

A Neuropsychological Perspective on Cerebral Palsy

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Cerebral Palsy as a motor dysfunction

- Originally defined as a disorder primarily of motor function resulting from brain injury
- Variety of types of presentations
 - Mixed
 - Spastic
 - Dyskinetic
 - Ataxic



A very heterogeneous group

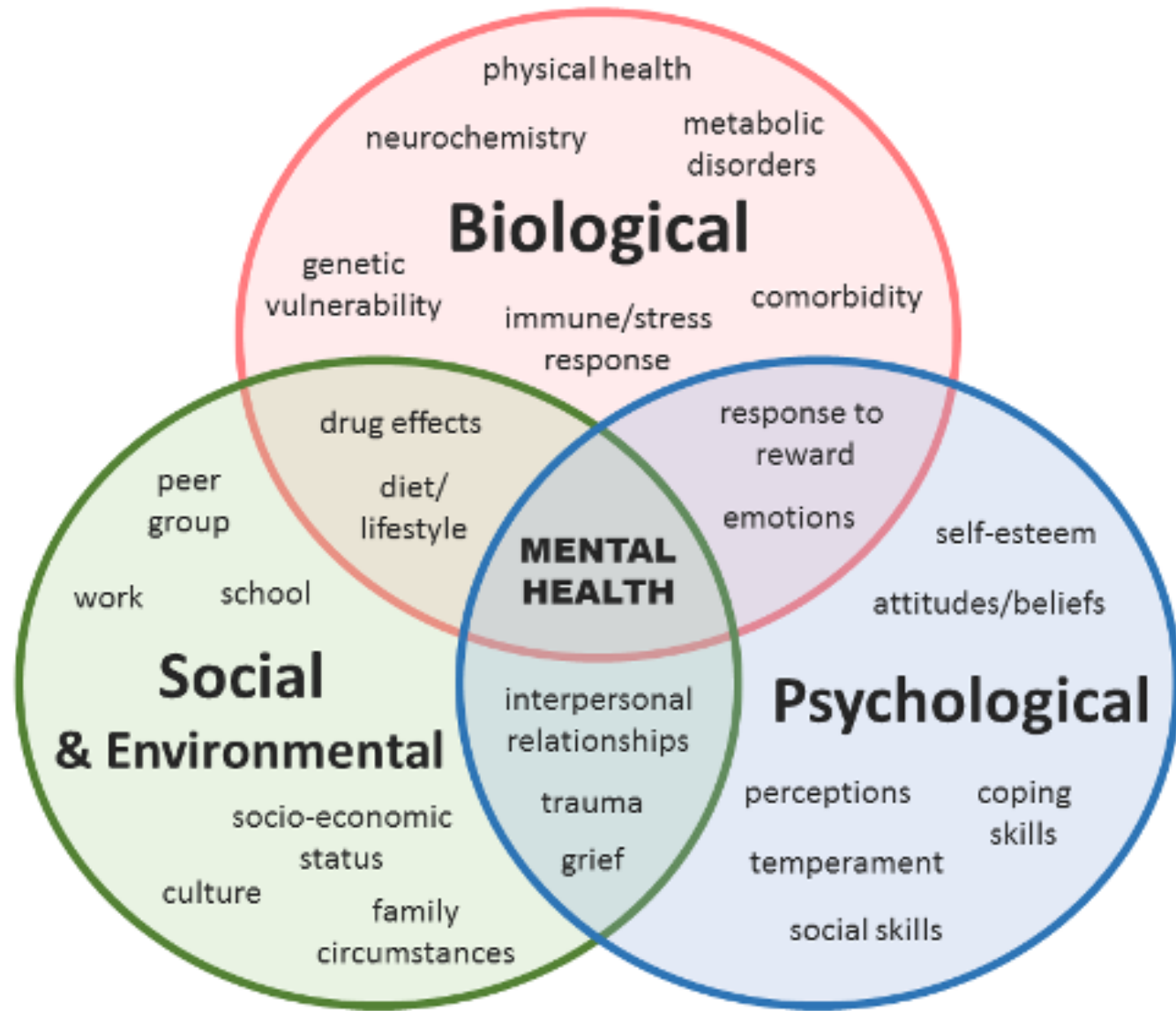
- Results from damage to the brain
 - Prenatally: intracranial hemorrhage, genetic abnormality, premature birth, low birth weight
 - Many months following delivery: infection, head injury
- Types of brain differences
 - Periventricular leukomalacia
 - Abnormal brain development
 - Intracranial hemorrhage (bleeding)
 - Asphyxia (lack of oxygen)

