Correlating Features from a Tracing Task to Social Responsiveness Scores in Children with Autism Spectrum Disorder

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Background
Autism has diverse manifestations, making it difficult to identify in childhood.
A known characteristic of Autism is social interaction differences [1]
Studies also show high rates of comorbid motor difficulties [2]

What is known

What is unknown

How do drawing differences in Autism look in a simple tracing task?
Can these drawing differences correlate to the characteristic social differences?

Objective
Can drawing features from a tracing task correlate to social responsiveness in children with Autism?

Methods
45 dyads of parent + child drew together on a tablet
SRS questionnaire scores for social responsiveness were collected
MATLAB was used to measure 27 static and dynamic drawing features
A linear regression was performed between SRS scores and drawing features

Results
On 50 drawings, 8 measures showed significant correlation to social responsiveness scores
- Average distance from trace
- Average time between strokes
- St. dev. of distance from trace
- Total stroke distance
- Number of strokes
- On paper time
- Mean acceleration
- Mean square error

Conclusion
Analysis of a simple collaborative tracing task could be a promising technique for indicating Autism in childhood

Next Steps
- More drawings for better statistical power
- Linear regression with more variables
- Build into a neural network

Relevance
Expands knowledge of how autism manifests
Potential tool to help indicate Autism in childhood

More children may have opportunity to be diagnosed and access essential services

References

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