

# Learning and Behavioral Challenges Diagnosis and Early Childhood Care Breakout

Andrea Miele, PhD

Pediatric Neuropsychologist

Children's Hospital Colorado

University of Colorado Denver School of Medicine

Department of Pediatrics, Section Child Neurology

**Parent** **JOIN THE FIGHT.**  
**Project** **END DUCHENNE.**  
**Muscular**  
**Dystrophy**

# What is Neuropsychology?

- Clinical neuropsychology is focused on understanding the link between the brain and behavior. For example, how changes in the health of the brain may affect the ability to pay attention, remember, or solve problems. This understanding between how someone thinks and acts and how the brain works is used to diagnose and recommend treatments for brain/neurological disorders.

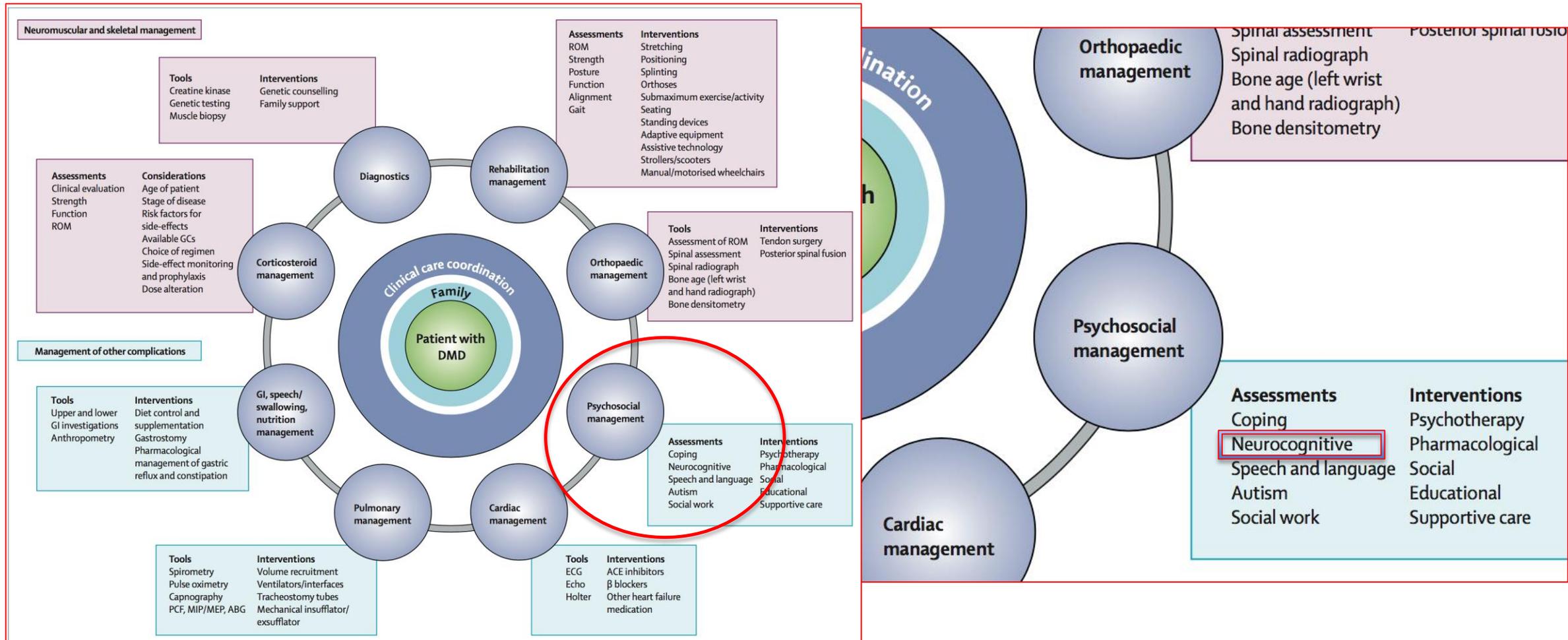
*Excerpt from the American Academy of Clinical Neuropsychology at <https://theaacn.org/pediatric-neuropsychology/>*

