



Revision 11-13-13

# PSIA-Rocky Mountain-AASI ADAPTIVE INFORMATION GUIDE for **VISUALLY IMPAIRED**



*The information in this document is provided only as a guideline. Although every effort has been made in preparing and assembling this guideline, with a goal of providing timely, complete, and accurate information, PSIA makes no claims, promises, or guarantees about the timeliness, accuracy, completeness, or adequacy of the contents of this guideline, and PSIA assumes no liability or responsibility and expressly disclaims liability for any errors and omissions in its contents*

*Local regulations and safety guidelines take precedence over this information. It is in your best interest to exercise due diligence in determining the appropriateness of the information for your particular circumstances. In addition, please take into account any and all factors that may affect your lesson. This includes but is not limited to: the health, well-being and fitness of the student; weather conditions; terrain; other people on the slope; your own abilities, as well as those of your student and anyone who may accompany you.*

*This guideline provides diagrams from third party sources. The content of any such third-party diagrams are not within our control, and we cannot and will not take responsibility for the information in them, nor should any references to them be considered any endorsement by PSIA.*

Students with visually impairments are usually two-track skiers. A kinesthetic and concise verbal approach to skill development is most effective with these students.

The student with a visual impairment may utilize his/her other senses (auditory, kinesthetic, etc.) to process information. For example, when teaching the "gliding wedge" the instructor can draw a wedge with his/her fingers on the student's hand; teaching a student how to "match the skis" can be accomplished by physically placing the student's skis side by side.

## **Common Visual Impairments**

These are some of the most common visual impairments:

- Cataracts
- Corneal Diseases
- Detached Retina
- Diabetic Retinopathy
- Glaucoma
- Macular Degeneration
- Myopia
- Retinitis Pigmentosa
- Strabismus

In addition to these specific eye diseases, here are some other causes of visual impairment:

- Cerebrovascular accident
- Diseases, such as diabetes, Friedreich's ataxia, lupus, multiple sclerosis or myasthenia gravis
- Toxins, such as mercury
- Traumatic brain injury
- Tumors
- Vascular disease
- Excessive UV exposure, such as “welder’s flash” or “snow blindness”

Also, be aware that some medications have vision-related side effects. For instance, anti-spasmodics like Flexeril and Valium can cause blurred vision. Plaquenil, which is used to treat rheumatoid arthritis, among other conditions, can cause color blindness.

## **Evaluation of Student**

Visual acuity, field of vision, depth perception and the presence of color blindness can vary greatly among people with visual impairments. Secondary disabilities may be present as well, so a thorough student assessment is necessary.

The first focus is to evaluate your student's:

- Visual abilities
- Cause of visual impairment
- Medications
- Medical precautions
- Hearing and other sensory abilities
- Secondary disabilities, if any

The second part of the indoor assessment relates to your student's guiding preference, both indoors and on snow. As you are working with your student to determine the most effective guiding method, you may want to consider the student's:

- Visual acuity and field of vision
- Ability to hear
- Skiing skill level

It is important to understand that you may need to reassess your guiding method based on what works for your student, as well as changes in light conditions, terrain and snow conditions.

## ***Testing your student's vision***

As your student walks in the door, you can begin to assess his/her vision. Does your student wear glasses? Walk independent of aids? Walk self-guided with a cane? Walk with the assistance of a guide or service dog? Move closer to or further from an object in order to see it? Tilt his/her head in order to see or to control eye movement?

After making this initial appraisal, it is essential that you perform a thorough vision assessment. This should be done both inside and outside. You may need to test again if light conditions change.

Find out if the student can **distinguish colors**. Which colors are the easiest to see? Some people who are color blind can only see colors on a grayscale, while others can see some colors but not others. You can easily test this by asking your student to identify the colors of nearby objects. Remember that a person with color blindness cannot rely on color-coded trail markers and may not easily see your blind guide vest, should the two of you become separated.

