**Supplementary Table S1.** Non-parametric test of group differences in task performance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Control (mean rank) | ADHD (mean rank) | ASD (mean rank) | Chi-squared (df) | *p*-value |
| RTcertain-go | 45.45 | 52.08 | 58.45 | 3.030 (2) | 0.220 |
| RTuncertain-go | 49.89 | 48.81 | 58.00 | 1.895 (2) | 0.388 |
| SDRTcertain-go | 40.78 | 62.05 | 50.97 | 16.212 (2) | <0.001a |
| SDRTuncertain-go | 39.81 | 63.12 | 50.64 | 13.846 (2) | 0.001a |
| OMISScertain-go | 36.95 | 65.45 | 50.66 | 8.964 (2) | 0.011a |
| OMISSuncertain-go | 38.00 | 64.44 | 50.84 | 10.789 (2) | 0.005a |

**Note.** For the sixtask performance measures that showed a non-normal distribution, we replicated the between group analysis using the non-parametric Kruskal-Wallis test by rank. For each group the mean rank is shown along with the Chi-squared and *p*-value for the between-group difference.

ADHD, Attention-deficit/hyperactivity disorder; ASD, autism spectrum disorder; df, degrees of freedom; RT, mean response time; SDRT, standard deviation of response time; OMISS, percentage omission errors.

a *Significant post-hoc group difference from typically developing children after FDR correction.*

**Supplementary Table S2.** Model assumptions – response times

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Uncertain-go | Stop-failure | t-value | p-value |
| RT | Control (SD) | 836.1 (24.5) | 802.0 (26.3) | 15.4 (31) | <0.001a |
|  | ADHD (SD) | 832.9 (20.1) | 786.6 (28.2) | 12.9 (38) | <0.001a |
|  | ASD (SD) | 841.6 (25.6) | 802.7 (34.2) | 10.0 (31) | <0.001a |

**Note.** According to the race model, a stop failure trial occurs when the go process finishes before the stop process (i.e. the go process escapes inhibition). As a result, a prediction of the model is that stop-failure RT is shorter than go RT. We tested this prediction using a paired samples T-test and found that for every group response times were shorter on stop-failure trials than on uncertain go-trials.

RT, mean response time; SD, standard deviation; ADHD, Attention-deficit/hyperactivity disorder; ASD, autism spectrum disorder.

 a *Significant within-subject difference.*

**Supplementary Table S3.** Model assumptions – stop accuracy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Stop-trial (%) | Benchmark(%) | t-value | p-value |
| Accuracy | Control (SD) | 50.0 (1.27) | 50 | 0.00 (31) | 0.999 |
|  | ADHD (SD) | 48.9 (1.91) | 50 | -3.55 (38) | 0.001a |
|  | ASD (SD) | 49.8 (1.40) | 50 | -0.89 (31) | 0.379 |

**Note.** We tested whether the staircase procedure had indeed produced 50% stop accuracy across all stop signal probabilities using a one-sample t-test. We tested this prediction using a one-sample T-test and found that in typically developing children and children with ASD and symptoms of ADHD, stop accuracy did not differ from 50%. In children with ADHD stop accuracy significantly differed from 50%.

RT, mean response time; SD, standard deviation; ADHD, Attention-deficit/hyperactivity disorder; ASD, autism spectrum disorder.

 a *Significant within-subject difference.*