Sit-Ski Chapter

presented by

The Waterloo Region Track 3
Ski School

Section 1: Lesson Plan

SIT SKI TRAINING COURSE

Format: The course will consist of two days of on-hill training by certified level 3 instructors. The course will include instruction on both bi and mono skis. In this respect, all potential instructors will get hands on experience with the equipment from the perspectives of both the instructor and the student. Due to the many commonalities and crossover aspects of the bi and mono skis, the Level 2 candidates will receive instruction on both types of equipment at the same time.

The potential level 2 candidates will be introduced to and made familiar with the various pieces of sit ski equipment at this time. The candidates will be informed as to the various types of disabilities associated with sit skiing. They will be shown the difference between a bi and a mono ski and the evaluation process (functional ability) to determine whether or not a student fits into one of these categories and what type of equipment they would use. The functions of the various attachments on the equipment will be explained. The candidates will also be introduced to the fitting of a student in the equipment as well as clothing and circulation concerns associated with a student being strapped into the bucket. The candidates will be encouraged to examine the equipment up close and ask questions.

A) Common Disabilities of Sit Ski Students. Brain Trauma; Cerebral Palsy; Hemiplegia; Multiple Sclerosis; Muscular Dystrophy; Neuromuscular Diseases; Paraplegia; Post-Polio; Quadriplegia; Quadruple Amputee; Severe Balance Impairments; Severe Epilepsy; Spina Bifida.

B) Student Evaluation - Functional Ability. i) Functional Musculature - determination of which muscles (groups) the student can and cannot use; ii) Strength - the student's strength of the muscles they can use; iii) Balance - fore, aft, and side to side; iv) Co-ordination; v) Flexibility and Range of Motion; vi) Motor and Sensory Deficit; vii) Vision and Hearing levels.

C) Cognitive Assessment. Determination of Students mental age level, attitude and enthusiasm towards skiing.

D) Equipment and Attachments Selection. Determination of Bi vs. Mono ski; number of tethers; handle bar; outriggers; pontoons; etc.

E) Fitting, Clothing, and Circulation Concerns. The candidates will be introduced to the fitting process of the student. Proper strapping, fit, dowel testing/balance, etc. will be demonstrated. As well, attention will be given to clothing and circulation issues such as warmth, catheters, etc.

F) Student Transfers. The candidates will be instructed as to the proper methods of transferring a student to and from the wheelchair and the bucket.

The group of candidates will be split up into groups divided between the bi and mono skis (in order to maximize equipment and hands-on time) with an instructor candidate fitted into each piece of equipment. The candidates will rotate between "instructor" and "student" roles over the course of the weekend in order to learn the following skills. Each candidate will be introduced to the athletic stance and proper positioning of the outriggers. Much of the learning objectives of both "student" and "instructor" will not only coincide together but also, at times, skip back and forth between the two. For example, the instructor must learn how to tether properly before the student can learn the Wedge Christie Turn Equivalent. Converse to this, the instructor can learn how to thumb and get the feel of the bucket while the student gets the feel of being in the bucket and the proper position of the outriggers at the same time.

A) Introduction to flat land drills. Now, the candidates will be introduced to stance and balance exercises to help the students become familiar and at ease with the equipment.

Fore and aft exercises - have the candidate practice reaching fore and aft from an athletic stance

Rotary exercises - have the candidate practice creating garlands with their outriggers: i) utilizing fore and aft arm swings at the same time; ii) alternating fore and aft arm swings

Balance - i) Lateral: have the candidate raise their outriggers straight out at the side as far as they are able to (ideally they will be able to touch them above their head); ii) Fore: have the candidate raise their outriggers straight out to the front of the "bucket"

If the student has mobility (this will be determined at equipment fitting), the student will be introduced to straight running in order to get a feel for balance in the bucket. As instructor candidates, this can be incorporated into the training at the top of a green hill in order to allow as much "mileage" for both "student" and "instructor". Included with the straight running drills is learning how to brake using the outriggers. The "student" will practice increasing and decreasing pressure on the claw brakes to get the feel of controlling pressure with outriggers.

