



# Outdoor Emergency Transportation Program

## Toboggan Trainers Supplement

### **Introduction:**

The purpose of this supplement is to help toboggan trainers understand how to teach various topics related to the handling of a rescue toboggan. It should be used in harmony with the Outdoor Emergency Transportation “Principles of Toboggan Handling” manual.

When a student is struggling with a skill, the trainer must formulate a “progression” which is a series of drills that will help the student experience the building blocks of that skill. This will eventually lead the student to execute that skill. The trainer must not adapt the skill to help the student reach the end goal. This generally requires the student to then unlearn something in order to execute the skill correctly. In other words, “Do not hand them a crutch, they will find one on their own.”

### **Tips for your training session:**

Begin your session by getting to know your students by name, ask them about their goals for the day. When teaching toboggan handling it is a good idea to go through some stretching exercises. Especially around the waist including: the lower back, abdomen, and oblique muscles. Starting in an athletic stance have them twist their upper body to the left and right, include opening the hips in the same direction to allow a greater distance of twisting. Take note of their ability to accomplish this during this warm up as a point of reference for skills you will be teaching during your session.

Remember the Six Pack method to teaching.

- Set the stage: Get them interested in what you are going to share with them.
- State the objective: Clearly state what it is you are going to teach them to do, and why.
- Content Delivery: Describe the task. For verbal learners make sure you are clear and concise.
- Learning Activities: You are demonstrating and having them try to mimic your moves in practice, it is very important that you can demonstrate properly visual learners will do what they see. During practice make sure you correct issues early. The kinesthetic learner will try to figure it out while they are doing it. Allow for “Guided discovery...” Give specific feedback. Committing many hours to bad practice will never achieve the end goal.
- Student Debriefing: Review and provide closure to the lesson. Ask questions that will help you assess the students’ knowledge of what was learned. Provide some insight to next steps.
- Monitor and Evaluate: Was the objective achieved?

To teach Toboggan Handling effectively the instructor must understand skiing/boarding fundamentals.

PSIA has developed 5 fundamentals to skiing They will be referenced with this document for help in understanding the fundamental movements for each skill. As a review they are:

- 1) Control the Center of Mass to the base of support to direct pressure along the length of the skis
  - Body movements: FORWARD and AFT flex and extend ankles, knees, hips, spine to balance over the whole foot as you control the pressure on both skis, so you can flow with the terrain
- 2) Control pressure from ski to ski and direct pressure toward the outside ski
  - Body movements: direct your balance to the outside ski in a turn
- 3) Control edge angels through a combination of inclination and angulation
  - Body movements: Use diagonal (forward and lateral) movements of the feet, legs, hips and upper body to engage and release edges.
- 4) Control the skis rotation with leg rotation, beneath a stable upper body
  - Body movements: Turn legs under your body to guide the skis through a turn
- 5) Regulate the magnitude of pressure created through ski/snow interaction
  - Body Movements: CARVING SIDE TO SIDE Flex and extend your ankles, knees, hips and spine to balance over the whole foot as you control the pressure on the skis, so you can flow with the terrain

This document will reference them by number as they apply to skills being taught.



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## **Teaching Toboggan Maneuvers:**

Toboggan Maneuvers come in two types:

- Static: A maneuver where the participant(s) is not progressing down the hill.
- Dynamic: A maneuver done while the participant(s) is progressing down the hill.

## **Static direction change:**

A maneuver in which the operator stops the toboggan and makes either a stepping wedge turn or a kick turn to change direction. The operator resumes a running position in the handles and pivots the toboggan in the new direction to continue the descent. (If there are two operators, they do not perform the static direction change at the same time.)

## **Kick Turn:**

A maneuver to reverse or change direction in a tight or steep place. The skier lifts first one ski and turns it 180 degrees, then stands on it while doing the same with the other ski. Kick turns are useful for turning around while on the edge of a trail or to link traverses down a steep slope.

