



ADAPTIVE SNOWBOARD STUDY GUIDE

LEVEL I and II

November 2021 Version

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INTRODUCTION

Welcome to the Level I and II Study Guide for Adaptive Snowboard Certifications. This guide is intended to provide candidates with the information required to safely teach Adaptive snow sports lessons and to prepare for Adaptive Certification Exams. This study guide should be studied thoroughly prior to certification events.

The Study Guide is designed to work in conjunction with the following PSIA/AASI resources:

<https://www.thesnowpros.org/education/digital-manuals-for-every-discipline/>

Adaptive Instruction Supplement: Diagnoses & Medications Classifications

Adaptive Snowboard Technical Manual (available 10/2022)

Snowboard Technical Manual

Children's Instruction Manual

Teaching Snowsports Manual

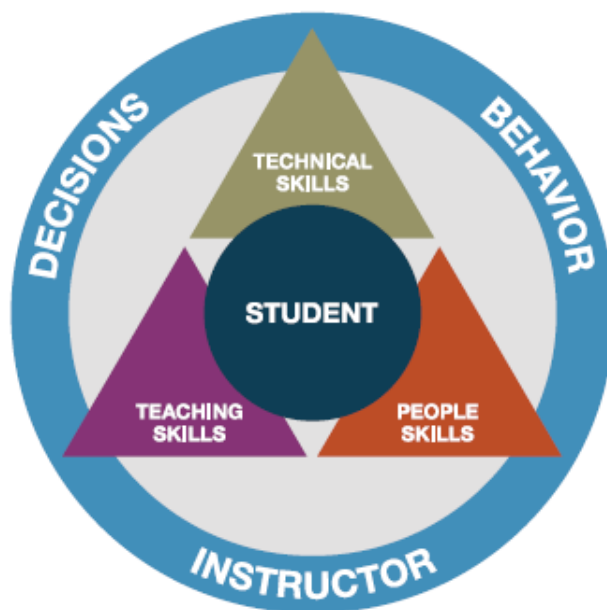
Core Concepts

PSIA-AASI W website -> education - > Western Member Library -> Adaptive Member Library -> Exam Materials https://drive.google.com/drive/folders/1fIU3_bGbBcgh4_fZs3mJSTcRWvPESBgN

In preparing for exams, candidates should focus on those areas in the Study Guide that relate to the particular discipline or disciplines for which they are seeking certification. Members may seek certification in one or more disciplines.

The Learning Connection Model

Student Centered
3 Skills: People, Teaching, Technical



People and Teaching Skills are the same across all disciplines (Alpine, Snowboard, Adaptive, Children's, Seniors, X-Country, Freestyle, Telemark).

People Skills are about communicating in effective ways to develop trust and achieve favorable relationships.

People Skills Fundamentals:

Developing relationships based on trust

Engaging in meaningful two-way communication

Identifying, understanding, and managing our emotions and actions

Recognizing and influencing the behaviors, motivations, and emotions of others

Teaching Skills are about creating an engaging environment in which to foster student learning.

Teaching Skills Fundamentals:

Collaborating on long-term goals and short-term objectives

Managing information, activities, terrain selection, and pacing

Promoting play, experimentation, and exploration

Facilitating the learner's ability to reflect upon experiences and sensations

Adapting to the changing needs of the learner

Managing emotional and physical risk

Technical Skills are specific to each discipline (Alpine, Snowboard, Adaptive, Children's, Seniors, X-Country, Freestyle, Telemark). These skills bring teaching concepts to life with practical applications adapted to the student's ability level or desired outcome. These skills relate to the instructor's understanding of fundamental skiing mechanics and applying that understanding in lessons. Technical skills represent the ability to perform, understand, and explain the sport. In sharing technical skills, the instructor communicates certain discipline-specific aspects of movement and gives accurate demonstrations.

Technical Skills include 1) Skiing/Riding Performance 2) Technical Understanding

3) Movement Analysis – these 3 technical skills are used for all disciplines

Adaptive Snowboard Technical Skills –

1) Riding Performance – adapting the fundamentals of Alpine – 6 Fundamentals:

1. Control the relationship of the center of mass to the base of support to direct pressure along the length of the board
2. Control the relationship of the center of mass to the base of support to direct pressure along the width of the board
3. Regulate the magnitude of pressure created through board/surface interaction
4. Control the board's tilt through a combination of inclination and angulation
5. Control the board's pivot using flexion/extension and rotation of the body
6. Control twist (torsional flex) of the board using flexion/extension and rotation of the body

2) Technical Understanding – see Knowledge/Performance areas (p.11)

3) Movement Analysis – see p.

Knowledge/Performance Areas

(See additional resources for elaboration)

Riding Demonstrations:	_____
Tasks	_____
Functional mechanics	_____
ATS	_____
Movement Analysis – Observation, Evaluation, Prescription	_____
Equipment knowledge – Snowboard, Adaptive	_____
Smart style	_____
TTPP	_____
ATML	_____
Responsibility code	_____
Safety/fun/learning	_____
Teaching cycle/learning partnership	_____
Learning styles	_____
Teaching styles - L1 is task and command, L2 adds problem solving, guided discovery and reciprocal	_____
Progressions: corrective vs. developmental	_____
Corrective and developmental progressions for discipline being examined	_____
Physics - friction/centripetal/centrifugal/cm/differential friction	_____
Anatomy – joints, bones, ligaments, tendons, vertebrae, muscles, nerves, brain, eyes	_____
Gardiner’s Multiple Intelligences	_____
Maslow’s Hierarchy of Needs	_____
Developmental models - CAP model, Piaget, Phases of Motor Skills Acquisition	_____
PDAS	_____
Behavior modification	_____
Discipline - Vi, Cog/Id, Bi-ski, Mono-ski, SU	_____
SB equivalencies	_____
Disabilities - knowledge of disability including description of impact	_____
Red flags/teaching considerations	_____
Assessment	_____
Medications - classifications, not names	_____
Fitting for related disability	_____
Assists/holds - Cass, 2-point, horse and buggy, runaway, tip connectors, spreader bar, tethers, shims, slider, seat assist, cants, climbing harness, etc.	_____
Disability Etiquette	_____
Parent/caregiver role	_____

ASSESSMENT – Critical in Adaptive lessons

Purpose: Obtain information about the student in order to teach a safe, successful lesson

Intake Form: Frontloading information

Visual Assessment: What we observe when our student arrives

CAP

Cognitive

Ability to follow directions
Memory
Attention
Developmental age
Alertness
Learning Style

Affective

Greeting
Responsiveness
Eye contact
Engagement
Social skills
Emotion
Behavioral Issues, meltdowns, what works
Communication

Physical

Specialized Equipment
Gait
Balance
Strength
Coordination
Flexibility
Range of Motion
Sensory Issues
Vision
Hearing
Health
Athleticism

Disability Information

What is involved
Onset
Cause, if applicable
Any recent surgeries or procedures
Under doctor's care
Involved in ongoing treatments
Other diagnoses
Assistive equipment
Red Flags for Diagnosis – safety issues

Medications

What for
Any recent changes
Side effects

Other questions

Previous ski/snowboard experience
Other sports or recreation
Hobbies
Work
Goals
Motivators

Sunscreen
How long at elevation
Appropriately dressed, eye wear, helmet
Had breakfast
Used restroom

Anything else important for me to know in order to have a good experience and be safe?

Adaptive Disciplines for Adaptive Snowboard

For Level I Certification, you will be required to demonstrate basic knowledge in one of the disciplines described below. For Level II Certification, you will be required to demonstrate thorough knowledge in all of the disciplines relative to your certification in Adaptive Snowboard. Following are the disciplines associated with the Adaptive Snowboard Certification process:

COG/ID - Cognitive/Intellectual Disability

VI – Vision Impairment

MS – Mono ski

BS – Bi ski

SU – Stand Up

The disciplines are defined as follows:

COG/ID (Cognitive/Intellectual Disability) – This discipline includes people with damage to any portion of the brain that affects the ability to process information, coordinate and control the body, or move in space. Cognitive Diagnoses are classified as either organic (related to disease), or non-organic (caused by injury). People with cognitive diagnoses are comprised of congenital abnormalities, trauma, disease or deprivation that interrupts or delays in normal fetal, infantile, or juvenile development.

VI (Vision Impairment) – This discipline includes people with any diagnoses that affects vision.

MS (Mono-ski) – This discipline includes people with diagnoses who ski in a mono-ski. This would include paraplegics who do not have muscle control of the legs, but have strong upper bodies and some torso control, double leg amputees, and individuals with significant lower extremity weakness or loss of coordination.

BS (Bi-ski) – This discipline includes people with diagnoses who ski in a bi-ski. This would include quadriplegics who have limited use of the legs and arms, individuals with significant coordination or balance issues, and people who choose to ski in a bi-ski.

SU (Stand Up) – Snowboarders that stand-up to ride - that do not have cognitive or vision impairment (i.e., riders with diagnoses that limit the use of one or both legs or have balance/coordination issues).

DIAGNOSES

This section of the Adaptive Study Guide is intended to help candidates prepare for the knowledge of diagnoses portion of the adaptive level I or II exam. The chart “Adaptive Diagnosis by Discipline” shows the diagnoses candidates are expected to know for the LI or LII Adaptive Snowboard Teaching and Technical Exam. These are some of the diagnoses that you will most frequently encounter. It is expected that you have thorough knowledge of these diagnoses and are likely to have a teaching scenario with one of these diagnoses. For additional information see Adaptive Instruction Supplement: Diagnoses & Medications Classifications.

ADAPTIVE DIAGNOSES BY DISCIPLINE

DIAGNOSES	C o g /I D	Vis ual Imp air me nt	M o n o- s ki	Bi -s ki	S ta n d U p
ABI	X	X	X	X	X
ADD/ADHD	X				
Amputation/ Limb Deficiency			X	X	X
Autism Spectrum Disorder	X				
Cancer	X	X	X	X	X
Cataracts		X			
Cerebral Palsy	X		X	X	X
Diabetes		X	X	X	X
Diabetic Retinopathy		X			
Down Syndrome	X				
Epilepsy	X			X	
Glaucoma		X			
Intellectual Disability	X				
Macular Degeneration		X			
Multiple Sclerosis		X	X	X	X
Muscular Dystrophy			X	X	X
Myopia		X			
Nystagmus		X			
PTSD	X				
Retinitis Pigmentosa		X			
Spina Bifida			X	X	X
Spinal Cord Injury			X	X	X
Strabismus		X			

DIAGNOSES SUMMARIES

Acquired Brain Injury (ABI)

Description:

ABI is caused by an injury to the brain that occurs after birth. The damage may be to any portion of the brain that affects the ability to process information, coordinate and control the body, or move in space.

Cause:

There are two types:

- 1) Traumatic brain injury caused by an external force (fall, gunshot, etc.).
Closed (non-penetrating) - trauma to the head; no fracture to the skull; gives brain nowhere to expand as it swells.
Open (penetrating) – trauma to the head in which part of the skull is forced into the brain.
- 2) Non-traumatic – caused by internal force (stroke, seizure, lack of oxygen, etc.).
A problem with a blood vessel leaking, bulging or being blocked causing a disruption of blood circulation to the brain – Cerebrovascular Accident (CVA or Stroke).

Red Flags/Teaching Considerations:

Anxiety, behavioral changes, balance problems, bruising/bleeding, cognitive issues (memory, learning, reason, judgement, attention, decision-making), depression, disorientation, fatigue, hearing problems, hydrocephalus/shunt, hyper/impulsive/runaway, lability/mood swings), muscle control problems, seizure, sensory issues, speech or communication difficulties, visual impairment

Medications:

Anticonvulsants
Antidepressants
Anticoagulants
Anti-anxiety medication

Amputation and Limb Deficiency

Description:

Amputation and Limb Deficiency is a [loss or deficiency of one or more limbs](#).

Cause: There are three major causes of amputations and limb deficiency.

Congenital – Born with malformed limbs.

Trauma – Auto accident, explosion, other trauma.

Surgical – Limb was amputated due to cancer, diabetes, or other disease.

Types of amputations:

AE – above-the-elbow

AK – above-the-knee

BE – below-the-elbow

BK – below-the-knee

Bilateral – amputations on both sides

HP – hemipelvectomy – amputation of half the pelvis and associated limb

Hip disarticulation – amputation at the hip joint

Limb deficiency – complete or partial loss of a limb

Shoulder disarticulation – amputation below the shoulder socket

Syme's – amputation at the ankle

Unilateral – amputations on the same side

Red Flags/Teaching Considerations:

The red flags are dependent on the cause. Red flags may include balance, bruising/bleeding, fatigue, fragile bones, frostbite/cold susceptibility, leg length/alignment and pressure/friction sores. In general, when working with people with amputation and limb deficiencies, consider padding or protecting the residual limb, and making adjustments for other problems that may be present due to the cause of the amputation or limb deficiency.

Medications:

- Antidiabetics
- Anticoagulants
- Chemotherapy
- Analgesics
- Anti-inflammatory

Attention Deficit Disorder/Attention Deficit Hyperactive Disorder (ADD/ADHD)

Description:

ADD/ADHD is a neurobehavioral developmental disorder in which a persistent pattern of inattention, hyperactivity and impulsivity occurs in two or more settings (e.g., home, school, playground, work) and is more intense than is typically observed in individuals at a that same age. The three main characteristics are:
Inattention: difficulty paying attention to details, tendency to make careless mistakes, easily distracted, forgetful, not listening to others.

Impulsivity: Acting without consideration for consequences, impatient, frequently interrupting, difficulty waiting one's turn.

Hyperactivity: Fidgeting, squirming when seated, running, climbing or talking excessively and at inappropriate times.

Cause: May be hereditary, brain injury, poor nutrition, or environmental.

Red Flags/Teaching Considerations:

Attention problems, hyperactive/impulsive/run away, poor ability to assess risk in an activity, low frustration tolerance.

Limit distractions. Keep a close eye on them. Stay calm. Give clear, simple directions given one at a time.

Get moving (don't stand around or talk too much). You may use gate belt if squirmy on the chair lift.

Medications:

Psychostimulants – 2 types: CNS non-stimulants and CNS stimulants; they work to increase attention, focus, and concentration and decrease impulsivity and hyperactive by activating the underactive part of the brain that controls these functions. These medications aid in reducing hyperactivity and increasing ability to focus and learn. However, they often go off meds on weekends and during holiday periods. Therefore, ask about their medication schedule and whether they are adhering to it during the period they are with you.

Antidepressants - (Individuals with ADD/ADHD often have co-occurring depression).

Autism Spectrum Disorder (ASD)

Description:

A spectrum-based neuro-developmental disorder that ranges from mild to severe. Severity is defined by the level of support required for social communication. The word "auto" suggests the idea of being in a "self-bubble" – having difficulty connecting with outside world or letting people in. Sometimes referred to

as “being on the spectrum”, meaning there is wide variation in severity and types of symptoms. Generally, appears during the first three years of life and there is no known cure. Early intensive interventions are recommended, such as applied behavioral analysis (ABA), relationship-based models of intervention, speech therapy, occupational therapy (OT), specific type of OT- sensory integration training, etc. May have a dual diagnosis of Intellectual Disability. Speech and communication issues, such as echolalia and perseverative language are often present.

Cause:

Unknown

Red Flags/Teaching Considerations:

Aggression, anxiety, attention issues, behavioral challenges, cognitive issues, emotional lability, hyper/impulsive/run away, memory or recall difficulties, self-injurious behaviors, seizures, sensory issues, speech and communication issues, melt downs, unusual interests and behaviors.

Medications:

Anti-anxiety medications

Antidepressants

Antipsychotics

Anticonvulsants

Cancer

Description and Cause:

A group of diseases caused by uncontrollable division of abnormal (malignant) cells that invade the body. More than 100 types of cancers exist. Cancer is categorized by the level of involvement (stage):

0 - abnormal cells are found only in the first layer of cells of the primary site and do not invade the deeper tissues.