Recognizing a broader impact on development

- Bax et al., 2006
 - 585 children
 - Majority (79.1%) experienced spasticity
 - PVL (42.5%)
 - basal ganglia lesions (12.8%)
 - cortical/subcortical lesions (9.4%)
 - brain malformations (9.1%)
 - focal infarcts (7.4%)
 - miscellaneous lesions (7.1%)
- Colver et al., 2014
 - Defining cerebral palsy to incorporate non-motor symptoms

“Static”

- Non-progressive
 - primary lesion, anomaly, or injury remains static
- Clinical appearance evolves:
 - Growth of the nervous system
 - Increase in expectations
 - Early and updated intervention planning

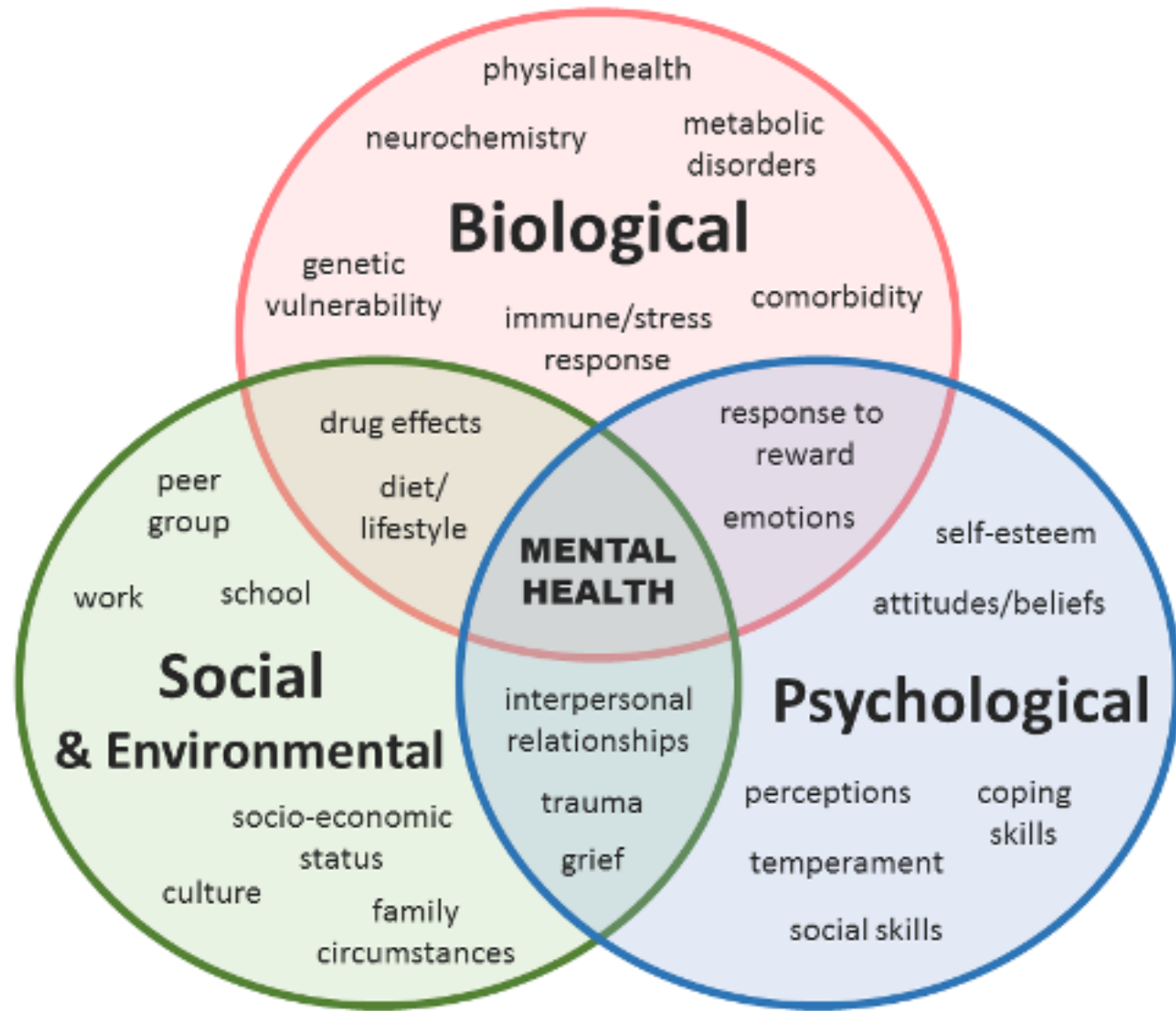


Neurocognitive Profiles

- Motor Classification
 - Gross Motor Function Classification System (GMFCS)
 - Manual Ability Classification System (MACS)
- Gross motor impairment correlated with visual impairment, learning disabilities, and epilepsy (Himmelman et al, 2006)
- Deficits in visual motor precision and figure reproduction, with hand skill deficit indicative of outcomes including speech delays (Dellatolas et al. 2005; Pirila et al. 2004)

Neurocognitive Profiles

- Language and long-term memory often intact
- Slow learning with weak short-term memory particularly with visual and nonverbal cues (Dahlgren-Sandberg, 2006; White & Christ, 2005)
- Associated difficulty acquiring academic skills (e.g., learning disabilities, dyslexia, dyscalculia)
- Difficulties with higher order executive abilities due to damage to the white matter tracts, which connect the prefrontal and posterior brain regions (Christ et al. 2003)
- Language and learning outcomes **depend** on subtype



White Matter Hypothesis

- Normal development of white matter is essential for intact child development (Rourke, 1989)
