

# Oregon Adaptive Skiing

## Reference Manual for Volunteers

[www.oregon-adaptive-skiing.org](http://www.oregon-adaptive-skiing.org)

OAS is a chapter of Disabled Sports  
USA

## **About This Guide**

This guide is designed to equip you with the knowledge and awareness necessary to help people with disabilities have a fun and safe adaptive skiing experience. Translating this information into action is a skill that requires time and experience to develop. Be sure to ask for help whenever you have any questions, and by all means, spend as much time guiding on the snow as you can! Snow time is the best way to improve your competence as a guide, and your competence is directly correlated to the comfort and confidence of the skiers you assist.

## **About Oregon Adaptive Skiing**

OAS is one of over 80 chapters of Disabled Sports USA, a non-profit organization that serves over 60,000 people nationwide. We are committed to providing safe and affordable recreation experiences for people with disabilities. Our adaptive skiing programs help our skiers build their self-esteem and confidence, improve their fitness levels, make new friends, and have fun. The individuals taking advantage of our services have a range of disabilities including visual and hearing impairments, amputations, cerebral palsy, Multiple Sclerosis, Muscular Dystrophy, spina bifida, developmental disabilities, paraplegia, quadriplegia, and many more. We teach a variety of skiing disciplines including two track, three track, four track, mono-skiing, and bi-skiing. Our specialized and innovative equipment and techniques provide an opportunity for anyone with a disability to learn how to ski. For more information on disabilities, equipment, terminology, or anything else in the manual, please visit OAS' website at [www.oregon-adaptive-skiing.org](http://www.oregon-adaptive-skiing.org).

## **Welcome Volunteers**

Becoming a volunteer with OAS is a wonderful opportunity to meet exciting challenges, learn and improve new skiing skills, contribute to your community, and have fun! Volunteers assist with many functions at OAS and are an integral part of our organization. By working together, we all help to create a positive and fun learning environment that allows the skiers who use our services to excel. Although volunteers do not receive any employee benefits or monetary compensation for duties performed, they are valuable resources and are treated with respect and consideration. OAS will do its best to equip its volunteers with the skills and knowledge necessary to have a very rewarding experience. In return, we ask volunteers to take their commitment to OAS and the skiers we assist seriously.

## **Important Contact Numbers**

Hoodoo Snow Conditions:	541-822-3337	Kendall Cook:	541-383-4968
Hoodoo Business Phone:	541-822-3799	Colleen Dougherty:	503-380-6982
Jack Alexander:	541-815-1285	Bob Fulton:	541-330-0682
Amber Atkins:	541-389-7275	Zach Welcker:	541-389-7275

## **E-Mail**

For information via e-mail, please contact [amber@bendparksandrec.org](mailto:amber@bendparksandrec.org).

## **General Policies**

As a representative of OAS, you are responsible for following program policies. Disregard for policies may result in disciplinary action, up to and including termination. The following is a guideline and is not intended to be a complete list.

### **Professionalism**

All representatives of OAS are expected to act in a professional and ethical manner while on official duty for OAS, as well as on personal time. Breaches in professional behavior may be considered reasons for discipline or termination of service.

#### **Expected**

- Always be actively positive, friendly, and courteous in your interactions with students, co-workers, and others.
- Comply with all safety procedures.
- Personal conduct, both on and off duty, which appropriately reflects the policies and standards of OAS.

#### **Not Tolerated**

- Unexcused absence or tardiness, failure to report without notice, excessive absenteeism or tardiness.
- Neglect of responsibilities.
- Any action toward a student or family member which would damage OAS' relationship or reputation with the public.
- Lending lift tickets or cutting lift lines.
- Skiing in closed areas.
- Use of alcoholic beverages, non-prescribed drugs, narcotics, or smoking while on duty.
- Reporting to volunteer, or volunteering, while under the influence of alcoholic beverages, narcotics or drugs, prescribed or non-prescribed, which could impair your ability to perform your job requirements.
- Unauthorized use of tools or equipment which belong to OAS, its participants, or another volunteer.
- Solicitation of money or fundraising activities unless authorized by the Board of Directors.

