



Snowsport England

UKCP Coach Level 1

More About the Course

Alpine
Freeski
Snowboard

SNOWSPORT ENGLAND

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1. Course Programme

The UKCP Coach Level 1 course is designed for those who seek to work as an assistant coach with children (specifically 5 -12 years old) and entry standard competitors within the Olympic events of alpine skiing, snowboarding and freeski (slopestyle and half-pipe).

The course aim is to provide you with the coaching methods required to coach and inspire young athletes.

The course programme includes two theory modules in the classroom and a practical application session on the slope. Generally, courses start at 9am and finish at 6pm. This will vary according to resort/facility so please check your confirmation email for your meeting time and location. You will be provided with your UKCP workbook at the start of the course. This is a great tool for future reference, take notes throughout the course and be sure to note down any new ideas for later use.

As on all UKCP courses there is a full programme of training. It is your responsibility to adequately prepare yourself mentally and physically for this programme.

Trainers are selected by Snowsport England for their expertise in snowsports, teaching and communication. Every trainer is highly experienced and is equipped to offer the best possible training and support. Our aim is to assist you to gain the maximum from the training. Your trainer will act as your guide throughout the course. Elements of the course will be challenging and sometimes difficult. Nevertheless, please remember that you have a dedicated team supporting you and your success is our success. Don't be afraid to ask lots of questions.

Course Programme

Day One	How long? Guideline only	What you'll need
Introductions and explanation of materials Programme outline Part one of Planning a Training Session	1 hour	Your workbook will be provided but bring a pen.
On slope activities Planning a Training Session	2 hours	Your snowsports gear.
Lunch	1 hour	Please provide your own lunch
Basic technical understanding Safety issues (SB and FS ¹) Personal video performance analysis	1 hour 30 minutes	Your snowsports gear
To continue at 3pm		
Planning a Training Session (classroom) Best practice film clips Video analysis Review and plan for Day 2.	2 hours 30 minutes	Workbook and pen.

Day Two	How long? Guideline only	What you'll need
Warm Up	2 hours	Snowsports gear

¹ SB=Snowboard FS=Freeski

Practical session on applying the methods learnt on Day 1 to develop performance SB and FS - Delivering short coaching sessions.		
Skill Analysis and Skill Development	1 hour	Snowsports gear
Lunch	1 hour	Please provide your own lunch
Introduction of the skill acquisition process. SB and FS deliver short coaching sessions in small groups. Video filming of session.	1 hour 30 minutes	Snowsports gear
To continue at 3pm		
Planning a Training Session continued (classroom) Video analysis Review and plan for Day 3	2 hours	Workbook and pen.

Day Three	How long? Guideline only	What you'll need
Making Difficult Decisions (classroom)	2 hours 30 minutes	Workbook and pen
Coaching Sessions SB and FS will be assessed during these sessions	1 hour 30 minutes Your trainer will adjust the timings so that it is appropriate for the group.	Snowsports gear.
Lunch	1 hour	Please provide your own lunch
Coaching Sessions SB and FS will be assessed during these sessions	2 hours 30 minutes	Snowsports gear
Self-reflection and action planning	1 hour	Workbook and pen
Course results and action planning with trainer	30 minutes	

2. Recommended Equipment

All students must provide their own equipment for the coaching course. It may be possible to hire at the venue or in resort, but you must make sure suitable equipment is available for hire before arriving at the venue. It is your responsibility to make sure that you have equipment suitable for the course you are attending.

For UKCP Coach Level 1 Alpine:

We recommend slalom skis, but any ski that will allow you to perform 'high performance' turns will be suitable. You will be assessed on your standard of skiing so please use equipment that allows you to perform at your best. Slalom skis are normally 165cm for men and 155cm for ladies.

You will not ski through gates during this course so protective padding is not required. A helmet is not compulsory, unless specified by the venue.

Clothing and presentation should reflect the role model status of a coach.

For UKCP Coach Level 1 Freeski

We recommend twin tips and freestyle boots and any ski that will allow you to ski switch (backwards) and perform the course assessment standard.

Helmets are compulsory during all activities. Clothing and presentation should reflect the role model status of a coach.

For UKCP Coach Level 1 Snowboard

We recommend a freestyle board and soft boots and any board that will allow you to perform to the course assessment standard.

Helmets are compulsory during all activities. Clothing and presentation should reflect the role model status of a coach.

3. Student Appraisal

UKCP Alpine Level 1 Trainee Status:

Students are assessed on this course on their skiing and coaching ability. Generally, students are expected to be able to carve clean tracks on a blue piste performing larger radius turns (Giant Slalom turn shapes) while showing good movement. In slalom turns, students are expected to be able to show rhythmical turn shapes with a pole plant and good movement.

More detail is given on the course as the appraisal is measured against the skill acquisition model presented on the second day. Your trainer will ensure that you have a good understanding of your ability in relation to the criteria.

Your coaching session is assessed on your ability to plan, implement and review your session. You, the trainer and the group will debrief your session together and you will be required to fill out the workbook evaluating your session and deciding which points to develop. You will be given guidance during this session.

In order to achieve **Licensed** Status, you will have to undertake another coaching assessment on completion of your logbook tasks. This follows the same methodology used on the course and you will have to reflect and action-plan your coaching. Licensed Status is not required for ISIA instructor, nor is it required for accessing the UKCP Coach Level 2 course. You will have two years to complete the Licensed stage for the qualification otherwise the course will have to be retaken.