When teaching a kick turn, begin on a flat area after warming up. Since you are on flat ground establish what will be the uphill ski and downhill ski. Stamp out a platform for your uphill ski where you can balance without your ski sliding. Do the same for the downhill ski to land after the 180-degree rotation. Place the tips of both ski poles uphill behind you. Do not lean on them. While balancing on the uphill ski, lift the downhill ski and rotate it 180 degrees and set it back down. Maintaining a little space between your skis will help you keep the tail of your rotating ski from landing on your other ski. The downhill ski will now face the opposite direction of the uphill ski. As you set the rotating ski down transfer your weight to it and lift the uphill ski and your poles together swinging your uphill ski around so both skis are facing the same direction. Practice both directions so each ski does the 180-degree rotation. After your students feel comfortable move to a gradual slope and continue practicing.

## **Five Fundamental Reference:**

Fundamental (1,4) Balance over the whole foot. Control Ski rotation with leg rotation.

## **Problems to watch for:**

The 180-degree rotation should be one fluid move. Someone kicking the ski up and resting the tail on the snow before allowing it to fall into place is not one fluid move. When the tail meets the snow, it can cause the uphill ski, that is being balanced on, to slide and the participant will fall. Also, if this is the only way a skier knows how to accomplish a kick turn, although they may be successful on hard pack they will be in trouble in powder.

## **Progression:**

Warming up is very important! Stretching muscles and ligaments in the legs will help ensure that no one gets hurt during this exercise. Begin on flat ground without skis, having your participants work gradually up to a full 180 degree turn with their downhill Boot.  
Staying on flat ground put skis on and practice the skill  
Move to terrain with a slope, then work up to a steep slope.

## **Stepping wedge turn:**

Performing a wedge turn while stepping rather than sliding the ski into the wedge.

When teaching the stepping wedge turn begin on a flat slope. A stepping wedge requires a significant amount of edge on a steeper slope as well as another force to keep from sliding downhill i.e. poles, or toboggan handles. With parallel skis perpendicular to the fall line, begin by placing your poles downhill from your boots. With the end of the pole grip in the palm of your hand push the tips of the poles firmly into the snow creating support. Then begin stepping your uphill ski into a relatively large wedge position. Then step your downhill ski up closing but maintaining a wedge. Step your uphill ski again widening the wedge. Repeat this sequence until both skis are facing the opposite direction, again parallel to each other and perpendicular to the fall line. When doing the Stepping wedge turn in the handles of the toboggan, your tail rope operator must be on belay. Using the handles to help support you, follow the same procedure as you would while using your poles for support. When the terrain is too steep a kick turn is a better method for a static directional change.



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## **Five Fundamental Reference:**

Fundamental (1,4) Balance over the whole foot. Control Ski rotation with leg rotation

### **Problems to watch for:**

When the snowpack is so icy that poles will not penetrate, do not teach or practice this skill. This is not an acceptable alternative to the kick turn, as it takes more space and may be too difficult to perform on steep or mogul terrain.

### **Progression:**

Begin teaching this skill on a flat or very gentle slope and work to a moderate slope.

### **(SB) 180 degree jump turn:**

Jumping up and spinning the body and the skis/snowboard around 180 degrees to face the opposite direction.

Although skiers may enjoy learning this skill, it is geared more for the snowboarder that have no other option for a static directional change. When teaching the 180-degree jump turn, begin on a flat slope and remove skis/snowboard. Determine the direction you want to spin (clockwise or counterclockwise). Turn your body 90 degrees in that direction. With an athletic stance flex knees and ankles and spring upward spinning in the desired direction again flex knees and ankles to bring your boots higher off the snow. Since our upper body has already turned 90 degrees it will only spin another 90 before being able to see the landing. The lower body will untwist and spin against the upper body to come around 180 degrees. When comfortable with the maneuver attach skis/snowboard and continue.

### **Problems to watch for:**

When the snowpack is icy being able to spring off your edges can be difficult as this may cause the edge to give way causing the participant to fall. Landing in icy conditions is also difficult when setting the new edge. Very steep or mogul terrain requires more height in the jump, so the board(s) do not hit the uphill side of the slope during the spin.