B) Introduction to Chair Lifts. It is preferable to get the candidates on the actual hill as soon as possible, but in order to do this, they must know how to get a bucket up the chairlift properly, and safely. The course instructor shall take the candidates off to the side of the chairlift and demonstrate a dry run of loading the bucket onto the chair. They will also communicate as to how the bucket and instructor(s) will ride the lift and offload as well. This shall include:

- the removal of the pin
- determination of who the lead instructor is (who shall ride the lift with the student on a 2-person chair) and who will make "the call" or "count" for loading the bucket
- the proper positioning of the instructors and their hand holds
- with the mono, how to utilize the lift mechanism; and with the bi, how to ensure the bucket and skis split properly
- with a 2-person lift, how the "boot" loader lift the bucket and then move safely away from the chair
- with a 3 or more person lift, how to all get on the lift properly
- what position the student holds their outriggers
- on the lift, the proper use of the safety bar and how to hold onto the bucket
- the necessary hand signals and how to communicate with the lefties for the off-load, the proper use of the off-load area and the positioning of the student (and 2nd instructor if on a larger lift), and how to ski the bucket away from the off-load area;

C) Thumbing and Getting the "Feel" of the Bucket. Once on the hill, it is necessary for both the "student" and "instructor" to get the feel of how the bucket skis down the slope with turns. The "instructor" will attach the tethers to their arms in the proper manner and wrap them up in order to assume the thumbing position. The "student" will assume the Athletic stance and the pair will ski down the hill making various radii turns in order to get the feel of the bucket. This will be repeated with each new set of "instructors" and "students".

D) "Student" training with Outriggers. The focus for the "student" is not become an expert skier (this takes a lot of time and mileage), but to learn the basic concepts of how to ski the bucket using outriggers. This will be accomplished by taking the "student" through the progression steps of bucket skiing using the athletic stance. These steps are:

a) Wedge Turn Equivalent - The student initiates turns by looking in the direction of the turn and gently shifting their center of mass (CM) to the inside of the turn. They can augment this by bending the inside arm at the elbow and

partially supporting their weight with that arm. The outside outrigger remains in the athletic stance position. The student holds the turns until they come to a stop. Once at a stop, they will realign their body, initiate their next turn and continue on down the hill. The students can also utilize the brakes in order to stop themselves before turning uphill. Skidding of the skis occurs because there is little edging of the ski at this point.

b) Linked Wedge Turn Equivalent - The student will initiate their turns as above, but will not stop their forward movement at the end of each turn. Once the turn is nearing completion, the student will realign their body by pushing off the uphill outrigger and returning to the neutral position. By returning the CM over the ski(s), the student will be able to enter the fall line and initiate the next turn. The student can augment their turns by "opening the door" and reaching for the turn - turning the outrigger at the wrist in the direction of the turn and reaching into the turn. Again, skidding of the skis occurs at this stage of the learning process.

c) Wedge Christie Equivalent - The student will be introduced to spinal angulations in order to aid in turn size and shape which in turn allows the skier to control speed with turn shape instead of outrigger braking. By utilizing inclination and angulations, the student is able to make cleaner turns with much less skidding. Also, the student can practice bringing the outriggers back to the matched position at the end of each turn. It is unlikely that, due to the short time constraints of the course, the student will become very proficient at this level or the Parallel Equivalent.

d) Parallel Equivalent - This is a more dynamic turn in which the student learns to be aggressive in their turns by pushing off with the outside outrigger at the same time as they reach with the inside outrigger, all the while utilizing inclination and angulations. As well, forward and aft ward shift of mass will be utilized.

E) Instructor Training with Students Utilizing Outriggers. The aspects that an instructor candidate must understand include tethering, stopping the student, up righting a fallen student, and the positioning of the second instructor. These aspects are:

a) Stopping - The first thing an instructor must learn is how to stop a student. The easiest way is for the instructor to slowly let the student glide to a stop while they utilize the snowplow or else to "ski it out" (turn the student to the side and away from the danger). However, in order to stop the student more quickly (in an emergency, for example), the instructor must learn to utilize a hockey stop - both while thumbing and also while using tethers at length. The instructor will learn how to transition from parallel skiing to snowplow to side slide to hockey stop.

b) Tethering - The instructor will be taught to hold on to the tethers with each one "tied" to their arms so that they will not slip off. Depending on the student's speed, the instructor will let out more or less length of tether (faster or slower student) in a way that they can quickly reel in length if necessary. The proper ski position of the instructor is to be "high and inside" of the student.

c) Role of the Second Instructor - The role of the second instructor is to be another set of eyes for the group and to help keep other skiers safely away from the bucket.

d) Learning how to Teach use of the Bucket.