1 - cancer involves the primary site but has not spread to nearby tissue.

2 - cancer has spread to nearby areas that are still inside the primary site.

3 - cancer has spread throughout the nearby area.

4 - cancer has spread to other parts of the body.

Red Flags/Teaching Considerations:

Based on the type of cancer and level of involvement. Common red flags are anemia, bruising and bleeding, bladder and bowel problems, cognitive issues, edema, fatigue, fragile bones/spine, infection, memory issues, nausea, nerve problems and vomiting.

Medications:

Chemotherapy

Other meds based on impact of cancer

Cataracts

Description:

A progressive clouding of the lens in one or both eyes, leading to partial or total blindness. Symptoms include cloudy vision, glare, and poor night vision. Cataracts are corrected by a surgical procedure to remove the clouded lens and replace it with a plastic lens.

Cause:

It is most often related to aging. Other causes can be heredity or injury.

Red Flags/Teaching Considerations:

Visual impairment, especially into the sunlight, or in poor light conditions. With Cataracts, avoid student facing into the sun.

No Medications

Cerebral Palsy (CP)

Description:

CP is a condition where the brain sends incorrect messages to the muscles causing abnormal muscle tone including spasticity, flailing, or jerky movements. This affects the development, alignment, and coordination of the limbs, and may affect speech, vision and balance. Sixty-five percent of persons with CP have some degree of Intellectual Disability. Common classifications:

1. Ataxic - jerky, uncontrolled movements, muscle control normal
2. Dyskinetic (athetoid) – extraneous movements, muscle tone fluctuates
3. Flaccid (hypotonic) – diminished muscle tone, appear floppy
4. Spastic (hypertonic) – tense, contracted muscles
5. Mixed

Cause:

CP is a brain injury caused before, during, or shortly after birth due to trauma or lack of oxygen.

Red Flags/Teaching Considerations:

Balance, bladder/bowel, fatigue, fragile bones/spine, cognitive issues, leg length/alignment, muscle control problems, scoliosis, seizures, speech/aphasia/dysarthria, visual impairment.

Medications:

Antispasmodics
Anticonvulsants

Diabetes

Description:

Diabetes is a disease in which the body does not properly process glucose in the bloodstream, resulting in high blood sugar.

In type 1 diabetes, the body does not produce insulin (a hormone needed to get glucose from the bloodstream to cells for energy). This is usually diagnosed in childhood. In type 2 diabetes, the body does not produce enough insulin or use it effectively. Therefore, blood sugar levels are not maintained at appropriate levels. This is usually diagnosed in adulthood and is often caused by lifestyle.

Cause:

Genetics and lifestyle cause diabetes. Type 1 diabetes may be caused by a virus.

Red Flags/Teaching Considerations:

Diabetic/insulin shock, fatigue, frostbite/cold susceptibility, pressure/friction sores, thermoregulation, visual impairment, circulatory issues, numbness, amputations.

Medications:

Antidiabetics

Diabetic Retinopathy

Description:

Diabetic Retinopathy is a condition of the retina caused by diabetes where the blood vessels leak, cause scarring, or growing of new vessels which block the retina.

Cause: Damage to the blood vessels in the retina from diabetes.

Red Flags/Teaching Considerations:

Diabetic/insulin shock, fatigue, frostbite/cold susceptibility, thermoregulation and visual impairment.

Medications:

Antidiabetic meds
Steroids (Anti-inflammatory)
VEGFR Inhibitors

Down Syndrome

Description:

People with Down syndrome have a full or partial extra 21st chromosome causing intellectual disability, a characteristic appearance (flat looking face and upward slanting eyes), short stature, susceptibility to heart defects, gastrointestinal defects, and weakness in the cervical spine.

Cause:

Chromosomal, not inherited, caused by a defect in cell division

Red Flags/Teaching Considerations:

Atlanto-axial instability – AAI (C1-2 instability), heart problems, hydrocephalus/shunt, intellectual disability, loose joints (joint laxity, low muscle tone), seizures, and fatigue

Medications:

Anticonvulsants
Hypothyroidism meds
Laxatives

Epilepsy

Description:

Epilepsy is a brain disorder in which neurons signal abnormally causing seizures. Epilepsy is diagnosed when a person has two or more seizures with no known cause and an abnormal brain wave is present.

2 types:

1) Generalized Motor Seizures

Atonic – Abrupt loss of muscle tone, causing the individual to collapse.

Tonic-clonic (previously called grand mal seizure): Affects entire brain, loss of consciousness, muscle stiffening, jerky movements.

2) Generalized Non-Motor Seizures

Myoclonic – rapid, brief jerk of a muscle

Typical Absence (previously called petite mal seizure) - the individual has a brief lapse of awareness and stops all activity staring blankly. The eyes may turn upward with the eyelids fluttering.

Cause:

Anything that disturbs the brain, illness, injury, or abnormal development.

Red Flags/Teaching Considerations: Seizures. Use a seizure belt per program policy.

(See page 41 for information on seizures.)

Medications:

Anticonvulsants

Glaucoma

Description:

Damage to the optic nerve causing loss of peripheral vision and leading to total blindness.

Cause:

Increased pressure inside the eye and other factors; common causes include high blood

pressure, circulation problem and genetics.

Red Flags/Teaching Considerations:

Visual impairment.

Medications:

Medications to reduce pressure in the eye such as the prostanoid group of eye drops.

Intellectual Disabilities

Description:

Intellectual Disabilities are characterized by below-average intellectual functioning (abstract thinking, speed of learning, planning, problem solving, etc.), difficulties in life skills and adaptive functioning (managing money, communication, schedules routines, self-care and social interaction). Onset is before age 18. Previously severity was based on I.Q., but with latest edition of the DSM (5) severity is now based on adaptive functioning and the level of support required.

Mild – Can live independently with minimum levels of support. Capable of learning academic and pre-vocational skills with some special training. I.Q. ranges from 50-69.

Moderate – Independent living may be achieved with moderate levels of support, such as in group homes. Can learn functional academic skills and be independent in familiar surroundings. I.Q. ranges from 50-36.

Severe – Requires daily assistance and supervision with self-care and safety. Physical disabilities such as vision impairments or motor dysfunction are often present. Individuals are able to contribute to self-maintenance in work and living situations with supervision. I.Q. ranges from 20-35.

Profound – Requires 24-hour care. Overall responsiveness is minimal and the individual may have secondary physical disabilities. I.Q. is 20 or less.

Cause:

Prenatal, postnatal, chromosomal, genetic neurological, congenital infection.

Red Flags/Teaching Considerations:

Fatigue, cognitive issues, others based on severity and involvement of condition.

Medication:

No specific medication

Macular Degeneration

Description:

Damage to the central part of the retina causing loss of central vision and loss of visual acuity.

Cause:

Deposits of tissue or abnormal blood vessel growth. Age and smoking have been shown to contribute.

Red Flags/Teaching Considerations:

Visual impairment.

Medications:

Anti-inflammatory (VEGFR Inhibitors)

Vitamins

Antioxidants

Zinc

Multiple Sclerosis

Description:

Multiple Sclerosis is a progressive autoimmune disease that attacks the myelin sheath of the central nervous system causing communication problems between the brain and body. MS is more common in women and in cold climates. It normally is diagnosed between the ages of 20 and 50. Most have relapses and periods of remission. Stress, fatigue, and increased body temperature worsen symptoms. Students with MS often have very limited endurance and may be done for the day if overheated. Watch for fatigue and adjust levels of exertion accordingly. People with MS will have good days and bad days.

Cause: Unknown.

Red Flags/Teaching Considerations:

Balance problems, bladder/bowel control issues, depression, memory issues, fatigue, lability, emotional, muscle control problems, speech, thermoregulation, tremors, and visual impairment.

Medications:

Anti-inflammatory (Corticosteroids)

Immunosuppressives

Muscle relaxants

Antidepressants

Muscular Dystrophy

Description:

Muscular Dystrophy is a genetic condition that causes progressive deterioration of the voluntary and skeletal muscles. There are a number of different forms. It is more common in boys than girls.

Duchenne MD (most common type) is diagnosed between ages 2 and 6.

Cause: Inherited

Red Flags/Teaching Considerations:

Breathing problems, fatigue, fragile bones/spine, heart problems, learning disabilities, muscle control problems, pressure/friction sores and visual impairment.

Medications:

Antispasmodics

Corticosteroids

Myopia

Description:

Nearsightedness where distant objects appear blurred while near objects remain clear.

Cause:

The eye is too long from front to back, causing the lens to focus images in front of the retina.

Red Flags/Teaching Considerations:

Visual impairment, often corrected with glasses or contact lenses.

Medications:

None

Nystagmus

Description:

Rapid, involuntary movement of the eyeballs due to abnormal function in the areas of the brain that control eye movement.

Cause:

Red Flags/Teaching Considerations:

Visual impairment.

No Medications.

Post Traumatic Stress Disorder (PTSD)

Description and Cause:

PTSD is a mental health condition that is diagnosed when a person experiences a trauma and continues to experience it as if it just occurred. It is diagnosed through DSM5. A trauma is an event that is perceived as life threatening and horrifying, that overwhelms an individual's ability to cope and causes helplessness, diminishes their sense of self, and their ability to feel a full range of emotions. Trauma from which people develop PTSD range from rape, molestation, assault, car accidents, war combat, or witnessing violence.

4 Types of symptoms:

1) Re-experiencing the event – this can be in the form of unwelcome memories, intrusive thoughts, nightmares, or flashbacks.

2) Avoidance - avoiding stimuli reminiscent of the event or emotions that trigger memories. They may use alcohol or drugs to numb themselves. Self-medication is big problem - be aware the possibility of coming back from lunch in an altered state of consciousness due alcohol consumption. Follow program policies regarding alcohol and drug use. Most have a zero-tolerance policy for the use of mind-altering substances during a lesson.

3) They feel worse. Their thinking is distorted and they do not function as well as they did prior to the trauma. They may experience. suicidal thoughts, anger issues, low frustration tolerance & irritability.

4) Heightened arousal - increased heart rate, panicky feeling, jittery, on edge, fidgety, exaggerated startle response, hypervigilance - always on the lookout for danger, and difficulty with attention and focus.

Red Flags/Teaching Considerations:

Anxiety and depression.

Ask if they have any trauma related symptoms that you should be aware of? If they do have PTSD, ask what kinds of things trigger them, what do they do to manage them and what they would like us to do in the event that this happens. If those things can be avoided during the lesson do so or forewarn them when you can anticipate something like that happening.

Frequent types of triggers: can be anything; depends on the trauma and what things remind them of those events or emotions. When skiing, often things like loud noises, snow making machines, avalanche blasting and touch can be triggers.

Predictability is important. Share expectations of the day. Include your student in that part of the teaching cycle where goals are developed and plans are made. Always ask before touching an athlete. This is a general rule, but even more important for individuals with PTSD. The exaggerated startle response can be triggered by unexpected touch; touch has been violating for some, both males and females. We want to be respectful and avoid being intrusive.

Medications:

Anti-anxiety

Antidepressants

Retinitis Pigmentosa

Description:

Retinitis Pigmentosa is a group of progressive diseases that affect the retina beginning in childhood causing poor night vision, loss of peripheral vision, and in some case blindness.

Cause: Inherited .

Red Flags/Teaching Considerations:

Visual impairment.

Medications:

Vitamins

Spina Bifida

Description:

Spina Bifida is a congenital abnormality of the spinal cord in which the vertebrae fail to close completely around the spinal cord, usually between Lumber 5 and Sacral 1. There are different types and severity. Impacts range from weakness in the legs to full paraplegia. Spina bifida is more frequent in females.

Cause:

Unknown, possibly a combination of genetic and environmental factors. Folic acid during the first month of pregnancy can reduce the frequency.

Red Flags/Teaching Considerations:

Balance problems, bladder/bowel problems, fragile bones/spine, hydrocephalus/shunt, latex allergy, leg length/alignment, scoliosis, and spinal stabilization.

Medications:

Antibiotic

Anti-inflammatory

Antispasmodic

Spinal Cord Injury

Description:

Spinal Cord Injury is an injury or disease process affecting the spinal cord. The level of functioning depends on where on the spinal cord the damage occurred as well as the extent of the damage.

The spine consists of 33 vertebrae divided into 5 regions:

Cervical (neck) - the first seven vertebrae and eight spinal nerves

Thoracic (chest) - 12 vertebrae and 12 spinal nerves

Lumbar (lower back) - five vertebrae and five spinal nerves

Sacral (tailbone) - five vertebrae fused into one and the final six spinal nerves

Coccyx - this region contains four vertebrae fused into one and has no spinal nerves

Incomplete sci injury – some motor, sensation remain below the level of injury

Complete sci injury – no motor, sensation remain below the level of injury

Paraplegia or paraparesis - damage occurs in either the thoracic, lumbar, or sacral region

Quadriplegia or quadriparesis - damage occurs in the cervical region

Cause: Trauma or disease process

Red Flags/Teaching Considerations:

Autonomic dysreflexia, bladder/bowel control issues, fragile bones/spine, frostbite/cold susceptibility, leg length/alignment, pressure/friction sores, shunt, spinal fusion, spinal stabilization, thermoregulation.

Medications:

Antibiotic

Anti-inflammatory

Antispasmodics

Strabismus

Description:

Occurs when the eyes do not line up in the same direction, typically due to unequal strength of the extraocular muscles.

Cause:

Untreated Amblyopia, conditions such as Cerebral Palsy, Guillain-Barre syndrome, Prader-Willy syndrome, or Trisomy 18.

Red Flags/Teaching Considerations:

Visual impairment.

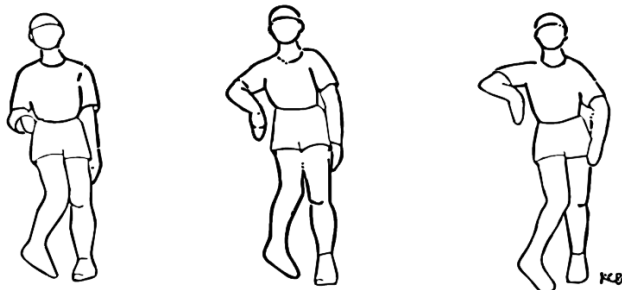
No Medications

COMMON GAITS IN ADAPTIVE STUDENTS

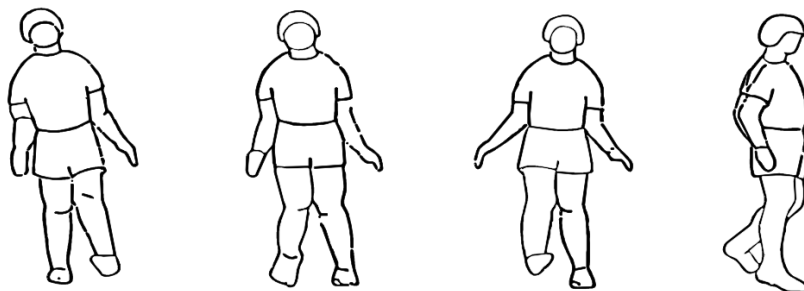
Gait - Manner of walking

Careful observation of the student as they walk into the ski lodge can reveal what muscles are affected and the degree of impairment. Sometimes impairment of gait may be caused by mechanical factors, such as disease of bones, tendons, joints or muscles. Damage or lesions at different levels of the nervous system are very important causes of gait abnormalities. A few of the most common gaits are listed and illustrated below:

Cerebellar gait. Characteristics of ataxic cerebral palsy, Friedreich's Ataxia, and similar to Les aytres. Irregularity of steps, unsteadiness, and tendency to reel to one side. Problems are increased when the ground is uneven.