### **Progression:**

Begin teaching this skill on a flat area without the board(s) attached. Begin with flexing and extending motions to loosen up before jumping. Jump straight up and down without a spin to see how far off the snow you can jump. Incorporate the spin as described above. Check your boot prints to see if you are landing at 180 degrees. Attach equipment and continue on flat terrain. When ready move to a gentle slope then moderate slope. Advanced terrain is not a place to learn this skill.

### **Sideslip:**

A method of moving down the hill with the skis or snowboard perpendicular to (across) the fall line.

Teaching a sideslip should be done on a moderate groomed slope. Avoid a slope that is too flat where over tipping downhill can cause the downhill edge to engage the snow. Pick a place where the fall line is evident and does not vary. From a stopped position where skis or snowboard is perpendicular to the fall line.

- Skiers: Using a hip width stance, open the hips downhill so the pelvis/upper body face downhill. Inside (uphill) half of body is slightly raised and forward of the outside (downhill) half. Tipping the feet and ankles uphill increases edge angle and slows slipping; tipping feet downhill decreases edge angle and increases rate of slipping. Manage fore/aft balance and pressure to maintain a path down the fall line. Although both skis are weighted the downhill ski will have more weight than the uphill ski on it. Skis should remain parallel.
- Snowboarders: With an athletic stance, knees and ankle flexed. Allow the board to decrease edge angle by extending the ankles while on heel edge or flexing the ankles while on toe edge. Increasing edge angle slows slipping while decreasing edge angle increased the rate of slipping. Manage pressure of lead and rear foot to maintain a path down the fall line.

## **Five Fundamental Reference:**

Fundamental (1,3,5) Balance over the whole foot to keep the entire ski engaged. Angulation will produce more edge angle while keeping the skiers weight distributed over the edges of the ski's. In the toboggan



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handles avoid excessive inclination, as it transfers the handler's weight from the ski edges to the handles of the toboggan. Manage magnitude of pressure by shedding snow as needed. (See falling leaf)

## **Problems to watch for:**

Participant is not able to maintain a constant rate of slipping. Work on angulation to manage amount of edge angle this will allow the skier to better regulate the speed of decent. Skiers are not managing foot-to-foot/lateral pressure usually applying much more pressure to the downhill ski this results in a high edge angle of the downhill ski and less on the uphill ski. Again, work on angulation to manage edge angles. Skier is showing excessive tip lead of uphill ski. Opening the hips downhill will cause the uphill ski to come forward. A line through the ski tips should be parallel to a line drawn across the hips. Snowboarder is healing out and falling. This is usually caused by lack of flex in the knees. When the board slides too fast it can be a reaction for the Snowboarder to extend the knees to maintain balance. When the knees are extended fully the Snowboarder will begin to fall backwards and the board tips beyond the optimal edge accelerating the slipping until the Snowboarder hits the snow. Accentuated with icy conditions. The snowboarder must use ankle flexion to increase heel edge angle while keeping knees flexed. Ankle extension for toe edge.

## **Progression:**

Begin on moderate slope. Work both sides/edges. Progress to a steeper slope. Practice speed control by varying the amount of edge angle. Focus on Angulation vs. Inclination

## **Falling Leaf:**

A maneuver in which the skier/snowboarder sideslips forward and backward while traveling directly down the hill in an imaginary corridor. See also diagonal falling leaf.

Teaching the falling leaf is best done after sideslip practice. Using the same stance and terrain as the sideslip students can vary their decent laterally by applying pressure to the tip or tail of the ski by flexing at the ankle. More flexion brings a balanced center of mass forward skiers weight should be felt at the front of the foot. Less flexion brings a balanced center of mass to the rear and skier's weight is felt in the across the whole foot. For a snowboard it is pressuring the board with the lead or rear foot. This is a good way to go around objects or built up snow. After perfecting pressure movements, introduce rotary movements to enhance the fore and aft transitions. Fore and aft paths will begin to arc.