Test the student's **acuity** by asking him/her to identify objects at varying distances. Test his/her **field of vision** by slowly moving your fingers in an arc, starting from either side and slowly moving toward the student's center of vision. Be sure to test both sides and maintain a seeable distance while doing this (putting your fingers too close to or too far from your student can cause an inaccurate appraisal).

**Can your student see better out of one eye or the other?** Remember that this can impact depth perception and field of vision.

While **depth perception** is harder to evaluate, it is valuable to make note of clues. For instance, a student who lacks depth perception may not be able to distinguish a white table next to a white wall; from the chairlift, a fence may look like it is laying flat on the snow instead of standing up.

### **Guiding the Student**

The goal of guiding is to provide clear, concise instructions which lead the student to ski. Verbal as well as kinesthetic cues are utilized to establish a solid communication base between you and the student. If the student has some level of vision, you may also be able to perform a visual guide.

**It is critical that you and your student set up a word that warns the student of imminent danger.** This word needs to be established before the first lesson. When spoken, this word results in the student immediately falling to the ground and covering himself/herself the best way possible.

It is also important that you and your student **create a plan in case you become separated or lose your guiding connection** (for example, if your student no longer hears your verbal commands).

## **Guiding methods**

Following are some of the most popular guiding methods. Adapt these methods as needed to provide your student with the most effective and fun skiing lesson possible.

**Guiding inside and on flat terrain** can be done in several different ways, so check with your student to see if he/she has a preference. Your student can **place one hand on your shoulder** as you lead the way. Alternately, the student can **hold onto your elbow** and you can move your elbow in the direction you want to student to move. A **pole lead** offers a third option. To avoid injury, offer the student the grip end while you hold the tip end. As with the elbow hold, gently move the pole to indicate the direction you want the student to move.

**Verbal Commands** are simple, basic words that can serve as the basis for communicating with students on and off the slope, regardless of their skill level. This method includes such commands as: “*stop,*” “*go,*” “*right,*” “*left,*” “*slower,*” “*faster,*” “*hold,*” etc. Verbal Commands can be used with any skier who has a visual impairment, as long as the skier can hear you. The commands are clear and concise and in general are universally understood. However, you still need to verify that you and your student attach the same meaning to each of the commands you use. Also, be sure that your student does not have any issues with directional dyslexia.

When using Verbal Commands, establish the words you will use prior to going on the slope. Experienced students may have their own preferences.

Remember that the cadence of your words is critical. A consistent cadence allows the student to establish rhythm & flow. That cadence can also be used to subtly teach turn size and shape, simply by extending or shortening the timing of your verbal commands.

The **Clock System** is commonly used with the visually impaired population. The student is always facing 12 o'clock and the clock “resets” to 12:00 after the student moves. For instance, if you want the student to complete a 90 degree turn to the right, your instructions would be to turn to 3 o'clock. This guiding technique may be used inside, in corrals and on the slope. It is very useful in intermediate/advanced ski guiding and in racing.

The **Grid System** allows you to describe ski runs and terrain by breaking an area up into imaginary units. For example, one side of the trail can be “0,” the other side “10” and the center of the slope “5.” Utilizing the Grid System plus directional commands, your student can be kept well informed of his/her position on the slope.

The Grid System should never be utilized simultaneously with the Clock System. It is best used with intermediate to advanced skiers. Since it is more complex and less intuitive than simple directional commands, you should practice it extensively before using it with a student.

**Auditory Cues** are specific sounds made by you as you are skiing in front of the student. The sounds can be made in a variety of manners, such as tapping your ski poles together, clapping your hands, or blowing a whistle. Based on the direction of the sound, your student can tell which way to turn. This system can save your voice and it provides constant auditory connection between you and your student, which can be reassuring to the student.

You may choose to do a **Visual Guide** if your student has some level of sight. This technique is especially useful on crowded or noisy runs or when verbal guiding is straining your voice. It is also helpful when you or your student is experiencing sensory overload. Just as importantly, it can be used when your student wants to experience the joy of skiing uninterrupted by your voice.

