Autism Spectrum Disorder Through the Lifespan

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There are infinite ways of neurocognitive functioning within our species. We all have equal value.

- **Neurotypical**: a style of neurocognitive functioning that falls within the dominant societal norms—"normal".
- **Neurodivergent**: a style of neurocognitive functioning that diverges significantly from the "normal".
- **Multiply neurodivergent**: multiple styles of neurocognitive functioning that diverges from the "normal" (ASD, intellectual disability, epilepsy).
"Aspergers is a significant part of my humanity. I think of it as the address where I live on the human spectrum."

Brian King
Social Model of Disability

- Everyone has equal value.
- Acknowledges impairments.
- Positions the barriers in the environment not the person.
Only as society gains an understanding of an individual and their cognitive difference (difi-bility) and also uses that understanding to inform appropriate interventions, will that individual’s disability be less disabling.

WENDY LAWSON
Limbic System

Pictures
Patterns
Creativity
Imagination
Emotions connected to thought
 Associative thought

L
Words
Linear

R

Boss
Executive Functioning
Think about thinking

Response inhibition
Working Memory
Emotional Control
Mental Flexibility
Sustained attention
Task Initiation
Planning,
Prioritization
Organization
Time management
Goal Directed
Persistence
Metacognition

Big emotional responses: fight, flight, freeze
Emotional memories without thought
Sensory processing

Adapted from the work of Daniel Siegel

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Sensory Processing

- The way the nervous system receives sensory messages and turns them into responses.
- We have 8 sensory systems: visual, auditory, smell, touch, taste, proprioception, vestibular, interoception.
- Sensory processing needs exist when sensory signals are not organized into appropriate responses and results in impaired functioning.
- Most individuals with ASD have significant sensory processing needs through the life span.

(Lucy Miller PhD OTR)
Subtypes

- Sensory Modulation Needs
  - Hypersensitive to sensations (over responsive)
    - Big emotional responses, irritability, aggression, upset with change
  - Low sensitivity to sensation (under responsive)
    - Passive, withdrawn, low motivation, in fantasy world
  - Craving more sensation (seeking)
    - Impulsive, on the move, touch everything

(Lucy Miller PhD OTR)
Sensory Discrimination Needs
- Difficulty interpreting sensation
- Can lead to speech, language, learning, motor problems...

Sensory Based Motor Needs
- Postural: poor muscle tone, bilateral coordination, balance
- Difficulties with motor planning
- Can lead to significant difficulties with self care, daily living, leisure, recreational activities. Difficulties with attention, and result in a high level of anxiety and avoidance.

(Lucy Miller PhD OTR)
Effects Over the Life Span

- Sensory dysregulation leads to emotional dysregulation
- Significant delays in emotional and social development
- Bottom up, top down. Physiological anxiety invites thinking anxiety-thinking anxiety invites more physiological sensitivity.
- Significant rigidity and obsessive compulsive tendencies develop.
- Development of anxiety and mood disorders
Effects Over the Lifespan

- Development of significant motor delays
- Impaired communication skills
- Impaired adaptive functioning
- Impaired learning, reading and writing disorders
- Significant interruption of the development of executive functioning skills (ADHD, rigidity, impulsive, lack of emotional control...).
- Dependence in Adulthood
- Feelings of isolation and low self value

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Emotional Memories

- Storage of strong negative emotional memories due to strong images or unprocessed emotions.
- Many individuals on the autism spectrum report that when they have a negative emotion it can trigger a host of other related negative emotional memories - the floodgate opens.
- What seems to be a small trigger can result in a big response with a long recovery.

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ASD Visual Thinking

- Language meaning is based on concrete experience.
- Context is critical.
- Verbal language and literacy can develop from pattern thinking.
- The concrete meaning of language and the verbal pattern can be separate.
- Literal thinking: Thinking starts in a visual concrete context. The individual may develop very strong verbal skills however the meaning is traced back to the concrete context.
- Strong attention to visual detail linked to a strong visual sensitivity.
- The visual world can be very vivid and engaging. Can be overactive and intrusive.
Thinking by association (google) and most possibilities have equal weight.