UKCP Freeski Level 1 Licensed Status

Students are assessed on their ability to coach and perform the following tricks:

- carve cleanly linked turns on blue terrain
- ski switch confidently (backwards) linking turns
- side a box 90°
- jump straight air on a box/jump of 4-7m
- complete a grab on a straight air jump
- complete 180° on small jump

The assessment and standard of execution are measured against the skill acquisition model presented on day two of the course. Your trainer will ensure that you have a good understanding of your ability in relation to the criteria.

Your coaching sessions will be assessed on day three, so make sure that you use the coaching episodes on day two to gain experience and a clear understanding of good coaching. You are not expected to be excellent coaches immediately, but be able to demonstrate that you can apply the principles that you will be shown on the first two days and be able to reflect on your performance (with the help of the trainer).

UKCP Snowboard Level 1 Licensed Status

Students are assessed on their ability to coach and perform the following tricks:

- carve cleanly linked turns on blue terrain
- ride switch confidently (backwards) linking turns
- perform ollies showing good height
- board-slide a box (50/50)
- jump straight air on a box/jump of 4-7m
- perform accurate 180° jumps on the slope

The assessment and standard of execution are measured against the skill acquisition model presented on day two of the course. Your trainer will ensure that you have a good understanding of your ability in relation to the criteria.

Your coaching sessions will be assessed on day three, so make sure that you use the coaching episodes on day two to gain experience and a clear understanding of good coaching. You are not expected to be excellent coaches immediately, but be able to demonstrate that you can apply the principles that you will be shown on the first two days and be able to reflect on your performance (with the help of the trainer).

4. Customer Care & Professional Conduct

Snowsport England's Goal:

To have a high quality athlete-centred coaching system by 2020 that promotes excellence for snowsport participants at all levels.

How can you help?

The primary method is by being a professional role model both during your training and in the work place.

What outcomes are expected of you during your course?

Customer care and professionalism as such is not an element of the course that is assessed. However it is a vitally important part of being a good ski coach. Failure to grasp the importance of customer care and professional conduct, will definitely limit your career. Ensure that you participate fully in discussion sessions that your Trainer facilitates.

What areas should you be aware of at Level 1?

Assistant Coach Level

You will be working with younger participants of the sport. It's your role to inspire the next champions and make sure that their experience is fun and memorable.

To provide great customer service in this situation the dominant principles are:

- Punctuality/Efficiency/Appearance
- Gain and maintain great relationships with the individuals
- Make sure your athletes enjoy the experience
- Understand and demonstrate the customer care and leadership issues when dealing with children and groups

5. Safety

As a UKCP Coach you are required to be able to lead groups and encourage them to be safe slope users.

As such you must know and abide by the FIS Code of Conduct. At all times during the training course the safety of you, your team and your Trainer are paramount. Safety is no accident. **Read the code below so you are aware of standards of behaviour that you will be expected to pass on to others.**

Skiers and Snowboarders Code

FIS Code of Conduct

The FIS (International Ski Federation) has established 10 rules for the conduct of skiers and snowboarders. They are:

Basic Rule

1. Do not endanger or prejudice others.

Skiing/Riding Rules

2. Ski/Ride in control. Adapt your manner and speed to your ability and to the general conditions on the mountain.
3. The skier/rider in front has priority. Leave enough space.
4. Leave plenty of space when overtaking a slower skier/rider.
5. Look up and down the mountain each time before starting.

Stopping/Climbing

6. Only stop at the edge of the piste or where you can easily be seen.
7. When climbing up or down, always keep to the side of the piste.

Signs

8. Obey all signs and marks - they are for your safety.

Action in Case of Accidents

9. Provide help and alert the rescue services.
10. All those persons involved in an accident, including witnesses, must exchange names and addresses.

All the above rules are binding in law and apply to both skiers and snowboarders.

6. Qualification Finalisation

Snowboard and Freeski Licensed Status

Following successful completion of the 3 day course, to obtain your UKCP Coach qualification, you need to provide Snowsport England with:

- A valid First Aid Certificate
- Safeguarding Children Module (available online on the BASI website).
- Criminal Record Disclosure

Alpine Coach Level 1 Trainee and Licensed Status

Once you have successfully completed the 3 day course, you will need to provide Snowsport England with a Criminal Record Disclosure and have completed the Safeguarding Children Module. Once these are evidenced you will achieve Trainee Status as a UKCP Alpine Coach Level 1.

In order to achieve Licensed Status for UKCP Alpine Coach Level 1 you will need to find a mentor coach and a club in order to complete your logbook. Complete a suitable 3 hour HSE approved First Aid Course. You have to complete your logbook prior to taking your coaching assessment.

Your mentor should hold at least a UKCP Level 2 Licensed status or the equivalent.

You can find a list of clubs from www.snowsportengland.org.uk click on the slope locator and select clubs. Alternatively, Snowsport Scotland or Wales will be able to direct you to a local club if you live there.

You have two years in which to complete your logbook and put yourself forward for assessment.

The logbook consists of 10 tasks which evolve from observing a coach in action, to setting a course, taking parts of the warm-up and eventually taking a whole session. All tasks include a reflection process and an action plan. This is a vital component of developing your performance as a coach and you will improve at this over time.

Assessment Procedure for UKCP Alpine Level 1 Licensed Status

After you have completed your log book, you will need to send it to your awarding governing body (BASI, SSE, SSW or SSS) for evaluation.

Your coaching assessment consists of a 30 minute session followed by completion of self-reflection and an action plan. Please allow 2 hours for your assessment. Your assessor will debrief and agree an action plan with you at the end of your assessment.

Your coaching assessment can be completed in two ways.