If you are performing a Visual Guide, be sure to remain in the student's field of vision and let the student know that he/she should immediately stop if you can't be seen.

If you want to perform a **Kinesthetic Guide**, see the section on *Equipment and Physical Assists*.

Because timing is critical in upper level skiing, the need for an agreed-upon, concise guiding system greatly increases as your student progresses.

### **Guiding position**

The position you take on the slope relative to your student can vary based on the guiding technique you choose; your student's visual range and skiing ability; how crowded the slope is; and your student's personal preference.

**Guiding from the front while skiing backwards** is useful for beginning students skiing on easy terrain. This technique allows the student to easily hear your directions and lets you see his/her progress. For obvious safety reasons, you should not attempt this technique on busy slopes. If available, an assistant instructor can ski behind the student and warn you of upcoming obstacles or skiers. Also, be aware that some ski areas do not allow instructors to ski backwards.

**Guiding from the front while skiing forward** is often used with advanced skiers, especially on a race course. If you are using Verbal Commands, this technique requires you to turn your head back over your shoulder when speaking, so that your student can hear your voice. This can impact your stance, so it can be difficult at high speeds or on challenging terrain.

You may choose to **guide from the side** if your student is lacking central vision, which can occur with some visual impairments, such as Macular Degeneration. For safety sake, you need to look uphill when the student turns away from you, so this may not work as well on crowded slopes.

**Guiding from behind** allows you to easily evaluate your student's skiing while offering a view of upcoming terrain and obstacles. Your student can readily hear your voice with this technique but he/she may be disoriented by the fact that your voice is coming from behind, instead of coming from the direction in which he/she is headed.

### ***Tips for guiding***

Regardless of which method of guiding you use, these tips may help you effectively guide your student:

- Speak up! It may be harder for your student to hear with a helmet
- Remember there is a delay between your command and the student's response.
- Be aware of the distance between your student and obstacles or other skiers. Allow extra distance.
- Understand that stress or fatigue may aggravate your student's visual impairment. Pace your lesson to avoid this and adapt your guiding technique, if necessary.
- Avoid superfluous chatter & too much information, which can cause sensory overload for your student and can tire you out.
- When it is safe to do so, you may want to ski in the middle of a run and avoid the edges.
- Prepare your student for changes in upcoming terrain. If there is a dramatic change of terrain (for instance, moguls after skiing an easy blue cruiser), you may want to make a complete stop to further emphasize the difference.
- When possible, use kinesthetic words to describe terrain. Use words like "*dip*," "*flats*," "*washboard*" or "*bumps*." Avoid non-kinesthetic words like "*moguls*" or "*groomed terrain*" unless your student is already familiar with these terms.
- Listen intently to what your student hears and be prepared to describe it if your student wants more details. For instance, the whirring noise of a snow maker may be disconcerting until the student realizes that beautiful noise is putting more snow on the slope.

### **Equipment and Physical Assists**

Students with visual impairments often have difficulty with balance, since the visual system is one of the major components of balance. Additionally, a student with a visual impairment may need a kinesthetic experience as opposed to a visual demonstration when learning a new skill. Adaptive equipment such as ski-bras, EDGIE WEDGIES<sup>®</sup><sup>1</sup>, bamboo poles and tethers may be utilized to increase balance and provide a kinesthetic experience of effective ski movements.

### ***Blind skier/guide bibs***

These brightly colored bibs (usually bright orange or neon green) are worn by you and your student over jackets and any other gear so that they are visible from both the front and the back. They alert the public to the special needs of the skier/rider and are sometimes used for guide identification by the participant with low vision.

---

<sup>1</sup> EDGIE WEDGIE<sup>®</sup> is a registered trademark and copyright of Vernon Miller.

### ***Sunglasses and goggles***

As with all skiers, a student with a visual impairment should wear sunglasses or goggles to prevent further damage from ultraviolet light. If you are skiing on rugged terrain, use goggles to avoid eye trauma from rocks or chunks of ice.