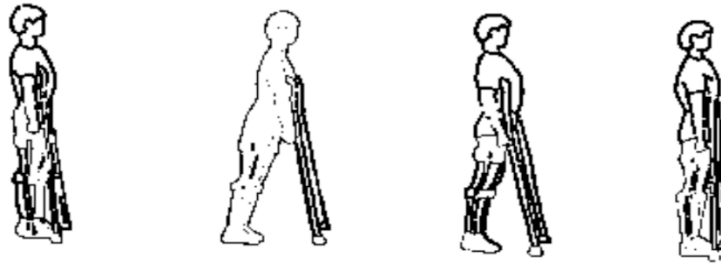
Hemiplegic gait. Characteristics of hemiplegic spastic cerebral palsy. Both arm and leg on the same side are involved. Individuals lean to the affected side, and arm on that side is held in a rigid, semi flexed position.



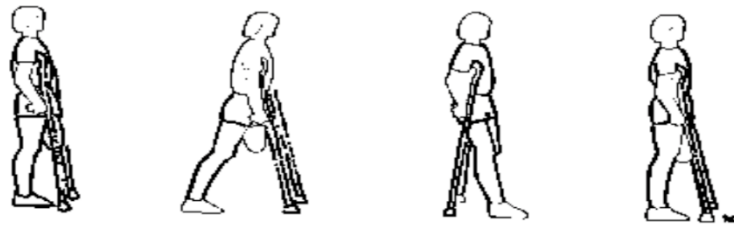
Scissors gait. Characteristic of quadriplegic spastic cerebral palsy. The legs are flexed and abducted at the hip joint causing them to cross alternately in front of each other with the knees scraping together.



Step to, swing to, or drag to gait. All the weight is taken by the arms while the legs are lifted and swung or dragged forward. The pattern is lift and drop, lift and drop. A good example would be a person with spina bifida in long leg braces.



Swing through gait. The body is swung through the crutches so that the good foot lands in front of the crutches. Then the crutches are brought forward and the sequence is repeated. This gait is used by most leg amputees.



Waddling gait. This gait is very similar to the muscular dystrophy gait. Characterized by awkward side to side waddle, sway back, arms held in backward position and frequent falling.



Illustrations by Kathryn Bevier



RED FLAGS/TEACHING CONSIDERATIONS SUMMARIES

Anxiety

Description:

Anxiety is an unpleasant experience of emotions on the fear spectrum including worry, apprehension, inner turmoil, and panic. There can be physiological correlates such as palpitations, high blood pressure, exaggerated startle response, rapid breathing and heart rate, shortness of breath, nausea and/or chest pain. Behaviors such as pacing, trembling, restlessness or fidgeting are often experienced. Thinking is impacted as well. Types of thoughts include rumination, catastrophizing (worst case scenario) or concentration difficulties.

Cause:

May be related to genetics, environmental or psychological factors.

Assessment:

Observe for symptoms. Ask about concerns about the day and what helps them to deal with the anxiety.

During the lesson:

Be supportive and encouraging. Stay calm. Observe for signs and listen to their verbalized worry or fear. Use techniques to reduce stress such deep breathing, distraction or breaking activity into manageable parts. Validate emotion, without necessarily agreeing (e.g., "I know this is hard...so you can be proud of yourself for attempting it"). Don't try to talk them out of their feelings (e.g., "you shouldn't feel that way").

Attention Issues

Description:

The person has difficulties paying attention to details. There is a tendency to make careless mistakes, be distracted easily, and have difficulty completing or staying on task.

Cause:

Cognitive diagnoses such as, ADD, Autism, brain injury or obsessive distracted thinking.

Assessment:

Observe ability to attend and focus as you ask questions of them and/or their caretaker.

During the Lesson:

Limit distractions. Keep a close eye on them. Stay calm. Give clear, simple directions given one at a time. Get moving (don't stand around or talk too much). May use gate belt if squirmy on the chair lift.

Autonomic Dysreflexia

Description:

AD is a spasm of the autonomic nervous system which controls pulse and breathing and can be life threatening. It can cause the person to lose consciousness and if not treated can be fatal. It is most common in people with spinal cord injuries above T6, but may occur with injuries as low as T11.

Symptoms are panic, flushing, headache, sweating, blurred vision or problems with communication. It is often preceded by an “impending sense of doom”.

Cause:

Autonomic Dysreflexia can be caused by any stress to the person such as trauma, infection, being hot or cold, or having bladder or bowel distress.

Assessment:

Instructors must ask any student with a spinal cord injury above T10 if they have experienced autonomic dysreflexia, if they have awareness of the precursors and to let you know if these symptoms occur.

During the Lesson:

Instructors must use extra caution to avoid tight straps, pinched catheter tubes, or trauma. If the symptoms occur, you must remove the stress, call Ski Patrol, and remove the student to a warm place.

Balance Problems

Description:

The ability to balance can be affected by medical conditions or medications that affect the inner ear or the nerves that provide input to the brain from the inner ear, the eyes or proprioceptors.

Cause:

Neurological diseases, medications, amputations.

Assessment:

Instructors should observe the student walking and balancing, discuss prior skiing and other sports with the student or parent, and ask the student about balance.

During the Lesson:

Instructors should observe the first moves on snow to determine if assists should be used, or exercises should be selected to improve balance and avoid falling.

Behavioral Issues/Aggression

Description:

Students with behavioral issues or aggression appear to be afraid, noncompliant, stubborn, unmotivated, aggressive, don't seem to understand, play around too much, don't pay attention, are reckless, offensive, or have rude behavior or remarks that we may find disrespectful.

Cause:

A maladaptive communication expressing a desire to escape or avoid, to get something desired, that they are having difficulties with self-management or emotional regulation, that they want your approval or attention (positive or negative), that they need stimulation, that they are attempting to exert power or control, or that they are afraid.

Assessment:

Ask about behavioral issues. Attempt to understand what they are communicating. Get input about what works best at home. Start to build rapport. Include the student as much as possible throughout the assessment.

During the lesson:

Implement recommended strategies obtained from parent/caregiver/student.

Try to prevent maladaptive behaviors by anticipating what might trigger them. Use behavioral strategies, such as clearly defined rules. Use “do” instead of “don't”. Utilize visual supports. Lower expectations if student is stressed. Stay calm. Back off if student is upset. Introduce change gradually. Don't take behavior personally!

Bladder/Bowel Control Issues

Description:

Bladder/bowel control issues is an inability to control bladder or bowel functions. May involve catheterization and use of bags.

Cause:

Neurological issues, including Spinal Cord Injury.

Assessment:

During all assessments, it is recommended to ask the student or parent if the student has been to the restroom, and to tell you if there is a need for a break. Inquire about frequency of needed bathroom breaks as well as how much advance warning may be needed.

During the Lesson:

When fitting the student in a sit ski, take care and ask for the student's help to avoid straps that are too tight and may interfere with a tube. Observe the student for signs of anxiety and make it clear that it is OK to ask to take a break. Take breaks every one to two hours, or more often based on observation of the student.

Breathing/Lung Problems

Description:

Breathing or lung problems have symptoms of shortness of breath, reduced lung capacity and/or constricted airways.

Cause:

Disease processes including asthma and allergies can lead to breathing or lung problems. Increased altitude reduces the amount of oxygen available. In addition to the symptoms of the diagnoses, fatigue from travel and the skiing/riding experience may exasperate the breathing difficulty.

Assessment:

The instructor should ask all students how long they have been at this altitude (if over 6000 ft.), what other sports they engage in, and how much they have skied or ridden before. If their diagnosis is listed as having respiratory or lung problems, you should ask about their ability to breathe. Ask about medications and the use of an inhaler. Does the student have the inhaler with them and where is it located?

During the Lesson:

The instructor should observe the student carefully to determine if breathing problems occur and control the level of exertion and altitude to prevent exhaustion. Ask about the use of an inhaler and specifically if the student has one during the lesson.

Bruising/Bleeding

Description:

Trauma, surgery, or circulatory system problems may lead to a propensity for bruising. If injured, it may be more difficult to arrest the bleeding.

Cause:

Medical conditions or medications (such as blood thinners) may affect the ability of the blood to clot.

Assessment:

The instructor should ask people who have diagnoses related to trauma, surgery, or circulatory problems about history of bruising or bleeding.

During the Lesson:

The instructor should be more cautious to avoid falls and collisions by looking out for hazards and controlling the difficulty of the slope and the tasks.

Cervical (C1-2) Instability (AAI)

Description:

Poor development of C1 and C2 (atlanto-axial instability) causes instability of the cervical spine.

Cause: Down Syndrome

Assessment:

When assessing a person with Down Syndrome ask about stability of the neck and if a cervical X-ray has cleared the student of instability issues. If instability issues are present, participation in snowsports is not advised.

During the Lesson:

Only proceed with the lesson if the student has received medical clearance to do so. Avoid trauma by reducing the difficulty of the slope, avoiding crowded slopes, and protecting the student from falls.

Cognitive Issues

Description/Cause:

Cognitive issues can occur due to damage to any portion of the brain that effects the ability to learn and process information (i.e., memory, judgement, reasoning).

Assessment:

Observe the student during verbal assessment to determine mental ability. Ask the student or caretaker about school or work. Is he or she in a mainstream classes, special class or school? What are the student's strengths? What other activities does the student enjoy? Are there any behavioral techniques that the student is familiar with to assist in the learning process?

During the lesson:

Keep instructions simple to start with and observe the performance of the student. Gradually increase the complexity of the tasks to determine the student's ability to understand, and then stay at the level of complexity that is comfortable for the student. Look for opportunities to provide positive feedback for small steps accomplished.

Depression

Description:

Depression is a state of low mood and aversion to activity. Emotions that may be experienced are sadness, numbness, anhedonia (lack of pleasure in activities that are normally enjoyed), dysphoria (feeling down, opposite of euphoria), generalized guilt (unreasonable self-blame), shame or suicidal thoughts.

Cause:

Can be genetic, biochemical, or situational (related to trauma, grief, etc.).

Assessment:

Ask how they are feeling. You may hear self-deprecating statements (e.g., "I can't do it", "I'm no good...").

During the lesson:

Be supportive and encouraging, validate emotion, without necessarily agreeing (e.g., “I know this is hard...so you can be proud of yourself for attempting it”). Don’t try to talk them out of their feelings (e.g., “you shouldn’t feel that way”).

Diabetic/Insulin Shock

Description:

Diabetic shock occurs when blood sugars increase to such a state that coma could result. Insulin shock occurs when blood sugar falls to an extremely low level from over-exercise or an over-supply of insulin. Dehydration is a real danger.

Cause:

The pancreas is unable to secrete the appropriate amount of insulin to control blood sugar.

Assessment:

If the student has diabetes, ask if they have checked their blood sugar level today, taken any medications indicated, and are feeling OK. Ask about how long they have been at this altitude, how much they normally exercise, and if they have sugar or a snack with them in case they need it.

During the lesson:

Observe the student for any unusual behavior such as weakness, dizziness, and loss of coordination. Ask how the student is feeling frequently. If they become shaky, or have difficulty concentrating, give sugar and take them in for a break.

Emotional Lability

Description:

The student demonstrates inappropriate emotional reactions.

Cause:

Some nerve or brain injuries may cause mood swings.

Assessment:

Observe the student during the verbal assessment. Watch for inappropriate responses to questions. Ask the student or caregiver about attitude toward learning, sports, and achievement. Ask if they have extreme emotional reactions at times and how to assist if they do so during the lesson.

During the lesson:

If the student suddenly begins laughing or crying for no apparent reason, speak calmly and allow time for the student to calm down.

Fatigue

Description:

Student has limited endurance.

Cause:

Hyper or hypotonic muscles, respiratory issues or disease processes including MD, MS, meds, injury, or altitude can cause fatigue.

Assessment:

Ask the following questions: Do you do other sports? How many days have you been at this altitude? How are you feeling today? Did you have a good night’s rest? What did you have breakfast? Advise the student that it is OK to take breaks to rest and get some water.

During the Lesson:

Observe the student constantly for signs of fatigue, especially if fatigue is listed as a red flag for their diagnosis. Reduce stress in the lesson and take frequent breaks to keep the lesson experience enjoyable for the student. Walking and climbing should be greatly reduced. Surface lifts and assists may be used to avoid fatigue.

Fragile Bones/Spine

Description:

Fragile bones or spine includes weakness, misalignment, or surgery of the spine or other bones.

Cause:

Trauma, disease processes or medications.

Assessment:

If the student has had trauma or disease affecting the spine, ask about the effected location and what precautions need to be taken to protect the site. Students with amputations should have the residual limb protected and may have weakness of bones due to lack of use.

During the Lesson:

Ask frequently if adjustments or added padding are needed. Take measures to minimize impacts.

Modify the lesson if the spine or bones are in jeopardy.

Frostbite/Cold Susceptibility

Description:

The student has in increased risk of frostbite or limited performance due to cold.

Cause:

Poor circulation or poor sensory nerves.

Assessment:

Ask about their ability to feel cold and about their experience with cold and frostbite. Advise the student that you will take breaks to check. Assure that the student has proper clothing.

During the lesson:

Observe the student for signs of frostbite and cold. Control the terrain choice to reduce long lift rides, wind, and altitude if appropriate. Take frequent breaks and evaluate face, hands, and feet to assure frostbite is not present.

Hearing Impairment

Description:

Hearing impairment can be any reduction in sensitivity to sound in one or both ears.

Cause:

Can be congenital or occur later in life due to illness, injury or the aging process.

Assessment:

Ask about hearing ability and the best way to communicate.

During the lesson:

Utilize communication established during intake process. Face student and have eye contact during conversations. Get students attention before starting to speak. Confirm student understands what you have said, not just nodding politely.

Heart Problems

Description:

Heart problems can be any issue with the heart including surgery, disease, defect and transplant.

Cause:

The heart may have a congenital defect or may be affected by a disease process.

Assessment:

Ask the student about the condition of their heart and how it is affected by exercise and activity levels.

During the lesson:

Observe the student carefully for signs of fatigue. Adjust the altitude and difficulty of the slope and exercises. Take breaks if the student shows signs of being stressed.

Hydrocephalus/Shunt

Description:

The fluid surrounding the brain does not drain properly resulting in increased pressure. A shunt is surgically implanted behind the ear to control the pressure by releasing fluid to the digestive system.

Cause:

Trauma or disease processes.

Assessment:

Ask the student or caretaker if the student has a shunt, how long ago the surgery was performed, and if the site is tender.

During the lesson:

Be sure that the helmet does not irritate the site and take extra care to avoid injury to the site.

Hyper/Impulsive/Runaway

Description:

The student is overactive, acts on impulse, and may leave the lesson for no apparent reason.

Cause:

People with diagnoses or brain injuries that effect mental processes may have difficulty focusing, may be easily distracted, be oppositional and/or exhibit a lack of judgment. They may not be able to accurately assess the difficulty of a slope or their own ability level.

Assessment:

While talking to the student, observe their ability to concentrate on questions, stay on task, and maintain eye contact. Ask the student or caretaker about how they like to learn and their experiences in other sports or school situations. Ask about their ability to follow instructions, maintain focus and any history of leaving lessons.

During the lesson:

Watch the student at all times. Keep the environment quiet, simple and consistent to the extent possible. Choose slopes that are closer to the ski school and free of hazards and distractions. Keep instructions simple and observe how the student reacts. Establish commands such as “follow me” and “stop”. Choose exercises that allow you to watch the student at all times and prevent runaway. Ski or ride backward in front of the student or directly in front of the student looking back with each turn. Do not use demonstrations that require you to look down the hill or away from the student for more than one turn. Position yourself so that you can prevent the student from approaching hazards such as trees and steeper slopes. As the student demonstrates ability to follow directions and stay on task, you can allow more

freedom. Prevent any situation in which the student could enter a hazardous area or be lost from the lesson.

Latex Allergy

Description:

The student may have a strong allergic reaction to contact with latex, which may involve redness and swelling of the contact area, runny nose, itchy tearing eyes and difficulty breathing.

Cause:

Exposure to latex can cause this allergy. People with Spina Bifida often have latex allergy due to multiple surgeries. Anyone with multiple surgeries may develop latex allergy.

Assessment:

Ask about latex allergy. Ask if exposure has ever led to difficulty breathing. Ask if the student has an inhaler and where it is kept.