### **Visitors**

Your friends and relatives are welcomed guests—but they should realize that you are here to work and that you cannot visit while on duty. If you wish to have lunch or visit with friends or families, please use public areas.

## **Volunteer Policies**

These policies and procedures are set forth by OAS to promote safe and efficient operation of its adaptive skiing program. If you have any questions concerning these policies, please consult one of OAS' Board members.

1. Prior to assisting skiers for OAS, you must: sign the Volunteer Application and Release; sign the Code of Ethics; attend one of two Volunteer Orientations; and attend both days of OAS' On-Snow Orientation.
2. You are responsible for informing OAS of any physical limitations you may have so that we may appropriately adjust the daily schedule to meet the needs of the student, the instructor, and yourself.
3. You may not assist with lessons while under the influence of alcohol or illicit drugs.
4. You may only assist or teach lessons on alpine skis unless you have received explicit prior approval from the Team Leader to use alternative equipment (i.e. snowboard, telemark skis, etc.)
5. Please refrain from wearing any clothing or displaying any tattoo that is provocative or contains profanity or political messages.

## **Skiing Policies**

OAS is committed to promoting skier safety. When you are skiing, it is your responsibility to maintain control of your speed and course at all times to avoid harming yourself or others. You are solely responsible for knowing your own ability to negotiate any ski slope or trail and to ski within the limits of that ability.

### **Skiing Rules**

- While skiing, on or off duty, you must wear and present the required pass or lift ticket.
- Treat Hoodoo employees with courtesy and respect; obey their requests.
- Be courteous to fellow skiers; do not use profanity.
- Ride the lifts safely; do not "horseplay" while loading, riding, or unloading lifts.
- Do not ski fast in congested areas or areas posted with "Slow" signs.
- Obey Your Responsibility Code:
  1. Always stay in control and be able to stop or avoid other people or objects.
  2. People ahead of you have the right of way. It is your responsibility to avoid them.
  3. You must NOT stop where you obstruct a trail or are not visible from above.
  4. Whenever starting downhill or merging onto a trail, look uphill and yield to others.
  5. Always use devices to help prevent runaway equipment.
  6. Observe all posted signs and warnings. Keep off closed trails and out of closed areas.
  7. Prior to using any lift, you must have the knowledge and ability to load, ride, and unload safely.

Violation of skiing safety rules may result in termination as a volunteer and/or loss of skiing privileges at Hoodoo.

## Accident/Incident Procedures

It is the lead instructor's responsibility to determine how to proceed should an injury occur. If you have medical training or special expertise, communicate this to the instructor. As a team, you can decide the proper course of action.

Steps to follow if an injury occurs:

1. Do not move the injured party unless he or she is in a life threatening position.
2. Communicate with the injured party to ascertain the nature and degree of the injury.
3. Make sure the area surrounding the incident is safe for you and the injured party. Cross a pair of skis several yards above the injured party to warn other skiers.
4. Continue to talk with the injured party, provide comfort, and care within your level of first aid training.
5. Ask the injured party if he or she would like assistance from the ski patrol.
6. If the injured party requests, or if you think ski patrol is needed, tell at least two other skiers to ski directly to the nearest ski patrol to notify them of your location.
7. Cooperate with ski patrol. They are in charge of the scene once they arrive.
8. Focus on your communications with all people at the scene on the safety and comfort of those injured. Avoid discussing what you think happened or how you think the incident was caused.
9. Write notes on what you observed at the scene and any statements made by others. Get the names, addresses, and phone numbers of any witnesses.
10. If necessary, send the injured person for appropriate medical care. If the injury is not serious, a local clinic or physician's office can usually provide service at a lower cost than an emergency room.
11. Notify the Team Leader immediately. Provide the name of the injured party, nature of the injury, and location.
12. Return to the lesson as soon as possible and complete and Incident Report Form and give it to the Team Leader in person.

