

1 - The Canadian Approach to Ski Racing

Introduction

The Entry Level coach must be able to:

- introduce entry level skiers to fundamental skiing skills
 - **initiation** to basic form and movement
- help participants learn to model general form and movement
 - **acquisition** of gross motor movement patterning
- help young skiers learn to adapt and modify gross motor movements and begin to integrate fine motor patterns
 - **consolidation** of form and movement patterning

Young skiers learn fundamental skiing skills by:

- active engagement in activities in
- supervised and unsupervised environments

Therefore, the Entry Level coach must:

- demonstrate good skiing skills
 - **show** what to do and **how** to do it
- allow time for young skiers to perform the tasks
 - time to **do** it

Understanding of free skiing and ski race training at the fundamental level is important.

Skill Development Tools and Activities

The Canadian approach offers tools and activities that the coach can use to help participants:

- develop a solid base of technical abilities
 - **technical tools**
- develop a good perception of methods that can be used to deal with skiing variables
 - **tactical approach**
- understand basic physical principles as a foundation for ski technique
 - **skiing biomechanics**

Technical Tools

Children learn from what they “see” and “do” rather from what is “said”. The challenge to the Entry Level coach is to:

- provide good demonstrations of skiing skills for visual impact
 - **initiation stage**
- promote volume skiing to allow the participants time to model form and movement
 - **acquisition stage**

To help participants develop skiing skills, coaches should use the technical tools. They are:

- basic skiing skills
 - balance
 - stance
 - timing
 - coordination
 - steering
 - edging
 - pressuring (loading and unloading the skis)

- planes of balance
 - forward/backward balance
 - vertical balance
 - lateral balance
 - rotational balance

Basic Skiing Skills

Stance – adopt a position on skis that promotes stability yet allows **mobility and/or agility**.

Entry level participants should be encouraged to adapt and modify their stance to suit:

- changing terrain
- varying snow conditions
- individual physical make-up

Balance – to attempt to maintain equilibrium in all planes

To help develop balance, entry level skiers should be encouraged to test:

- agility
- recovery skills

Timing – selection of the right moment to begin an action

Basic timing skills at the entry level should focus on:

- Pole plant

Coordination – to combine the movement of different body parts into a common action

Coordination of different body segments helps young skiers with:

- basic arm movements for pole plant
- fundamental separation skills
- directing the skis with steering effort from the feet and legs

Edging – the ability to use the skis as a cutting tool

Basic edging skills require the ability to:

- roll or bank the skis on to the sidewall

- increase or decrease edge angle as speed, conditions and turn type dictate

Steering – to guide the skis in a desired direction

Basic steering skills require the ability to:

- direct and redirect the feet and legs, simultaneously or independently

Pressuring (loading and unloading the skis) – the result of increasing edge angle and/or steering effort to bring the skis to full flex (**loading**) then, decreasing the edge angle and/or steering effort to release the skis (**unloading or release**)

Determining factors for pressuring the ski at the entry level include:

- edging and steering skills
- inclination and angulation skills
- growth and development factors

Planes of Balance

The planes of balance are tools designed to help coaches understand:

- how entry level skiers maintain stability
- why some young skiers have better stability skills than others
- how growth and development factors can affect a young skier's progress
- the relationship between skill development in skiing and involvement in other sports

Forward/Backward Balance – to keep all the body joints that are available, in order of largest to smallest, in line on the vertical axis over the platform (**alignment**).

Factors affecting forward/backward balance in entry level skiers are:

- equipment- boot stiffness, ramp angle, forward lean
- core strength

Vertical Balance – to adjust up and down movements on the vertical axis, while maintaining alignment.

Factors affecting vertical balance in young skiers are:

- range of movement through the body joints
- equipment – boot stiffness, forward lean
- ability to maintain alignment

Lateral Balance – to balance in a side to side manner while in angular motion.

Factor affecting lateral balance in entry level skiers are:

- inclination/separation skills
- edging skills
- core strength

Rotational Balance – to control and adjust rotary movements of body segments in relation to the vertical axis.