During the lesson:

Avoid allowing the student to contact latex in products such as duct tape, balloons, latex gloves, rubber bands or any similar materials. Observe the student for signs of allergic reaction, remove any latex item identified, wash your hands, wash the affected area, call Ski Patrol and utilize the inhaler if indicated. If the student comes in contact with Ski Patrol, advise them of the latex allergy.

Leg Length/Alignment

Description:

The legs are not the same length or there are alignment issues with the spine, hips, legs, ankles or feet.

Cause:

Trauma, congenital defects or disease processes may cause bones or joints to be shorter or misaligned.

Assessment:

Observe how the student moves as compared to a person who does not have leg length or alignment issues. Are they using assistive devices? Do the feet point ahead or at an angle? Is the gait normal and symmetrical? Are the hips level? Are the shoulders level? Is the spine straight? Do the arms move equally? Perform tests to determine the range of motion that will be utilized in skiing or riding. Further assess leg length by having the student sit on a bench with the hips touching the wall and evaluating the knees and heels. Make adjustments and set the student up with equipment that provides support and allows skiing or riding within the range of motion that is comfortable for the student. Utilize canting if needed.

During the lesson:

Observe the leg length and alignment as it relates to skiing or riding and make further adjustments as necessary.

Loose Joints

Description:

Loose joints can be attributed to hyper flexibility of joints (joint laxity).

Cause:

Down Syndrome or Muscular Dystrophy.

Assessment:

When assessing a person with Down Syndrome or Muscular Dystrophy ask about loose joints.

During the Lesson:

Avoid trauma by reducing the difficulty of the slope, avoiding crowded slopes, and protecting the student from falls. If the student falls, avoid picking them up with the arms. Use a jacket assist to avoid dislocating a shoulder joint.

Memory Loss

Description:

Memory loss can be short term or long term. Short term memory issues make it difficult to recall recent information.

Cause:

Impaired brain function.

Assessment:

Observe the student throughout the assessment to determine if the student is following the conversation. Check for understanding throughout the lesson.

During the Lesson:

Keep close control over the student at all times. Check in frequently to be sure the student knows what is being covered, where we will meet if we get separated, when we will take a break, and where we will meet others at the end of the lesson. Firmly establish the ground rules, goals and where the lesson will be conducted. Check for understanding often. Take extra care not to become separated from student.

Muscle Control Problems

Description:

Muscle control problems can be complete or partial inability to control muscles.

Cause:

Trauma, congenital or disease processes may damage the brain or nerves limiting the ability to control muscles.

Assessment:

Muscle control problems are assessed based on the diagnosis. Observe how the student moves as compared to a person who does not have an impairment. Are they using assistive devices? How much strength, coordination, balance and range of motion do they exhibit when moving? Discuss the level of ability with the student. Perform tests to assess strength, coordination, balance and range of motion as it relates to the skiing and riding movements they will be using.

During the lesson:

Set the student up with adaptive equipment to allow them to ski or ride as close as possible to a person without an impairment. Observe their movements on snow and make adjustments as necessary.

Pressure/Friction Sores

Description:

Pressure/friction sores are an injury to the skin which can become infected and cause serious problems.

Cause:

Diagnoses that affect the nerves can make people susceptible to injury caused by pressure or friction, which may not be detected by the person. The diagnosis may also affect circulation to the site which inhibits the ability to heal. This is a major health concern to people with spinal cord injury and may lead to amputation.

Assessment:

The instructor must ask about experience with pressure or friction sores.

During the lesson:

When adjusting and fitting any equipment, the instructor must use great care to provide a snug, but not too tight fit. Discuss the fit with the student considering how much the student can feel. Sit skis that are too tight can cut off circulation and make this problem worse. Sit skis that are too loose can allow friction to occur. Similar considerations should be taken when the student is skiing or riding with a prosthetic. Beginning skiers and riders should take a break every hour to loosen the straps, evaluate, and tighten the straps.

Scoliosis

Description:

Scoliosis is a lateral curvature of the spine.

Cause:

Anyone can have scoliosis, but it is a common characteristic of some diagnosis.

Assessment:

Observe the student to determine if there is a lateral curvature of the spine. If it is listed as a red flag, ask about scoliosis. Sit down skiers should be evaluated to provide equal strength and range of motion of the arms. Care should be taken to strap the student up to the level of ability without causing an uncomfortable fit in the area of the scoliosis. Canting may be required.

During the lesson:

Observe the performance of the student and make adjustments as necessary.

Seizures

Description:

Seizures are a burst of uncontrolled electrical activity between brain cells (also called neurons or nerve cells) that causes abnormalities in muscle tone or movements (stiffness, twitching or limpness), behaviors, sensations, or states of awareness. There are different types of seizures.

Cause:

Anything that interrupts the normal connections between nerve cells. This includes a high fever, high or low blood sugar, alcohol or drug withdrawal, or a brain concussion.

Assessment:

If seizure is listed as a red flag, you must ask about seizures. Ask the student:

What type of seizures do you have? How often do you have seizures? When was your last seizure? Do you have an aura or any other indication preceding a seizure? If you have a seizure, what might I expect? What is a typical duration of time? If a seizure last longer than typical, when should I become concerned? Are you taking any medications? Did you take your meds today? Has there been a recent change of medication or adjustment to dosage amounts? Any side effects that I should be aware of? In the event of a seizure what should we do afterwards? Are there any known triggers to your seizures?

During the lesson:

Observe the student for any unusual behavior. Frequently ask how the student is feeling. Consult with your adaptive snow sports program regarding policies for seizures. Know how to use a gate (seizure) belt or harness for the chair ride. Use the seizure belt per program policy for individuals with histories of seizures. If the student has a seizure in which they collapse or have loss of consciousness, turn them on

the side, loosen clothing, and call ski patrol. Follow the protocol of the program and input from family/caregiver.

Sensory Issues

Description:

The brain has trouble receiving and responding to information that comes in through the senses, resulting in inappropriate responses. May be hyper (over) or hypo (under) – responsive to any of the sensory systems: visual, auditory, olfactory (smell), gustatory (taste), tactile, vestibular (sense of head movement in space), proprioceptive (sensations from the muscles and joints of the body), and interoceptive (internal organs).

Cause:

May be genetic or related to a diagnosis or experience.

Assessment:

Ask about sensitivities and strategies.

During the lesson:

Implement strategies suggested. For example, if a student is frequently covering their ears to block out noises (often observed in young individuals with Autism), avoid auditory stimuli that appears to be troubling.

Speech/Aphasia/Dysarthria

Description:

Speech issues describe students who cannot speak, have garbled speech, have difficulty understanding words or struggle with expressing their thoughts.

Aphasia – a language disorder ranging from difficulty remembering words to losing the ability to speak, read, or write.

Two types:

Nonfluent (Expressive or Broca's) aphasia - the partial or total loss of ability to articulate ideas; comprehension not effected.

Fluent (Receptive or Wernicke's) aphasia – difficulty comprehending spoken or written language or producing any form of language. What is read or heard may be meaningless.

Dysarthria - a condition in which problems occur with the muscles that help one talk making it difficult to pronounce words. Speech may be garbled, slurred, slow or mumbled.

Echolalia - meaningless repetition of another person's spoken words, often last word or phrase – e.g., you say, “do you want to go skiing”; they respond, “go skiing”. Doesn't mean they want to go skiing.

Perseverative language - repetition of words or phrases over and over.

Cause:

Diagnoses that affect the brain or nerves can affect speech.

Assessment:

Observe the student's ability to speak and understand speech during the verbal assessment. Do not assume intellectual deficits when dysarthria is present. Allow the individual time to express their thought. Do not finish their sentences. Ask the student or caretaker for techniques that can be used to communicate.

During the lesson:

Continue to work on effective communication. Listen carefully and try to speak clearly so that the student can see your lips and expression. Hand gestures, writing or drawing can be effective in helping to explain movement tasks. Do not pretend to understand if you do not. Talk normally.

Spinal Fusion/Stabilization

Description:

Spinal fusion/stabilization refers to surgically connected vertebrae or an implanted structure to support the spine.

Cause:

Trauma, congenital, or disease process causes the spine to be unstable and require stabilization or fusion.

Assessment:

When this red flag is indicated, ask about fused or stabilized spine. How long ago was the last surgery?

Where is the site? Is it still tender? Ask them to give feedback if anything causes discomfort.

During the lesson:

When setting the student up with adaptive equipment take care to support this area and pad the site to protect it from pressure or injury. Observe the student to see if this area is causing a problem and adjust accordingly.

Thermoregulation

Description:

Thermoregulation refers to the body's inability to regulate temperature properly.

Cause:

Trauma or disease processes that affect circulation or ability to sense or regulate temperature.

Assessment:

Observe clothing and equipment during the assessment and make adjustments if the student is dressed incorrectly for the conditions of the day. If this red flag is indicated, ask about thermoregulation and ask the student to tell you if they are too warm or cold.

During the lesson:

Observe the student for signs of being too hot or cold. Even if the student does not indicate that they need an adjustment, use your judgment to take a break and adjust clothing or equipment. On cold days, take breaks often so that the student is not exposed to extended cold temperatures, which could lead to frostbite.

Visual Impairment

Description:

Vision impairment is any condition that significantly reduces the ability of the student to see.

Cause:

There are many diagnoses that involve reduced ability of the eye structure or nervous system.

Assessment:

Observe the student approaching the lesson for clues of their ability to see. While greeting the student and conducting the verbal assessment, observe the eyes and movements of the student. Ask the student about their visual ability. Conduct a thorough assessment of the student's visual acuity, as well as field of vision in the light conditions that the lesson will be conducted. Discuss how the student likes to be guided, and establish commands such as turn, slow, stop and emergency stop.

During the lesson:

Start out with caution on an easy, less crowded slope. Ask the student frequently if you need to make changes in the way you are guiding, and if they would like a different slope or turn shape.

MEDICATIONS

Definition, Use, Side Effects

This section addresses the categories of medications which apply to working with persons with disabilities.

TYPE	USE	SIDE EFFECTS
Analgesics	Relieve pain; two categories – narcotic and non-narcotic.	Narcotic: Addiction, confusion, constipation, convulsions, dizziness, drowsiness, increased seating, lethargy, rash, respiratory depression, sedation, sleepiness. Non-narcotic: Bloating, constipation, convulsions, possible stomach irritation, rash, sedation.
Anti-anxiety	Relieve anxiety.	Dizziness, drowsiness, irritability, memory and attention problems, physical dependency.
Antibacterials	Treat urinary tract infections.	Dizziness, headache, rash, sun sensitivity.
Antibiotics	Treat infections – kills or inhibits growth of bacteria.	Allergic reactions (ranging from skin rashes to anaphylaxis), dizziness, sun sensitivity.
Anticholinergics	Treat bladder spasm and/or involuntary muscle spasms associated with certain diseases (e.g. Parkinson’s disease and respiratory disorders).	Abdominal pain, blurred vision, constipation, decreased sweating, dizziness, dry mouth, headache, light sensitivity, rapid heart rate, tiredness.
Anticoagulants	Prevent blood clotting.	Abdominal pain, blurred vision, constipation, decreased sweating, dizziness, dry mouth, headache, light sensitivity, rapid heart rate, tiredness.
Anticonvulsants	Treat seizure disorders (some anticonvulsants are used for non-seizure problems – be sure to check why the individual in taking the medication).	Blurred or double vision., dizziness, drowsiness, fatigue, rash, sun sensitivity, tremors.
Antidepressants	Treat depression.	Agitation, anxiety, blurred vision, constipation, decreased

TYPE	USE	SIDE EFFECTS
		sexual desire, dizziness, drowsiness, dry mouth, fatigue, headache, increased appetite, insomnia, restlessness, sweating, weight gain.
Antidiabetics	Control diabetes.	Hypoglycemia
Antiemetics	Control nausea and vomiting.	Abnormal movements, blurred vision, drowsiness, dry eyes and mouth, fuzzy headedness, lethargy.
Antihypertensives	Control high blood pressure.	Depression, dizziness, fatigue, headache, insomnia, lethargy, lightheadedness.
Anti-inflammatory	Prevent or reduce inflammation: two categories – steroidal and non-steroidal anti-inflammatory drugs [NSAIDs]	<p>Steroidal: Blurred vision, confusion, dizziness, easy bruising, excitement, fluid retention, increased blood sugar, increased risk of infection, mental depression, mood swings, muscle weakness, rash, restlessness, skin problems (acne and thin, shiny skin), weight gain.</p> <p>Non-steroidal [NSAID]: Constipation, decreased appetite, dizziness, drowsiness, headache, rash, reduced ability of blood to clot (increased risk of bleeding after injury), stomach pain.</p>
Antipsychotics	Manage symptoms of psychotic disorder	Dizziness, drowsiness, dry mouth, tremors, urinary retention, vertigo.
Antispasmodics	Reduce muscle spasms	Dizziness, drowsiness, fatigue, headache, lowered blood pressure upon standing, nervousness, reddish-purple or orange urine.
Antispastics	Treat muscle spasticity	Dizziness, drowsiness, fatigue, lightheadedness, muscle weakness, sedation.
Antispastics	Treat muscle spasticity	Dizziness, drowsiness, fatigue, lightheadedness, muscle weakness, sedation.
Chemotherapy	Destroy bacteria, viruses,	Anemia, fatigue, hair loss,

TYPE	USE	SIDE EFFECTS
	fungi and, most commonly, cancer cells; a few types are used to decrease symptoms of rheumatic, inflammatory, or autoimmune diseases.	infection, nerve pain.
Immunosuppressives	Decrease over-activity of immune system; prevent rejection in transplant patients; treat multiple sclerosis (MS)	Flu-like symptoms (including high fever, chills, and achy feeling), depression (which may be severe enough to cause suicidal thoughts) mouth sores, increased risk of infection with reduced ability to fight infection.
Immunosuppressives	Decrease over-activity of immune system; prevent rejection in transplant patients; treat multiple sclerosis (MS)	Flu-like symptoms (including high fever, chills, and achy feeling), depression (which may be severe enough to cause suicidal thoughts) mouth sores, increased risk of infection with reduced ability to fight infection.
Muscle relaxants	Muscle relaxants are drugs which primarily relieve back pain, both acute and chronic and, on occasion, cerebral palsy, related muscle spasms.	Drowsiness or dizziness, dry mouth and urinary retention.
Psychostimulants	Control behavior; improve or increase attention, concentration, and/or focus and decrease impulsivity and hyperactivity; two categories – CNS non-stimulants and CNS stimulants.	<p>CNS Non-Stimulants: Dizziness, loss of appetite, mental and/or mood changes, tiredness, trouble sleeping, unusual behavior changes, weight loss, worsening of condition.</p> <p>CNS Stimulants: Decreased appetite, dizziness, dry mouth, headaches, high blood pressure, jitteriness, over-stimulation, panic, psychosis, rapid or irregular heartbeat, restlessness, sleep problems, weight loss.</p>
Sedatives	Reduce anxiety.	Dizziness, drowsiness, fatigue, sedation.

ASSISTS AND PROGRESSIONS

This chapter addresses the assists and progressions for the six areas of teaching. Although it is not part of a particular assist or progression, all students in all disciplines must be taught how to get up from a fall at some point in a Level 1 lesson.

COGNITIVE/INTELLECTUAL DIAGNOSES

Equipment and Assists for Cognitive and Intellectual Diagnoses

Bamboo/PVC pole - the length allows more maneuvering room than ski poles and can be used in several different ways. The bamboo pole is not intended for students with gross balance issues. It should be used for guidance, not support.

Board wing (Sno-Wing) - very bulky but provides good assistance for balance-challenged students.

“Box” made of PVC pipes - the student can hang on to this for reassurance, help with balance and can also be containment for a student that may otherwise runaway.

Props - cones, flags, tennis balls cut in half, stickers, communication cards.