If you suspect that equipment breakdown contributed to the injury, prevent its further use until full repairs and a safety check have been completed.

## **The Volunteer Process**

- When OAS' administrators are contacted for a lesson, they will send out an e-mail to qualified volunteers giving the type of lesson, date, and number of volunteers needed.
- Volunteers will be placed on a first-come, first-served basis. Therefore, it is in your best interest to respond to a request for volunteers as soon as you are sure that you can commit the time.
- The weekend's Team Leader will contact you at least 24 hours in advance whenever possible to discuss transportation arrangements. If you do not ride up to Hoodoo with the group, the Team Leader will let you know what time to meet him or her at the mountain.
- In general, all volunteers will arrive one hour before the first lesson to go over Participant Information Forms and get equipment ready.
- If you are helping out as a ski buddy, you should fill out a Ski Note and give it to the Team Leader. If you are assisting with a lesson, the instructor will complete the Ski Note.
- Record your hours for the day.
- Hoodoo will give you a lift ticket for the entire day. Once you are done volunteering, you are free to ski until your heart is content.
- Once you have spent four days volunteering on the snow, you will be given a free lift ticket (for your personal use at any time) for each additional day you volunteer.

## **Hoodoo Ski Area**

Hoodoo is a valuable partner in making skiing available to people with disabilities. This year, Hoodoo is making a significant contribution to OAS by offering our participants a reduced rate on lift tickets, donating lift tickets to our volunteers who assist adaptive skiers, and providing storage space for our equipment. OAS has full access to all of Hoodoo's terrain and amenities. Both the employees and the management at Hoodoo work to ensure that our skiers will have an enjoyable experience at the mountain. We take great pride in being a part of the mountain experience at Hoodoo Ski Area. For more information, check out Hoodoo's website at [www.hoodoo.com](http://www.hoodoo.com).

## Understanding the Equipment

The following information is intended to give you a working understanding of adaptive skiing equipment and terminology. This material will be much easier to comprehend once you begin working with the equipment, so don't overwhelm yourself by trying to commit it all to memory.

### **A. Two Track**

1. *Without poles:* Skier uses two skis only. Good for a beginner who may use poles as he/she progresses.
2. *With poles:* Skier uses two skis with poles. Good overall body strength and high cognitive functioning are necessary.
3. Disabilities common to two track include visual impairment, brain injury, developmental disability, cerebral palsy, below the knee amputee, arm amputee, multiple sclerosis, learning disability, and post polio.

### **B. Four Track (two skis with outriggers)**

1. *Four track:* Outriggers are required for extra support and balance. For individuals with two arms and two legs, natural or prosthetic, who are able to stand. Tip clamps, trombones, or the edgie wedgie may be necessary if there is a lack of lateral control. If braces are worn, they should be worn in the ski boot while skiing. Slant boards, cants, or heel wedges are also helpful. Disabilities common to four track include cerebral palsy, post polio, brain injury, muscular dystrophy, multiple sclerosis, ortho impaired, and spina bifida.
2. *Walker ski:* A walker on skis is used in addition to two skis. Best method for individuals who have good upper body strength but require extra support to stand. To control turns and speed, the walker can be held from behind or tethered. Participant's skis are usually tip clamped to the skis of the walker. Most skiers that use the walker have cerebral palsy.

### **C. Three Track (one ski, two outriggers)**

This method of skiing is common for amputees. To properly adjust the outriggers, the grip of the outrigger should be placed next to the skier's hip joint when he or she is standing. The ski of the outrigger must be one inch off the ground. The cuff sits halfway between the wrist and the elbow with the opening facing outward. As the skier progresses, the outriggers can be shortened to allow for more use of the leg. People with post polio or above-the-knee amputees often find three track the most successful way to ski.