## **Five Fundamental Reference:**

Fundamental (1,3,4,5) Balance over the whole foot to keep the entire ski engaged. Angulation will produce more edge angle while keeping the skiers weight distributed over the edges of the ski's. While in the toboggan handles avoid excessive inclination as it transfers the handler's weight from the ski edges to the handles of the toboggan. Rotary movements will accelerate or slow forward and aft travel. Manage magnitude of pressure by arcing/slicing through the snow.

## **Problems to watch for:**

Never use the word 'LEAN' or ever suggest that we want the student to come out of balance to accomplish this skill. Applying forward or aft pressure is done through flexion or extension not leaning upper body

## **Progression:**

Start from moderate groomed terrain where the fall line does not vary. Refresh Slide slip and add pressure to alter direction while maintaining a corridor. Work the rotary movements into it. Later work into advanced terrain where the fall line varies, or multiple fall lines exist.

## **Diagonal falling leaf:**

A maneuver in which the skier/snowboarder sideslips forward and backward but makes a slight overall direction change while moving down the fall line. The diagonal falling leaf is typically used in deep, heavy snow conditions. See also falling leaf.

See Falling leaf. Diagonal falling leaf varies only slightly from the falling leaf in that your overall direction is not directly down the fall line. Sliding longer one way than the other will alter the overall direction down the hill.



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## **Problems to watch for:**

See falling leaf.

## **Progression:**

Work through the falling leaf first and then introduce the idea of the Diagonal falling leaf

## **Pivot Slip:**

A transition maneuver in which a skier sideslips, then spins his/her skis/board 180 degrees while on the snow, then sideslips again, all while maintaining a constant speed.

Pivot Slip is probably the most technical skill taught by Toboggan Instructors. It incorporates all elements of skiing. Teaching the Pivot Slip or Dynamic direction change should be done in conjunction with Side Slip and Falling Leaf, as a progression. Balance is paramount when doing pivot slips. Both skis will spin 180 degrees under a stable upper body. The pivot point is under the center of the skis. Skis are pivoted and twisted simultaneously and at a constant rate. Flexion and extension is constant throughout the spins, like peddling bicycle. As your uphill ski begins the extension movements the downhill ski begins the flexion movements. For a snowboard the pivot slip begins with torsional flex of board. Torsional flex is done by, flexing one foot while extending the other causing the board to twist. This movement holds the edge under one foot while releasing the edge under the other foot. It is used in turn initiation, and when held for a longer duration, it will allow the border to pivot or spin.

## **Five Fundamental Reference:**

Fundamental (1,2,3,4,5) Balance over the whole foot to keep the entire ski engaged. This is extremely important to allow the skis to rotate under a stable body. Too much pressure either fore or aft and the edges will dig into the snow inhibiting rotation. Controlling pressure from ski to ski is also very important and what is often overlooked is the relief of pressure from the downhill ski prior to the rotation. Like peddling a bicycle, if the back foot doesn't come up, the front foot can't go down. The result is usually the formation of a wedge. Once on opposing edges the foot must be lifted off the snow to disengage the edge. Angulation will produce more edge angle while keeping the skiers weight distributed over the edges of the skis. This will be in constant motion from edging to flat and edging on the other side. While in the toboggan handles avoid excessive inclination as it transfers the handlers weight from the ski edges to the handles of the toboggan. Manage magnitude of pressure by picking points of pivot.

## **Problems to watch for:**

Skis form a wedge between sideslips. This can be because the skis are not pivoting simultaneously. If the new inside ski is flat and pivoting late then working on simultaneous pivoting will fix it. If the new inside ski is not twisting off the edge and not retracting, then there is a real wedge where skis are on opposing edges. Picking up the inside ski will be the way your students will get out of this situation. It is important for the instructor to recognize when the inside ski's edge is engaged and not just spinning late. Excessive tip lead, see side slip stance directions.

## **Progression:**

Start from moderate groomed terrain where the fall line does not vary. Refresh Slide slip and Falling Leaf. While doing the falling leaf get the students to make good arcing movements, then introduce a single transition when the skier is arching and traveling in reverse, as the momentum begins to stall, have them keep the rotary movement going while extending the uphill leg and flexing the downhill leg. This will allow the pivot to happen and the skier continues out of the pivot forward, in the same direction as they were in reverse. They continue doing the falling leaf with a new uphill and downhill ski. Have them work until they can transition each pass and then lessen the length of the falling leaf arc until it is gone.