# Who are Pediatric Neuropsychologists?

- Pediatric neuropsychologists are licensed psychologists with training in clinical psychology and specialization in neuropsychology. Neuropsychologists use this training to evaluate and help manage children with brain disorders, including brain injury, medical disease, or developmental problems.
- Pediatric neuropsychologists help parents, teachers, and physicians to:
  - Understand how problems with the brain may relate to problems seen at school, home, or with peers
  - Understand how a child learns best
  - Understand why a child may have behavior problems
  - Help a child deal with thinking or behavior problems
  - Identify neurological or psychiatric problems
  - Help match expectations to a child's specific strengths and weaknesses
  - Work with other doctors and teachers to develop the best treatment and school plan for a child

Excerpt from the American Academy of Clinical Neuropsychology at <https://theaacn.org/pediatric-neuropsychology/>

# Why is Neuropsychological Evaluation Important for children with DMD or other neuromuscular disorders?



Bushby K, et al. The Diagnosis and Management of Duchenne Muscular Dystrophy, part 1: diagnosis, and pharmacological and psychosocial management, Lancet Neurology 2010, 9(1) 77-93.

# Why is Neuropsychological Evaluation Important for children with DMD or other neuromuscular disorders?

- Although the means by which DMD affects cognition is still being studied, children with DMD or any neuromuscular disorder are at increased risk for cognitive, academic, and/or social-emotional difficulties that manifest at different periods of time and may also change over time.
- These *thinking problems* can include:
  - Reduced intellectual functioning/intellectual disability
  - Learning Disabilities (e.g., reading disability/dyslexia, math disability, disability in written expression/dysgraphia)
  - ADHD
  - Depression/Anxiety
  - Social Problems, Autism
- These difficulties occur along with the natural progression of their disease, and need to be considered together in order for these children to be fully able to access their curriculum.

# Why is Neuropsychological Evaluation Important for children with DMD or other neuromuscular disorders?

- Boys with DMD are at increased risk for delays in attainment of early language milestones.
- Parents are cautioned to monitor for *any* seeming difficulty with early learning (e.g., shapes, colors, learning the alphabet, being able to match letter shapes with their sounds, difficulty effectively grasping objects/holding crayons and markers) and to follow up with their pediatrician.
- Assessment may not be appropriate around the time of diagnosis, but should be considered prior to school entry or following a change in functioning.
- Along with PT and/or OT, a neuropsychological evaluation can also be useful to evaluate and track progression in fine motor dexterity/coordination and provide recommendations for families to bring to schools in an effort to incorporate technology into the classroom.

# What does a Neuropsychological Evaluation Involve?

- A neuropsychological evaluation involves examining thinking, behavior, and social-emotional functioning. The evaluation uses standardized tests and procedures. Examiners work directly with your child. They also talk to you and teachers and other doctors. Tests may be performed using paper and pencil or on the computer. Your child will be asked many questions and to solve different types of problems.
- Neuropsychological evaluations typically include tests that measure the following:
  - Intelligence (IQ)
  - Problem solving, Planning and organization
  - Attention and Processing speed
  - Learning and Memory
  - Language
  - Academic skills
  - Visual perception
  - Control over hand movements
  - Depression and anxiety
  - Aggression and impulsive behavior
  - Social skills
- The neuropsychologist will also review your child's medical and school records to help understand how the test results relate to daily life.
- The evaluation usually takes around 6 hours, and you may return on a second day to review the results.

*Excerpt from the American Academy of Clinical Neuropsychology at <https://theaacn.org/pediatric-neuropsychology/>*

# What comes from all this and how does all this Effort help my child?

- Diagnosis
- Access to school services and supports beyond physical accommodations/modifications
  - Individualized Education Programs (IEPs)
  - Section 504 Plan
- Other treatment planning and recommendations

Excerpt from the American Academy of Clinical Neuropsychology at <https://theaacn.org/pediatric-neuropsychology/>

# How do I find a Clinical Neuropsychologist?

- A list of neuropsychologists can be found in the AACN member directory (<https://theaacn.org/directory/>) or the National Academy of Neuropsychology's member directory (<http://www.nanonline.org/Directory/>).
- Your child's neuromuscular team may have a dedicated neuropsychologist.
  - PS- if you are a dedicated neuropsychologist, or a neuropsychologist with an interest in neuromuscular disorders, please come talk to me!
- Your pediatrician may already have an established relationships with a neuropsychological practice.

# Thank You You are the Best.

- Contact information:

Andrea Miele, PhD

[andrea.miele@childrenscolorado.org](mailto:andrea.miele@childrenscolorado.org)