

## DIAGNOSTIC CONDITIONS

Following are brief descriptions of some diagnosis that children in your class or school may experience. Following each condition are motor implications along with general strategy suggestions. Each child is, of course, an individual and their programming must be based on their own unique needs.

**Autism**-Autism is a medical diagnosis that involves developmental delay along with cognitive dysfunction. Autism is a spectrum disorder, meaning an individual may fall along a spectrum of abilities, from mild to severe. An individual on the “high” end of the spectrum, may have the diagnosis of Asperger’s syndrome.

A physician must make the diagnosis of autism, with symptoms noted prior to 30 months of age. This condition is marked by significant delays in the area of language and behavior (bizarre responses to environment, problems with change, stereotyped play, lack of imagination and playfulness.) Delays may also be noted in the areas of sensory processing, motor skills and perceptual skills. Mental retardation is noted in many children with autism, with the degree of mental retardation often correlating with self-injurious behavior and self-stimulation. Autism is more common in boys than girls and the number of children with a diagnosis of autism has increased dramatically in the last 10 years.

*Motor implications:* May have difficulty with motor planning and ideation. Rigidity and difficulty with change and transitions are common. (Example: may have difficulty using a tool/prop in more than one way.) Children with autism often have sensory issues such as sensitivity to noise, light, touch and gravitational insecurity.

*Strategies:* Be aware of behaviors and what they are trying to communicate. Children with autism learn best through visual channels, so demonstration, combined with a picture schedule, will be more effective than verbal cues. Be sensitive and respectful to sensory issues.

**Cerebral Palsy (CP)**-Cerebral palsy is a medical diagnosis with motor delays that may affect all areas of development. Cerebral palsy results from a trauma to the Central Nervous System in the developing brain in utero or during the birth process. Anoxia (lack of oxygen) during the birth process is a frequent cause of brain injury. Cerebral palsy is characterized by abnormal muscle tone (either high or low) and overall developmental delays. CP is not a progressive disorder; however, a child’s movement and development may be further delayed by resulting contractures due to abnormal muscle tone. Children with cerebral palsy usually fall into one of the following diagnostic categories:

- hypotonic-low muscle tone
- spastic-high muscle tone
- athetoid-fluctuating muscle tone

In describing children with cerebral palsy, you may also hear the following terms:

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**-diplegia-whole body is involved** but with the legs much more affected than the arms. These children have spastic muscle tone. Speech is usually unaffected.

-quadraplegia-the whole body is affected with legs and arms usually similarly affected. One side of the body is usually more affected than the other. Head control is poor and there is usually an impairment of speech and eye-hand coordination.

-hemiplegia-only one side of the body is involved, a child will have one arm and leg that are less functional than the other. These children usually have spastic muscle tone.

*Motor implications:* Children with Cerebral Palsy can have varied motor abilities but are greatly impacted by decreased coordination and muscle control. They often have difficulty grading of movement and will under or overshoot a target (example: kicking a ball.) Children with Cerebral Palsy often have some type of adaptive equipment to help them be more functional in their movement; this might range from foot orthotics to a walker or wheelchair. Sensation may be impaired, and a child with cerebral palsy may need more processing time to follow through on a motor request.

Children with CP who have severe motor delays may have difficulty with positional concepts such as “up, down, over, under” as they have not been able to actively and independently move their bodies in relation to their environment, so have not internalized these concepts.

*Strategies:* Making sure the child can access the environment and activity are vital for their participation. These are children who will most likely need some type of adaptation of an activity to be able to participate. Things such as built-up handles, specifically weighted tools (lighter or heavier depending on tone and proprioception issues), increasing target size, etc. may be needed. Be aware that quick, fast movements may increase spasticity, while slow, rhythmical movement may decrease tone.

**Down Syndrome**-Down syndrome is a condition characterized by mental retardation and overall developmental delays, resulting from a chromosomal abnormality (Trisomy 21.) Children with Down syndrome have characteristic physical features including a sloping forehead, epicanthal folds of the eyes, a flat nose or absent bridge, low-set ears and short and broad hands. Down syndrome occurs in one of 660 births, with the average increasing in mothers of very young or advanced chronological age. Children with Down syndrome are hypotonic (have low muscle tone), which makes many activities for them require extra effort to perform.

Children with Down syndrome may vary considerably in their cognitive abilities. There are a small percentage of children with Down syndrome who are not mentally retarded, and who may have very subtle facial and physical characteristics of this syndrome. The descriptor “mosaic Down syndrome” may be used when describing these children.

*Motor implications:* Children with Down syndrome, because of their low muscle tone are at risk for a condition called atlanto-axial joint instability. There may be a malformation between the two vertebrae, which puts the child at risk of severing the spinal cord if activities such as tumbling are done. Use caution with any activities that require extreme neck flexion.

**Children with Down syndrome have low tone in their hands, as well as the rest of their body and the bones of the hand do not fully develop until ages 8-9, which can make tasks requiring fine hand coordination difficult. Ball skills may be challenging.**

Children with Down syndrome often have heart conditions that may or may not have been remediated.

*Strategies:* Low tone and hyperflexibility generally correlate with decreased strength and motor coordination. General strength and endurance are good areas to address. Repetition of a task, until it is mastered, is important. Breaking the task down into smaller components, or “backwards chaining” is often effective.

**Fetal Alcohol Syndrome/Fetal Alcohol Effect-FAS/FAE** is a birth defect caused by a mother’s substance abuse during pregnancy. FAS is one of the top three known causes of birth defects, with accompanying mental retardation, and the only one that is preventable. One in 750 babies is born with FAS (1999 statistic.) Systems impacted include motor and neurological development, affect and behavioral development, social/attachment development, problem solving, attention, concentration, and play skills. FAS is characterized by mental retardation (mild to severe), poor understanding of consequences and contingencies, poor social skills, lack of awareness of right and wrong, etc. A milder form of the condition, with less neurological damage noted, is called Fetal Alcohol Effect. These children may still have difficulty with social, learning and attention skills, but may have normal cognitive abilities.

*Motor implications:* The child with FAS may have impaired coordination and dexterity; however, attention to task and problem solving may be a more significant factor in their gaining of new motor skills.

*Strategies:* Use a multi-sensory approach (visual, kinesthetic, auditory) to learning a new task. Give specific, positive feedback regarding a task (ex: “good, you kicked the ball to the target” rather than “good job.”) Limit change when learning a new activity and use lots and lots of repetition of an activity for mastery.

**Spina Bifida**-Spina Bifida is a condition involving a neurological defect that occurs during the first two months in utero, where the neural tube does not close. The child is born with the spinal cord, or the sac containing the meninges, or both, protruding or open. As the child comes through the birth canal, damage occurs to these structures. The child is born with varying degrees of paralysis below the involved area. Areas of concern may include decreased sensation, decreased bowel and bladder control, scoliosis and development of contractures.

The degree of severity of motor involvement in children with Spina Bifida has decreased over the last decade, as a result of increasing Folic Acid into prenatal vitamins, as well as the use of ultra-sound imaging. If a neural tube defect is noted, a C-section is recommended, which decreases the damage that would have occurred during passage through the birth canal.

*Motor Implications:* Children with Spina Bifida have lower extremity involvement. They often use a walker or cane to ambulate, and may have precarious balance and poor coordination due to paralysis of nerve fibers. Smooth grading of movement for kicking and running skills is difficult. Decreased **strength of lower extremities** will be noted. Children with **Spina Bifida** often have concurrent visual motor deficits, which can make activities requiring figure ground perception or other spatial concepts difficult.