- Developmental approach
 - Nonverbal Learning Disorder (NVLD or NLD)
 - Bilateral tactile-perceptual deficits
 - Impaired visual recognition, discrimination, and organization
 - Bilateral psychomotor coordination problems
 - Difficulty learning and managing novel information
 - Psychosocial considerations
 - Motivational implication
 - Executive dysfunction and behavioral dysregulation

Neuropsychology

- Practice of understanding brain and behavior relationships
- Advancements in imaging, and we still rely on testing to understand function
- Includes
 - Paper-pencil based with *adaptive options*
 - 1-2 days of testing (3-6 hours)
 - Includes interviews and questionnaires
- Clinical psychologist (PhD, PsyD, EdD) with specialty training during internship and fellowship years
- Feedback followed by a report to share

What can I expect in a Neuropsychological Report?

- Presenting Concerns
- Background and stakeholder reports
- Behavior Observations
- Test Results
- Summary
- Diagnoses (DSM-V and ICD)
- Recommendations
- Data Tables

Recommendations

- Plenty of environmental sensory information
- Note-taker
- Extended time
- Alternate placement for testing
- Modified curriculum
- Graphic organizer software to aid in planning (e.g., word prediction software, direct teaching of revision)
- Talk to text/dictation
- Assistive technology (e.g., audiobooks)
- Keyboarding
- Adaptive PE
- Value of special education (i.e., DI or Direct Instruction)
- Close monitoring and scaffolded learning
- Augmentative and alternative communication systems
- Using symbolic information to represent words aids in reading
- Therapy: PT, OT, Speech
- Life skills training
- Outpatient services, tutoring



