

# Common disabilities seen in the Adaptive Ski Program

## **Cerebral palsy (CP)**

Cerebral palsy is a non-progressive disorder of movement and posture beginning in childhood due to malfunction or damage to the brain. Damage to the motor function areas of the central nervous system may have occurred before, during or after birth. One common cause is the absence of adequate oxygen in the brain tissue (anoxia). Characteristics may include spasticity, impaired eye/hand coordination, jerky, uncontrolled and uncoordinated movements of the limbs, balance difficulties and/or speech disturbances. Seizures are a common complication. A person with CP may have a *shunt*, a surgically implanted tube which directs the flow of fluid on the brain. Occurrence: 15,000 cases per year. The number is decreasing due to safer childbirth.

## **Muscular dystrophy (MD)**

MD is an inherited, progressive disease involving the degeneration of muscles. It is characterized by apparent lack of coordination, a clumsy gait and an inability to elevate arms over the head. MD is a crippling disease. In most cases, the arms, legs and spine become progressively deformed; by the teenage years most patients are using a wheelchair. Because of their susceptibility to infection, many die before adulthood, usually of pneumonia or other chest infection. The most common of the three forms is Duchenne's muscular dystrophy. For reasons not yet understood, the muscles in people with Duchenne's lack a key protein essential to muscular function. In the absence of this protein, the muscles grow progressively weaker, yet they may appear larger than normal because fat tissue replaces the lost muscle.

## **Traumatic brain injury (TBI)**

A head injury is a traumatic insult to the brain. Although this injury is not always visible, it may cause profound physical, intellectual, social and vocational changes. Symptoms can vary greatly and are unique, depending on the extent and location of the brain injury. Physical disabilities, impaired learning ability and personality changes are common. Also common is hemiplegia (weakness, partial or complete paralysis of two limbs on the same side of the body).

## **Spinal cord injury (SCI)**

Damage to the spinal cord due to injury, usually secondary to a broken bone of the spine or dislocation of the vertebrae. There are four segments of the spinal column; the cervical (C), the thoracic (T), the lumbar (L) and the Sacral (S). Where the injury occurred on the spine determines what motor and sensory functions of the body will be affected. If the injury is considered *complete* there is a total loss of motor and sensory function below the level of injury. In these instances, nerve impulses to the brain are totally interrupted. If the injury is *incomplete* there is a partial loss of motor and sensory function below the level of injury. Nerve impulses to the brain are partially interrupted. Depending on the injury there may be accompanying spasticity and/or muscle spasms, respiratory problems and bladder control issues.

## **Stroke or cerebral vascular accident (CVA)**

A CVA occurs when the blood supply to the brain is cut off causing temporary or permanent damage due to lack of oxygen to nerve cells. The degree of damage depends on where the incident occurs in the brain and how long the blood supply was cut off. Characteristics include speech and language difficulties, memory issues and balance/coordination issues. Stroke may result in hemiplegia (weakness,

partial or complete paralysis on one side of the body) or quadriplegia (weakness, partial or complete paralysis of all four extremities).

### **Spina Bifida (SB)**

Spina Bifida is best described as a congenital malformation of the spinal cord and supporting vertebral column. Symptoms may be very few to very involved depending on tissue from the spinal column protruding through the opening of the spine. If paralysis is present there can be orthopedic problems such as clubfoot, dislocated hip and/or scoliosis. Hydrocephalus (excessive accumulation of cerebrospinal fluid leading to an abnormally large head) occurs frequently. A *shunt*, a surgically implanted tube that directs the flow of fluid on the brain, is often necessary. Hydrocephalus may introduce varying degrees of mental impairment. It is common to have some muscle groups work below the involved vertebral level. Some people will be walking (ambulatory) with or without braces or crutches, while others will use a wheelchair. Occurrence: 1 in 2,000 births.

### **Multiple sclerosis (MS)**

A chronic, slow progressing disease of the central nervous system. When the insulating layer of tissue over the brain and spinal cord breaks down, sclerotic patches interfere with proper transmission of nervous impulses. MS results in loss of coordination (ataxia), speech difficulties, tremors and vision disturbances. Complete or partial paralysis may have occurred. Those with MS tend to fatigue easily. Judgement may be impaired as fatigue rises. MS is an adult onset disease, usually between the ages of 20-40. Occurrence: an estimated 50,000 people in the U.S.