Option 1

You can book on assessment days organised by your awarding governing body (AGB). Please check their website for details of any dates and locations. You will have to send your logbook to your AGB four weeks in advance of the assessment. If you cannot find an appropriate date, you can register your interest with your AGB and they will inform you of any upcoming dates. You can complete your assessment with any AGB. BASI will not be running any assessment days.

Option 2

Your club can arrange for an assessor to come to a training session and assess you at the club. The club is responsible for providing at least six athletes for the duration of the assessment.

A list of assessors and the regions that they cover is available from your AGB. An assessment costs a maximum of £120 and is payable directly to the assessor, along with their travel expenses (see below for details) who will then notify the AGB of the result. You should send your logbook at least two weeks in advance of assessment to the assessor.

From this fee, the assessor is responsible for a £15 charge (taken from the fee) per person to be made to the AGB to cover the cost of administration.

Expenses to be covered for individual assessors:

Ideally where more than one Trainee is to be assessed, assessor expenses should be done through the supporting club. Assessor's expenses should be agreed beforehand and reimbursed on site at the following rate:

- £0.45 per mile travel or public transport costs on evidence of receipt.
- For journeys over two hours in one direction, £15 towards food and drink are to be covered.

More information about the alpine assessment

Your assessment will last for 30 minutes. The assessment will start from when you agree with the assessor. You should have a group of athletes (preferably six) who fit within the demographics of the UKCP Alpine Level 1 Coach remit. This means 5-12 years old and grassroot level.

Your assessor will observe you and take notes during your session but will not interfere unless they believe there are safety concerns.

The session does not have to include all five parts of a training session (introduction, warm-up, main activity, cool down, conclusion); it has to be appropriate for the athletes' needs. For example, if you are taking the athletes at the start of the session, you should ensure that they are warmed up appropriately for the activities – following the format given on the training course. Likewise, if you are taking the athletes from a point where they have already been skiing, are warmed up or in the middle of a session, you should carry on in an appropriate manner allowing for the needs of the athletes and the time that you have available.

Your assessment time should not include a cool-down period where you are not required to be involved. Allow for the athletes to cool down after you have finished your assessment.

Once you have completed your on slope assessment you will be required to fill in task 10 of your logbook. This is a formal assessment and is based on your self-reflection and your action plan.

You are required to be able to coach to Acquisition in all of the criteria below:

Coaching Criteria	Group Rapport and Management	<ul style="list-style-type: none"> Candidate has shown an understanding of safety, MCA, Communication methods and creative coaching appropriate for the ability level 	Fail	I	A	C	R
	Skill Acquisition	<ul style="list-style-type: none"> Candidate is able to use the skill acquisition model in their coaching 	Fail	I	A	C	R
	Skill analysis and development	<ul style="list-style-type: none"> Candidate is able to follow the steps of skill analysis and develop athletes using TTPPEE. 	Fail	I	A	C	R
	Technical understanding	<ul style="list-style-type: none"> Candidate has shown competence and understanding of progressions and chooses appropriate tasks to develop athletes 	Fail	I	A	C	R
	Reviewing skills	<ul style="list-style-type: none"> Candidate has shown the ability to accurately review and action plan their coaching session. 	Fail	I	A	C	R

You will have one hour to complete your coaching reflection and action plan from the end of the practical assessment.

Your assessor will review your session, your reflection and your action plan with you; give you advice on what course would be appropriate to do next and let you know your final result.

The assessor will contact the AGB to let them know the results within 24 hours.

If you are successful and have completed your first aid, Child Protection Module/Safeguarding Children Module your AGB will award you with Licensed status.

If your coaching requires further development, your assessor will give you an action plan which you must complete before presenting yourself for assessment again.

And Finally...

Use the trainer and the opportunity to learn, improve and challenge yourself. A coach never stops learning.

We hope you will be inspired to work as a Snowsport Coach and inspire the next generation of champions.

Enjoy your course!



New School Coach Award Level 1



New School Coach Award

Level 1

Scope

This course is designed to provide the necessary training to enable candidates to coach Half/Quarter Pipe, Big Air and rails. It does not qualify the candidate to coach jumps where the hips come above the head.

The qualification of New School Coach must be revalidated on a three yearly basis by attendance at an Freestyle Coach Refresher Course.

This qualification may only be used for coaching skiers on artificial surfaces.

Requirements to be Qualified as a New School Coach

- Candidates must be registered with a recognised skiing National Governing Body
- Candidates must be either: ASSI, BASI Ski Instructor or have attended a 2 day Skilful Skiing Course
- Candidates must be over the age of 18 years¹
- Candidates must be able to ski to a minimum standard of parallel turns

Assessment

Candidates will be assessed on their ability to provide appropriate, constructive feed back on performance, on their ability to run a safe session and to be able to coach a progression.

Course tutors will be required to provide feedback and advice as to future work to be undertaken as appropriate to participants with regard to their:-

- Personal skiing
- Coaching techniques
- Future prospects within the Snowsport England Coaching Scheme

¹ In exceptional circumstances candidates in their 17th year may attend the course but will not be permitted to register as ASSIs or give instruction until attaining the age of 18, unless additionally qualified. Candidates over the age of 16 years may (at the discretion of the course tutor) apply for accreditation as Club Instructors as detailed in the Club Instructor training course.