## **Power stop:**

A maneuver used to bring the toboggan to an immediate stop. From a neutral stance, the front operator simultaneously flexes the ankles, knees, and hips while pivoting both feet across the fall line as he or she applies increasing pressure and edge angle to stop the toboggan.

Teaching a Power Stop should be done on a moderate groomed slope. Pick a place where the fall line is evident and does not vary. Remember, this is a 90-degree pivot not a short radius turn. The student will



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maintain a straight path down the fall line throughout the maneuver. Review pivot slip mechanics. While this description includes directions for flexing both legs, the inside ski will be flexed a little more. The pivot must be quick and edge engagement firm and equal on both skis after the rotation is complete. Stance is maintained through the stop and can be held after the stop is complete.

## **Five Fundamental Reference:**

Fundamental (1,2,3,4,5) Balance over the whole foot to keep the entire ski engaged. This is extremely important to allow the skis to rotate under a stable body. Too much pressure either fore or aft and the edges will dig into the snow inhibiting rotation or cause the skier or snowboarder to slide fore or aft creating a “J” instead of a straight-line mark in the snow. Controlling pressure from ski to ski is also very important, Relief of pressure from what will become the new uphill ski during the rotation. Angulation will produce more edge angle while keeping the skier's weight distributed over the edges of the skis. While in the toboggan handles avoid excessive inclination, as it transfers the handler's weight from the ski edges to the handles of the toboggan. Manage magnitude of pressure. Snow conditions give you many different feels to this maneuver. Once proficient on groomed slopes work with other conditions.

## **Problems to watch for:**

There are arcs at the end of the stop either fore or aft. Are the students getting their skis pivoted 90 degrees before applying the amount of edge required for stopping? Is the Center of Mass CENTERED over their Base of Support? Are they engaging the shovel of the ski as in a short radius turn? Falling off balance uphill on stop, when the skier is inclined too much into the hill during breaking.

## **Progression:**

Review Side Slip and Pivot Slip (if already taught) work on moderate slope with a good straight fall line. Work to steeper terrain and varying fall lines.

## **Traverse:**

A directional maneuver in which the skier or snowboarder moves across the slope, that is, the skis/snowboard move perpendicular to the fall line.

When teaching a traverse find a moderate slope with little traffic to avoid the public as you are crossing the hill. Remember shaped skis will naturally arc back uphill. Begin facing 20 to 30 degrees downhill hold edges so they do not slide and allow the ski to arc back uphill. After this becomes easy work on steering the ski so the arc does not happen. Traversing with a toboggan should be across the hill with just enough advancement downhill to maintain speed. This is to minimize the time the toboggan is traveling across the slope.

## **Five Fundamental Reference:**

Fundamental (1,3,5) Balance over the whole foot to keep the entire ski engaged. Angulation will produce more edge angle while keeping the skier's weight distributed over the edges of the skis. Manage magnitude of pressure different conditions produce different feel for edge control. Perfect the maneuver on groomed slopes first then work in other types of snow.

## **Problems to watch for:**

Uphill ski is not making a track in the snow. Tips are diverging. Skis should be weighted equally with both uphill edges pressed firmly into the snow.

## **Progression:**

Begin by letting the ski follow the natural side cut, then work to steer the skis in a straighter path.

## **Skating:**

A method of propulsion in which the skier presses from foot to foot while keeping the skis in a diverging position. The inside edge of the weighted ski is engaged as the skier moves forward. In a snowboarding context, the rider moves the board forward by pushing with the free foot.

When teaching skating begin on a flat slope. Separate the tips of the skis to create a reversed wedge, this is the diverging position. Pick up one ski and take a small step forward. Place it flat on the snow as you push off and lift the other ski. Glide on the first ski while maintaining the diverged position. As your



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momentum stalls, step and glide on the other ski while pushing off and lifting the ski that is still on the snow.

