



3-TRACK / 4-TRACK

Exam Information

Revised 2011

3-Track / 4-Track EXAM INFO

This classification includes skiers who use outriggers while skiing (standing up) on one or two skis. Outriggers are used to compensate for weakness or a disability in the lower extremities and/or balance problems.

As in other adaptive skiing classifications, this category includes a varied and vast population, sometimes their only commonality is the use of outriggers. Some examples of disabilities included in this 3/4-track classification are:

Cerebral Palsy (CP), Muscular Dystrophy, Multiple Sclerosis, Post Polio, Leg Amputations (above knee [AK], below knee- [BK], and bi-lateral), Arthritis, Spina Bifida, Spinal Cord Injury (SCI), Traumatic Brain Injury (TBI)

This is just a sampling.

A complete and detailed student analysis is needed to determine if the student is a 3-Track or 4-Track skier. A primary concern with these disabilities is a review of physical strengths including range of motion, limb strength, ability to balance and/or move right/left. A review of current medications and/or other disability involvements should be discussed during this evaluation. The evaluation will indicate the equipment needed to create a successful learning environment. Even after this evaluation is completed, adjustments may need to be made due to student abilities demonstrated during the lesson.

In addition to the physical analysis, a personal evaluation should also take place to determine other activities, likes, dislikes, motivation, goals and fears. This provides a platform from which to design the lesson plan. Determination of learning preference is ongoing throughout the assessment process and during the lesson.

Finally, it is very important that this group of skiers develop sound fundamental skills. A common problem is "paper-clipping". This occurs when the skier bends forward at the waist and relies excessively on the outriggers. This is more often seen in a 3-Track skier than the 4-Track skier. Do not confuse this with the normal stance of a CP 4-Track skier because of muscle/tendon strength/ surgery.

Common traits of a "paper-clip" skier:

- Underdeveloped balancing ability:
 - Little or no dynamic balance on leg(s).

- Relies on outriggers to remain in balance.
- Underdeveloped ability to control rotary movements:
 - Lack of controlled rotary movements to initiate and control a turn.
- Underdeveloped ability to control pressure movements:
 - Uses little or no flexion/extension.
 - Pressures only front of the ski.
- Underdeveloped ability to control edging movements:
 - Poor upper/lower body separation.
 - Little or no angulations.

The student's learning preference can be matched with a complementary teaching style and an acceptable pace, which is based upon the physical analysis and personal interview. The lesson plan will follow the ATS skill development progression with obvious modifications to accommodate physical limitations. The focus is the development of the four skills, regardless of where the movements originate!

THREE-TRACK

This specialty includes any person who can stand/ski on one leg and utilize outriggers to assist balance while in motion. Some advanced 3-Track skiers develop such good balance that they can eliminate the outriggers and ski with poles.

The student evaluation should explore the causes of the disability. Amputations are commonly the result of cancer, diabetes, blood clots, or accidents. Loss of function in ability to use one leg is frequently caused by strokes, traumatic brain injury, or polio. Additional physical or motivational problems may also be present and need to be explored.

Disabilities Common to Three-Track Skiers include: AK (Above the Knee amputation), Hemipelvectomy, BK (Below the Knee amputation), Hip Disarticulation, Brain Trauma, Osteosarcoma and other cancers, Cerebral Vascular Accident (CVA = Stroke), Post Polio, Congenital anomalies of leg/foot, Spina Bifida

During the student evaluation, some key considerations for amputees:

- 1) When the amputation occurred.
- 2) The present condition of the residual limb.
- 3) Is the residual limb properly wrapped and padded?

If the student has an atrophied leg, questions relative to circulation, feeling and ability to control movements need to be asked.

The student evaluation should also include a review of medications. These may commonly include but not be limited to insulin, chemotherapy, and radiation. Some medications increase fatigue levels; others increase sensitivity to sun. Exploration and research of present medications currently in use provides some insight into their effects upon the student.

Equipment and Set Up

Outriggers provide a three-point balance system. Outrigger height and brake adjustment are individual to the student. A general rule of thumb is that beginners will have their outrigger brakes adjusted longer (more brake). Outrigger height should be adjusted to allow for an upright comfortable stance. As the student's skills develop, dependency on this balance system decreases and outrigger height may be lengthened. The brake adjustment is reduced. This ensures an easy flow of motion throughout a turn.

Equipment adjustments, physical assists and terrain selection all enhance flow of movements and maintenance of balance in motion.

FOUR-TRACK

This specialty includes any person who can stand/ski on both legs and utilizes outriggers, a snow slider or a walker to assist balance while in motion. Some 4-track skiers develop such good balance that they eliminate the outriggers, ski with poles and become two-track skiers. The student evaluation explores the causes of the disability. Balance problems or a general weakness in the lower extremities are frequently caused by strokes, traumatic brain injury, Polio or spinal cord injuries.