### ***Personal two-way radios***

Personal two-way radios can be a useful aid when you are giving verbal commands. While they may save your voice from yelling, some students feel uncomfortable with a “disembodied voice” guiding them. If you use personal two-way radios, be sure to check the batteries and if you are planning to ski for a long time, you may want to bring a back-up set of batteries. You should realize, however, that the radios may still not work in all areas and establish an alternate signaling system in case of signal failure.

### ***Tip and heel stabilizers***

Tip stabilizers come in various forms. Most allow the skier to maintain skis in a wedge or parallel position. **EDGIE WEDGIES, Easy Wedges** and **c-clamps held together with cord** offer very light tip control. They keep the ski tips in close proximity but do not prevent them from crossing. A **slider/trombone** offers more tip stability while still allowing the student some fore/aft movement of the skis. A **ski-bra** prevents the tips from crossing or separating and it limits fore/aft movement. The slider/trombones and ski-bras have rings to which you can easily attach tethers.

A **spacer bar** attaches under the ski boots at the heels and helps the skier keep his/her skis from crossing or getting too far apart. When using a spacer bar, you should ALWAYS use a tip stabilizer, such as a ski bra or slider.

### ***Physical assists***

Physical assists are useful methods to for a student to experience how a turn should feel. You can also use them in a situation where unexpectedly advanced terrain or fear can prohibit your student from skiing down on his/her own. Remember to always ask your student’s permission before making physical contact.

The **two-point hold** is often used to assist the student in turning and stopping. It is also an effective way to kinesthetically teach a new movement to a student with a cognitive or developmental disability. To perform the two-point hold, ski behind your student with one ski between the student’s skis and the other ski outside of the student’s ski.

The following instructions are written for your left ski between your student’s skis. Reverse the instructions if you are skiing with your right ski between the student’s skis.

1. Ask your student’s permission to make physical contact.
2. Position yourself behind your student with your left ski between your student’s skis and your right ski to the right of your student’s right ski.
3. Place your left hand on your student’s left hip and your right hand on his/her right leg, above or below his/her right knee (never on the knee).
4. Using your hands, rotate the student’s hip and knee as necessary to generate turns.

Another simple assist is to ski **hand-in-hand** or **arm-in-arm** with your student. This allows you to control speed and turn shape and may help the student better understand the rhythm of skiing. Alternately, you can hold the student's hands as you ski backwards in front of the student. In either case, remember that by skiing together, you increase your mass, which naturally increases your speed. It is critical that you keep your speed slow enough to maintain control at all times!

A **tip hold** is another easy way to direct your student's turns. Simply ski backwards in front of your student while holding and guiding the student's ski tips. This method works best if you have an assistant instructor who can warn you of upcoming people and obstacles. However, even if you have an assistant instructor to do this, you should still check often for such potential hazards.

### ***Stand-up tethering***

Stand-up tethering is an important assist technique that utilizes a tip retention device and tethers. Practice this before trying it with students as it takes skill and finesse to ensure safety and enjoyment for the student.

As the tetherer, you have the ability to:

- **Control speed** - by utilizing the slope and through turn shape. (Be careful not to jerk the tethers, as this could cause the student to fall.)
- **Assist with turns and turn shape** - with active tethering in different parts of the turn
- **Assist with edge use** - by guiding the tipping movements of the skis

By doing all of this, you may also help a student create muscle memory and with enough practice, this newly developed muscle memory may allow the student to eventually ski independently.

Remember that for safety, a student with a tip retention device (with or without tethers) should not ski backwards or could risk injury. As a general rule, stand-up tethering is only appropriate on easy terrain (typically greens and easy blues).

If the student is capable, the tethers can eventually be removed for greater independence

## ***Bamboo pole assists***

Bamboo poles (or lengths of PVC pipe) offer many options for physically assisting an adaptive ski student. Some frequently used bamboo pole assists are:

1. Single pole held horizontally at waist or shoulder height by both instructor and student, with instructor skiing backwards.
2. A *long* single pole held horizontally at waist to chest level by both student and instructor, skiing side by side.
3. Two poles, one in each hand of student and instructor, held at hip height with one person skiing in front, the other immediately in back (also called a horse and buggy).
4. Two heavy/strong poles (or two poles taped together) held by *two* instructors: one pole is placed under the buttocks of the student and the other is placed waist or chest height for students' hands (also called a clam shell).