## **Five Fundamental Reference:**

Fundamental (1,3) Balance over the whole foot to keep the entire ski engaged. Angulation will produce more edge angle while keeping the skier's weight distributed over the edges of the skis. Perfect the maneuver on groomed flat areas first, then work in other terrain and types of snow.

## **Problems to watch for:**

The skier is not able to propel him or herself forward. Make sure the ski that is being pushed off is tipped so the inside edge is digging into the snow.

## **Progression:**

Begin on flat terrain and progress to moderate terrain. Begin with Herring Bone Hike and progress to the gliding motion of skating.

## **Herringbone (Hike):**

A diverging ski position useful for climbing hills. The skier faces uphill with ski tips pointing at an angle away from each other and walks up the hill on alternating feet while edging to avoid slipping backward.

When teaching the herringbone, start on a flat or moderate slope. Demonstrate by positioning the skis in a reverse wedge position. The ski tips are diverging, and the tails are a short distance apart. The skis are tipping so that the inside edges are digging into the snow. Place the poles outboard of the skis. In a simultaneous movement take a step forward with one foot and the pole from the same side. This is a hiking move with NO gliding. Repeat with the other foot and pole. Once they have this maneuver mastered move to a gentle incline, then a moderate slope. Note: on steeper terrain the wedge is widened for stability. When the slope is too steep to maintain ski positions without slipping, then side step hiking will be the appropriate hiking maneuver.

## **Problems to watch for:**

On the gentler terrain the participants may want to glide.  
The tails of the skis cross each other. The stance may be too narrow.

## **Progression:**

Once the skier masters the flat terrain drill then progress to steeper terrain.

## **Sidestep (Hike):**

A method of moving up the hill in which the skier steps up the hill one ski at a time with the skis across the fall line.

When teaching the Sidestep hike, start on a flat or moderate slope. The skis are positioned parallel to each other and perpendicular to the fall line. Balancing on the downhill ski and pole step uphill with the uphill ski while lifting the uphill pole and place them down in a wide stance. Then balance on the uphill ski and pole while bringing the downhill ski and pole uphill and place them down in a comfortable stance.

## **Problems to watch for:**

Stance is too wide to balance on the uphill ski. Step less aggressively uphill.

## **Progression:**

Start on a flat to moderate slope and work to a steeper slope.

## **Final approach:**

The phase just before the toboggan handler parks and secures the toboggan at the incident scene. During the final approach, the toboggan handler identifies the safest path to approach the scene while taking directions from those patrollers at the scene in regard to the direction the toboggan should be positioned for loading the patient.



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When teaching the Final Approach emphasize that the toboggan operator should stop uphill and out of the fall line of the scene. Then communicate with the patrollers at the scene, as they are familiar with the injuries and will make the determination of the direction the patient should be loaded. (head up or downhill) After determining the future position of the toboggan, determine if you can ski it in forward, or if there is a need for backing the toboggan into position. If you can ski it forward into position proceed to do so. If you will need to back the toboggan into position, sideslip in a path adjacent to the scene with ski tips facing the scene, remaining as close to the scene as you safely can. When you are in line with the final destination rotate your skis, so the tails are slightly downhill guiding the toboggan away from the scene continue the rotary back uphill and take a couple of side steps uphill to position the rear of the toboggan into the entry point of its desired location. Skate the toboggan into place. Anchor the toboggan before loading.

**(SB)** For backing the snowboard into place: After determining that the snowboarder will need to back the toboggan into place he/she will proceed to the toe edge of snowboard, and side slip until positioned slightly above the final position of the toboggan. Remaining on the toe edge in a squatting position, the operator pulls the toboggan handles to the side of him/her that is away from the scene, bringing the shell of the toboggan towards him/her. Lock one of the handles. Then with one hand on the handle and the other on the side of the shell press down on the handle to elevate the fins from the snow and pivot the toboggan on the bow towards the entry point of its desired location. This should be downhill of its current position. The snowboarder then rides the toe edge of the snowboard while guiding the toboggan down and into position.

## **Problems to watch for:**

Toboggan handler stops directly up the fall line from the scene.