F) Role Playing - The candidates will rotate among the equipment as time allows and role-play at teaching a new student.

Day 2

9:00 - 9:30am Indoors with Equipment

Again, the candidates will split off into groups (switching from Bi to Mono and vice versa) and gather their equipment. They will look over the equipment in order to make sure all the parts are present and in working order (the examiners

may or may not remove a piece off the equipment or some such in order to see if the candidates are aware of the equipment and its functions).

Chair Lift Loading

Objective: To ensure the safe and efficient loading and off-loading of the sit-ski.

Loading Steps	Instructor's Actions and Commands
1. Guiding sit-ski through the lift line.	▪ One instructor may be needed to push the sit-ski into position as they pass through the lift line. ▪ The lead instructor should pull the pin out and to ensure the seat will split from the skis. ▪ While in lift line, one instructor should be designated as the 'Caller" to call the timing signals for the loading sequence. Example sample call: 1, 2, 3 and lift up and on, slide back. ▪ Check the student for any loose straps, or clothing. ▪ Ensure that the evacuation straps are readily available. ▪ Ensure that the retention strap is readily available and that the carabiner gate will open.
2. Loading on to the chairlift.	▪ The non-pushing instructor will arrive at the loading area first in order to assist placing the sit-ski is in the right position for loading. ▪ She/he will ask the lift operator to slow the chair if necessary. ▪ Once the sit-ski is in position, each Instructor should turn their skis parallel to those of the sit-ski with the inner ski between the pontoon and the sit-ski. ▪ Each Instructor should have hold of the front loop and the back loop of the seat. ▪ As the chair approaches, the 'Caller' will be watching the approach of the chair to begin the count at the appropriate time to ensure that the seat is lifted as the chair arrives. ▪ Both the Instructors lift the sit-ski onto the chair and pull it to rest against the back. ▪ Lower the chair's safety bar. ▪ Attach the retention strap.
3. While riding up the hill on the chairlift.	▪ Always hold on to one of the straps on the sit-ski to prevent it from slipping forward. ▪ One Instructor should be designated as the 'pusher' of the sit-ski when it is unloaded off the chair.
4. Unloading sequence.	▪ Disconnect the retention strap. ▪ Lift the safety-bar up as indicated by the signs as you approach the off loading area. ▪ The Instructors should shimmy to the front of the chair to ensure they can get off without any undue motion. ▪ As the flat part of the off loading area is reached, slide the sit-ski off the chair and the 'pusher' will control the sit-ski down the ramp as the other Instructors skis down the ramp first to ensure there is a clear path available.

Common Features of Sit-skis

Objective:	To familiarize the instructor with the various basic components of a Sit Ski. Sit-skis may differ slightly depending on the manufacturer but the following lesson plan describes some of the features that are common to all sit-skis.

