



## A Brief Note on Developmental Pediatrics & Neuropsychology

Frank van Bel\*

Department of Neonatology, Medical University Center Utrecht, Netherlands

\*Corresponding author: Frank van Bel, Department of Neonatology, Medical University Center Utrecht, Netherlands, E-Mail: vanbel@yahoo.com

Received date: May 10, 2021; Accepted date: May 17, 2021; Published date: May 31, 2021

### Introduction

Pediatric neuropsychology (paediatric in the UK) is a subspeciality within the field of clinical neuropsychology that studies the relationship between brain health and behaviour in children. Many pediatric neuropsychologists are involved in teaching, research, supervision, and training of undergraduate and graduate students in the field. Most pediatric neuropsychologists have several years of post-doctoral training regarding developmental or acquired neuropathology in children. Pediatric neuropsychologists work in any setting where children with central nervous system dysfunction are treated. This includes neurology, neurosurgery and psychiatry practices as well as in hospital and outpatient settings. In addition to assessing and treating children with medical disorders such as traumatic brain injury, brain tumors or epilepsy, pediatric neuropsychologists work with children who have Attention-Deficit Hyperactivity Disorder (ADHD), learning disabilities, intellectual and developmental disorders (mental retardation), autism spectrum disorders.

The neuropsychological evaluation is used to determine the pattern of brain-related strengths and weaknesses to understand the origin of the problem and to make a diagnosis. Often, this will guide specific treatment recommendations. Developmental disabilities include limitations in function resulting from disorders of the developing nervous system. These limitations manifest during infancy or childhood as delays in reaching developmental milestones or as lack of function in one or multiple domains, including cognition, motor performance, vision, hearing and speech, and behavior. The clinical features of developmental disabilities are variable in severity as well as in the specific areas of function that are limited. Brief descriptions of the clinical features of each of the broad categories of developmental disability are provided below.

It may be noted that children with developmental disabilities are often affected in multiple domains of function because of the nature

and extent of brain impairment or increased susceptibility to other causes of disability (e.g., malnutrition, trauma, infection) among children with a single disability.

### Cognitive Disabilities

Cognitive disabilities in children include mental retardation as well as specific learning disabilities in children of normal intelligence. Mental retardation is defined as subnormal intelligence (intelligence quotient [IQ] more than two standard deviations below that of the population mean), accompanied by deficits in adaptive behavior. Grades of mental retardation are typically defined in terms of IQ. Children with specific learning disabilities are usually identified as such only after entering school, where a significant discrepancy is noted between their achievements in specific domains and their overall abilities. With special educational accommodations, these children may learn to overcome their limitations and demonstrate normal or even superior levels of achievement.

### Motor Disabilities

Motor disabilities include limitations in walking and in use of the upper extremities (arms and/or hands). Some motor disabilities also affect speech and swallowing. Severity can range from mild to profound. Motor disabilities diagnosed in infancy or childhood include cerebral palsy, which results from damage to motor tracts of the developing brain; paralysis following conditions such as poliomyelitis and spinal cord injuries; congenital and acquired limb abnormalities; and progressive disorders, such as the muscular dystrophies and spinal muscular atrophies. Cerebral palsy results from a permanent, nonprogressive damage or insult to the developing brain. Affected children therefore may manifest a variety of motor dysfunctions, depending on the specific location of the damage.

### Behavioral Disorders

In most of the developing world, resources for mental health care are far more limited than those for physical care. Therefore, the majority of children with psychological or behavioral disorders go undiagnosed or untreated. Although formal data are lacking, it is probable that behavioral problems are more common in low-income than in wealthier countries because of the excess prevalence of poverty, war, famine, and natural disasters in the developing world.