Toboggan handler skis down to the scene without instructions from the patrollers on scene.

Toboggan handler backs to far downhill or too far into the trail creating unnecessary effort to get the toboggan into place.

In moguls or, in powder it may not be easy to side step uphill and skate the toboggan into place. The operator should remain uphill of the toboggans desired location and use a handle lock to pivot the toboggan then wheelbarrow the toboggan into place.

**CAUTION:** Any time the handles are locked a mistake may cause the toboggan to slide downhill uninhibited. Extreme care is needed.

## **Progression:**

Review: sideslip, falling leaf, sidestep hike, and skating. Go through the motions without a toboggan. Add the toboggan and work to make the process as effortless as possible.

## **Front Operator:**

The toboggan handler at the bow, or front, of the toboggan. This individual determines the direction and speed of the toboggan and is responsible for communicating his or her intended actions to the tail rope or rear operator, if one is present.

When teaching the duties of the front operator, emphasize communications with the tail or rear operator. The front operator will give a brief explanation of the desired route. When ready the front operator asks the rear operator to go off belay to which the rear will answer, "belay off". Then the front operator knows it is clear to proceed. When the front operator would like to make a right or left turn verbal communication should be loud enough, so the rear operator can hear. Optionally hand signals may be employed. The front operator should wait until the "Clear" communication is received before proceeding. The front operator will set a consistent speed that is expedient but not too fast that it may put the team or patient at risk. The front operator will pick an expeditious and safe route and is responsible for deployment of the chain break when needed.

## **Problems to watch for:**

Communications must be clear and precise.

See route selection.

Chain Break not deployed when needed.

Traversing should be across the hill should be done with only enough downhill progress to keep the toboggan moving.

## **Progression:**

Review Side slip, pivot slips, and traverse. Utilize Chopsticks drill to get the feel of a loaded toboggan. Begin on easier terrain and progress to more and most difficult



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## **Rear operator:**

A term used to refer to the individual who controls the rear handles on a four-handle/ fixed-handle toboggan, Because the rear operator also grasps fixed handles, the two toboggan handlers can maneuver the equipment as a team. See also tail rope operator.

When teaching the duties of the rear operator, emphasize communications with the front operator, patient monitoring, and being aware of patrons approaching from behind. The rear operator will communicate clearly and loud enough for the front operator to hear. Answering with “Clear” when it is safe for the front operator to proceed with any directional changes. The rear operator will aid the front operator in steering and breaking as needed.

**(SB)** A snowboarder is to remain on heel edge throughout the run. Helping pull on flat or minimal slope should not be attempted.

## **Problems to watch for:**

Anything related to the responsibilities of the rear toboggan operator.

## **Progression:**

Review Side slip, pivot slips, and traverse. Shadow another patroller without a toboggan. Practice communications.

## **Route Selection:**

The process of determining which route to take when transporting a loaded or unloaded toboggan on downhill slopes, or backcountry trails. Considerations include the terrain, weather, snow conditions, incident location, distance to the aid room or other destination, skier/snowboarder traffic, nature of the patient's injury or illness, and even the type of toboggan being used.

When teaching route selection points, remember the best route is usually the most expeditious route. Keep near the edge of trails. When crossing trails utilize a traverse, which is the shortest route across a trail. Avoid routes underneath ski lifts. If possible avoid getting into situations where flat terrain may require skating. Avoid heavy skier traffic areas. Avoid Most Difficult terrain when possible.

## **Problems to watch for:**

The toboggan operators are using the middle of the trail, or crossing the trail leisurely, not traversing.

## **Progression:**

Work as a team to determine different routes ski the terrain without a toboggan.