Features	Instructor's Actions and Commands
1. Seat	▪ The seat is rigid, encourages flex in the legs and sits relatively close to the ground to keep the centre mass of the skier low. ▪ It includes a combination of straps and harnesses to ensure a snug, ski boot like fit. ▪ The seat can be adjusted fore and aft over the skis to ensure the skier is centred over the skis. ▪ Extra foam padding may be necessary to affect a snug fit.
2. Harnesses/ straps Refers to devises securing skier to the Sit-ski.	▪ Straps can include waist, chest, thigh, and shoulder and foot straps. ▪ Chest strap may not be necessary if skier has sufficient abdominal strength to return torso to a neutral position.
3. Skis	▪ Bi Skis: The two skis are generally short (140-160cm) and wide. ▪ The side cuts are asymmetrical, deeper on the outside than on the inside side cut. ▪ To promote flat ski running and inhibit undesired skidding, the skis may have skegs on the ski tail running surface, similar to water skis. ▪ Mono Skis: The single ski used is longer than those used by a bi ski. It is the sam type of ski a stand-up skier would use.
4. Skegs (for Bi Skis)	▪ Fins attached to the tail of the ski and extending 4 to 8 inches along the skis bottom surface. ▪ This feature does not appear on all makes of bi-ski.
5. Handlebar (for Bi Skis)	▪ The bi-ski may have an adjustable, removable handlebar for the skier to grasp. ▪ The handlebar can assist the skier with lateral stability. ▪ Depending on the skier's grasping strength, the skier' s hands may need to be secured to the handlebar. On hill, instructions to lean left or right may be facilitated by using differing colours of tape for each hand. ▪ Fixed outriggers (pontoons) will have to be employed for stability in the turns, as hand held out outriggers will not be an option.
6. Pontoons (for Bi-Skis)	▪ Outriggers attached to the bi-ski to assist in lateral stability by preventing the bi-ski from leaning past the point of the skier's ability to return to a neutral position.

7. Outriggers	▪ Hand held outriggers are attached to the skier's arms with retractable skis on the bottom. ▪ The tail of the outrigger ski has a serrated metal strip to allow the skier to push the sit-ski along the flats. ▪ The outriggers should be adjusted to touch the snow somewhere between the skier's hips and knees. Ideally, the skier's arms will rest at about a 30^ angle.
8. Foot Tray	▪ The foot tray is cup like, made of moulded plastic or fibreglass and provides a platform that secures and protects the lower legs and feet. ▪ The foot tray has a strap to secure the feet inside the tray. ▪ Optional foot bags either insulated or not can be used to protect the skier's feet from the cold. ▪ Additional foam padding and, possibly, weights may be required to ensure adequate support and protection.
9. Suspension	▪ The suspension system is articulated allowing the bi-ski to bear differing pressures to each ski allowing for more pressure on the downhill ski. ▪ Adjustable pads or bladders dampen the articulating movements as increasing pressure is applied assisting the skier to return to a neutral position. ▪ The suspension of a mono-ski is attached to the ski so that it dampens the up and down movement of the skier.
10. Linkage	▪ The skis and seat of the bi-ski are linked through an articulating mechanism allowing the skier to tilt the skis on to corresponding edges by leaning left, or right of centre. ▪ The ski and seat of the mono-ski are linked through a mechanism which allows the ski to edge as the skier leans to the left or right.
11. Lift loading mechanism	▪ The sit-ski is equipped with a ski lift chair loading mechanism allowing the seat to be raised or lowered through mechanical means (hydraulic or lever).
12. Evacuation system	▪ The sit-ski is equipped with an evacuation system comprising of straps and carabiners that facilitates removing the skier, in the sit-ski, in the event of a chairlift evacuation. ▪ Note: ensure the straping for this system is easily available when securing the skier into the sit-ski.
13. Retention strap	▪ The retention strap is a strong piece of webbing attached to the sit-ski with a non-locking carabiner attached to the other end. ▪ Once on the chairlift, it is looped around the back bar of the chair and clipped onto itself. ▪ Its purpose is to keep the sit-ski and skier firmly attached to the chair.
14. Tether	▪ Attachments exist for tether lines the instructor may use to assist the skier control direction and speed.

Initial Cognitive Skills Assessment

Objective: To provide guidelines used in determining prerequisite skills and recommendations for potential sit-ski skiers.