### **D. Mono-ski**

Mono-skiers have strong upper bodies and limited or no movement from the waist down. They should be able to use outriggers to move the ski on the flats and uphill slopes as well as lift and rotate the ski while seated in it. People with lower level injuries including paraplegia and ortho impairments most often use the mono-ski. Mono-skiers must be able to perform the following tasks:

<i>Trunk:</i>	While sitting, bend down and sit back up.
<i>Trunk Rotation:</i>	Twist body with arms up.
<i>Lateral Movement:</i>	While sitting, pick up an object off the floor on either side of the chair.
<i>Upper Body Strength:</i>	Resist hands being pushed forward, backward, side-in, side-out, and up and down. The student should also be able to lift him/herself up into the wheelchair.
<i>Grip Strength:</i>	Grasp both of assessor's hands firmly.

### **E. Bi-ski**

The bi-ski provides more stability than the mono-ski. It is equipped with optional outriggers which control lateral stability and assist in defining the arc of the turn. Anyone who has difficulty skiing in the mono-ski or has previously skied in the sit-ski can use the bi-ski. Disabilities common to bi-skiers include high-level injuries (C1 - T7), quadriplegia, and people with severe MS, MD, CP, spina bifida, and multiple amputations. Bi-skiers may be able to ski with hand-held outriggers. If they are unable to return to the neutral skiing position with hand held outriggers, they may use fixed outriggers and the control bar (handle bars). **If fixed outriggers are attached to the ski, a qualified guide must tether the skier. When being tethered or using fixed riggers, bi-skiers should stay on terrain for beginners.**

### **F. Snowboard**

The primary focus of OAS is skiing. However, potential two track users who are interested may choose snowboarding instead.

## Disabilities and Skiing Recommendations

### **Developmental Disabilities – DD**

- A. Classification:** DD classification can be based on adaptive behavior, social skills, and other factors influencing development. Because the most common classification uses IQ for grouping, developmental disabilities that may or may not involve cognitive delays (e.g. spina bifida and cerebral palsy) are generally not listed under the DD umbrella. The most common DD are as follows:
1. *Down's Syndrome* – Extra chromosome 21 commonly causes cognitive delays, speech delays, poor fine motor skills, and decreased problem solving and social skills. People with Down's are often very stubborn, so abundant positive reinforcement is necessary. Keep things light-hearted and fun and try to convince a person with Down's that what you want to see happen is actually his/her own idea.
  2. *Mental Retardation* – Identified by significantly sub-average intellectual functioning. There is a wide range of physical abilities among this group.
  3. *Autism* – Characterized by an inability to process sensory input. Cognitive functioning varies from profoundly retarded to genius. Stereotyped body movements such as hand flicking, body spinning, rocking, and twirling may or may not be present. People with autism often have trouble with transitions. Explain the day's schedule clearly and give several cues leading up to each change in the routine. If possible, use visual cues in addition to verbal.
- B. Safety:** Safety is a major priority. Some participants may be prone to seizures. When riding the chair lift, always use a pole across the lap and under the armrest or a lift retention device. People with DD may fatigue easily. Be mindful of any DD person's energy level at all times.
- C. Skiing and Equipment Considerations:** Use simple, concise instructions. Tip clamps are commonly used. One way to teach a student how to ski is through example and imitation. Repeat demonstrations until the participant understands the concept being taught. Ski in front of the participant (backward if necessary), so he or she can see your face and hands.
- D. Teaching Tips:** Make the lesson fun! Too many commands create confusion and a lack of interest in the lesson, so keep your instructions simple and point by point. Ask more than yes and no questions. Use lots of praise, positive reinforcement, and encouragement. Be patient and understanding. If a tantrum occurs, allow "cool down" time before trying to redirect. *Encourage independence.*

### **Cerebral Palsy – CP**

- A. Classification:** CP is classified as one or more of the following:
1. *Spastic* – Tense, contracted muscles.
  2. *Athetoid* – Extraneous, uncontrolled movement.
  3. *Ataxia* – Jerky, uncontrolled movements.
  4. *Rigid* – Stiff, uncontrolled movements.
  5. *Flaccid* – Reduced, diminished muscle tone.
- B. Safety:** Get to know the person and his or her needs. If a person is prone to seizures, put the pole across the lap and under the armrest or use a lift retention device. Watch the person's fatigue level. Make sure the participant is dressed warmly and comfortably.