Factors affecting rotational balance at the entry level are:

- core strength
- arm strength
- upper body discipline
- ability to steer the feet and legs

Tactical Skiing

Entry level skiers are generally too young to understand abstract concepts of tactics and strategies.

Coaches use the concept of tactics to help explain:

- when and where to do it (**timing**)

The tactical approach refers to:

- line
 - where the skis are cutting in relation to the fall line
- turn shape
 - whether the skis are carving or sliding in the turn
- type of turn
 - how speed is managed on certain terrain
 - fall line to full turn type
- speed management
 - controlling, maintaining or generating ski speed

Phases of the Turn

Coaches can help young skiers understand the concept of tactics by using the **phases of the turn** as a tool for improving skill performance. The tactical approach to the three phases of the turn will help the young skiers understand:

- when and where to start the turn
- when and where to finish the turn
- what to do in the middle of the turn
- how to do it

It will also help entry level skiers become more familiar with the following terms:

- Line
- Turn shape
- Edging
- Loading
- Unloading or release
- Ski speed
- Gliding

- Linking
- Alignment

Coaches should not become too rigid with their interpretation of the phases of the turn and the tactical approach. This is because:

- growth and development factors will cause limitations to most young skiers' progress
- modifications to technique and tactics should be expected at the fundamental level
- all movements in the three phases of the turn are blended to promote fluidity in skiing

The Three Phases

- Phase 1 - Unloading or release
- Phase 2 - Edging
- Phase 3 – Loading

Phase 1 – Unloading or Release

In phase 1, entry level skiers should be encouraged to:

- release the edges and/or unload the skis
- move the upper body over or ahead of the feet (alignment)
- set the edges for the new turn (inclination)

Phase 2 – Edging

In phase 2, entry level skiers should be encouraged to:

- increase edging with the feet and legs (steering)
- continue moving the upper body forward and inside the arc (inclination)
- maintain alignment

Phase 3 – Loading

In phase 3, entry level skiers should be encouraged to:

- increase edging with inclination
- maintain the weight over the outside ski
- try to use separation and angulation skills to manage loading
- maintain alignment

Skiing Biomechanics

Alpine skiing and racing force skiers to manage heavy loads on the muscles and the skeletal system. Skiers must be able to:

- maintain alignment to manage external forces
- manage forces that act to pull a skier outwardly (centrifugal force)
- manage forces that act to pull a skiers' feet inward (centripetal force)
- work with gravity
- manage loading

- manage loading created by the skier's interaction with equipment and the skiing environment

Coaches must understand basic biomechanical principles in order to understand:

- why young skiers ski in a particular way
- what factors influence young skiers the most

The important biomechanics principles in skiing are:

- stability with mobility
- force
- velocity
- impulse
- direction
- angular motion
- angular momentum

Stability with Mobility - Entry level skier should be encouraged to test their stability skills by:

- skiing at a variety of speeds
- skiing with a variety of turn shapes
- skiing on varied terrain and snow conditions

Force - The ability of young skiers to produce force depends on:

- alignment of all the body joints
- equipment
- muscular effort that they can produce
- muscle groups that are recruited

Velocity - Factors that affect an entry level skier's ability to produce and carry speed are:

- skiers mass
- ski tuning
- type of skis
- timing of applied force
- amount of force
- direction of the applied force

Impulse - Impulse is related to the young skier's ability to:

- apply a force over the shortest time
- apply a force at the right time
- apply a force to a well edged ski

Direction - Factors that will affect a young skier's direction are:

- timing of the applied force
- line
- speed
- ability to push from a stable platform
- where the force is applied

Angular Motion - An entry level skier's ability to produce angular motion will depend on:

- angulation skills
- keeping the upper body over the feet (alignment)
- controlling rotary movements of the large body parts

Angular Momentum - Angular momentum is rotational speed started by an action (angular motion). As a priority, entry level skiers must be taught:

- correct pole plant at every turn
- maintenance of ski contact with the snow
- control of upper body rotation
- arm discipline