The student's gait and stance should be closely observed. Some key concerns include:

- 1) Will the student's stance be parallel or in a wedge?
- 2) Can the student balance without assistance?
- 3) Will the student be capable of keeping the skis flat without wedges or slant-boards?
- 4) Will the student use outriggers or a walker?
- 5) Additional physical, emotional or motivation problems may also be present and need to be explored.

The student evaluation should include a review of medications. Insulin, anticonvulsive, antibacterial, antispasmodics, antibiotics and analgesics are commonly encountered in

this four track specialty. Some medications increase fatigue levels, interfere with the ability to balance, or increase sensitivity to sun. Exploration and research of currently used medications provide insight into their effects upon the student.

Equipment and Set Up

Outriggers provide a four-point balance system. Height and brake adjustment are individual to the student. A general rule of thumb is that beginners will have their outrigger brakes adjusted longer (more brake). Outrigger height should be adjusted to allow for an upright comfortable stance. As their skills develop, dependency on this balance system decreases and outrigger height may be shortened. The brake adjustment may be reduced. This ensures an easy flow of motion throughout a turn. Equipment adjustments, physical assists and terrain selection all enhance flow of movements and maintenance of balance in motion. Walkers offer more support than outriggers but may limit the student's ability to become an independent skier. The Snow Slider (or Ski Legs) offers a very stable base of support for the skier, has a wide range of adjustability for any skier and allows the skier to move with the unit, while being tethered by the instructor. Ski-bras, klip-skis, or bungee cords are often used to enhance lateral strength and to keep the skis from spreading apart. Tethers are often used to assist in the development of rotary movements, assist with flat land crossings and safety. Tethers are sometimes removed as the student progresses but only if the skier can turn, control their equipment and speed, and stop safely on their own. Equipment adjustments, physical assists and terrain selection all enhance flow of movement and maintenance of balance in motion.

Common Disabilities of Four-Track Skiers:

Arthrogryposis, Huntington's Disease, Amputations, Muscular dystrophy (MD), Brain Injury and other progressive brain diseases, Cancer, Plegias: flaccid, ataxic, quadriplegia, Cerebral Vascular Accident (CVA=Stroke), Poliomyelitis/Post Polio, Congenital anomalies of the leg and/or foot, Spinal cord injuries (SCI), Friedreich's Ataxia, Spina Bifida, Guillain-Barre Syndrome, Cerebral Palsy (CP): diplegia, hemiplegia, paraplegia, spastic, athetoid

Adaptive Three and Four Track Progression

Beginner / Novice Zone Objectives

Level 1: Welcome to Skiing / Build the Foundation

Student assessment

Medical history

Equipment selection, introduction and set up; canting, heel lift or toe lift.

Static balance exercises indoors

Level 2: Introduction to Flats

Getting in and out of equipment

Pushing, turning, pivoting on flats

Falling and getting up

Straight runs (with a run out)

Outrigger and body position while moving

Slowing and stopping

Level 3: Introduction to Turning

Chair lift loading and unloading procedures

Introduction to Chairlift and Green Terrain

Equipment and safety concerns for riding lift

Student / Instructor assisted chair lift loading and unloading

Outrigger position and timing during loading and unloading

Turning left and right

Proper outrigger use and skill blending for turn shape, size and speed control

Introduction of skills and fundamental movement patterns

Turning to a stop

Skidding/slipping

Fan progression

Linked turns

Master beginner area

Level 4: Explore the beginner mountain experience

Develop greater skill blending and confidence

Vary turn shape and size for terrain and condition

Outrigger position and timing to introduce crossover and direction of travel for a new turn

Independent lift loading and unloading

Hockey stops

Intermediate Zone Objectives

Level 5: Develop and Enhance Intermediate Movement Options

Develop proper independent outrigger movements (outrigger lead change)

Refine proper body movements and position: fore, aft, laterally, flexion, extension

Develop long to medium and medium to long radius turns

Practice edge and rotary control exercises

Explore a variety of snow conditions

Level 6: Anchor Intermediate Skills and Movements

Medium to short radius turns

Ski varying snow conditions

Proper body movements

Upper / lower body separation

Hip and/ or lower body angulations - squaring up to the ski

Develop single outrigger exercises (ex: only use uphill / downhill outrigger, flying outrigger).

Edge control drills

Level 7: Explore Movements and Skills for Upper Level Skiing

Bump skiing on easy blue terrain

Short radius turns

Explore carving sensation

Explore extension and retraction at turn initiation

Increase and decrease speed thru turns

Total Independence

The Advanced Zone Objectives

Level 8: Refine Advanced Movement Patterns

Carving medium and long radius turns

Ski short turns on the steeps

Boot top powder

Breaking, gliding control movements on steep terrain

Level 9: Develop Movement Options for Steep Terrain

Refine movements in short radius turns

Develop optional movement patterns for varying speed control and conditions

Develop optional movements and skiing tactics for advanced bump skiing

Bumps, racing, off-piste, terrain parks and pipe