Capacity
- Proportion of stimuli correct per trial (% correct)
- IP Speed
- Drift rate (v) – speed of information uptake

**Results**
- ADHD group demonstrated impairments in:
  - Working Memory Capacity (Cohen’s d = 0.74, BF10 = 30.92, p < .001)
  - Information Processing Speed (drift rate; d = 0.64, BF10 = 8.98, p = .004)

**Bayesian mixed-model ANOVAs**
- Main Effects:
  - Increasing information processing demands did not significantly change working memory performance, such that the data were almost equally likely under the null hypothesis (BF10 = 1.60, p > .05)
  - Increasing working memory demands evoked significant decrements in the speed of information accumulation (drift rate; BF10 = 6.19, p < .05)
- Suggest that higher WM demands disrupt IP speed for all children (regardless of ADHD diagnosis)
- Interactions were not significant:
  - Group x WM Capacity
  - Group x IP speed
- Suggest that neither WM capacity or IP speed is likely to explain baseline impairments in the other process associated with ADHD

**Conclusion**
- These results indicate that top-down executive control exerts significant effects on the speed of basic information processing in children.
- Evidence suggests that slowed information processing is not a viable explanation for reduced working memory capacity in either ADHD or neurotypical children, although there was insufficient evidence to conclusively rule out such an influence.