CASS” Hold - Front/Back - link the ski pole straps together; can be used with the instructor skiing backwards or downhill of student, rest the top cap on the student’s hip bone. If you push on both, you can slow the student down, one or the other will cause the student to turn. With a small student, you can give the handle end to the student and ski side by side.

Ski Tip Connectors - rigid version should not allow student to go backwards as there is no way to stop; divergence can cause knee or hip injury

Spreader Bar – sometimes use tip connector/spreader bar/tether combo.

Tethers - gradual pulling; both tethers to slow down, one taut the other slack to turn. Connect them to the ski tip connector.

PVC with Carabiner – a short PVC pole (four feet) with a carabiner attached to one end. Carabiner is attached to the student’s ski tip connectors. Instructor can guide the student from the side or front.

Two-point hold - one ski in between student’s ski, one outside. Straddle the weak leg, keep hands on bony prominences to prevent squeezing muscle bulk and causing spastic contractions.

Climbing Harness -

Teaching Adaptations

Acquisition delay - The student may need longer to act on an instruction.

Take this into consideration when giving a command. For instance, tell the student to stand up early when unloading the chair in order to get the timing of the action to happen when it needs to occur.

Attention span and focus - often shorter; keep it paced accordingly

Consistency - use the same language every time; may even need to do things in the exact same order (autism: put the right foot in the boot first, then the left)

One thing at a time - when working on a skill, focus on one thing until they get it

Repetition - multiple times doing the same thing may be necessary to learn a skill

Simplicity of instruction - short, direct commands

Holistic versus linear - learning may be easier by doing rather than talking about it or learning through games or play.

VISION IMPAIRMENT

Vision Impairment Equipment and Assists

Bamboo poles - the student can hold on to one across the front with the instructor skiing next to them or with two, one in each hand (horse and buggy) with the instructor in front or in back. You can communicate turns by pulling or wiggling the pole.

Clock face - remember that the orientation is: wherever the student is facing is always 12:00

Grid system - establish size of pattern by walk-tracing, or use pole reaches

Calling turns verbally – (no headset) difficult for instructor, but allows for directionality and sense of distance

Headsets - student can hear you easily without interference of other noises, however you lose the directional orientation which some students have where they can sense the slope by the way your voice comes to them

“CASS” Hold - Front/Back - link the ski pole straps together; can be used with the instructor skiing backwards or downhill of student, rest the top cap on the student’s hip bone. If you push on both, you can slow the student down, one or the other will cause the student to turn.

PVC with Carabiner – a short PVC pole (four feet) with a carabiner attached to one end. Carabiner is attached to the student’s ski tip connectors. Instructor can guide the student from the side or front. With a small student, you can give the handle end to the student and ski side by side.

Tethers – Although not a common assist, ski tip connectors or a climbing belt (for snowboarder) with tethers is an option for introducing turn shape and the feel of a turn.

Outriggers – Outriggers can aid in the student’s balance while moving (i.e., a sliding pole touch)

Teaching Adaptations

Whatever assist methods you use and depending on the student, go from closest contact to least hands-on, for the student’s comfort and to gain confidence. Also assume less vision than what the student says they can see to be on the safer side.

Remember that you are often their connection to the world. If you need to leave the student, have them stand by/touching a pole, railing, or other solid object.

Your voice can give the student reassurance as well as instruction. Try to keep a constant conversation going unless the student prefers less. Decide with the student what terms you want to use and how much the student wants you to talk. Tone and inflection of your voice can also

communicate more. Be descriptive: paint verbal pictures of what you see visually. As a general rule, give instruction when you stop, and guide while you are moving.

Body Positioning - always ask permission first; position their body by touching, getting them to bend, etc., placing them into the proper form.

Hand Imaging - either draw on the student's palm or position their hands like how you want their feet to move, or have them place their hands over yours and have them feel

Verbal Guiding - from front, side or back, student's preference unless there is a safety issue.

BI-SKI

Assists For Bi-Ski

Handheld Outriggers - Similar to a ski pole with an adapter that allows a short ski to be attached to the end. The ski is retractable and can flip up or down to expose metal claws at the back of the ski for gripping snow (i.e., crutch position). The metal claw works in conjunction with an adjustable screw setting which allows for the braking capacity to be greater or lesser. When the ski is flat on the snow it is called the "ski" position. A common outrigger style is a forearm-fitting, Canadian-style crutch.

At Level 1 these provide balance, speed control, pressure, and some rotary and a little edging. However, most of the edging comes from the design of the bi-skis. The hand held riggers should be shorter than for a beginning mono-skier. The bi-skier should keep the arms relatively straight, with a slight bend in elbow and not "locked" so when the student moves the outriggers laterally (abducts at the shoulder) to a point that the tips are barely making contact with the snow there is approximately a 35 degree – 45 degree angle between torso and arm/rigger, with a length of 9-12 inches from the handle to the rigger tip. The pivot of the riggers should remain in the area of the hip and a comfortable distance from the body. If using a edged-prioritized progression, elementary steering is achieved by tipping the bi-ski from side to side, causing the skis to edge and carve a turn.

Seat Assist – A 'seat assist' is done using the handle of the bi-ski. Turning is primarily done by leaning the student to one side or the other. A skid can be affected by turning around the pivot point with flat skis.

Fixed outriggers - Fixed outriggers can be attached to the bi-ski. The most common bi-skis are the Mountain Man, the Bi-Unique, and the Dynamique. On the Mountain Man the riggers are located in the front of the seat and can be moved slightly fore and aft. On the Bi-unique the fixed riggers are on the rear portion of the bi-ski making them difficult to seat assist, as well as causing problems in loading and offloading. With the Dynamique, the attachment point is in the front. Fixed riggers can be adjusted up and down, or wider and narrower. This can provide the amount of balance needed for the student to learn the next movement on the appropriate terrain. **Tethers must be used when fixed riggers are in use.**

1 handheld/1 fixed - This is for persons who, for a variety of reasons, may not have sufficient arm usage or strength on one side. This could include such disabilities as a stroke, cerebral palsy, spina bifida, etc.

Tethers - Tethers are straps, typically twelve feet or longer, which are attached (by weight bearing carabineers or girth hitch) to the rear of the sit-ski and used to steer it. Tethers assist in a variety of ways. When there are fixed riggers, they are used for steering, speed control, and balance. When there are fixed outriggers the tethers are the primary source of control except in those circumstances where the student has some capacity to balance and/or lean in one direction or another. The tethers can be either one strap wherein the instructor places himself or herself in the middle (with a safety strap) or individual tethers with the loop around each wrist. When there are handheld riggers, the tethers primarily assist in steering and speed control.

Chair lift loading - There should be two instructors loading, a primary and a secondary. Loading should be practiced every time a new team is formed. The bi-unique has a pump which raises the seat, but lifting is still required. The mountain man has a lock key which needs to be removed before loading. Once off the lift the key should be reinserted. The Dynamique has a lever that needs to be moved into in load position. Once on the lift it should be returned to ski position.

Loading procedures, including loading cadence, must be established before getting in the lift line. The student must be told or shown her responsibilities. Also, before loading, the lift operator must be contacted and, if the lift needs to be slowed, notified of that. During the lift ride the retention strap must be secured to the lift chair.

Offloading - As in loading, there should be two persons, a primary and a secondary. Each person's responsibility must be delineated. A cadence must be established before arriving in the unloading area. The bi-ski must be skied away from the offloading area.

Padding/Duct tape - In order to properly balance and/or secure the student padding, blocks, sandbags, duct tape may be used. Examples include "filing the empty space" for a person with spina bifida; sandbags for balance for a double amputee; blocks to assure that a student's feet make contact with the foot support; duct tape to secure an arm or hands which may not have sufficient control to remain in a balanced and protected position.

Teaching Adaptations – Progressions for Bi-Ski – Edge-Prioritized or Rotary-Prioritized

- I. Introduction to equipment
 - A. Explain equipment - straps, fitting, suspension
 - B. Explain and demonstrate riggers (if appropriate) rigger sizing and usage
 - C. Explain ski and crutch positions
 - D. Lift loading mechanism (if any)
 - E. Show and explain evacuation system
 - F. Explain tether and its use
 - G. Demonstrate seat assist

- II. Drills on flats
 - A. Skier's stance
 - B. Leaning side to side
 - C. Balance with and without outriggers (if appropriate)

- D. If appropriate push forward and backward with outriggers
- E. Rigger placement (if hand held)

III. Straight Run

- A. Look for athletic stance and balance and good rigger position
- B. Look for snow/rigger contact

IV. Gliding wedge equivalent

- A. Refine rigger position if applicable

V. Braking wedge equivalent

- A. Teach rigger braking by engaging the friction device or using a diverging wedge
- B. If unable to slow through outrigger use, introduce a turn to a stop

VI. Wedge Turn equivalent – edge-prioritized

- A. Introduce tipping the bi-ski -- push off, drop, and block motion or a light lean into turn
- B. Wedge ‘wiggles’ in fall line
- C. Introduce rigger blocking and uphill rigger push off as used with “drop and block”
- D. Emergency stop if applicable

Wedge Turn equivalent – rotary-prioritized (use longer outriggers, similar to mono-ski)

- A. Introduce first aspect of outrigger use - “door knob” or “hitchhiker” outrigger movements – using outward rotation of the new, inside forearm (unilateral steering) or both forearms (bilateral steering)
- B. Focus on subtle rotary movements combined with flat ski
- C. Head and eyes are orientated toward middle (hub) of next turn (introduction to countering movements)
- D. Use terrain to assist turning

VII. Chairlift procedures

- A. Explain chair and how loading will work
- B. Establish student’s responsibilities, e.g., riggers in ski position in lap, head back, etc.
- C. Practice lift (establish loading count with assistants)
- D. Retention strap
- E. Remove retention strap before offloading
- F. Establish loading and offloading count

VIII. Linked Wedge Equivalent Turn

- A. Mileage, Mileage, Mileage!
- B. Head and eyes are orientated toward middle (hub) of next turn (introduction to countering movements).
- C. Work on refining turns in a variety of turn sizes (long/short)
- D. Have student complete turn

- E. Turn shape for speed control
- IX. Spontaneous Wedge Christy equivalent
- A. Introduce flexion/extension movements (inhale to initiate exhale to finish turn)
 - B. Discuss control in skidding and oscillations
 - C. Introduce rotary movements of the outriggers to control overturning and skidding (Still in drop and block position)
 - D. Outriggers may be lengthened and mono ski type rotary movements of the outrigger are introduced

Level II Progressions

- X. Open Parallel equivalent
- A. Teach pure skidded turns with very little edge
 - B. Sideslip to get ski into fall line from a perpendicular position
 - C. Rigger placement

MONO-SKI

Assists for Mono-Ski

Handheld Outriggers - Similar to a ski pole with an adapter that allows a short ski to be attached to the end. The ski tip is retractable and can flip up or down to expose metal claws at the back of the ski for gripping snow (i.e., crutch position). The metal claw works in conjunction with an adjustable screw setting which allows for the braking capacity to be greater or lesser. When the ski is flat on the snow it is called the “ski” position. A common outrigger style is a forearm-fitting, Canadian-style crutch. They assist in balance, pressure, edging, and, most importantly, rotary. The riggers should, for the Level 1 student, be maintained within a “box” that extends approximately 10" out to the sides of the ski and forward to the area between the knees and feet. Beginning/Novice mono-skiers should size the riggers so that the shafts form a 35-40 degree angle with the snow in an athletic stance.

Seat Assist - The seat assist is simply pushing one’s thumbs between the back of the person and the inside of the back of the seat with the four fingers on the outside and guiding the mono-ski with one’s skis on either side of the ski. Steering is done primarily through either leaning or assisting in skidding by rotating on a flat ski. Some programs have placed handles on the side which makes a seat assist much easier. It is important that the seat assist is used sparingly for kinesthetic learners, to move your student off inappropriate terrain, or in the event of an equipment emergency. A seat assist is not a substitution for skill development.

End Around -

Tethers - Tethering in a mono-ski is very unusual, but may allow for safety in the early stages of learning especially if appropriate terrain is not available. With tethers one can assure that the mono- skier does not go too fast or get out of control. A tether used for a mono skier is typically a

single tether for speed control or braking. Unlike a bi-ski or four tracker, a tether cannot be used to assist a mono skier to turn.

Safety Tether – Tether/Safety Strap - This is simply an assist whereby one loops the safety strap over one's wrist and assists primarily in speed control and balance. This technique should not be a substitute for quality instruction, but may be useful in short durations for kinesthetic learners.

Loading - For a Level 1 student there should be two loaders, a primary and a secondary. Unlike the Level 1 bi-ski, the student assists in the loading. The loading procedure should be practiced before going into the lift line each time a new team forms. The loading cadence and procedures should be established before entering the lift line. The student should be aware of what her/his responsibilities are. The loading procedures should be discussed with the lift operators in advance of the load.

Offloading - The unloading procedures and cadence should be discussed prior to entering the offloading area. The student's responsibilities should be established, as well as the primary and secondary responsibilities. The mono-ski should be removed from the area immediately.

Teaching Adaptations – Progressions for Mono-Ski

- I. Introduction to Equipment
 - A. Straps and fitting
 - B. Suspension and frame geometry
 - C. Evacuation system
 - D. Rigger sizing and usage (ski position and crutch position)
 - E. Explain and demonstrate lift loading mechanism

- II. Drills on Flats
 - A. Athletic stance
 - B. Push forward and backward (riggers in crutch position)
 - C. Lean to both sides
 - D. Balance with riggers in air
 - E. Star turns
 - F. Flat ski pivoting
 - G. Push backwards with riggers
 - H. Introduce how to get up after a fall

- III. Straight Run
 - A. Look for athletic stance and balance, good rigger position, and snow/rigger contact
 - B. Use run out or catch skier at bottom

- IV. Gliding Wedge equivalent
 - A. Refine rigger positioning

- V. Braking wedge equivalent

- A. Teach rigger braking utilizing a diverging wedge or by engaging the outrigger 'claws'.
 - B. Brake and release for speed control
- VI. Wedge equivalent turns - one to each side
- A. Introduce first aspect of outrigger use - "door knob" or "hitchhiker" outrigger movements – using outward rotation of the new, inside forearm (unilateral steering) or both forearms (bilateral steering)
 - B. Focus on subtle rotary movements combined with flat ski.
 - C. Head and eyes are orientated toward middle (hub) of next turn (introduction to countering movements).
 - D. Use terrain to assist turning
- VII. Chairlift procedures
- A. Explain how to put ski in loading position (if applicable)
 - B. Explain student's responsibilities
 - C. Practice lift (establish loading count with assistant). If team changes, practice again.
 - D. Load mono ski on lift (remember to use retention safety strap)
 - E. Remove retention strap before offloading
 - F. Agree on loading and offloading count
- VIII. Linked wedge equivalent turns
- A. Work on balance and having the student find the sweet spot where the ski turns easily
 - B. Have student complete turns for speed control
 - C. Slightly countered upper body
 - D. Rigger position
- IX. Spontaneous wedge christy equivalent
- A. Introduce the second phase of outrigger use (countered) incorporating upper/lower body separation (countering) corresponding to the outrigger placement.
 - B. Work on refining turns
 - C. Outrigger brake has been eliminated
 - D. Turns should be round and complete to control speed utilizing a variety of turn sizes
 - E. More upper/lower body separation
 - F. Increase edge through progressive edging
 - G. Side slip, traverse, garlands, traversing side slip
 - H. Independent chair lift loads/unloads

Level II progressions

- XI. Parallel turn equivalent
- A. Introduce the third aspect of outrigger use ("reaching").
 - B. Have student work on active crossover by committing to new turn
 - C. Blend skills of rotary, fore-aft/lateral pressure, opening door and edging to get a smooth, round slightly skidded turn

- D. Work on quick initiation for shorter radius turns
- E. Falling leaf, hockey stops
- F. Introduce uphill rigger push off for a more active crossover
- G. Sliding rigger turn

XII. Dynamic parallel equivalent

- A. Short swing vs. short radius, bumps
- B. Carved turns
- C. Rhythm and flow
- D. Race course