- C. **Skiing and Equipment Considerations:** No two individuals with CP are the same. CP can range from mild to severe and may be accompanied by varying degrees of mental retardation. Some of the brightest people around have severe CP, so understand that physical limitations are not correlated to cognitive functioning. Some individuals may be able to walk without assistance while others use crutches, walkers, or wheelchairs. Tip clamps may be necessary to provide lateral support with two track skiers. Individuals with severe CP may best benefit from the bi-ski. Keep a steady, manageable pace.
- D. **Teaching Tips:** For mild forms of CP, activity modifications are minimal. Involved forms may require four-track, mono-ski, or bi-ski equipment to provide a successful lesson. Avoid frustrating situations or activity structures that produce tension. Be patient and ask the participant to be patient with you also.

### **Spina Bifida – SB**

- A. **Characteristics:** Complete or partial paralysis of lower limbs and loss of sensation. Poor circulation in affected limbs causes susceptibility to pressure sores. Some people may be able to walk with the aid of braces, crutches, or walkers. Others may use wheelchairs. Foot deformity is prevalent unless bracing occurs. Some loss of bowel and bladder control is often prevalent.
- B. **Safety:** When working with a person with a shunt, a helmet is recommended protect the head from unexpected blows. Protect the skin from exposure to extreme temperatures, frostbite, or excess pressure. Many people with spina bifida who either do not walk or place very little stress on the lower extremities develop weakened bony structures that are susceptible to fracture. Caution should be taken accordingly. People with SB often have many surgeries and are therefore prone to developing life-threatening latex allergies. Because they often have complex medical problems, it is extremely important that you gain an understanding of these participants' interests and abilities before hitting the snow.
- C. **Skiing and Equipment Considerations:** The level of opening in the spine will determine the participant's level of functioning. If he or she can walk with the assistance of crutches or braces, it may be best to have him/her four track. However, if the participant is more comfortable sitting down while skiing, a mono-ski would be more appropriate. If the person uses a wheelchair, depending on the severity of the disability, the mono-ski or bi-ski would be appropriate.
- D. **Teaching Tips:** Determine the participant's ability to find his/her center of gravity while moving. It is important to make an accurate assessment of the person to determine which method of skiing will work out best. Let the participant choose which way he or she is most comfortable skiing.

### **Hearing Impaired – Deaf – HI**

- A. **Classification:**
  1. *Congenital deafness* refers to hearing loss originating at birth or before speech and language develop. Because a person with congenital deafness has never experienced normal language, he or she may have difficulty speech and lip reading.
  2. *Adventitious deafness* is a loss of hearing after speech and language have developed.
- B. **Communication Techniques:** When communicating with someone who is hearing impaired, make sure that he or she can see your face clearly. Maintain good eye contact. Be sure not to cover your lips, turn away, or stand with your face shadowed. When speaking, stand and speak clearly. Facial and body expressions will also make you easier to

understand. Sign language is an effective method of communication. It would be beneficial to learn the alphabet and a few basic signs needed to teach the lesson.

- C. **Teaching Tips:** Some participants may have poor balance because of inner ear problems. People with hearing impairments are linked to the world through vision. Put the participant in a position where he or she can view as much of the activity as possible.
- D. **Skiing and Equipment Considerations:** One way to teach a student how to ski is through example and imitation. Repeat demonstrations until the participant understands the concept being taught. Ski in front of the participant while facing him or her, so he or she can see your face and hands.