Typical Programme

Two-day course

DAY ONE

	09:30 - 10:00	Arrival and Registration
Session 1	10:00 - 10:10	Theory Session <ul style="list-style-type: none"> • Domestic arrangements & course outline
Session 2	10:10 - 10:40	Theory Session <ul style="list-style-type: none"> • Principles of coaching - how to be a coach
Session 3	10:40 - 12:30	Practical Session <ul style="list-style-type: none"> • Analysis of Health & Safety issues on ski slopes. • Flatland • Big Air Jumps • Introduction to Quarter/Halfpipe •
	12:30 - 13:30	Lunch
Session 4	13:30 - 14:00	Theory Session <ul style="list-style-type: none"> • Biomechanics • Nutrition
Session 5	14:00 - 16:30	Practical Session <p>Exercises on</p> <ul style="list-style-type: none"> • Jumps and Grabs • Giving feedback • Quarter/Halfpipe

APPENDIX 6

DAY TWO

	09:30 - 10:00	Arrival and Registration
Session 1	10:00 - 10:30	Theory Session <ul style="list-style-type: none"> • Goalsetting
Session 2	10:30 – 12:30	Practical Session <ul style="list-style-type: none"> • Half/Quarter Pipe • Big Air consolidation
	12:30 - 13:30	Lunch
Session 3	13:30 - 15:30	Practical Session <ul style="list-style-type: none"> • Introduction to rails • Rail progression
Session 4	15:30 – 16:00	Theory Session <ul style="list-style-type: none"> • HNGB/Snowsport GB and FIS awareness • Coach progression • Skier progression
Session 5	16:00 – 16:30	Theory Session <ul style="list-style-type: none"> • Teaching styles
Session 6	16:30 – 17:00	Debrief and Departure



New School Coach Training Course

Resource Pack

New School Coach

Scope

This course is designed to provide the necessary training to enable experienced Freestyle Skiers to coach New School disciplines (comprising: big air, half/ quarter pipe and rails) on dry slopes. This course does not currently accredit coaches to teach jumps where the hips come higher than the head.

In order to be accredited as an New School Coach they must also hold a current appropriate First Aid qualification obtained by attendance at a course of not less than 12 hours duration and appropriate to the outdoor environment, provided by a HSE approved trainer and certificated by a HSE approved provider. They must have also either passed a minimum of ASSI, BASI 3 or equivalent or the Snowsport England Skilful Skiing Training course.

The qualification of New School Coach must be revalidated on a three yearly basis by attendance at a Freestyle Coaches Revalidation Course.

Contents

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2. Safety whilst coaching
3. The 3 'A's of Customer Care
4. Feedback
5. Flatland
6. Big Air
7. Half and Quarter Pipe
8. Rails
9. Miscellaneous
 - Fit for Jumping
 - Trampolining
 - Water Ramps
 - Use of Video
10. What Makes an Elite Coach?
11. The Challenge of Continuous Improvement
12. Goalsetting
13. Nutrition for the Active Person
14. Core Training
15. Stretching

1. Role of the Governing Body and its Policy on Teaching Methods

One role of the Snowsport England, as the Governing Body for the sport, is to enable its personnel (e.g. performers, Coaches and Tutors) to develop skiing skill that is technically sound, effective, efficient and adaptable.

As the National Governing Body (NGB), Snowsport England's role is to promote and monitor

"what" should be learned by the pupils rather more than

"how" it should be taught.

This is because, as an NGB, Snowsport England is a forum of Members. Many of these are businesses, often in competition with each other. Snowsport England recognises the right of clubs and commercial ski centres to develop "in house" training for their "staff" and to construct teaching schemes and programs to meet their own needs.

There is therefore no strict "Snowsport England Teaching Method", although this document does contain recommended progressions.

2. Safety Whilst Coaching

Health & Safety is one of the most important factors that a Coach needs to be aware of. The following are guidelines and rules for a safe session.

Risk Assessment

The slope at which you are operating should have carried out a risk assessment of the activities you will perform during your sessions. It is important to check that they are happy for you to cover the topics in any particular coaching plan and that they have suitable insurance cover available.

Physical Preparation

Skiing is a fun and active sport, however as with all sports, skiing can put additional stresses and strains on the body. Before starting, the coach must ensure the risk of injury to the skier is minimised.

Initially the coach must ensure they are aware of:

- Any injuries the skier may have
- Any illness the skier may be suffering from such as asthma, diabetes, epilepsy, heart conditions etc.

These may be perceived as personal questions however they must be asked. If not asked they can put the skier at risk if the coach cannot react to any given situation and may also leave the coach open to legal action if such an incident occurs.

When asking ensure it is in a polite and considerate way, always offer the option to the skier that they can tell the coach in private but stress the importance of the coach knowing such information.

A good way to do this is to ask "Does any one have any injuries or ailments that I should look out for? If you have please let me know"

If in your opinion the skier is at too great a risk because of any injuries or illness then it is the coaches' responsibility to ensure the skier is aware of any risks they are running.

Warm Up.

It is necessary to warm the body up before exercising. A warm up gets the muscles ready for the dynamic movements we will be asking of the performers. Blood must get to major muscle groups and joints pumped with lubricating and cushioning fluid. Firstly gentle exercise for at least 5mins, this is used to open up the muscles and ready them to be stretched. This can be achieved by gentle jogging or sliding (on skis). This should be followed by some stretching to prime the muscles for explosive work.

Mobilising

Mobilisation can take place on or off skis.

It is recommended that five minutes be spent warming up and mobilising. Make sure the body is fully warmed up by for example jogging in a circle

Mobilise the arms, legs lower body, back and neck using appropriate exercises (as demonstrated by the trainer).

Concentrate on mobilising the lower back, hips and shoulders. These are most prone to injury. You should bring some stretching into the activity but don't spend too long, stretching is of most benefit as a development activity, i.e. after you have carried out the exercise. Prior to the activity it is used to align muscle fibres and increase movement to your normal range.