Cognitive/Intellectual Diagnoses:

- Hand Assist: Two Point hold and “The Dance”
- Tethering with climbing harness or if climbing harness is unavailable, with snowboard tip connectors.
- Outriggers
- Bamboo Assists
- Guiding with the Sno-Wing

Visual Impairments:

- Guiding from the front, side, and back
- Hand Assist: Two Point hold and “The Dance”
- Bamboo Assists
- Outriggers
- Guiding with the Sno-Wing

Bi-Ski:

- Seat assist
- Tethering with fixed outriggers
- Tethering with handheld outriggers

Mono-ski:

- Seat assist
- Snowboard - End Around

Stand-up:

- Hand Assist: Two Point hold and “The Dance”
- Tethering with climbing harness or if climbing harness is unavailable, with snowboard tip connectors.
- Outriggers
- Bamboo Assists
- Guiding with the Sno-Wing
- Rider Bar Guiding

COGNITIVELY IMPAIRED/INTELLECTUALLY DISABLED SNOWBOARD ASSISTS

1. Hand Assists: With the two point hold the instructor places his/her hand on the students hips and helps steer and balance them much like a Sno-wing. The *dance* is an instructor and a student facing each other in a waltz-like position holding hands to help students with balance and confidence issues.
2. Tethering from a climbing harness. A rock climbers harness, preferably with leg straps and front and back weight bearing attachment loops, is fitted and worn by the student. A tether is attached with a carabiner to the front loop and run around/over the hip of the student's "front leg", through the back attachment loop and to the instructor. The second tether is attached with a carabiner to the rear loop, run around/over the hip of the "front leg", through the front attachment loop and to the instructor. Using a girth hitch, both tether ends are attached to the wrist of the instructor. Tethering with a climbing harness allows the instructor to guide the student through turns.
3. Tethering with a snowboard tip connector: Used as a second choice to tethering with a climbing harness. A snowboard tip connector is similar to a ski tip connector except there's only one tip connector with both tethers attached (in a pinch a tip connector can be improvised from two small C- clamps). The safety concerns about positioning and leading the student through the turn are the same as tethering a bi-ski. The main difference in tethering a stand up student vs. a sit down student is the amount of tether you will need to adjust during the turn.
4. Bamboo assists: This can be essentially the dance with a bamboo pole between you and the student or side by side with the instructor guiding the student through the turn and aiding balance. You can also give the bamboo to the student so they can use it for any balance issues. Be aware of the students mental and emotional state and the chance of inappropriate outbursts.
5. Outriggers: Canadian crutches, as described in sit-down and 3-4 Track are very useful for snowboarding as well. One or two outriggers are an efficient tool for balance aid. Size similarly to 3-4 Track.
6. Guiding with the Sno-wing: The four ways that are most commonly used are: guiding from an uphill or downhill position relative to the student with the student ideally making complete turns while the instructor does a falling leaf on their heel or toe edge. The second two methods are guiding from the heel or toe side of the student while making synchronized turns with the student. Communication with the student is of the utmost importance. Each option has different strengths and weaknesses and when and how to use a Sno-wing will have to be assessed by terrain, the student's riding level, and the desired board and movement performances. An important thing to remember when using this piece of equipment is to use the boom as efficiently as possible. Make sure to always work your hands up to the front of the oval before the initiation of a turn and work your hands back to the middle of the Sno-wing after the student's edge change.

VISION IMPAIRED GUIDING

1. Guiding from the front, side and back: You need to be able to demonstrate different guiding techniques based on terrain and rider preference. Some guides make clicking noises by banging objects together when guiding from the front or even use loud speakers mounted in backpacks to make themselves heard.

2. These auditory cues help orientate the student. Develop a language with the student. For example, heels, neutral, toes, and a command for an emergency stop. Heels for the heel side edge and turn. Neutral for flattening the board and letting it turn down the hill. **Toes** for the toe side edge and turn. An agreed upon word or phrase for an emergency stop maneuver.

BI-SKI

1. Seat assist: A snowboard candidate must be able to safely demonstrate a seat assist of a bi ski. This includes but is not limited to being able to stop, being able to guide through turns, and getting through the lift line, on and off the lift.
2. Tethering a bi-ski with fixed outriggers: A snowboard candidate will tether primarily on their heel edge essentially making a falling leaf down the hill behind the bi-ski. When the terrain dictates the snowboarder will shorten the tethers and seat assist the bi-skier until the terrain allows for more tethering or until the lift is encountered.
3. Tethering a bi-ski with handheld riggers: This is essentially the same as tethering a fixed rigger bi-ski except communication between the skier and instructor becomes even more crucial. It can be beneficial for the instructor to call out the turns to the sit-skier, at least until a rhythm can be found between the two so as not to confuse the turns. As the relationship and the bi-skiers skills grow the bi-skier may increasingly dictate the turns.
4. The end around: This is a relatively complicated move to achieve. It is a simple and easy to understand goal: always keep the instructor downhill of the mono-ski where the instructor has better leverage and doesn't risk being toppled onto the mono-skier. This maneuver can be necessary because of terrain, affective needs of the student, or equipment malfunction. Again, the end around is being downhill from the mono-skier at the initiation and finish of the turn. A brief description of the maneuver is: as the instructor seat assists the skier into the next turn he/she moves around the back of the mono ski and does a 180° so that he/she is now riding the opposite stance and again is downhill of the mono-skier.
The rhythm goes something like this: when moving towards skier's right: the boarder's stance is regular, a turn is initiated, after the edge change of the mono-ski the end around is performed; now the pair is moving towards skier's left, the boarder's stance is goofy and the instructor is below the student.

MONO-SKI

1. Seat assist: Seat assisting a mono-ski is similar to seat assisting a bi-ski. The main differences are a more delicate point of balance and the length of the tail of the ski which may interfere with the instructor's movements.
2. The end around: This is a relatively complicated move to achieve. It is a simple and easy to understand goal: always keep the instructor downhill of the mono-ski where the instructor has better leverage and doesn't risk being toppled onto the mono-skier. This maneuver can be necessary because of terrain, affective needs of the student, or equipment malfunction. Again, the end around is being downhill from the mono-skier at the initiation and finish of the turn. A brief description of the maneuver is: as the instructor

seat assists the skier into the next turn he/she moves around the back of the mono ski and does a 180° so that he/she is now riding the opposite stance and again is downhill of the mono-skier.

The rhythm goes something like this: when moving towards skier's right: the boarder's stance is regular, a turn is initiated, after the edge change of the mono-ski the end around is performed; now the pair is moving towards skier's left, the boarder's stance is goofy and the instructor is below the student.

STAND UP

1. Rider bar guiding: The traditional way to use the rider bar is similar to the Sno-wing guided from the front. The instructor is always facing the student and helps to guide the rider through the turns. The advantage of the rider bar is that it connects directly to the board allowing the instructor to achieve tilt, twist, or pivot in the student's snowboard. The rider bar can also be tethered similarly to the bi-ski. As this is the newest piece of adaptive snowboard equipment currently available there are still new methods being created.
2. Outriggers – One or two stand up outriggers may be used by the student to assist with balance, edging etc.

OUTRIGGERS

Candidates taking an exam in Bi-ski, Mono-ski, 3-Track, 4-Track, or Stand Up need to be able to articulate and demonstrate the following aspects of outriggers: components, fitting, usage and phases.

Two types: Hand held and fixed

HANDHELD OUTRIGGERS

Outrigger Components:

Arm cuff

Shaft

Articulation joint

Activation cord

Ski

Friction device – aids traction when used in crutch position

Bolt

FITTING FOR STAND UP SKIERS:

Tall stance, in boots and skis

Shafts of outriggers aligned with legs

Hands hang beside outrigger handles

Handles in line with epicondyle of the radius or greater trochanter

FITTING FOR SIT SKIS:

Mono-ski

Bi-ski

USES OF OUTRIGGERS

- 1) Primarily affecting rotational movements – for efficiency rotational movements should be generated from as low in the body as possible
 - 3 track – typically able to leg steer
 - 4 track – may use outriggers for primary rotational movements, rotational enhancement or not at all
 - Sit skis – depend on outriggers for rotational movements to turn
- 2) Influencing pressure control and edging movements
- 3) Propulsion on flats
- 4) Close quarters breaking or slowing
- 5) Maintaining balance
- 6) Helping skier stand up after falls
- 7) Aiding chairlift loading and unloading

PHYSICS

- 1) Differential friction: More perpendicular to the direction of travel the edge of the outrigger ski is placed on the snow, the greater the effect on rotation
- 2) Lever arm: The further away from the skier's axis of rotation the edge of the outrigger ski is placed on the snow, the greater the effect on rotation (longer lever arm)

PHASES OF OUTRIGGER USE

Gliding/breaking wedge – if unable to leg steer:

- 1) Rotate outrigger tips outward, creating a diverging wedge
- 2) Progressively pushing tails of outriggers into the snow – engaging friction device

Phase 1 = wedge turns

Outrigger position - close to body

Unilateral steering or

Bilateral steering (windshield wipers)

Phase 2 = wedge christie

Unilateral steering

Increased counter

Phase 3 = dynamic parallel

Extension movements lengthens lever arm

Active cross over

Increased efficiency of a longer lever arm gets substantial rotation with quick touch of outrigger on snow, back to neutral position earlier in turn

FIXED OUTRIGGERS

Used with bi-ski

Provide lateral stability

No breaking mechanism

Speed control provided by instructor

Ski always attached to instructor

LEARNING PARTNERSHIP

The Learning Partnership is referenced from the PSIA-AASI Teaching Snowsports Manual, 2018, pp 72-82. The personal characteristics, motivations, knowledge, and experiences that both the teacher and the student bring to the learning environment. For a true partnership to exist, there must be elements of shared responsibility and combined effort toward a common goal; both parties must have something to contribute.

Student Profile

- Backgrounds and Personal Characteristics
- Past Experiences
- Identity, Values, and Beliefs
- Attitudes and Emotional States
- Goals and Motivations
- Physical health and Conditioning
- Learning Styles and preferences
- Expectations and Understanding
- Social Factors

Instructor Profile

- Sport-Specific knowledge and performance
- Teaching Experience and Understanding of Learning Theory
- Resort and Snowsports School Knowledge
- Loading and Unloading lifts
- Preferred Social Style

The Teaching/Learning Cycle – (referenced from the PSIA-AASI Teaching Snowsports Manual, 2018, pp 83-86). The Teaching/Learning Cycle identifies phases in which the instructor and students interact to create learning experiences, describing the essential interactions between instructors and students.

Welcome and Introduction, be professional and proactively engage each guest. Introduce yourself and have students meet each other to help develop trust and rapport. Encourage a fun, open, and supportive learning environment.

Assess students by having them identify past experiences that could impact learning and skill development. Discover your students' learning preferences (addressed in the "How Students Learn" section of this guide) and evaluate physical capacity. Assess each student's physical abilities and technical understanding.

Determine goals and plan experiences by identifying big-picture goals and work together on an initial focus and objectives for the group. Partner with students to plan purposeful experiences and check for understanding of goals.

Create experiences for learning by organizing students and the lesson environment and choose appropriate terrain. Use experiences to target change in performance and engage students in a process of reflection that

anchors deeper learning. Introduce new experiences and information based on student readiness. Provide descriptive instruction that's easy to understand. Promote group engagement, interaction and support.

Guide practice by setting practice at levels appropriate to the students' ability, energy, and desires. When you provide feedback during the lesson, you have the opportunity to ensure your student is actually learning and understanding the desired outcomes. Repetition of movements anchors the actual learning and sliding experience

Review and preview by reviewing progress and checking for understanding you can establish a plan for independent practice. Discuss future learning outcomes and invite students to return.

PDAS - The Teaching Cycle for Children

Play - Introduce the lesson as fun and assess abilities in a relaxed, happy environment.

Drill - Determine goals and objectives that target specific skills. Work with activities that are challenging, fun and success oriented. Present information in short time spans and provide lots of demonstrations. Keep it interactive.

Adventure - Take what the students have learned and apply it to our wonderful mountain playground. Expand skills in a wide range of experiences during practice time. Transfer learning to new situations and check for understanding.

Summary - Reinforce their learning with reminders throughout the day. Use easy to remember cue words, refresh memories before going home and take time to talk to your student(s) parent.

LEARNING STYLES

VAK – Reception of Sensory Input

Visual – The student learns best by seeing what they need to do. The instructor should perform a demonstration of the task and/or skills that they are presenting for the student.

Auditory - The student learns best by hearing what they need to do. Instructor should explain the concept of the student in terms here she can understand. Can use sounds, rhythm, as well as words (e.g., similes, metaphors).

Kinesthetic -The student learns best by feeling what needs to be done. Instructor should be able to find ways to help the student feel the sensations of proper movement patterns to achieve the desired result.

Thinker/Feeler/Watcher/Doer

Thinker – They usually prefer to watch or hear an explanation before trying it out.

Feeler – They tend to favor a purposeful task or focus to direct their sensory awareness.

Watcher- They like to see an accurate demonstration that provides a clear example.

Doer – They are ready to give it a try with little initial guidance, but require facilitation.

TEACHING STYLES

Command: The instructor is the main focus, while explaining and demonstrating the skill to students for the first time.

Task – The instructor steps back and watches a student performing assigned activity. The instructor is free to provide feedback and make sure the students are performing the task correctly.

Reciprocal – The instructor pairs up students with one in the role of performer and one as observer. This style encourages student interaction. This is a good class handling technique to use when trying to add depth of knowledge to a skill already achieved. You must have carefully monitored the students to make sure that they are practicing the skill and/or task correctly.

Guided Discovery – The instructor takes students through a range of activities and leaves them to self-revelation about a concept or skill. It is a style of teaching that is best when used for balancing activities with beginners.

Problem-solving – The instructor sets up a situation and ask the student to work through a problem and then report the answer. Instructor listens to solutions. Use this when concepts are firmly established.

MASLOW'S HEIRARCHY OF NEEDS

Physiological needs - appropriate clothing for weather, timely bathroom breaks, food and water

Safety needs - review your responsibility code, safe class handling, manage risk the mountain environment (stay out of the yikes zone)

Belonging and connection needs – providing a supportive and interactive learning experience

Self-esteem needs - feels good about effort as well as performance; increased confidence

Reaching full potential - personal growth, mental and emotional victories

PROGRESSIONS

- A sequence of acts, movements, or events that increase in difficulty and are designed to meet a goal or outcome.
- 3 – 5 step teaching/learning segment
- Corrective Progressions – goal of the learning segment is to fix a flaw in the athletes skiing.
- Developmental Progression - goal of the learning segment is to progress to the next level.
- Concepts involved in developing a progression:
 - Simple ----- Complex
 - Static ----- Dynamic
 - Easy ----- Hard
 - Part ---- Whole

Teaching for Transfer:

Using a student's unique set of knowledge, experiences, and abilities in teaching a new skill. These can seem unrelated to skiing. Yet, characteristics of that known activity can be used to bring understanding to the new skill being taught.

Disability Etiquette:

Person first language: person before the disability

- focus on abilities, rather than their disabilities
- avoid language that suggest pity or disrespect (handicapped vs accessible)
- acceptance, just different

Parent/caregiver role:

Parents are your ally/source of info for that student. Find out from parents what works. They are paying for lesson. You want them to come back. They can learn from you – for some the goal of skiing as a family
When talking to a parent - let child know or ask their permission.

Models of Development

These models describe typical development in human beings, yet people develop at different rates. Individuals in our adaptive programs who have cognitive or physical disabilities are often delayed in development.