## **Tail rope operator:**

The toboggan handler at the stern, or back, of a two-handle/locking-handled toboggan. This individual will maneuver the tail rope to support the front operator's efforts to control the direction and speed of the toboggan. The tail rope operator helps the front operator pull the toboggan through flats, wet snow conditions, and the hands should be a comfortable width apart, usually shoulder width. Hands should remain in front of the torso and be about waist height. The downhill hand is the control hand. When transitioning one length of rope is taken up and the hand with the loop also grasps the rope and becomes the control hand. At the next transition the rope is released from the hand with the loop. If there is a need to take up more rope than one length, first consider slowing down to maintain the safest distance from the toboggan. Using the tail rope as an indicator into the speed of the toboggan is necessary and can only be done with a taught rope. The operator can feel the speed better than seeing, especially when he/she is monitoring skier traffic. The operator can better aid the front operator in speed control by feeling the variations and break as appropriate. Skiers may help the front operator on flat terrain by skating and pulling with the rope.

Tail rope operation is the more difficult position. Not only is he/she responsible for aiding the front operator in breaking and steering the toboggan, but also must monitor the patient, and monitor the traffic behind and around the toboggan. The tail rope operator is to hold the rope with one hand in the loop. Do NOT put the hand through the loop but hold the loop in the hand. The other hand is placed further down the rope, with some slack between hands. Unless helping on flat terrain the tail rope must remain parallel to the fall line. This is particularly important on a traverse where the rear of the toboggan may slip downhill.



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## **Problems to watch for:**

Hands go above the waist with arms fully extended is an indicator that the tail rope operator is not in control. The tail rope operator should not lean into the hill and use the rope for balance. Slack in the rope should be taken up.

## **Progression:**

Review Side slip, pivot slips, and traverse. Utilize Rope a goat drill to get the feel of a loaded toboggan. Begin on easier terrain and progress to more and most difficult

## **Wheelbarrow maneuver:**

An emergency recovery maneuver for an out-of-control toboggan. If the toboggan is sliding around in front of the front operator he or she drives the toboggan into an across-hill position (as if operating a wheelbarrow), and drives the toboggan with the downhill<sup>1</sup> fin until it is across the hill and in a safe position to stop. The operator then reestablishes the appropriate hand positions on<sup>SEP</sup> the toboggan and continues downhill.

When teaching the Wheelbarrow recovery maneuver begin by skiing an empty toboggan with the handles locked. When ready, push down on the handles releasing the fins from the snow as you turn sharply. As the toboggan comes around release the uphill hand and grasp the handle that the downhill hand is holding. Then move the other hand to the other handle. Steer the toboggan back uphill. When you are ready to proceed downhill, move the uphill hand to the downhill handle, then move the downhill hand to the other handle and proceed downhill.

CAUTION: Any time the handles are locked a mistake may cause the toboggan to slide downhill uninhibited. Extreme care is needed.

## **Problems to watch for:**

The toboggan will not slide around. Make sure the handles are pushed down far enough to disengage the fins.

## **Progression:**

Try pushing the toboggan like a wheelbarrow downhill and back up again in a "J Turn". When comfortable with this, move the hands on the handles and proceed downhill after the "J Turn". Then do the maneuver as described.

## **Chopsticks drill:**

A simulated toboggan exercise designed to improve front operator skills. Two patrollers ski while holding two poles taped together on either side to simulate a toboggan. Rather than act as a tail rope operator, the person in back uses his/her weight to push the front operator, creating the effect of a loaded toboggan. The front operator is responsible for direction and speed.

The Chopsticks drill may be utilized within the progression of front operator training. When teaching the Chopsticks drill, emphasize the safety of the rear operator. The poles need to be held at the sides, and extending past the torso of the rear operator, so in the event of the front operator dropping one or both poles, the rear operator can easily release them without the possibility of being impaled.

See Front operator for more information.

## **Rope a goat drill:**

A simulated toboggan exercise designed to improve tail rope operator skills. Two patrollers ski while holding a rope to simulate a toboggan. Rather than act as a lead operator, the person in front uses his/her weight to pull the rear operator, creating the effect of a loaded toboggan. The front operator is responsible for direction and speed.

The rope a goat drill may be utilized within the progression of tail rope training. When teaching the rope a goat, the rear operator will practice the skills listed for a tail rope operator. The front operator will hold the other end of the rope and provide weight o Try pushing the n the rope. The rope should not be wrapped around or tied to the front operator.

See Tail Rope Operator for more information.