## ***Hula Hoops<sup>®2</sup>, Ski-Pals<sup>®3</sup> and Sno-Wings<sup>™4</sup>***

Hula Hoops, Ski-Pals and Sno-Wings offer great flexibility for teaching adaptive students. The student can be positioned inside of these devices with you skiing directly behind. You can then guide turns in a manner similar to tethering. Another option is to ski with an assistant instructor and position the student inside the device and between the two of you. In this case, the technique is similar to a side-by-side bamboo pole assist. Yet another choice is for you to ski backwards in front of the student with the hula-hoop or Ski-Pal between the two of you. This allows you to lightly guide the student's turns and give him/her the sense of security that comes from being able to hold onto something.

## ***Using other adaptive equipment***

Some students may require the use of more involved adaptive equipment, such as sit-down skis, outriggers or the slider. See the other PSIA-RM Adaptive Exam guides for information on this equipment.

## **Service Dog Etiquette**

Some people with visual impairments use a service dog to guide them. Together, the person with the visual impairment and the dog make up the **service dog team**. If there are secondary disabilities, the service dog may also be trained to assist in other functions, such as providing stable support for a person with a balance impairment or alerting the person prior to the onset of a seizure or migraine.

A service dog is not a pet! Never interact with a service dog in training. For service dogs who are not in training, always ask the person of the service dog team whether or not you may interact with the dog. This includes petting, feeding, whistling, calling or talking.

---

<sup>2</sup> Hula Hoop<sup>®</sup> is a registered trademark of Wham-O, Inc.

<sup>3</sup> Ski-Pa<sup>®</sup>1 is a registered trademark of Ski-Pal, LLC.

<sup>4</sup> Sno-Wing<sup>™</sup> is a trademark of Johnny Boy Enterprises, Inc.

## **Two-Track Progression for Skiers with Visual Impairments**

The following is based on the [PSIA Adult Alpine Teaching Handbook](#) and has been adapted for students with visual impairments. Local regulations and safety guidelines take precedence over this information. It is in your best interest to exercise due diligence in determining the appropriateness of the information for your particular circumstances. In addition, please take into account any and all factors that may affect your lesson. This includes but is not limited to: the health, well-being and fitness of the student; weather conditions; terrain; other people on the slope; your own abilities, as well as those of your student and anyone who may accompany you.

### **Beginner / Novice Zone Objectives**

#### **Level 1: Welcome to skiing / Build the foundation**

- Perform **student assessment**.
- Discuss **medical history**.
- Determine and share **goals**.
- Select, introduce and set up **equipment**.
- Agree on student / instructor **communication and safety**.
- Develop a **guiding** plan.
- Perform **static balance exercises** and develop **athletic stance**, indoors.
- **Begin** to understand the **fall line** and **terrain changes**.
- Learn how to safely **fall and get up**.
- Learn to **slide** at slow speed.
- **Glide and slide across the slope**.
- Perform a **straight run** to a terrain-assisted stop.

#### **Level 2: Introduction to Turning**

*Note: Turning at this level achieved through **balance** and a **blend of ROTARY, edging and pressure control skills**.*

- Develop **stopping and slowing** skills.
- **Turn left and right to a stop**.
- Perform **linked turns**.
- Begin to **vary shape and size of turns**.
- Perform **braking wedge**.
- Learn how to **ride chairlift**.
- Introduce **sideslip** skills in the beginner area.

#### **Level 3: Introduction to Green Terrain**

- **Explore terrain** – go for lots of quality mileage!
- Actively **skid** the skis for turn shape and speed control.
- **Begin** to use terrain-assisted **edging and edge release movements** to initiate a turn.