Action/Question	Instructor Action and Comments
1) Head Control	▪ Is the potential skier able to maintain their head upright to enable them to determine a child sized object within a 10 ft. radius? ▪ Does the potential skier have the ability to do this without using adaptive seating?
2) Trunk Support	▪ Can the potential skier maintain an upright trunk position? ▪ Does the potential skier have the ability to do this without using adaptive seating?
3) Pelvic Stability	▪ Is the potential skier able to maintain a neutral or anterior pelvis with or without adaptive seating?
4) Vision	▪ Can the potential skier perceive child sized objects or shadows within a ten foot radius?
5) Motor access abilities.	▪ Potential skier has at least one reliable movement that will allow maneuvering of the sit-ski.
6) Cause and Effect	▪ Assess potential skier to determine if they have an understanding of cause and effect. ▪ Answers to questions like, “Is it cold out today” will assist provide insight. ▪ Does the potential skier understand the effects their actions have on their surroundings? (I.e. If they lean too far forward, do they realize that they will tumble out of their chair, or that their chair will roll backwards?)
7) Following Directions	▪ Does the potential skier understand simple directions? (I.e.: Ask, “ Did I leave my roll of tape on your lap?”) ▪ Does the potential skier understand the meaning of words like, ‘stop’, ‘go’, ‘forward’, and ‘back’ and do they react correctly?
8) Problem solving	▪ Does the potential skier maintain a high interest in the equipment? If the potential skier has mobility, can they get a ski pole you forgot over there?—pre-place ski pole in an appropriate, reachable location--
9) Attention	▪ Can the potential skier maintain attention on a simple task? · Do they demonstrate an ability to focus on a task without being easily distracted?
10) Motivation	▪ Does the potential skier show an interest for independent mobility? ▪ Some potential skier may show frustration as of a result of their lack of independent mobility. This demonstrates motivation and a readiness to learn the expanded mobility skiing offers.
11) Understands the meanings of words using spatial concepts.	▪ Explore special concepts such as, ‘away from’, ‘towards’, ‘turn left/right’, move forward/back’.

Initial Student Assessment Guide

Objective:	To develop a thorough evaluation process for sit-ski students in which physical and motor-neurological aspects of the student abilities are considered.

Assessment	Instructor's Actions and Commands
1) As student enters the building.	· Observe balance and stamina. · Is student an appropriate candidate for the sit-ski program?
2) If skier is ambulatory, do they use a cane, crutches or a walker?	· Decide if a sit-ski is appropriate for the student's needs and abilities. · Determine whether a mono or bi-ski would be appropriate for the skier's abilities.
3) Does skier wear braces or prosthesis?	· Would sit-ski be appropriate to reduce the chances of lower body injury.
4) Does skier favour one side of their body?	· Differences in bi-lateral ability must be recognized and addressed when selecting appropriate equipment.
5) Is the student able to open and enter a door?	· Demonstrates strength, agility and independence.
6) What type of wheelchair is the student using?	· This is a factor in determining student strength, attitude, and athletic ability. · Is the chair electric, sport or traditional? · Is the skier using a seat belt or chest strap? · Does the chair have supportive hardware, armrests, wheelie bar or a head support? · Is the skier sitting in a neutral position or canted to one side?
7) Is the skier pushing the wheelchair himself or herself?	· Use this observation to determine strength, athletic ability and attitude. · If the skier is self propelled, strong and has a can do attitude, a mono ski may be appropriate.
8) Is the skier in a Sports Chair?	· A sports chair with a low back support indicates that the skier has a degree of torso strength, control and balance. · This may indicate a strong mono-ski candidate.
9) Does the wheelchair have an inflatable or other type of cushion?	· Ask about pressure sores.

10) Is the student outgoing or withdrawn, excited or fearful, enthusiastic or apprehensive?	· The attitude of the skier dictates the appropriate teaching style. · Guardians should be also be canvassed as to the skiers attitude.
11) Is the student self-sufficient?	· Can skier arrive, transfer, dress and attend to their own needs?
12) Is the student involved in other sports?	· A skier that participates in other sports will have a fast learning curve · This student will need an aggressive teaching program to make constant advancements in order to stay interested.
13) Can the student maintain good balance?	· A skier who is unbalanced in a wheelchair may need special care in transference into the sit ski. · Foam padding or other adaptive equipment to assist the skier maintaining a neutral position may be necessary. · This skier may be better off placed in a bi-ski.
14) Is the student dressed appropriately for the conditions?	· If not, the skier may be unfamiliar with staying outside in a winter environment. · This may initially constrain the lesson to a slower pace.
15) Have you consulted with parents/ support staff?	· This is imperative to discover more about the skier history, preferences, abilities, etc.