Special Education

504 Plan

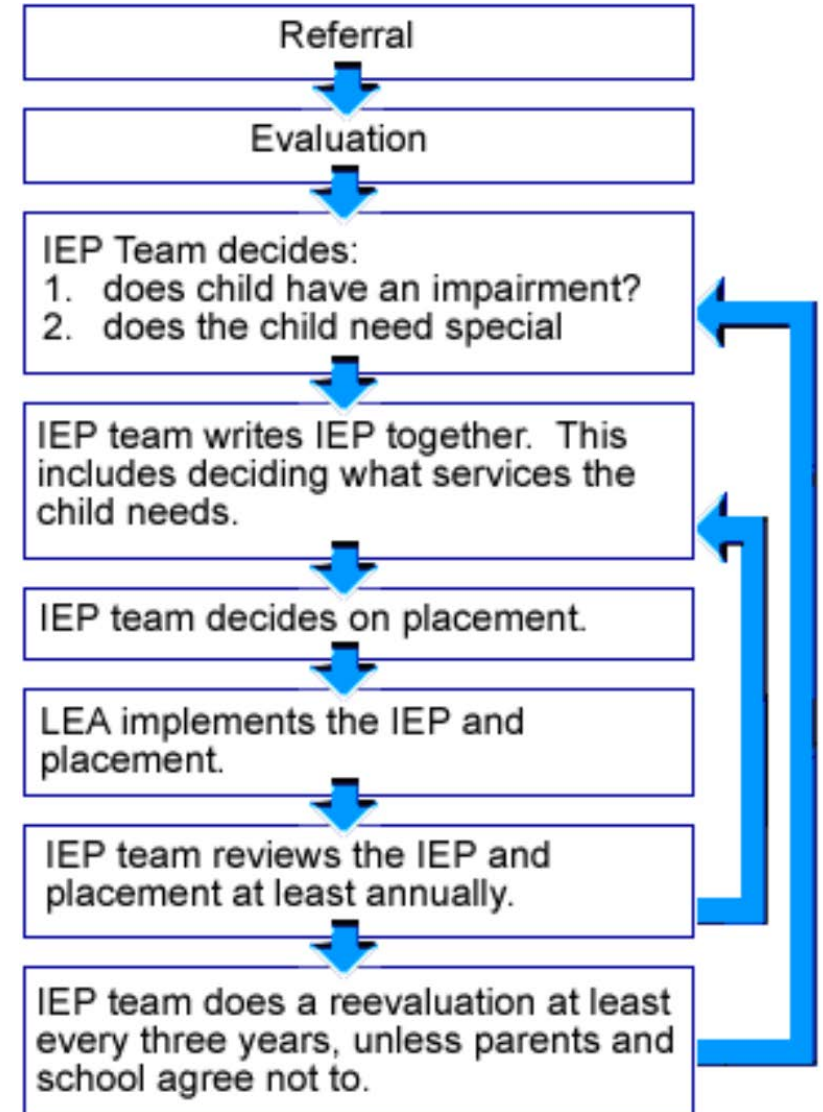
- Students would NEVER have an IEP + a 504 Plan.
- Passing grades are NOT guaranteed.
- Accelerated curriculum can be taken with a 504 Plan.
- Re-evaluated every 3 years.
- 504 Plan can be terminated if disability no longer present.
- 504 Plan cannot be put in place without parent knowledge.

Health Service Plan (HSP)

- Nursing and medical support plan (e.g., seizures, medication, headache/pain management)

Individualized Education Plan (IEP)

- Cognitive Disability (CD)
- Hearing Impairment (HI)
- Speech or Language Impairment (SLI)
- Visual Impairment (VI)
- Emotional Behavioral Disability (EBD)
- Orthopedic Impairment (OI)
- Autism
- Traumatic Brain Injury (TBI)
- Other Health Impairment (OHI)
- Specific Learning Disabilities (SLD)
- Significant Developmental Delay (SDD)



Referral for Evaluation (at school)

- Who can refer for an eval?
 - ANYONE – including parents or providers
- How is a referral for an eval done?
 - IN WRITING
- Referral should include:
 - Basics: date, name of the child
 - Reasons the requesting party believes the child has a disability
 - How this disability affects educational performance.