### **Autism**

Autism (often called pervasive developmental disorder) is one of the most severe mental illnesses of childhood. It dates from birth or develops within the first two years of life. The autistic child is seemingly unresponsive to other people. There are usually extreme problems in speaking (including *echolalia*, in which a child mimics words instead of replying), strange mannerisms and bizarre facial expressions, erratic and inappropriate behavior (arm flapping, hand twisting, screaming fits) and sometimes self-destructiveness like head banging. An autistic child becomes very upset over the slightest change in his environment and is unreasonably insistent on routines. He may have normal or above normal intelligence but appear to have mental retardation or a hearing deficit due to a lack of responsiveness. Although the cause of autism has not been determined, some medical research points to an autosomal recessive inheritance in which both parents must pass on the recessive gene for the child to be affected. Others suggest that maternal rubella, encephalitis or meningitis may predispose a child to it. Occurrence: 2-7 cases per 10,000.

### **Down Syndrome**

An extra chromosome contributed by one of the parents, so that the baby has 47 instead of 46 causes Down Syndrome. A set of signs usually characterize mild to severe mental retardation, specific facial features (more obvious in some than others) an oversized tongue, and a short neck; they may also include a flat back of the head, small ears and a wide flat nose. Hearing and vision may be poor, and various internal defects (particularly of heart and GI tract) may also exist. Individuals with Down syndrome are often short and have loose muscle tone (responsible for their delayed development). They are also very sweet and loveable. Occurrence: 2,800 per year.

### **ADD, officially known as Attention deficit hyperactivity disorder (ADHD)**

ADHD symptoms are behavioral, varying from child to child, and cannot be definitely diagnosed by lab tests. ADHD is a neurological impairment of attention and self-control. The disorder is thought to be congenital with a tendency to reoccur in families with a history of ADHD. Researchers have implicated faulty neurotransmitter genes that cause a deficit in dopamine, a chemical essential for paying attention. Brain imaging studies on patients with and without ADHD reveal that there are differences in the areas that govern concentration and impulse control. While the stereotypical ADHD child is one who is hyper and seems to be in constant motion, others may seem lethargic and withdrawn. In general, children with ADHD most often exhibit one or more of the following behaviors; inattention, impulsivity, and hyperactivity. The behavior is extreme, pervasive and persistent. Although hyperactivity usually diminishes before adulthood, inattention and impulsivity can remain lifelong difficulties. In the U.S., 3-5% of kids have ADHD, boys outnumbering girls, 3 to 2

### **Mental retardation (MR)**

The disorder is most evident during the school age years. Mild mental retardation may not be recognized until the child is exposed to demands of school learning. A person who scores 70 or below on one of the individually administered intelligence tests may be diagnosed as mentally retarded. These people have difficulty interacting with others due to a lack of social skills and an emotional maturity appropriate to their age. They are slow in acquiring motor skills and language. About 25% of cases are due to chromosomal or metabolic abnormalities such as phenylketonuria (a congenital enzyme deficiency) or Down syndrome. Mental retardation may also be caused by heavy maternal alcohol consumption or toxoplasmosis. Some cases seem related to certain socially or economically deprived situations (i.e. a lack of adequate language models or a chronically under stimulated or unstructured environment). Many children with mental retardation can profit from special education classes, and as adults from special occupational or vocational training. Those with mild and many with moderate levels of retardation have had success in stand-up skiing. Those with severe or profound levels have enjoyed the thrill of bi-skiing under the full tether of an instructor. Occurrence: 3%.

### **Learning disabilities (LD)**

A child with a learning disability is one who shows inadequate development of a specific academic skill. This is not the result of a demonstrable physical or neurological disorder, mental retardation or insufficient educational opportunities. Usually there is impairment in one particular cognitive area of maturation - reading, arithmetic, language or speech.

### **Other**

The Adaptive Ski Program also involves those with critical illnesses such as cancer and AIDS, those with hearing or sight deficits or losses and those with a single or multiple amputations. Only the most common disabilities have been noted above. Anyone with a permanent physical or developmental disability is welcome to participate. The on-the-mountain training will help you as an instructor identify the student's anxiety level, processing problems, body dysplasia and/or spacial awareness difficulties. Guidance will be given on how best to deal with certain disability characteristics. You will be given a profile of your student prior to lessons. Ask your clinic instructor or the Program Director for clarification on anything you do not understand. Find out the effects of the medication they may be taking. In short, do your homework. While it is imperative that you understand your student's disability thoroughly, don't forget to focus on him as a person. Build a relationship, gain his trust, have fun yet put safety first.