Maintenance, Preparation and Care of Equipment

Objective:	To ensure that the sit-ski equipment is maintained and in good working order, maximizing the safety factor for the Skier and Instructors. Set up sit-ski for lesson.

Assessment	Instructor's Actions and Commands
1) All snow to be cleaned off before storing the sit ski.	· This offers an opportunity to check the various sit-ski components to ensure they remain in a safe operating condition. · Instructor should arrive ½ hour before the skier to re-inspect the components, checking for visible defects, frayed straps, cracked buckles and loose fastening devices.
2) All pontoons are to be removed before storage.	· Ensure all pins and other fastening devices are in good condition and are fastened back to the pontoon. · Check the condition of the pontoon skis.
3) Check bindings, skis and pins on pontoons before going out on the hill with skier.	· Ensure all pins and other fastening devices are in working order. · Check the pontoon skis to ensure they are in good condition and fastened tightly. · Refer to skier history notes to ensure pontoons are set at the correct length, in the correct location on the sit-ski.
4) Inspect handlebars and handlebar gripping material.	· Ensure handlebar fits properly into sit-ski and that fastening pins are functional. · Examine gripping material for tears or holes allowing skiers hands to contact the bare metal of the handlebar.
5) Examine the bottom of the sit-ski skis.	· Ensure that they are adequately waxed, there is no major damage or gouges in the base. · Examine edges for major burrs that would adversely affect the skis' performance.
6) Test all lifting straps and tethers before using.	· Examine the points where they are fastened to the sit-ski. · Examine the stitching on any looped ends. · Examine the harness straps, retention strap, evacuation straps and tethers for cuts or signs of wear.
7) Prepare seat and foot tray.	· Examine both the seat and foot tray for any signs of cracks or abrasions that may injure skier. · Check skier records to determine proper seat position on sit ski.
8) Examine Evacuation Straps to ensure they are in good working order.	· Check for tears, tangles or abrasions. · Check anchor points on the seat are secure. · Bi-ski has at least three carabiners

9) Adjust suspension system to skier pre-determined adjustments.	· Before going on hill, check the suspension system to ensure it is operating correctly. · Adjust the suspension system to the skiers weight + 50 pounds. · When outside temperature dips below –15 C, add another 25 lbs. to above formula. Skiers weight + 75 lbs.
10) Lift Loading Mechanism	· If the bi-ski is equipped with a mechanical lift loading mechanism, operate it to ensure it is operating correctly. · Examine the pivot points of the lifting mechanism for obvious wear and tear.
11) Defective equipment.	· Describe the defect on one of the red repair cards and attach to the ski; leave a message with your program Co-ordinator who will arrange for it to be repaired.

Sit-ski Tethering Procedures

Objective: To indicate the responsibilities of the lead instructor and the secondary instructor from the top of the ski hill down to the lift-line. Assumption is that the sit-ski and student and both instructors have skied off the chairlift and have secured their positions at the top of the ski hill.

Assessment	Lead Instructor's Actions and Commands
1) Secure lifting mechanism locking pin	· Insert the locking pin into the appropriate hole. · Flip the locking wire up into the secured position.
2) Secure Tether Loops around the wrist or about the elbow.	· Wrap securely around each wrist/elbow by pulling the strapping thru the hand loop; put your wrist or elbow thru the created loop. · Ensure loops are tight above the elbow.
3) Wrap tethers around each hand.	· Leave approximately 18" of slack for push-off purposes.
4) Ask student about their comfort.	· Check for coldness (ears, nose, face). · No loose articles. · Straps are tight. · Ask about numbness in extremities. · Check goggles are in place.
5) Discuss ski plan with student & secondary instructor	· Decide whether the instructor or the student will be initiating the turns. · Discuss the initial target to ski towards before making the first turn. · Ensure everyone is ready to ski.
6) Commence skiing.	· Be sure skier traffic in the immediate area and downhill is safe before beginning the run. · Communicate that skiing is about to begin. · Push sit-ski onto the run and begin unravelling tethers.
7) Skiing	· Be aware of nearby skiers before beginning your turns. · Communicate turns to student or be alert if the student is initiating the turns. · Ski "high and inside" to the sit-ski. · Be aware of changing terrain. · Be aware of merging ski runs and skiers. Keep to the opposite side of the slope from the merge.
8) Ending the ski run.	· Steer sit-ski to a safe stopping area away from the lift line. · Remove tethers from wrists and secure them to the sit-ski. · Remove sit-ski lifting mechanism locking pin. · Push sit-ski into lift-line.