CAP Model

Used in parts of the teaching cycle - for assessment of a student, as well as in the summary of a lesson

C=cognitive - How we think

A= affective - How we feel

P=physical – How we move

Cognitive:

Ages 3-6

- Active imagination
- Short attention span – get moving
- Limited spatial awareness

- Learns by playing
- Copy and mimic well – demos important
- Unable to reverse directions (demo same direction they are facing rather than a mirror image)
- Process 1-2 pieces of information (example: “Can you make your big stop at the purple cone?” Not, “Can you make your big stop, keeping your toes together and stop at the purple cone and wait for me?”)
- Play next to other kids, not necessarily with them – called parallel play
- Probably does not know left from right
- Egocentric – the world revolves around me

Ages 7-12

- Can reverse directions – can do a mirror image
- Process 2-3 pieces of information, but one direction best
- Need to know why they are asked to do something
- Will ask lots of questions
- Like to be challenged (and successful) – races, competitions
- Bathroom talk is great fun (younger) – farts especially – bi-ski lesson - rather than hip drop wing block, lift butt cheek like you’re going to fart
- Love “Knock, knock jokes” (younger) (knock knock, whose there, boo, boo who, oh I’m sorry)
- Knows adults don’t have all the answers, so they can be tricked – clever a fox
- Knows left from right
- Will remember highlights of day – can share with parents when wrapping up the lesson
- Not goal oriented, enjoy the process more

Teens+

- Puts pieces of information together (example: If I am on a steep slope and don’t make turns on hill what would happen?)
- Learning to think abstractly (bigger picture, understanding multiple meanings, ideas)
- Adult thought patterns without the experience
For example, greater awareness of consequences for actions
- Process many pieces of information and sequence events (example: “Can you make your stop, keeping your toes together and brushing your heels out? Then wait for the rest of the group by snow blower”)
- Humor - sarcasm
- Continued development of abstract reasoning and understand complex concepts

Affective – how they feel about themselves and interact with others - play, competition

Ages 3-6

- Separation anxiety (especially if not in day care or school yet) – not ok without mom or dad
- No concept of others needs or wants - lack empathy (“But I don’t have to go to the bathroom”)
- Need to feel safe
- Don’t need to be perfect
- Like being told when do something well – praise

Ages 7-12

- Aware of other needs and wants, not able to act on them (“You are so stupid, you like tacos more than pizza – that’s dumb)
- Enjoys being part of a team
- Compares achievements to peers
- Can work independently

- Like knowing when something is done well
- Like playing games and competitions
- Hormones will become a factor in mood (latter part of this age group)

Teens +

- Want to be treated with respect and not talked down to
- Don't want to be singled out for attention even if best in the group; want to blend in
- May not respect authority
- Have the ability to put themselves in another's shoes (empathy)
- More goal oriented – may be motivated to improve skills
- Want to be part of decision making
- Want to be accepted by peers
- Fragile self esteem
- Self-conscious
- Overly sensitive

Physical: Real vs. Ideal Movements

Ages 3-6

- Gross movements (head down, trunk out)
- Bracing on back of boots for support
- C.M. high because of big head
- Tires easily
- No upper lower/right left separation
- Body parts do not move independently - arms mimic the movements of legs
- Sight and vision are not fully developed

Ages 7-12

- More refined movements than younger kids
- More upright stance
- C.M. lower (not to lowest point yet until end of this age group)
- More endurance
- Learning cross lateral movements
- Vision will develop fully (depth perception may impact confidence)
- Rapid growth spurt (latter part of this age group)
- Can move body parts independently

Teens+

- May still have growth spurts
- May revert to more “child-like movements” after growth spurt – this is habit rather than necessity
- Can learn adult movement patterns such as, upper and lower body separation, refined movements
- Not ready for lots of endurance and intensity in movements (they are ready for refinement but should not generally ski hard and fast for long periods of time)
- Goes through biggest growth spurts
- Girls start to develop hips, boys develop larger muscles
- Girls often more mature than boys
- CM lowest point

PIAGET – Cognitive Development

Birth to 2 years	Sensori-motor	Uses senses and motor skills, items known by use	Object permanence learned
2-6 yrs	Pre-operational	Symbolic thinking, language used; egocentric thinking	Imagination/ experience grow, child de-centers
7-11 yrs	Concrete operational	Logic applied, has objective/rational interpretations	Conservation, numbers, ideas, classifications
12 yrs to adulthood	Formal operational	Thinks abstractly, hypothetical ideas (broader issues)	Ethics, politics, social/moral issues explored

The Sensorimotor Stage

Ages: Birth to 2 Years

Major Characteristics and Developmental Changes:

- The infant knows the world through their movements and sensations
- Children learn about the world through basic actions such as sucking, grasping, looking, and listening

- Infants learn that things continue to exist even though they cannot be seen ([object permanence](#))
- They are separate beings from the people and objects around them
- They realize that their actions can cause things to happen in the world around them

The Preoperational Stage

Ages: 2 to 7 Years

Major Characteristics and Developmental Changes:

- Children begin to think symbolically and learn to use words and pictures to represent objects.
- Children at this stage tend to be egocentric and struggle to see things from the perspective of others.
- While they are getting better with language and thinking, they still tend to think about things in very concrete terms.

The Concrete Operational Stage

Ages: 7 to 11 Years

Major Characteristics and Developmental Changes

- During this stage, children begin to think logically about concrete events
- They begin to understand the concept of conservation; for example, that the amount of liquid in a short, wide cup is equal to that in a tall, skinny glass
- Their thinking becomes more logical and organized, but still very concrete
- Children begin using inductive logic, or reasoning from specific information to a general principle
- During this stage, children also become less egocentric and begin to think about how other people might think and feel.

The Formal Operational Stage

Ages: 12 and Up

Major Characteristics and Developmental Changes:

- At this stage, the adolescent or young adult begins to think abstractly and reason about hypothetical problems
- Abstract thought emerges
- Teens begin to think more about moral, philosophical, ethical, social, and political issues that require theoretical and abstract reasoning
- Begin to use deductive logic, or reasoning from a general principle to specific information

Laterality – preference for one side of body

Directionality – understanding of left and right; laterality comes first

Reversibility – turning directions or thought processes backwards

Motor skill acquisition: initial stage, elementary stage, and mature stage

The initial stage of motor skill acquisition begins with increased awareness of what the body is doing. Students will often look at their body parts or skis to help connect what is happening to them with what they are feeling.

The elementary stage of motor skill acquisition is characterized by attention on the environment. Students at this stage are more controlled in order to avoid objects or others around them.

The mature stage is marked by more fluidity and will perform movements that appear easy. Movements become more automatic, coordinated, accurate, rhythmical, and consistent.

Ride Portion of the Exam

LEVEL I

LEVEL II

MOVEMENT ANALYSIS (MA)

Extended Study Questions

To get the most out this section, answer these questions on a separate piece of paper, discuss the questions with your trainer and fellow instructors, and talk about these topics with your students.

Extended Study Questions for Visual Impairment (VI)

Equipment

What equipment could be used for a student who is blind or has low-vision? Why?

What type of physical aids may be used by an instructor/guide?

List the clothing and accessories, head to toe, which may be used by a student who is blind or has low-vision.

Discuss different types of communication equipment a guide and student might use.

Teaching and Understanding

Describe different types of guiding systems.

How do we determine the best guiding technique for a particular student?

Cite the skills in a beginning turn. How do all of the skills interact?

Why is proprioceptive feedback important to a blind or low-vision student?

What purpose does dragging a pole or bamboo hold for a student who is blind or has low-vision?

Describe the different positions from which a guide may work.

What are the advantages and disadvantages of each?

List and describe the meanings of the verbal commands a guide may use.

Disability/Medications

Prior to the lesson, how do you evaluate the abilities of your student?

When, where, and how is a visual assessment done?

What kind of questions should you ask your student about his/her disability, medications, medical needs, and athletic abilities?

What level of vision should a person have in order to require a guide while skiing or riding?

Cite the classes of medications that may be taken by blind or low-vision students.

Be able to identify examples of specific drugs for each class and any possible side effects.

Define the following disabilities and their associated "red flags": Albinism, Blindness or partial sightedness, Cataracts, Congenital eye defects, Corneal Disease, Diabetic retinopathy, Glaucoma, Macular Degeneration, Optic Nerve Disease, Peripheral vision, Retinitis Pigmentosa, Strabismus, Tunnel vision.

Safety

Discuss the safety issues regarding loading/unloading chairlifts with students who are blind or has low-vision?

Discuss the possible safety challenges regarding guiding students who are blind or have low-vision blind on crowded slopes, on slopes with hard snow or icy conditions, and on slopes with active snow making guns.

What should you do if you and your student who is blind or has low vision become separated on the slopes?

Discuss the need for emergency commands that may be needed during a lesson with a student who is blind or has low vision.

Why do we need to establish emergency commands before the lesson begins?

Extended Study Questions for Cognitive Diagnoses

Equipment

What equipment could be used for a student with a cognitive related disability? Why?

What type of mechanical aids, or devices, may be used by an instructor to assist a developmentally disabled student during a lesson?

List the clothing and accessories, head to toe, which may be used by the student.

Why is it important to check the gear your student receives from the rental shop?

Teaching and Understanding

What adaptations of skiing or riding techniques, if any, are used with students who have cognitive related disabilities?

Can the stepping stones concept be used? Why or why not?

What is the primary skill emphasized in a beginning turn? Describe the body mechanics used.

Cite the skills in a beginning turn. How do all of the skills interact?

List the most common learning styles of developmentally disabled students.

Discuss the communication techniques that may best suit the learning styles identified above.

What different types of behavior challenges may be found in developmentally disabled students? What methods can the instructor use to deal with these challenges effectively?

Disability/Medications

Prior to the lesson, how do you evaluate the abilities of your student? How is a cognitive assessment done?

What kind of questions should you ask your student, or caregiver, about his/her disability, medications, medical needs, and athletic abilities?

Cite the classes of medications that may be taken by some students with developmental disabilities.

Be able to identify examples of specific drugs for each class and any possible side effects.

Define the following diagnoses and their associated “red flags”: Autism, Attention Deficit Disorder (ADD, ADHD), Brain injury, Cerebral Palsy, Down Syndrome, Developmental Delays, Hemiplegia, Intellectual Disabilities, Progressive Diseases.

Safety

Discuss the potential safety issues in teaching a student with “loose joints”.

Discuss the possible safety challenges regarding teaching students who have cognitive disabilities on crowded slopes.

Discuss the implications and considerations involved with a student who is easily distracted.

What can an instructor do to prevent becoming separated from his/her student?

Discuss the safety issues associated with a student who is prone to seizures.

Prior to the lesson, how do you evaluate the abilities of your student?

What kind of questions should you ask your student about his/her disability, medications, medical needs, and athletic abilities?

Who is a candidate for four-track skiing? Why?

Cite the classes of medications that may be taken by some four-trackers. Be able to identify examples of specific drugs for each class and any possible side effects.

Define the following disabilities and their associated “red flags”: various forms of Cancer, congenital anomalies of the leg and/or foot, Cerebral Palsy - spastic, dystonic, and athetoid, Spinal Cord Injuries,

Spina Bifida, Multiple Sclerosis, Muscular Dystrophy, Post-polio, Brain Injury, Progressive Diseases, Diplegia and Hemiplegia, Cerebrovascular Accidents.

Extended Study Questions for Bi-ski

Equipment

Compare and contrast the different types of bi-skis available at your school and their advantages/disadvantages. Discuss the differences in skis and articulation systems for the various types of bi-skis.

List all of the parts of a bi-ski and their respective functions.

Demonstrate and discuss the different loading characteristics of the various types of bi-skis.

How are the outriggers (fixed and hand-held) sized for a student and what is their purpose?

Discuss the purpose of tethers and how they are used.

What is the purpose of a dowel test and how is it done? Is weight ever added to a bi-ski?

Why? Describe how to fit a person into a bi-ski.

Teaching and Understanding

Discuss reasons why a straight run is taught.

Discuss why a straight run might not be taught to a beginning student?

What skill is primarily emphasized in beginning bi-ski turns?

Why does a bi-ski have super side-cut skis? Why are the side-cuts asymmetrical?

Describe the differences/similarities between teaching with fixed and hand-held outriggers.

Why do we teach the “drop and block” method to a bi-skier?

What determines whether a turn will be skidded or carved?

Disability/Medications

Prior to the lesson, how do you evaluate the abilities of your student?

What kind of questions should you ask your student about his/her disability, medications, medical needs, and athletic abilities?

What factors determine whether a person bi-skis?

What factors determine whether a person will use hand-held outriggers or fixed outriggers?

Identify the vertebrae, the associated nerves, and the muscle and body functions these nerves control.

Define autonomic dysreflexia, cite its symptoms, and when and why it occurs. At what injury level it is usually associated? What do you do when autonomic dysreflexia occurs?

What can you use to learn about specific medications?

Cite the classes of medications that may be taken by some bi-skiers. Be able to identify examples of specific drugs for each class and any possible side effects.

Define the following disabilities and their associated “red flags”: Cerebral palsy, Muscular Dystrophy, Multiple Sclerosis, Spina Bifida, Spinal Cord Injury (SCI), Brain Injury, and other progressive diseases.

Safety

Discuss the potential safety issues regarding outrigger use (both hand-held and fixed).

Discuss the possible safety challenges related to the student and instructor regarding tethering a bi-ski.

Investigate the safest way to transfer your student to and from the bi-ski and how to assist the student after a fall. Consider both the student and the instructor.

Describe and demonstrate the evacuation systems for the bi-skis available at your program.
Discuss ways to ensure chairlift safety for a student who is prone to seizures.

Extended Study Questions for Mono-ski (MS)

Equipment

Compare and contrast the different types of mono-skis available to your program? Discuss the advantage and disadvantages of each.

List all of the parts of a mono-ski and their respective functions.

How are the outriggers sized for a beginning student and what is their purpose?

What is a dowel test and how is it done?

Is weight ever added to a mono-ski? Why?

Discuss the important points with regards to fitting a student in a mono-ski.

Teaching and Understanding

What role do the outriggers play in a straight run? Where are they positioned?

Cite the skills involved in a beginning turn? How do the skills interact?

Positioning a mono-skier's pelvis forward in the seat offers what type of advantages?

What is friction? How does a mono-skier create friction with outriggers?

Why would we teach unilateral and/or bilateral outrigger movements? What physical assists are typically used with a mono-skier and why?

Disability/Medications

Prior to the lesson, how do you evaluate the abilities of your student?

What kind of questions should you ask your student about his/her disability, medications, medical needs, and athletic abilities?

What factors determine whether a person mono-skis?

Identify the vertebrae, the associated nerves and the muscle and body function they control.

How can you test the balance and strength of a potential mono-skier?

Cite the classes of medications that may be taken by some mono-skiers. Be able to identify examples of specific drugs for each class and any possible side effects.

Define the following disabilities and their associated "red flags": Cerebral Palsy - spastic, athetoid, and dystonic, Spina Bifida, Post-polio, Muscular Dystrophy, Multiple Sclerosis, Amputation, Spinal Cord Injury, Brain Injury, Progressive Diseases.

Safety

Discuss the potential safety issues regarding outrigger use.

Discuss the possible safety challenges to the instructor and student regarding physically assisting a mono-skier. Investigate the safest ways to help transfer your student to and from the mono-ski and how to assist the student after a fall. Consider both the student and the instructor.

Describe and demonstrate the evacuation systems for the mono-skis available at your program. Discuss ways to ensure chairlift safety for a student who is prone to seizures.

Snowboard Technical Manual/Core Concepts Knowledge Questions

Recall the history, purpose and organization of PSIA/AASI.

Identify the vision/mission statement of PSIA/AASI.

Discuss the role of instruction within the snowsports industry.

Discuss the impact and importance of developing trust in the learning environment.

Identify key elements of a student-centered and experience-oriented approach to teaching.

What are the five functional mechanics in boarding?

In what order can the skills be taught?

What types of stance problems have you seen in beginning students?

Identify the seven types of intelligence.

Name seven points that provide a good lesson plan.

Briefly describe the important points when assessing your student.

Who should be involved in the setting of goals for a lesson?

What learning style would probably most benefit from the Guided Discovery teaching method?

When would Problem Solving be an appropriate teaching style for your chosen discipline?