## Intermediate Zone Objectives

### Level 4: Mastering Green Terrain

- Refine the ability to control the skis by **turning and tipping** the appropriate body parts.
- Explore **all green terrain in a variety of snow conditions**.
- Experiment with **turn shape and size**.
- Develop an understanding of **how changes in stance affect the skis**.
- Solidify a **release move to initiate a turn**.
- Use **hockey stops**.

### Level 5: Developing Skills to Enhance Parallel Skiing

- **Carry and use poles** more efficiently.
- Learn how to **use a pole swing, touch, and/or plant** to help with torso stabilization, rhythm, and timing.
- Improve **dynamic balance**, increase **range of motion**, and feel the **edges**.
- Gain an understanding of **upper and lower body independence**.
- Develop **simultaneous edge release for parallel turns** on blue terrain.
- **Control speed** on green and groomed blue terrain by **blending skills and using tactics and turn shape**.
- Develop **long- to medium- and medium- to long-radius turns**.
- Ski a **“green line” in the bumps**.
- Freestyle: Learn how to **jump**, using **natural terrain features** and **beginner terrain parks**.

### Level 6: Anchor Parallel Skiing & Learning Tactics for Bumps and Variable Conditions on Blue Terrain

- **Link open parallel turns** with emphasis on **simultaneous rotation and edging**.
- Perform **medium- to short-radius turns**.
- Ski **varying snow conditions**.
- **Carve uphill arcs**.
- **Refine tipping movements** to become more dynamic.
- Perform **short-radius turns while developing upper and lower body independence**.
- Create body **angulation**.
- Explore using **skidded and carved short turns as tactics for speed control on steeper terrain**.
- Explore **powder, crud and cut-up snow** conditions.
- Explore various **hands-off guiding and/or teaching methods**.
- Ski a **“blue line” in the bumps**.
- Freestyle: **Straight slide a funbox**.

## Advanced Zone Objectives

### Level 7: Linking Parallel Turns on All Blue and Some Black Terrain, and Increasing Confidence in Variable Terrain and Conditions

- Perform carved **railroad track turns**.
- **Enhance pole movements** to promote rhythm and flow.
- Continue to **refine skill blending** for parallel turns on all blue and some black terrain.
- Explore a **variety of turn shapes** on groomed and variable terrain
- Explore **tactics** for skiing all terrains.
- Freestyle: **Ski switch**.
- Freestyle: **Land switch off a jump**.
- Freestyle: **Perform a rail slide** on a bamboo pole or PVC practice rail.

### Level 8: Mastering the Mountain and Exploring the Latest Ski Designs

- Continue to enhance **upper and lower body separation**.
- **Carve medium- and long-radius turns**.
- **Refine edge engagement and release movements**, changing line, turn shape, and speed to adapt to challenging terrain and snow conditions.
- **Refine flexion and extension movements** to maintain balance, manage uneven terrain, and allow the efficient blending of all other movements.
- **Perform short-radius turns using upper and lower body independence** in variable conditions to develop more speed control and manage terrain more efficiently.
- Ski the “**black line**” in the bumps.
- Become comfortable skiing all of the mountain’s **most difficult terrain**.
- Freestyle: **Introduce the halfpipe**.
- Freestyle: **Perform a rail slide on a funbox**.

### Level 9: Skiing Any Turn, Anytime, Anywhere in Any Snow Condition

- Increase confidence in **ski design and speed** in a safe environment (especially useful for the skier interested in racing).
- **Refine flexion and extension movements** to enhance turn mechanics.
- **Use timing and tempo to enhance the release of the old edges**, tipping both skis simultaneously from turn to turn while reducing anxiety and fatigue to allow for more enjoyable skiing on challenging terrain.
- **Refine movements and options in short-radius turns**, adjusting tactics at will.
- Explore **alternative movement blends and tactics** for variable conditions, **skiing the entire mountain efficiently**.
- Freestyle: **Perform a 360 off a jump**.
- Freestyle: **Perform a rail slide on a metal rail**.