### **Visually Impaired – Blind – VI**

- A. **Characteristics:** People with a visual impairment may have difficulty learning or relearning locomotion skills. Some develop poor posture and lack motor coordination skills. Some will develop habits such as rocking, rubbing their eyes, or waving their hands around. These habits appear because of the repressed urge for physical movement.
- B. **Safety:** The student, instructor, and volunteer must wear bibs to identify themselves. Always maintain physical contact with the skier in congested areas. When preparing to get on the lift, have the participant take your arm so you can lead him or her to the chair. The participant should always be on the side closest to the lift attendant. Talk the participant through the loading and unloading process.
- C. **Skiing Techniques:** Ski position can be demonstrated by positioning the student's hands (e.g. creating the wedge position with the hands and having them do the same with their skis). Tactile contact is essential for demonstrating ski and body position. To climb a hill, the poles of the skier and guide can be connected together by putting the guide's poles through the baskets of the skier's poles. Facing each other across the hill, use short side steps to ascend. It is very important that you help a blind skier find the fall line by having him or her place the pole above the ski and swinging it back and forth using a slow, circular motion. An experienced blind skier can feel the fall line with his or her skis. An edgie-wedgie or tip clamp may be necessary to help the participant gain spatial awareness of skis. Most blind skiers will be two-track skiers. When guiding a person along the flats, you can assist by allowing him or her to take your arm, offering an end of your pole and pulling, or skiing in front and tapping your poles together so the skier can follow the sound. There are many effective guiding techniques that can be used, so feel free to improvise as you see fit.
- D. **Teaching Tips:** Announce your presence before touching a blind skier. Look at him as you talk and speak in a confident tone of voice. Strike up a conversation and tactfully find out how long he or she has been blind and if he or she has any vision. Ask the student how he or she prefers to be guided. Regardless of the skier's ability, always begin on easy terrain to get to know each other's ability and to fine tune your communication. For the sake of independence, it is very important to show the blind skier how to handle and carry his or her own equipment. Use tactile methods when necessary to help the skier learn new skills. Be sure the student understands that poles should never be held out in front of them like a cane. Keep the skier informed of terrain changes and other obstacles at all times. Keep your directions simple and concise (turn left, right, stop, sit down).

## Spinal Cord Injury – SCI

### A. Classification:

1. Levels of spinal cord injuries (may be complete or incomplete):

<i>Cervical (neck)</i>	C1 - C8
<i>Thoracic (chest)</i>	T1 - T12
<i>Lumbar (low back)</i>	L1 - L5
<i>Sacral (tail bone)</i>	S1 - S5

2. *Quadriplegia* – Partial to complete severance of the cervical area of the spinal cord resulting in impairment in all four extremities and trunk musculature. The level and degree of the injury to the spinal cord will determine the individual's function level. The lower the injury is, the greater the amount of muscle function that is available.
3. *Paraplegia* – Partial to complete severance of the thoracic or lumbar sacral area of the spinal cord resulting in impairment of the lower half of the body with involvement of both legs. The level and degree of the injury will determine the individual's function level. The lower the injury to the spinal cord, the greater the amount of muscle functioning is available.

**B. Characteristics:** Each individual with a SCI will have different functioning levels due to little or no feeling in the affected limbs. They will not know that they are cold or are getting frostbite. It is important to make sure the participant is warm and comfortably dressed and that no skin is exposed to the extreme heat or cold. Some people may have spasticity (involuntary muscle movement) below the level of injury. Since this reflex may be uncomfortable for the person, repositioning may make him or her more comfortable. Sores can easily develop on the skin from constant pressure on bony structure, ankles, hips, or knees. Most individuals have bladder control problems. Some have catheters inserted into the bladder to empty the urine into a bag. Be careful not to constrict the tube when strapping a person with a catheter into the ski because it can be toxic.

**C. Skiing and Equipment Considerations:** Be sure the participant is positioned correctly in the ski. Check for areas of pressure or pinching and provide adequate padding. Make sure the straps are straight and secure but not too tight. Teach the participant to look and turn his or her head in the direction he or she wants to turn. It may be necessary for the instructor to tether the bi-ski in order to provide more turning and speed control.

**D. Teaching Tips:** The mono-ski is most often used by persons with paraplegia. Those with quadriplegia, higher level paraplegia, or balance problems most often use the bi-ski.