Assessment	Second/Assistant Instructor's Actions and Commands
1) Before skiing commences.	· Visually check over sit-ski for problems. · Ensure lifting mechanism locking pin is in place and locked down. · Ensure the ski plan is discussed and understood.
2) Skiing	· Always be aware of nearby skiers warning them to stay away from the sit-ski. · Communicate, to the lead instructor, the existence of approaching skiers. · Ski above "high and inside" to the lead instructor. · If problems occur, assist in bringing the sit-ski to a safe stop. · At merging runs, ski between sit-ski and merging skiers.
3) Ending the ski run.	· Protect the sit-ski student and lead instructor from other skiers. · Ensure the sit-ski lifting mechanism-locking pin has been removed. · When in lift-line, protect student's face from other skiers' ski poles.

Chair Evacuation Procedures

Objective: To ensure all sit ski instructors are familiar with chair evacuation procedures and are able to demonstrate said procedures.

Action	Instructor's Actions and Commands
1) Inspect all safety straps and Carabineers.	· All sit skis should have 3 evacuation straps. One on each side of the student's hips, and one that comes up between the legs. A separate safety strap is used to secure the sit-ski to the back of the chair. · Straps must in good condition. · All sit skis must have 3 carabineers, 2 locking and 1 none-locking .
2) Ensure all safety straps are easily accessible.	· Before entering the lift line, visually check that the safety traps are accessible. One on each side of the hips and one up between the legs. Attaching them to the hip strap will ensure they are in a correct position.
3) Chair lift stops and evacuation is needed.	· Reassure your student, remain calm, choose who will be lead instructor and follow Ski Patrol instructions. Check that all straps are tight and done up properly. Ensure nothing is dangling that may get caught or tangled.
4) Ensure safety strap is attached to the chair.	· By doing this you will ensure the sit ski will not fall off the chair when the safety bar is raised. · Do not raise the bar until instructed by the Ski Patrol. · The safety strap is wrapped around the back of the chair and attached back onto it using the non-locking carabineer.
5) Attaching the Ski patrol evacuation ropes.	· Take the Sit-skis 2 locking carabineers and attach them to the 3 evacuation straps. · The locking carabineers gates should be opposite of each other. · The Ski Patrol will guide a rope with two locking carabineers to you. Following their instructions, lift the safety bar. · Attach the carabineers to the carabineers attached to the safety straps. · A second rope will be passed up to you. It is attached to the hand strap that is at the top back of chair using the carabineer. · Disconnect the safety strap holding the sit to the chair lift. · This guide rope will prevent the sit ski from spinning. · The secondary instructor should be holding on to the sit ski at all times.

6) Lowering the sit ski from chair lift.	· When the Ski Patrol tells you they are ready, double check to ensure all safety straps are attached. · Slowly slide the sit ski forward using both instructors. You may need to rock it a bit to get it started. · The sit ski will tend to dive forward as it leaves the chair. Warn your student this will happen. · Once the sit ski is off the chair, turn it side ways so it will touch down across the fall line. · Once the sit ski is level and stable the ski patrol will start to lower the sit ski. Yell down to the people down below to ensure someone is ready to hold the sit ski from sliding down the hill. · Instructors will be lowered from the chair at this time following the Ski Patrols instructions.

Lesson Plan: Assisting the student back onto the skis

Objective: Objective: To safely assist the student in the sit-ski back to an upright position.