Sample Letter

DATE:

Name of Principal
Name of School
Street Address

Re: Request and Parental Consent for a Special Education Evaluation for CHILD'S NAME, DATE OF BIRTH, GRADE

Dear PRINCIPAL'S NAME:

I request the school district evaluate my child for special education eligibility and services. I am concerned about my child's progress in school.

BRIEFLY DESCRIBE THE PROBLEM YOUR CHILD HAS. BE BRIEF BUT THOROUGH, AND BE SURE TO MENTION HOW THE DIFFICULTY "ADVERSELY AFFECTS EDUCATIONAL PERFORMANCE" SINCE THIS IS MOST CRITICAL TO QUALIFYING FOR SERVICES. (e.g., When I work with John I notice that he does not seem to be able to sound out the words or comprehend what he reads, which makes learning difficult for him in school and for homework.) BE SURE TO ADDRESS ALL AREAS OF POTENTIAL CONCERN, INCLUDING MOTOR, SENSORY, BEHAVIORAL, EMOTIONAL, OR ACADEMICS.

Kindly provide me with a permission to evaluate form.

If you have any questions, please feel free to call or email me. Thank you for your time.

Sincerely,

NAME
PHONE NUMBER
EMAIL

cc:
Director of Special Education
Vice Principal
Classroom Teacher
School Psychologist

Referral Timeline

- Submit request for referral in writing.
- School must respond in 15 Business Days with either:
 - Consent to begin eval
 - Notice that says no eval is needed
- After getting consent for eval, school has 60 Calendar Days to conduct an evaluation
- If found eligible for an IEP, school and team has 30 Calendar Days to develop IEP and identify placement.

The KEY to Qualifying for Services:

- “Adversely affecting educational performance...”
- In order to identify a student as meeting educational eligibility for an impairment, the IEP team must find the student’s learning and educational performance is adversely affected.
- Again, this is determined by THE SCHOOL.

Educational Advocates

- If parents want assistance advocating for their child:
 - FACETS: 877-374-4677 (wifacets.org) for typically no-cost.
 - WSPEI: 877-844-4925 (wspei.org) for typically no-cost.
- If there are legal issues involved with the school:
 - Disability Rights Wisconsin (disabilityrights.org) for typically no-cost.
- If parents have a special education dispute that needs resolution:
 - Wisconsin Special Education Mediation System 888-298-3857 (wsems.us) for no-cost assistance.

Guardianship and Re-Evaluations

- Updated testing every 3-4 years
- Updated neurocognitive testing following 17th birthday, refer around 16th birthday due to waitlists
- Considerations for guardianship
 - <https://www.dhs.wisconsin.gov/publications/p2/p20460.pdf>
- Resources
 - Aging and Disability Resource Center: <http://www.daneadrc.org/>; 855-417-7400
 - Division of Vocational Rehabilitation: <https://dwd.wisconsin.gov/dvr/>; 800-442-3477
 - Waisman Resource Center: <http://www.waisman.wisc.edu/wrc/>; 1-800-532-3321

Resources for Parents and Providers

- Special Education Eligibility Areas of Impairment and Criteria: <http://dpi.wi.gov/sped/eligibility.html>
- DPI Sample Special Education Forms and Forms Guidance Document: http://dpi.wi.gov/sped/form_int.html
- Regional Centers for Children and Youth with Special Health Care Needs (CYSHCN): <https://cyshcn.waisman.wisc.edu/>
- Special Education in Plain Language: <http://www.specialed.us/pl-07/pl07-index.html>
- IEP vs. 504 Plan: <https://www.understood.org/en/school-learning/special-services/504-plan/the-difference-between-ieps-and-504-plans>
- Karen Carpenter: kcarpenter@uwhealth.org
- UW-Madison Neuropsychology Outpatient Number: 608-263-5430