

Neuropsychological testing for Children with Congenital heart Disease

What is a neuropsychological evaluation?

A neuropsychological evaluation is a comprehensive 1:1 assessment of a child's overall level of cognitive functioning, academic achievement, learning/memory, motor development, language development, attention/concentration, and psychosocial functioning. Neuropsychological evaluations are used to diagnose neurodevelopmental and mental disorders, classify levels of impairment, and provide recommendations for evidence-based interventions. Evaluations use nationally normative tests that provide objective information about a child's development relative to their age-matched peers. The assessments take between 2 and 6 hours for most patients and are completed by a licensed psychologist.

Why should my child receive a neuropsychological evaluation?

Heart defects can cause low levels of oxygen and/or abnormal blood flow to the brain. Heart surgery, catheterizations, single ventricle physiology, and anesthesia needed to repair the heart defect also impact the brain. Children born with certain genetic syndromes have a much higher risk of cognitive impairment. Interactions between the environment and brain cells are also important to brain development. In addition, The American Academy of Pediatrics reviewed factors that put a child with CHD at higher risk for developmental disabilities or disorders. They found that infants who needed open heart surgery, children with cyanotic heart lesions who did not require open heart surgery as neonates or infants, and children who had CHD and other co-morbidities, such as prematurity and prolonged hospitalizations, were at a higher risk. Neuropsychological evaluations are used to classify your child's cognitive functioning, academic achievement, and psychological and social functioning which can be affected by CHD and their treatments. Evaluations lead to treatment recommendations which may include educational interventions, speech/language therapy, occupational/physical therapy, or mental health treatment.

In addition, cognitive impairments can sometimes show up in adulthood. Having an assessment as early as possible leads to early identification and treatment of CHD-related deficits which improves outcomes for patients.

My child is doing fine, should s/he still be evaluated?

Having a baseline neuropsychological evaluation can help your doctors understand how your child is doing currently, while also providing a datapoint from which to compare if problems should arise in later development. It is also common for underlying cognitive or psychological problems to be exacerbated in the context of CHD. Thus, an initial screening for issues can often identify problems early, before they cause significant impairment in a child's life.