Action	Instructor's Actions and Commands
1) Assess for injuries	· Visually assess for head, shoulder, neck and head injuries
2) Assess the nature of the fall.	· Ask the student if they are OK. · Does your neck hurt? Are you dizzy? · Is there any pain in your shoulder? · Do your fingers feel funny, different? · Can you wiggle your fingers, your arm?
3) Secondary Instructor responsibility	· Should be up hill of sits-ski as student is on the hill to block traffic.
4) Primary Instructor Responsibilities	· Ensure all tether straps are safely positioned and will not become entangled as the sit-ski is being righted. · Instructor skis can be left on or removed depending on the terrain and the Instructors preference.
5) Position sit-ski across the fall line.	· Ensure the sit-ski will not begin running downhill as it is being righted.
6) Instructor places uphill boot/ski on the ski of sit-ski	· Provides advantage during the righting motion.
7) Pull sit-ski into upright position	· Grasps the bucket by the student's thigh and shoulder and pull while stepping down on the sit-ski ski.
8) Student assist.	· If student uses outriggers, have them place them on the uphill side and assist in the up righting manoeuvre. · Have student use outriggers to prevent forward motion once up righted.

9) Second Instructor's actions once sit-ski is up righted	· Move in front of the bucket to ensure it does not begin to slide while Primary is reattaching tethers to wrists.
10) Prepare student for remainder of downhill run.	· Brush snow from student. · Re-adjust student clothing equipment. · Examine the bindings, ensure all straps are secure.
11) Turn sit-ski skis down hill	· Primary Instructor takes up slack in the tethers, readies for down hill run. · Secondary Instructor turns the sit-ski skis down the hill. · Ensure that there is no traffic bearing down on intended sit-ski path.

Sit-Ski Fitting

Objective:	To ensure the proper fitting of the student into the sit-ski. Before fitting the student, ensure they are dressed in the proper clothing they will be wearing while skiing as well as any additional items such as a boot bag. NOTE: Always explain to the student what you are doing and ask their permission before performing a fitting.

Fitting Steps	**Instructor's Actions and Commands**
1)Determining the proper sit-ski.	·The proper type of sit-ski to be used by the student will be determined through the student assessment (physical and cognitive). Also, ensure that the sit-ski is in proper working order.
2)Transferring the Student.	·In a safe area and using safe lifting techniques, transfer the student into the sit-ski checking to ensure there is no bunching of clothing or seat material which could cause discomfort, leaning, or lead to pressure sores. ·Ensure the student is properly supported and kept safe during the rest of the fitting process.
3)Fitting.	·Ensure the student is sitting all the way back in the sit-ski seat in an athletic stance (or as much as they are able to. ·Adjust the foot tray to seat distance to ensure the student's legs are properly bent to provide proper circulation and sitting position. This is done by inserting a gloved hand underneath the student's leg - if you can insert your hand the distance from fingertips to approximently the base of the fingers, then the proper angle is achieved. If necessary, padding, foam, etc. Can be added to ensure the feet make proper contact with the foot tray. ·If needed, add foam or some such padding to aid the student in maintaining an upright, athletic stance, as much as possible. For a student utilizing outriggers, have them hold onto the outriggers to aid in balance and maitain the athletic stance. · Attach all possible straps necessary for the students use, beginning at the feet and working your way up the body. The straps should be snug to ensure the sit-ski fits like a ski boot would, but does not cut off circulation or impair such things as a leg bag tube. ·Ensure all other attachments needed, i.e. pontoons, handlebar, etc. properly fit the sit-ski. · For a skier utilizing outriggers, set the outrigger height so that the skiers arms bend at about a 30^ angle. For beginner skiers, the outrigger ski to pole angle will be greater to enable greater braking power. For a more advanced sit-skier, this will be less of an angle to allow the sit-skier to faster, more dynamic turns.

4)Dowel Test.

·This test is more important on a mono-ski, but can aid a b-skier as well.

· For shaped skis, the centre point of the binding mount will be marked on the ski. For older, straight skis determine the centre point of the ski.

·Place the sit-ski on a one inch dowel over the predetermined centre point of the ski and have the skier sit in an athletic stance position.

·If the sit-skier can balance the sit-ski on the dowel and easily rock it back and forth on the dowel, then the sit-ski is properly set up for weight distribution over the ski. However, if the skier has difficulty, for example, rocking forward on the dowel, then the sit-ski needs to be shifted forward on the ski. The opposite of this - difficulty rocking backwards - then requires the sit-ski to be shifted backwards on the ski..