

Educating Children with VCFS

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The vast majority of children with VCFS will require some type of specialized educational service as they progress through school. Often times programming for children with the syndrome is a complicated process that involves many specialists, teachers, and family members. We have learned quite a bit in the last decade about the difficulties children with VCFS have with learning new information. Numerous studies have been done internationally to delineate the cognitive profile of children and adults with the syndrome. We are also understanding a great deal more about effective interventions and preferred instructional methods. Although there is a lot of progress that still needs to be made, we do have information that will assist in providing children with a positive school experience.

Educators and parents need to recognize the wide variability of cognitive impairment found in children with VCFS. Approximately 50% of children tested in clinical settings have a full scale IQ in the cognitively impaired range (< 70). These children typically need more intensive educational interventions compared to the remaining group of children (50%) with general learning ability in the low average or average range. Some higher functioning children have graduated high school and have gone on to post secondary training situations. It is

therefore imperative that schools frequently assess children with VCFS throughout their school years so that a program tailored to each child's unique needs can be drafted. It is often true that these needs change over time; so careful monitoring is essential for effective learning strategies.

Studies in brain development of children with VCFS have pointed to structural abnormalities as possible causes for learning and social struggles. These studies have also assisted educational psychologists in determining which areas should be tested to better define learning difficulties. Among the areas recommended for testing are:

- General Intelligence
- Academic Skills
- Visual Spatial Processing Ability
- Executive Function
- Working Memory
- Hearing/Auditory Processing
- Expressive and Receptive Language Skills
- Social Skills (including face and body recognition)
- Life Skills/ Independent Living Skills Development
- Fine/Gross motor skills
- Behavior/Emotional Health if needed (including tests for attention difficulties, anxiety, obsessive/compulsive disorder, depression, and other mental health challenges)

Research has also indicated that many students with VCFS exhibit difficulties in specific areas. It is therefore important that school personnel are trained in

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VCFS and become aware of the possible learning difficulties associated with the syndrome. Many children have school struggles in the following areas:

- Developing math understanding/number sense
- Working memory development (ability to hold information in mind long enough to perform more complicated tasks)
- Planning ability
- Inability to attend (on task behavior and concentration) during group time or when doing an individual activity
- High frustration levels when tasks are difficult
- Initiative and self-regulation
- Receptive language skills (ability to follow (double) instructions)
- Visual processing skills (objects from different angles, scanning to find objects, recognizing emotion in facial expressions, recognizing differences in sizes of objects)
- Visual reasoning (ability to do visual problem solving tasks, awareness of visual details)
- Listening/reading comprehension skills
- Phonemic awareness/hearing issues
- Speech intelligibility/palate abnormalities
- Expressive language skills
- Retention of general knowledge and understanding the world
- Milestone acquisition
- Fine motor skills as related to acquiring ability to color, cut, write, etc.

- Gross motor skills especially related to balance and crossing the midline
- Social skills acquisition—ability to share, express needs, take turns, remember rules
- Ability to form friendships and play with others
- Skills to be able to follow school routine and transition from one activity to the next

Interventions

Educational interventions can begin early in a child's life and at first typically involve speech and occupational therapy to address articulation difficulties and low muscle tone. It is quite common for children with VCFS to need therapy services for many years as they develop appropriate speech patterns and later as they work to improve their pragmatic language skills. Additionally early pre-school experiences can assist the young child in acquiring general knowledge and learning how to navigate through a school routine.

Early intervention is also recommended for developing early numeracy skills. Difficulty with mathematical thinking is quite common with the syndrome and can persist into adulthood. Children with VCFS have difficulty understanding the magnitude of numbers and often do not easily grasp number sense concepts. Although children with VCFS can learn to memorize math algorithms with repeated drill and practice, the practical aspect of how and when to apply mathematical formulas remains problematic. Intensive intervention to develop an intuitive grasp of numbers may help mitigate this difficulty.

Although many children with VCFS do learn to decode words at a typical age, they often lag behind their peers in the area of reading comprehension. There are several reasons that may account for this difficulty including deficits in working memory, poor visual-spatial ability, lack of general knowledge and poor

attention regulation. Effective reading instruction is best accomplished with direct instruction in a small group setting. Attention should also be given to the size of the text, visual appearance of the page, and pre-reading knowledge.

Social, emotional and health issues may also adversely affect a child's school performance. It is vitally important for the school team to become familiar with this part of the syndrome and how these areas impact a child's ability to learn. It is highly recommended that school staff receive training in VCFS so that they can better understand the complexity of the learning profile.

Older children with VCFS often need specialized learning plans that take into account their unique learning needs. In general, most children with the syndrome learn best experientially in a small group or 1-1 setting. They also excel in flexible environments where they are given multiple opportunities for success.

Educating children with VCFS is often a complicated process where specialized intervention is needed throughout the school years. We are still in the early stages of gathering longitudinal data to better understand the long-term adult outcomes for the VCFS population. We do know that some adults with the syndrome are married, working and living relatively normal lives. On the other hand, there is evidence that a when young adults with VCFS leave school a large number are not gainfully employed, need assistance to live independently, and some develop rather significant psychological impairments. Hopefully in the next few years we will be poised to gather more detailed information about adult needs so that we will be better able to supply the interventions and support necessary to ensure the fullest possible life for those with the deletion.