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Autistic Traits and Executive Functioning

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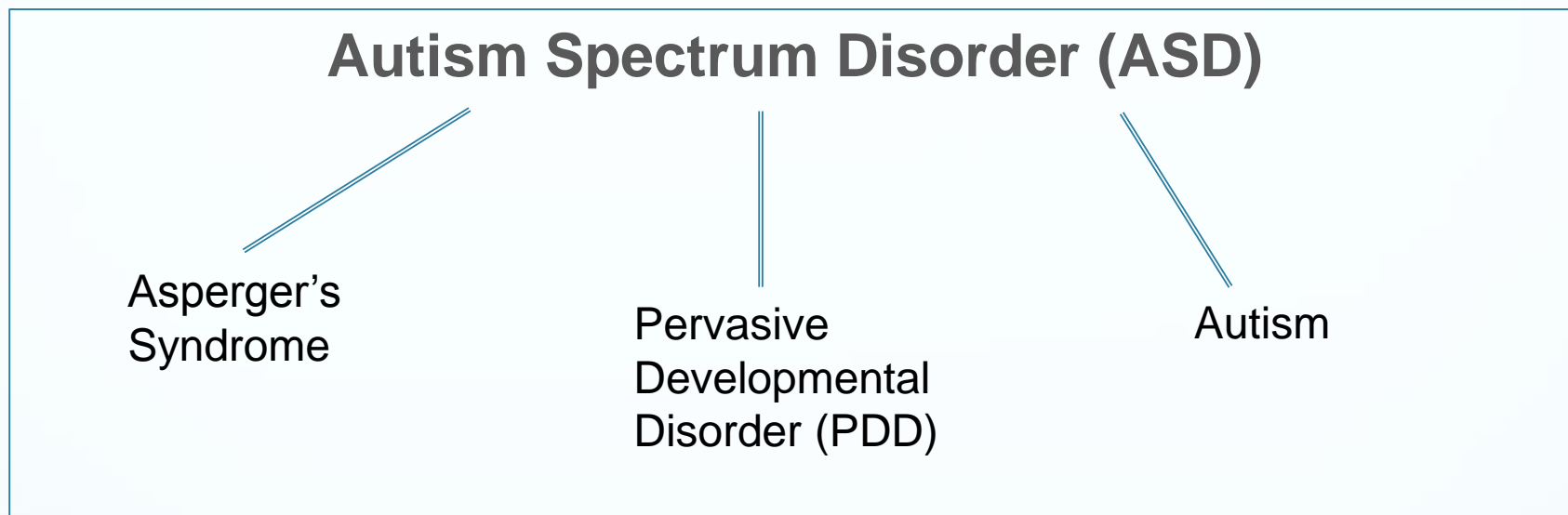


Autistic Traits & Executive Functioning

Meagan Smith and Dr. Cushen



Background



- Continuum
 - Low Functioning → High Functioning
- Deficits in Executive Functioning :
 - Working memory, verbal fluency, complex problem solving, cognitive flexibility, etc.

Research Question(s)

- Can the Autism spectrum continuum extend outside of the diagnostic range?
- Do typically functioning individuals with Autistic-like characteristics experience similar deficits in executive functioning?
 - If so, what specific areas?

Measurements/Tasks

- The Autism Quotient (Baron-Cohen et al., 2001)
- Rey Osterrieth Complex Figure (ROCF) (Osterrieth, 1944; Rey, 1941)
- Fluency Tasks (Kleinhans et al., 2005)
- Tower of Hanoi (Lucas, 1894)
- Memory Span Tests

Autism Quotient

(Baron-Cohen et al., 2001)

- Measures adults' level of Autistic traits
 - Social skill, attention-switching, attention to detail, communication, & imagination
- Score of 0-50
 - 32+ → clinically significant levels of Autistic traits
- E.g:

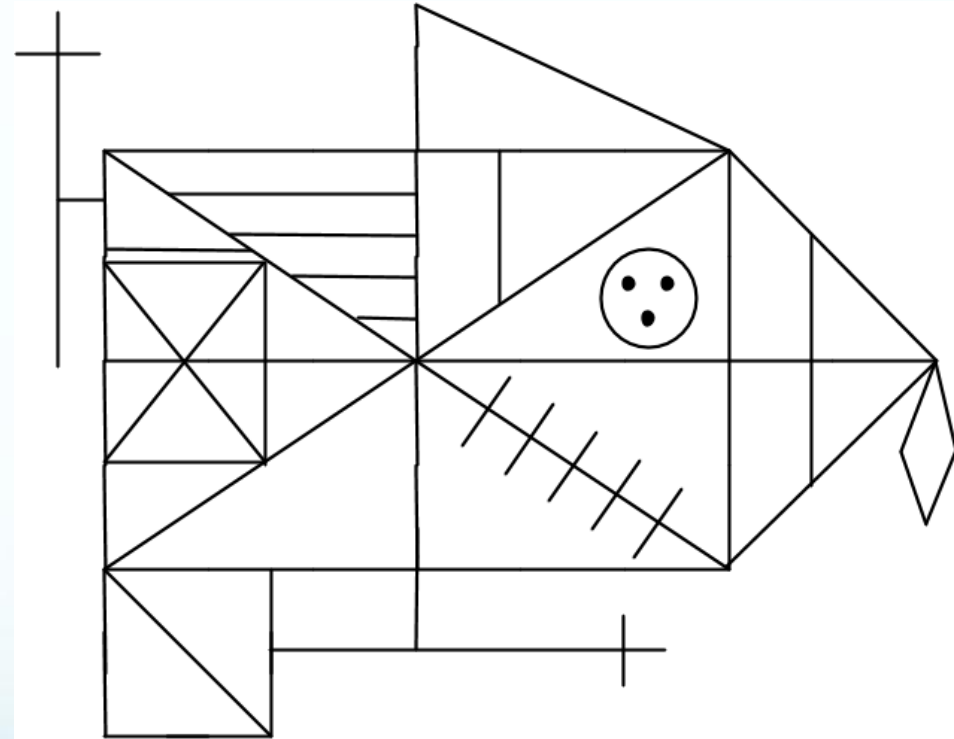
I find it easy to do more than one thing at once.