Difficulties with linear sequential thought can impact episodic and narrative memory development.

A strong semantic memory for facts, concepts and general information.

Difficulties with the interconnectivity of hemispheres may create difficulties with the processing of verbal and social information.
Executive Functioning
The Boss

- A set of mental skills that work in concert to help the brain organize and act on information.
- These skills enable people to use thought to plan, organize, prioritize, pay attention, and get started on tasks.
- They help people use information from past experiences to solve current problems.
- They gradually develop across the life span and do not stop developing until late twenties.
- Many individuals with ASD have significant executive functioning impairments.
- Significant sensory processing needs impair the development and use of executive functioning skills.
Metacognition

- Ability to take a step back and take a birds eye view of oneself in the situation. Involves problem solving, self monitoring and self evaluating.

- ASD challenges:
  - Processing sensory input and information in the concrete moment so cannot think about thinking.
  - Social perspective taking is problematic because it is difficult to hold onto own perspective and the perspective of another simultaneously.
Working Memory and Attention

- A capacity to hold information while performing complex tasks.
- Sustained attention: the capacity to keep paying attention to a situation or task in spite of distractibility, fatigue or boredom.
- Divided attention: process two or more responses or demands simultaneously.
- ASD challenges
  - Hypersensitivity to auditory information, auditory processing.
  - Slower information processing/translation process.
  - Thinking by association, new thought not connected.
  - One track thinking.

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Mental Flexibility

- The ability to shift your thinking, change the channel on your thought process, revise plans in the face of setbacks, obstacles, new information.
- Required for successful social interactions and experiences
- ASD challenges
  - Mono sensory “Mono channelled” (interests) mono processing. Wendy Lawson.
  - Anticipatory anxiety and fear of uncertainty from sensory processing needs invite a strong pattern of rigid thinking.
  - Stuck because of information processing or language needs.
Emotional Control

- The processing of thought and emotion simultaneously leading to resolution.
- Use of thought to reduce the intensity of the emotion
- ASD challenges
  - Sensory dysregulation
  - Cannot process thought and emotion simultaneously.
  - One negative emotion opens the flood gate to a bank of emotional memories.
  - Difficulty with other executive functioning skills- problem solving, mental flexibility, metacognition...
Parts to Whole

- Can see the forest through the trees, **zoom in and zoom out** see details and fit to big picture.
- Is required for most social interactions and experiences.
- ASD challenges
  - Can see all the possibilities and details, they all have equal weight, each is its own whole.
  - Possibilities are not linear, linked by association.
  - Bottom up inductive thinking: details eventually form the whole.
Time Management

- Understanding of passing time, capacity to estimate how much time one has, allocate it and stay within timelines and deadlines.

- ASD challenges
  - A language (abstract based concept)
  - ASD’s mark time by the beginning or end of concrete events
  - Often requires attention to the perspectives of others
Planning

- Step by step planning, a road map to a goal
- Ability to create and maintain systems to keep track of information and materials
- Keep track of steps and time
- ASD challenges
  - Difficult to break more complex tasks into individual steps
  - Thinking by association not linear
  - Distractions, visuals trigger new actions
  - Time management challenges

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Over the Life Span

Preschool
Adult is the executive functioning.
Environmental accommodations.

School age and adolescence
Adult scaffolds and teaches the executive functioning skills.
External scaffolds through technology.
Environmental accommodations.

Adulthood
Ongoing family support and scaffolds.
External scaffolds through technology.
Environmental accommodations.
Resources

- **Smart but Scattered** Peg Dawson and Richard Guare
- **The Passionate Mind: How People with Autism Learn** Wendy Lawson
- **Strategies to Build Successful Relationships with People on the Autism Spectrum** Brian King
- **Neurodiversity** Thomas Armstrong
- **How to be Human. Diary of an Autistic Girl** Florida Frenz
- **The Invisible Cage** Donna Williams
- **Sensational Kids** Lucy Miller
- **The Autistic Brain** Temple Grandin

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