Why?

Why do we ski or ride in an athletic stance?

Identify and discuss the different modes of sensory processing (VAK) and how the student's preference impacts the instructor's teaching style.

Identify the levels of student understanding.

Explain each of the four skills.

Name two ways of edging the ski or board.

What is the difference between inclination and angulation?

Categorize the basic options and benefits of modern ski or board designs.

Discuss the role of balance relative to the other skill categories and

movements. Identify the basic principle of the stepping stones concept.

Discuss how you would develop a progression along a track to advanced skiing or riding.

When would it be appropriate to follow the direct-to-parallel approach to skiing?

Explain the importance of giving students practice time.

How can you determine if your student understands what you have been teaching them?

When is the Command form of teaching most successful?

What is an advantage of Task style teaching?

Create a list of drills/activities/tasks for each skill category. Name three types of pressuring movements.

What are the three phases of a turn?

What type of rotary movements are taught in a beginning turn?

How does a beginning turn differ from an intermediate turn?

Why do we teach a straight run?

Name four different learning styles.

Name the three goals of a lesson in order.

Name the learning style most often used in: DD, BLV, etc.

Discuss the information that should be provided in your summary and why.

What is the importance of summarizing your lesson to the student and or caretaker?

What is turning power?

Name four different turning powers.

How is a turning power different from a turning force?
How does a student achieve edging?
What pressuring movements can a student make?
Name three exercises that correct stance.
Name three exercises that work on rotary.
Name three exercises that develop edging movements.
Name three exercises that concentrate on pressuring movements. Name four types of unweighting.
Describe the mechanical priorities of a long radius turn.
Explain lateral learning and give three examples.
What are ski poles used for?
Explain crossover.
In which phase of a turn does crossover occur?
Name four elements essential to a good movement analysis.
Why do we wax skis and boards?
Why do bindings release the way they do?
What are the advantages of lifter plates beneath bindings?
What is the difference between a sintered base and an extruded base?

Adaptive Level I & II Sample Exam Questions

Technique and Disability Questions

Is it safe to wear a ski tip or board connector on the chairlift?
Is it safe to wear a ski tip or board connector on the poma lift?
How are outriggers adjusted for a beginning three tracker?
How are outriggers adjusted for a beginning mono skier?
How are outriggers adjusted for a beginning bi-skier?
What are some common visual impairment guiding commands?
When would you use a spreader bar?
How do you determine what size spreader bar to use?
Name three types of CP and their characteristics.
What learning style would you associate with a person with Autism?
What learning style suits most people who are blind?
How do you check for a leg length difference?
How do you discover canting needs?
What are some red flags for people with spinal cord injury? What is Multiple Sclerosis? Name the red flags.
What is Muscular Dystrophy? Name the red flags. What is Spina Bifida? Name the red flags.
What happens if a three tracker is edge-locked?
What might cause a three tracker to become edge-locked?
Name five causes of Intellectual Disabilities.

Name five characteristics of a person with Autism.
What is Atlantoaxial Subluxation?
What is Autonomic Dysreflexia?
Name the symptoms of Autonomic Dysreflexia.
Name three possible causes of Autonomic Dysreflexia during a lesson.
What is a shunt?
What is scoliosis and what effect does it have on a student?
How do you do a dowel test a mono-ski?
How do you cant a mono-ski?
What are the red flags for a person who has diabetes and an amputation?
What is insulin shock?
Name five symptoms of insulin shock.
What is epilepsy?
Name two types of seizures.
What do you do if your student has a toni-clonic seizure?
What precautions do you take if your student has a Seizure Disorder?
Name five anticonvulsants.
What is the definition of legally blind?
What are Cataracts?
What is Glaucoma?
What is Nystagmus?
What is an Astigmatism?
What does Myopic mean?
What is a C.V.A.?
What does Hemiparesis mean?
What is bilateral AK.?
What is unilateral AK, B.E.?
What does paraplegia mean?
What is the spinal cut off point that determines paraplegia vs. quadriplegia?
Explain how outriggers are adjusted for a mono-skier as the skier progresses.
Name five possible equipment problems for a mono-ski that won't turn.
Should a three tracker ever pressure the tail of the ski?
When? What does the shock absorber on a mono-ski do?
How do you adjust the foot tray on a mono-ski?
How high of a seat back does a T-4 mono-skier need?
How do you set up a post-polio three tracker?
Name three types of CP and give examples of how each type might perform.
What causes CP?
What type of person might have echolalia?
Name three red flags associated with Spina Bifida.
What is Fragile X syndrome?
What is Friedreich's Ataxia?
Explain Diabetic Retinopathy.
Name five common symptoms of a head injury.
What does the left brain do?

What is left aversion?
What is lability?
What is Aphasia?
What is Dysarthria?
What muscle groups are controlled by the C-5 nerve pairs?
What is the approximate cut off for Autonomic Dysreflexia on the spinal cord? Which nerve pairs control the triceps?
Name and explain the vertebra of the spine.
Is there such a thing as a C-8 injury?
Explain.
What diagnoses can inhibit proper thermoregulation?
When must a bi-skier be tethered?

Physics and Biomechanics Questions

What is friction?
Name three different types of pressuring movements.
Give examples of three types of rotary movements that will cause skis or boards to turn.
Give two examples of edging movements.
Why don't we ski hunched over?
What does skeletally aligned or skeletally stacked mean?
Which is easier to balance: an object with a high or low center of gravity?
Approximately where is a skier's or rider's center of gravity?
Can a student relocate his center of gravity by adjusting his stance and limbs?
Why do skis have sidecut?
Why do skis have camber?
Why do we mount bindings on the center of our skis and boards and not the tip or tail?
Why do skis have edges?
Why do skis have a curved tip?
What is supination of the foot?
What is pronation of the foot?
What is hypertonicity?
What does a scissor gait look like?
What does a swing through gait look like?
What is canting and why is it necessary?
Explain how outriggers can be used to create rotary movements.
Explain friction in relation to the use of outriggers.
What is centrifugal force? What is centripetal force?
Name two types of friction affecting a student.
Biomechanically, why does a binding release the way it does? What type of joint is the knee?
What type of joint is the ankle?
What joint is primarily responsible for leg steering?

What muscle groups are primarily responsible for leg steering?
Can the knee rotate? Under what conditions?
Name four ligaments of the knee.
What does a ligament do? Can you strengthen a ligament non-surgically?
Do ligaments heal?
What types of falls tend to injure the ACL?
What do tendons do? Do they heal if torn?
How can we protect the ligaments of the knee? Explain the gravity-friction principle.
If a non-edged ski or board is weighted at the tip, which will seek the fall line, tip or tail?
If an edged ski or board is weighted at the tip, which will seek the fall line, tip or tail?
What is velocity?
What is angular velocity?
What is force?
What is torque?
What is momentum?
Explain counter rotation. Explain leg steering.
Explain upper body rotation.
Explain lower body rotation.
What is split rotation?
Name four types of unweighting and explain each.
Explain how side-cut aides in turning.
Explain the body's balancing mechanisms. What are proprioceptors?

ADDITIONAL INFORMATION

This section includes additional information related to teaching Adaptive lessons. You will not be examined on this material for the Level 1 or 2 Adaptive certifications.

The following are additional diagnoses we often encounter in our Adaptive programs. **Candidates may like to have an awareness of them even though they will not be given a teaching scenario with one of them, nor will they be quizzed on them.** For further information about each diagnosis see the Adaptive Instruction Supplement: Diagnoses & Medications Classifications.

Cognitive/Intellectual Disabilities

Alzheimer's Disease – a disorder resulting in progressive loss of cognitive function

Amyotrophic Lateral Sclerosis (ALS) – a progressive motor neuron disease causing muscle weakness and eventually death

Cancer - a group of diseases caused by uncontrollable division of abnormal (malignant) cells that invade the body

Chronic Traumatic Encephalopathy – a progressive brain disease found in individual with repeated, traumatic brain injuries such as concussions

Dyslexia – a language-based disorder in which individuals have difficulty with language skills, especially reading

Emotional Behavior Disorder – an umbrella term used in school settings to describe frequent social, emotional, or behavioral functioning that departs from the generally accepted, age-appropriate norms. Most often they have a mental health diagnosis

Fetal Alcohol Syndrome – a term describing the lifelong physical, mental, behavioral, and learning deficits resulting from the effects of damage done to the embryo when a mother drinks alcohol during pregnancy

Fragile X Syndrome – a genetic condition that results in intellectual, behavioral and learning challenges, as well as distinct physical characteristics; more often diagnosed in males

Nonverbal Learning Disability – person has difficulty understanding nonverbal cues such as facial expressions or body language

Sensory Processing Disorder - sensory information results in over or under responsiveness in any of the sensory systems: visual, auditory, olfactory (smell), gustatory (taste), tactile, vestibular (sense of head movement in space), proprioceptive (sensations from the muscles and joints of the body), and interoceptive (internal organs)

Hearing Related Diagnoses – any reduction in sensitivity to sound in one or both ears

Huntington's Disease – a progressive, inherited, neurological disease which results in a decrease in the individuals physical and mental capabilities

Lupus – a chronic, inflammatory autoimmune disorder that effects the skin, joints, and organs; can impact cognition

Parkinson's Disease – a neurodegenerative disorder of the brain that occurs when the nerve cells in the part of the brain that control movement are gradually destroyed

Prader Willi Syndrome – a genetic condition affecting appetite, cognition, behavior, muscle tone, and development

Rett Syndrome - a neurological disorder caused by mutations of the X-chromosome causing cognitive, communication, sensory, emotional, motor, and autonomic dysfunction. More common in females

Tumor - results from abnormal division of cells and uncontrolled cell growth; can be malignant or benign

Visual Impairments

Albinism – is an inherited genetic condition in which the body does not produce normal levels of melanin pigment in the skin hair or eyes; often have low vision due to abnormal development of the retina and nerve connection between eye and brain

Amblyopia (lazy eye) - a condition that results when the brain favors one eye over the other, resulting in eyes being crossed, eyes that don't move together and impaired depth perception

Astigmatism - occurs due to misshaped cornea. Images appear blurry and stretched out

Cancer - a group of diseases caused by uncontrollable division of abnormal (malignant) cells that invade the body

Cataracts - progressive clouding of the lens in one or both eyes leading to partial or total blindness

Corneal Disease - disease to the eye's outer layer

Diplopia - double vision (a condition which in the individual sees two images of an object)

Hyperopia - farsightedness where objects appear blurred, distant objects appear more clearly

Light Damage – damage due to excessive Ultraviolet (UV) exposure

Myopia - nearsightedness where distant objects appear blurred while near objects remain clear

Hemianopia – loss of vision in either or both eyes; often as a result of a brain injury

Nystagmus - rapid, involuntary movement of the eyeballs due to abnormal function in the areas of the brain that control eye movement

Ophthalmoplegia or paresis – paralysis or paresis of one or more of the extraocular muscles responsible for eye movement

Optic Nerve Disorder - damage to the optic nerve by trauma or disease process

Strabismus – abnormal alignment of the eyes

Tunnel Vision - loss of peripheral vision

Myasthenia Gravis – autoimmune disease that attacks the body's tissues, interrupting communication between nerves and muscles

Trisomy 18 - a condition resulting from an extra 18th chromosome, causing medical complications that could be life-threatening

Tumor - result from abnormal division of cells and uncontrolled cell growth; can be malignant or benign

Bi-Ski

Amyotrophic Lateral Sclerosis (ALS) – a progressive motor neuron disease causing muscle weakness and eventually death

Apraxia – a neurological disorder effecting ability to plan and produce actions

Arthritis – a chronic inflammatory disease of the joints and other parts of the body causing swelling, pain, and loss of movement

Arthrogryposis – a physical symptom associated with numerous, rare, congenital conditions that is characterized by joint stiffness

Asthma - a chronic lung disease that inflames and constricts airways

Burns – injury resulting from excessive exposure to heat, sun, caustics, electricity, chemicals, or radiation

Cystic Fibrosis – a genetic disorder in which thick, sticky mucus builds up in the lungs and digestive track, causing serious lung and digestive track problems

Dwarfism – a condition in which an adult is typically 4'10" or shorter

Fredericks Ataxia – a rare, inherited, progressive disorder that starts in early childhood and causes numerous physical impairments

Guillain-Barre Syndrome – an inflammatory disorder effecting the nervous system; onset can be sudden; can include paralysis; recovery is typical

Hearing Related Diagnoses – any reduction in sensitivity to sound in one or both ears

Huntington's Disease – a progressive, inherited, neurological disease which results in a decrease in the individuals physical and mental capabilities

Intellectual Disabilities - characterized by below-average intellectual functioning (abstract thinking, speed of learning, planning, problem solving, etc.) and difficulties in life skills and adaptive functioning (managing money, communication, schedules routines, self-care, and social interaction)

Lupus – a chronic, inflammatory autoimmune disorder that effects the skin, joints, and organs; can impact cognition

Myasthenia Gravis – autoimmune disease that attacks the body's tissues, interrupting communication between nerves and muscles

Parkinson's Disease – a neurodegenerative disorder of the brain that occurs when the nerve cells in the part of the brain that control movement are gradually destroyed

Poliomyelitis – a potentially deadly, infectious viral disease that invades the brain and spinal cord

Post-Polio – a condition that effects polio survivors years after having poliomyelitis

PTSD - a mental health condition that is diagnosed when a person experiences a trauma and continues to experience it as if it just occurred

Rett Syndrome - a neurological disorder caused by mutations of the X-chromosome causing cognitive, communication, sensory, emotional, motor, or autonomic dysfunctions; more common in females

Spinal Curvature Disorder - a variety of disorders related to abnormal curvature of the spine

Spinal Muscular Atrophy - refers to a group of genetic diseases that destroy the motor neurons in the spinal cord affecting crawling, walking, head and neck control and swallowing

Trisomy 18 - a condition resulting from an extra 18th chromosome, causing medical complications that could be life-threatening

Tumor - results from abnormal division of cells and uncontrolled cell growth; can be malignant or benign

Mono-Ski

Amyotrophic Lateral Sclerosis (ALS) – a progressive motor neuron disease causing muscle weakness and eventually death

Apraxia – a neurological disorder effecting ability to plan and produce actions

Arthritis – a chronic inflammatory disease of the joints and other parts of the body causing swelling, pain, and loss of movement

Arthrogryposis – a physical symptom associated with numerous, rare, congenital conditions that is characterized by joint stiffness

Asthma - a chronic lung disease that inflames and constricts airways

Burns – injury resulting from excessive exposure to heat, sun, caustics, electricity, chemicals, or radiation

Cystic Fibrosis – a genetic disorder in which thick, sticky mucus builds up in the lungs and digestive track, causing serious lung and digestive track problems

Dwarfism – a condition in which an adult is typically 4'10" or shorter

Fredericks Ataxia – a rare, inherited, progressive disorder that starts in early childhood and causes numerous physical impairments

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PTSD - a mental health condition that is diagnosed when a person experiences a trauma and continues to experience it as if it just occurred

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Tumor - results from abnormal division of cells and uncontrolled cell growth; can be malignant or benign

Stand Up

Amyotrophic Lateral Sclerosis (ALS) – a progressive motor neuron disease causing muscle weakness and eventually death

Apraxia – a neurological disorder effecting ability to plan and produce actions

Arthritis – a chronic inflammatory disease of the joints and other parts of the body causing swelling, pain and loss of movement

Arthrogyriposis – a physical symptom associated with numerous, rare, congenital conditions that is characterized by joint stiffness

Asthma - a chronic lung disease that inflames and constricts airways

Burns – injury resulting from excessive exposure to heat, sun, caustics, electricity, chemicals or radiation

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Trisomy 18 - a condition resulting from an extra 18th chromosome, causing medical complications that could be life-threatening

Tumor - result from abnormal division of cells an uncontrolled cell growth; can be malignant or benign

Vascular Disease – any condition impacting the network that moves fluids throughout the body (e.g., arteries, veins, lymph vessels)