Personal Protective Equipment (PPE)

As a minimum the athlete should wear a helmet whilst training New School tricks. It is highly recommended that riders wear spine protection whilst training plastic rails and is a mandatory part of this qualification for metal rails. Additionally for rails, although not mandatory, we recommend the use of padded shorts to prevent bruising.

Other forms of PPE are at the athlete's discretion.

Although not essential, it is useful to use twin-tip skis - important for when you land or ski backwards (also known as switch). These skis are also broader underfoot to aid stability, and are less stiff, which aids landing.

Slope Equipment

It is the coach's responsibility to assess the condition of the slope before starting the session. Check for any debris on the slopes, matting that is not fixed firmly, any holes under the matting or any other situation that may cause problems. Consideration should also be made for how the slope is running; slow, fast, ice etc. This must be allowed for when positioning the group on the hill. If any problems are encountered then the coach must notify ski patrol to ensure any necessary action is carried out.

Check any equipment that you are using: that the entry and run out are safe – make sure that other slope users cannot easily interfere with the entry on and exit off.

Ramps

Ramps are an integral part of New School skiing on dry slopes. Ramps suitable for snowboarding can often be dangerous for skiers. Ensure the size of ramp is suitable for the speed and gradient. Avoid ramps with too severe kickers – they should not push the skier backwards on take off. The gradient of the landing should be such that the skier will continue onwards without undue pressure on the knees and back - flat landings must be avoided at all times.

The use of small ramps reduces the risk of injury from flat landings and is a useful way of introducing athletes to jumping. Considerably more effort must be used on small ramps to gain height - this helps to positively develop the takeoff in a safe way. Many of the elementary airs can be simply and safely practiced this way.

Ramps are also used to assist in getting onto fixtures such as rails or boxes. The same rules apply in that the ramp should be secured properly to the slope. When used like this for simple rails etc it is vital that the height of the ramp and fixture line up. Also when beginning to use fixtures ensure that the ramp is flush up to the fixture, when the performer's confidence has grown a gap can be left to increase the technicality and eventually develop spins onto the rails.

Rails

Should be suitable to the level you are coaching. Ensure they are securely positioned and in good condition. Make sure there are no nicks or protruding edges that may catch the skis or otherwise unbalance the rider.

3. The Three 'A's of Customer Care

The following guidelines are appropriate to ensuring session participants get the maximum return from your coaching

Attitude

- Welcoming Show that you are pleased to see them
- Caring Make them feel that they matter, that they are individuals
- Helpful Show willingness to help
- Courteous Always be polite, whatever happens!
- Attentive The customer is important
- Interested Listen carefully and show your interest
- Positive Show willingness to find a solution
- Sympathetic Acknowledge the customer's concerns
- Enthusiastic Enjoy providing the service

Appearance

- Dress Appropriate to reflect your organisation's/ discipline's image
- Voice The tone of your voice communicates your feelings much more than your words
- Body language Gestures, posture, ways of waiting and sitting all provide communication
- Smile People respond, it's contagious, people become more receptive
- Eye contact This acknowledges people, they feel welcomed, it shows you are listening

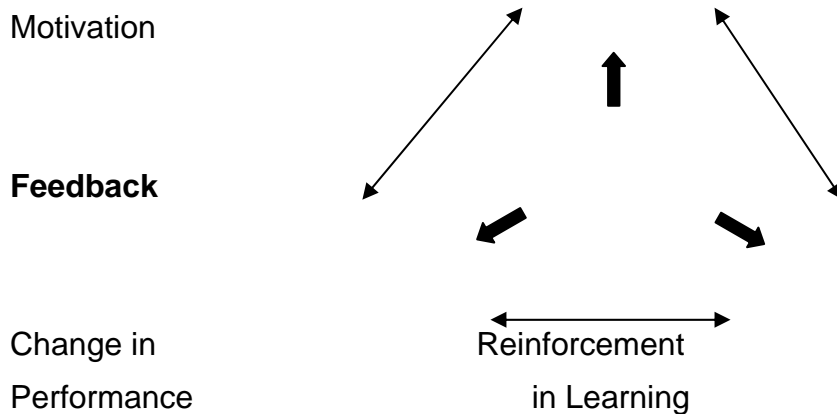
Approach

- Fair Treat everyone equally
- Confident This develops trust
- Knowledgeable This gives expectation of competence and efficiency
- Reassuring Empathise with the customer and assure them of your commitment
- Respectful Treat the skier with dignity

4. Feedback

As a learner practices a skill, images of the movements required are built up in the long term memory. Gradually less effective aspects of the movement are eliminated and successful actions are reinforced. With repetitions this becomes a 'stored plan of action'.

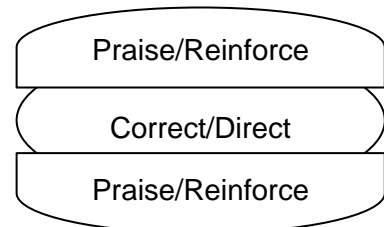
Feedback is extremely important to reinforce learning, change performance and motivate the athlete.



How to Give Feedback

- 1) Use Positive Feedback – Be constructive and encouraging.
- 2) People learn from mistakes – Do not ignore them!

Instead of giving negative feedback in response to errors, a good teacher will balance and surround information about errors with the correct information and instructions.



Big Mac Attack:-

- 3) Different forms of feedback are appropriate to different stages of learning. In early stages visual and verbal feedback are important. As the skier becomes more skilled, kinaesthetic feedback is more beneficial.
- 4) Individuals differ in the forms of feedback they respond to best. Assess every individual's needs.
- 5) If possible, feedback should be given immediately after the performance. At this time the performance is still fresh in the performer's mind.