Definitely Agree Slightly Agree Slightly Disagree Definitely Disagree

Rey-Osterrieth Complex Figure (ROCF)

(Osterrieth, 1944; Rey, 1941)

- Copy, Immediate Recall, & Delayed Recall
- Boston Qualitative Scoring System (Stern et al., 1994)
- Summary scores:
 - Copy Presence & Accuracy
 - Immediate Presence & Accuracy
 - Delayed Presence & Accuracy
 - Immediate Retention
 - Delayed Retention



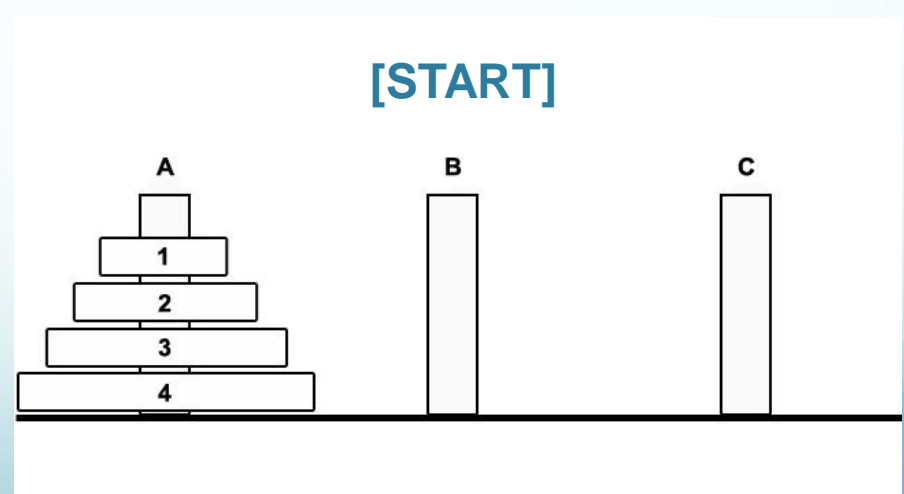
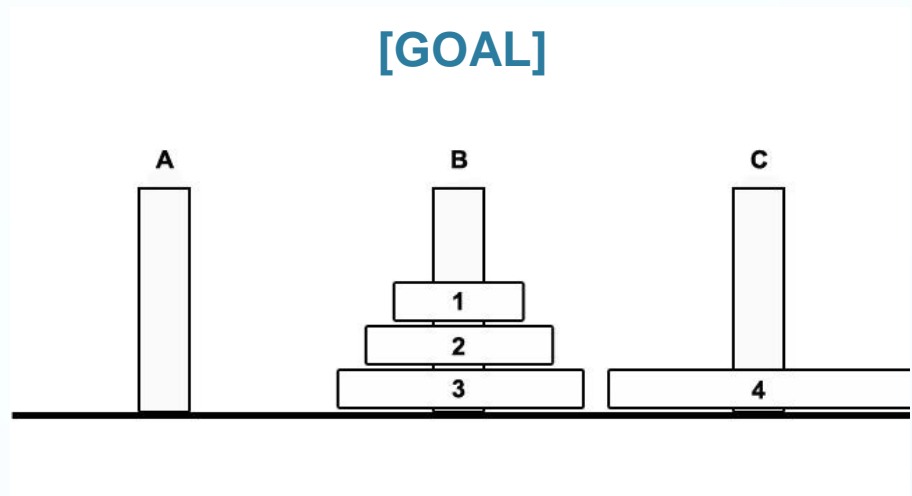
Fluency Tasks

(Kleinhans et al., 2005)

- 60 seconds
- 1) **Letter Fluency**
 - Generate words starting with the letter “S”
- 2) **Category Fluency**
 - “Animals”
- 3) **Category-Switching Fluency**
 - Generate a “furniture” word followed by a “fruit” word (alternating)

Tower of Hanoi

- Complex problem solving task
- Move discs from one peg to another, one at a time
- A larger disc cannot be placed on top of a smaller disc
- A disc cannot be moved if it is below another disc
- Task: reach the goal image in the fewest “moves”



Memory Span Tasks

- Running Span
 - Recall last letters from a series

ABCXYZ → X Y Z

- Backwards Digit Span
 - Recall all numbers in reverse order of presentation

1-2-3-4 → 4-3-2-1

Hypotheses

- There will be a relationship between Autism Quotient score and scores on cognitive tasks
- Individuals with higher AQ scores will. . .
 - Correctly solve fewer Tower of Hanoi problems
 - Have a greater number of errors on Memory Span tasks
 - Lower T scores for each summary score of the ROCF
 - Fewer responses generated during fluency tasks

Directions

- Currently collecting data
- Have not conducted any analyses
 - Possibly correlation & regression analyses
- If there is a relationship between AQ score and any cognitive tests:
 - EF deficits associated with ASD may extend outside of the diagnostic range
 - Better understanding of the continuum



Questions?