## Epilepsy - Seizure Disorder – EPI

**A. Characteristics:** There are 3 main classes of seizures.

1. *Psychomotor* – Person will not recall having a seizure. May lose consciousness and color. May exhibit change in behavior and/or aimless movements. Let the skier rest and bring him or her into the office via ski patrol.
2. *Focal* – Seizures usually only last a few seconds and may go unnoticed. No apparent convulsions. May or may not lose consciousness. Often a blank look on the person's face during the seizure. There may be a brief interruption in communication. Let the person re-orient to his or her surroundings and continue with the lesson.

3. *Grand Mal* – Usually a result of tension, stress, or failure to take medication. Total loss of consciousness and lack of communication. May be strong, jerking movement. Often accompanied by a loss of bowel and/or bladder control. Skin may turn a bluish color and breathing may be shallow or stop for a few moments. Most grand mals will naturally end within a few minutes, but some may last up to an hour. The participant may be confused and tired. Let him or her rest and do not continue the lesson. Seek emergency help if the seizure last more than a couple of minutes.

**B. Precautions:** Get to know the person and be aware of the possibility of seizures. Note all seizure medications on progress sheets. Anticonvulsants such as Primidone, Carbamazepine, and Phenobarbital are all common seizure medications. Always use a pole across the lap and under the armrest or a retention device when riding the chairlift.

**C. Safety During Seizure:** Keep the person free from danger. Do not try and stop the seizure. Do **NOT** put anything in the person's mouth. Protect the head, keep him or her warm, and make the individual as comfortable as possible. If the seizure occurs on the chair, have the chair stopped at the off ramp and ask for assistance in getting the person to an area where he or she can lie down.

**D. Suggestions:** Remain calm! There is nothing you can do to stop the seizure. Do not get excited and attract a crowd. Provide as much privacy as you can without drawing excessive attention

**E. Teaching Tips:** Encourage the skier to challenge his or her ability but keep the learning process light and fun!

### **Multiple Sclerosis – MS**

**A. Characteristics:** Coordination, strength, speech, and/or eyesight may be compromised. Symptoms will vary for each individual. They may include one or more of the following: weakness, tingling, numbness, impaired sensation, lack of coordination, disturbance in equilibrium, double vision, and slurred speech.

**B. Teaching Tips:** An individual with MS may fatigue easily, so be mindful of his or her energy level. Pay particular attention to the participant's balance. Be patient and communicate consistently.

**C. Skiing and Equipment Considerations:** Depending on the severity of the condition, some people may be able to two-track. Participants with balance problems, or those who have poor lower body strength but good upper body strength, may four-track. Some people may benefit more from the mono-ski or bi-ski.

### **Amputee – ARM/AMP, AK, BK**

#### **A. Characteristics:**

1. *ARM/AMP* – Loss of one or both arms.
2. *SYMES* – Loss of the foot at the ankle joint.
3. *BK* – Below the knee amputation.
4. *AK* – Above-the-knee amputation. Prosthetic device may be used to replace the limb.

**B. Skiing and Equipment Considerations:** For AK amputee skiers, select outriggers to fit the student. The grip of the outrigger should be placed next to the hip joint when he or she is standing. The cuff should be halfway between the elbow and wrist with the opening facing outward. The brake should be adjusted according to the skier's ability. For BK amputees, the skier may be considered for two-track. In order to establish whether or not a person can two-track, the following information must be determined:

1. *Is it a recent amputation (within 1 year)?* If so, we recommend 3-track until a later date. The stump may still be tender and needs proper time to heal.
2. *Does prosthesis fit well?* If it is loose, recommend 3-track.
3. *Does waist strap, thigh lacer, or rubber sleeve hold on the prosthesis?* A retaining device is needed to keep the prosthesis attached and bear the weight of the ski equipment.
4. *There must be a minimum of a three-inch stump.*

**C. Teaching Tips:** If the amputation is above-the-knee, the skier will three track. Participants using outriggers can use them as crutches by having the flipski up. When loading, the flipski of the outrigger should be down. When unloading, have the participant keep the flipski down in the skiing position.