Types of Feedback

1. Internal or External Feedback

Internal: From oneself, e.g. Kinaesthetic, Visual or Auditory

External: From another source, e.g. Coach, Group, Video, Picture, Audience, etc

There is always some kind of feedback available; skiers should be made aware of all areas.

2. Positive or Negative Feedback

+ve → Reinforcement and encouragement

-ve → Punishment to eliminate undesirable behaviours

Negative feedback only tells what not to do and tends to de-motivate the performer. On the other hand, **positive feedback promotes learning** and motivates the performer.

3. Teacher-Provided Feedback

Informative - informs the performer, e.g. "You managed 8 turns"

Corrective - information to help improvement, e.g. "Bring your hips forwards"

Evaluative - places a value statement on performance, e.g. good, bad, etc

If teacher-provided feedback is used all the time, the skier's development of self awareness is restricted.

4. Peer Feedback

- What is said and done } Always encourage positive encouraging
- How it is said and done } interactions between peers:

- Team Building

5. Internal Feedback

Kinaesthetic – e.g. "How did that feel?"

Visual – e.g. "What do you see?"

Auditory – e.g. "What noise could you hear?"

By encouraging internal feedback, skiers take more responsibility for their own learning and are able to continue evaluating their own performance and progressing even in the absence of the coach.

BASI recommend the EDICT model of teaching be used. That is:

Explain - what is it you are doing?

Demonstration - show them what you are aiming for, you could use a skilful class member.

Imitation - let the skier try it

Correction - give them positive feedback on how they can improve

Trials - let them practice and experiment

If necessary repeat the process.

5. Flatland

Flatland is the name given to techniques and tricks used for "playing" in between the jumps and whilst skiing around the mountain. Any terrain features can be used and should be. This is ideal for introducing skier to basic New School tricks and provides a good foundation for pipe, jumps and rails.

The following gives the name of the trick and then a basic description:

Ollies: jet off the back of the skis lifting the tips into the air first followed by the tail. You then land on the tips followed by the tail. By using the tails in this way extra height can be gained when jumping. This can be used to air onto features or as a modification to the take off on a ramp.

Nollies: the opposite, push forward onto your tips lifting the tails into the air. Then lift the tips off. You then land on the tail followed by the tips.

Riding switch: i.e. going backwards always referred to as switch unless you are in the pipe when it is generally called fakie. To make matters worse it can also be referred to as riding cab. The progression for learning to ski switch is the same as beginning to ski forwards (regular). Time taken to learn the basics switch helps with the common issues faced during the more complex stuff. (Begin by skiing in a snowplough backwards.) A basic error is to lean the body towards the ski tips. If you consider your direction of travel, this is the equivalent of skiing backwards. The skier therefore needs to move their weight to a more central position, lifting the chest and 'sitting' back on the skis. A common problem here and often the effect of not standing in the middle of the ski is to not change the weighted ski effectively. As with skiing regularly the ski must be edged and pressed to turn. Look over the shoulder of the weighted ski whilst turning looking up the slope then around over the newly weighted ski at the change of edge. (Develop into a basic swing and then into parallel turns.) Care should be taken when riding switch on conventional skis on Dendix type surfaces.

Spins on flat: spins generally follow the rule that you measure them by degrees of rotation from your direction of travel i.e. a 180 is a half rotation. To do so initiate a rapid turn looking over the shoulder in the direction of travel in the same way as if you were skiing regularly. This initially should be tried from a snowplough, regular and switch. As the skiers become more proficient this can be developed into parallel. Parallel spins on the flat are initiated through forward and backward movements with the ankle as well as upper body initiated rotation. The skier should change pressure on the ski from the front to the back and from ski to ski. By adjusting where the pressure is put through the length of the ski you control which part of the ski naturally points down the hill. This combined with changes in edge pressure and angle produce the rotations in the flow-line.

Jumped spins: 180 is a jump into the air with a half spin to land switch. Jumps to switch (180) on the flat can have different needs than spinning of a ramp. Two different techniques are used. The first uses the same technique as a 180 off of a jump and allows progression into the jumps, it is simpler to perform, allows for greater control of the speed of rotation but does leave the skier momentarily blind.

1. To initiate flex low and then straighten quickly and powerfully i.e. pop into a T position with the body straight and the arms held out straight to the sides (see jump section), push with your shoulder in the direction of intended

rotation, also look with your head to the point where you started. Keep your chin and eye line up and body straight and aligned. On landing flex to absorb, stay central.

2. Initiate the rotation from the hips keeping the vision up and in the direction of travel - as you rotate the hips you will have to counter rotate with the upper body. This should be tried initially in a traverse taking off on an edge and landing on an edge. Later as the performer becomes more confident the goal can be to land on flatter skis getting closer to the flow line. Jumps beyond 180 should be performed as if they were done as a fast rotation as described in the jumps section.

Groomed salmon: side slip (referred to as grinding or grind) piste basher lips/terrain waves followed by a spin off (180s or above).

360 nose slide: spring up and forward as per a nollie and rotate 360 degrees around it - can include a grab.

360 one foot nose slide: spring up and forward as per a nollie leaving one tip on the floor and rotate 360 degrees around it - can include a grab.

Dark side or unnatural: rotation the opposite direction to the way you normally do it

Ollie to Dark side: Ollie onto tails of the ski and spin 180 degrees to the dark side (or unnatural)

Nollie to Dark side: as above.

6. Big Air

Everybody jumps on skis. Those that say no are in 99.9% of cases lying. We use it to change direction quickly, avoid rocks/ debris etc. Most importantly we often use it just for fun.

"It is therefore easy to modify it so that athletes can perform big airs in perfect shapes"

Unfortunately this is not the case. Jumping (effectively) is complex and involves body, mind and heart.

To perform upright manoeuvres the athlete needs to be stable on take off, provide lift, have a stable central axis and land in control absorbing the forces generated by their jump (these can be considerable depending on the height of the jump).

In the fun park jumps come in all shapes and sizes. They vary in size from the easy to butt clenchingly terrifying. On snow most of these are tabletops - a take off, a flat area and then the down landing slope. There are also spines - a pyramid shaped mound. This jump can be taken in three different ways, either side or straight on. When hitting a spine height is generally higher than a tabletop - the landing is also a lot steeper. Step up jumps have a take off, a large gap and a landing that is higher than the takeoff. On artificial slopes jumps tend to be simple ramps landing back onto the matting.

We can break the jump down into various phases.

a) Transition

The transition is the point from which you are anticipating the jump to the jump. It is important to enter the transition at such a speed that the aerial manoeuvre can be carried out in control, safely with sufficient height and that on landing forces can be absorbed and the skier can continue in control.

Too much speed means loss of control and possible fall on landing. Conversely, too little speed may result in an incomplete manoeuvre or a fall off of the lip of the jump.

The transition should be negotiated with weight central, hands pushed forwards and low, legs flexed (though not excessively) and upper back curved.

b) Take Off

Take off or the "Pop"

Take off starts when the toes are approx. 12" from the end of the ramp and should be completed before the toes have passed over the end of the ramp. Arms are kept in front and lifted upwards to help provide lift - however most important of all is the leg action.

Legs should be flexed; on take off they are stretched rapidly to provide upwards movement. This is done in conjunction with the arms. The jump should be made vertical to gravity and symmetrically to provide a strong central position. Remember height is a better friend than speed and height is generated predominantly from leg action. When the skier pops hard, they are taking control, using merely speed you are merely pushed to the height and landing that the jump has dictated.

c) 'T' Position

This is the basic balanced position adopted in the air. Athletes may not like this position as it doesn't look "cool", however it is an excellent position to develop into other tricks. On popping the body and legs should be held in one vertical line (as if at 'attention'). The arms should be strongly out to either side to create the T position.

From this strong core position various "airs" can be initiated.

d) Landing

On landing the legs impact the ground with a very slight flex (to ensure legs are not locked out). The arms are stretched forwards and down. The position adapted to resist the force of impact is dependant on the height of the jump and importantly the strength of the skier. A very low position on landing can force the skier backwards onto their heels and hence lose control or cause the skier to collapse.

As the skier lands and absorbs, it is essential to keep the weight central and hands pushed forwards. This maintains a balanced stance and allows the skier to remain in control. The closer to this core position, the better able the skier is to continue onwards (the faster the recovery time from the jump).

Grabs

The skier can grab their skis (usually) in a number of positions. This can be added to most jumps. The action of grabbing and pulling can also create more dynamic shapes with the skis.

- Mute: Pull legs up toward body, the opposite hand grabs the ski in front of the binding. To 'Cross out' the mute the legs are then pulled up behind the body bending at the knees and the back is arched backwards to 'tweak' the trick. This helps create a big cross shape behind and to one side. The non-grabbing arm will be brought up straight and backwards to counter the rotation induced by the leg movement. Variation: As above except much smaller cross and tweaked well to one side.
- Safety: Same hand grabs same ski under boot on the outside edge of ski (Boarders call this an Indie grab).
- Pollard or Parallel: Same hand grabs same ski under boot but on the inside edge.
- Critical: Opposite hand grabs inside edge under boot
- Tail: with skis crossed grab outside of the tail of the ski on the same side
- Toxic: with skis crossed grab inside of the tail of the ski on the same side
- Method: as per mute grab but do not cross the skis (keep them parallel)
- Japan: Pull leg up under body, opposite hand grabs inside of ski just behind the boot and other leg should be kicked out straight and away from body. Arm not in use is used to counter rotation induced in leg kick.
- Taipan: with crossed skis right hand grabs left ski behind your back on the inside edge.

Rotations

It is important to initially coach a balanced straight position to ingrain good habits and positional awareness. This can be easily modified to a more "New School" position.

- For a 180, use the same techniques as described for a 180 on the flat. Note that only technique 1 is effective for medium to big jumps. 180's are an excellent jump to learn quickly as they can be done off small terrain features and are easily achievable for the enthusiastic novice New School skier.
- For a 360, whilst popping begin to initiate the T position and rotation (- don't start in a pre-rotated position as this often leads to 'corking') as you begin to stretch. Push with your shoulder in the direction you are wishing to rotate. Keep the eye line up and level, body straight and aligned, and look back toward the point of take off (in a 180 stop here and ski out switch), continue pushing and looking for your landing, maintaining the T position. To speed up either bring the arms in closer to the body after you have begun to spin or initiate the spin with a more explosive rotation of the shoulders, these enable multiple rotations to be attempted. It is important on multiple rotations to bring the arms back out to slow the rotation. Opening and closing the arms (and/or legs) will speed up and slow down rotations.
- 180: half rotation
- 360: full rotation
- 540: one and a half rotations
- 720: two full rotations
- 900: two and half rotations
- 1080: three rotations
- Zero spin: A straight jump switch with no rotation but can involve grabs. Remarkably difficult jump to do well and big although it sounds easy.

All of the above can be done switch or regular (straight) with or without grabs.

Landing Switch

Landing switch produces some problems the main issue being achieving a balanced position on landing. As coming into land the two common problems arise from either looking down the hill which rotates the body before landing, or from looking at the ground before landing which brings the body forward. A major cause of being off balance for the landing can also be taking off from a bad position.

When landing switch do not try and look down the hill as the head movement will continue to rotate you as well as ensuring you land in a twisted position. Land facing back in the direction you came from with your head up to make sure you land in a balanced position. Landing with your head down on a larger jump usually results in the skier bouncing off the tips of their skis. Once landed look over your shoulder to spot the run out or spin straight out to a regular position.

Rotations with Grabs

Before attempting any rotation with grabs, ensure the skier is able to perform both the rotation and grab in question. It is important to pop hard and initiate the rotation as per a standard rotation. There is a tendency for the athlete to concentrate on the grab and rotation and not the pop, generally resulting in a lack of height and failure of the jump. The rotation must be set strongly as the grab may 'block' the rotation. Also as per standard grabs the unused arm may have to be used to balance the grab or

the athlete will move off centre and thus unintentionally cork the manoeuvre. Looking for the rotation often gains greater importance.

Inverted Manoeuvres

These are for information only and should not be coached on dry slopes. **This course does not qualify individuals to coach inverts on artificial slopes.**

Straight Backflip: back somersault performed with a straight body and with arms at the side.

Front flip: as above

Full: front or back with 360 degree rotation (e.g. back full)

Misty: front flip with half rotation with a dynamic body shape (i.e. bent legs and curved back). Confusingly also known as a Misty 5(40) - 180 degrees with the half rotation (or twist) plus 360 degrees for the forward flip

Misty 7(20): front flip with a dynamic body shape and full rotation (360 for the forward flip plus 360 for the full rotation = 720)

Rodeo: same as Misty's except replacing front with a back flip.

Lincoln loop: side ways full flip.

Cork (or corking up the spin) - body moves off axis in the spin (360 etc) - feet and hips must remain level or below head or it becomes inverted.

Front side cork (also known as "Bio"): body moves in a circular motion starting toward front of skier.

Backside cork: body moves in a circular motion starting toward back of skier

D spin 7 (20): back flip 360

D spin 9 (00): back flip 540

Etc

Flat Spins: same as rodeo except remain flat in air without feet or hips coming above the head.

Flair: back flip 180

Dinner roll: jump in moguls, which is actually a cork 720

7. Half and Quarter Pipe

A halfpipe is, shaped like a pipe cut in half except the sides are vertical - this section is called the "vert". The flat to curved bit at the base is called the transition. A pipe with a vert of ten feet is also known as a "superpipe". These can be particularly interesting and should only be tried by those experienced in riding the pipe. In the UK there is only one half-pipe, at Sheffield, whereas other artificial slopes have quarter pipes (single hit). A quarter pipe is a discrete section of a half pipe situated in a place where you can hit it straight on instead of at an angle. Quarter pipes are good for learning new tricks on because the skier can focus on one trick not having to worry about the next one (or recovery).

Entry to Halfpipe

The top of the pipe is often open and gently sloping so you can slowly glide into it. You can also enter over the side of the pipe. Standing at the top of the vert move forward and as your skis go over the lip of the pipe push your toes down so that the skis maintain contact with the pipe wall. Skiers surprised at how easy this is - make sure the athletes keep their hands pushed forward, let them drop behind and chances are the skier will fall on their heels.

Riding the Pipe

To ride the pipe for the first couple of runs it's useful to get the feel of the pipe.

The skier shouldn't ride the vert or exit out of the top of the pipe, riding the transition is adequate. For at least the first run ski backwards and forwards across the pipe gently turning on the transition. The more the skier turns back across the pipe the slower they'll go. As confidence increases ski further up the transition and make tighter turns. Eventually the skier will get to a point where their skis begin to touch onto the vert and need to rotate their skis through the air to turn. Aim the skis across the pipe so the skier doesn't carry too much speed; on the first hit the skier doesn't necessarily want to carry a lot of speed.

The skier should be in a low flexed position with the hands held forward and down – don't allow them to stand tall – this would allow them to squash down and kill their speed as they enter the transition. As a general rule all skiers should adopt this 'monkey boy' style in the pipe. Keep the hands forward as you hit the transition – maintain the low position as the skier rides up the vert. The skier will feel themselves slowing down. As the forward momentum is slowing pop (spring) upwards slightly and turn the feet and body in the air so they are pointing back down the half pipe – look for the landing. This small push upwards naturally will move the skier away from the side of the pipe creating room to turn. If necessary they can also plant their pole to help stability however this may limit progression at a later stage. Their feet should quickly make contact again and they will slide out ready for their next hit.

Two important things to remember are not to push against the pipe sideways, this will push the skier towards the centre of the pipe and away from the nice easy sloped landing on the transition curve. The second is to ensure they keep their hands forwards, this will help maintain balance and make the ski out nice and easy. This should be tried on the left and the right side of the halfpipe; the skier will generally find one side easier than the other, this is natural. As they gain in confidence increase the speed by reducing the angle at which they are travelling across the pipe.

As the speed increase the skier will eventually pop out of the top of the pipe over the lip/coping.

Generating Amplitude in the Pipe

To generate amplitude (height) out of the pipe three techniques can be used.

Speed - increased speed translates directly to amplitude unless starting from a tall position and compressing out the transition thus killing that speed and therefore amplitude

Pop - at the top of the vert pushing with the legs will generate height but also will push the athlete away from the side of the pipe

Pushing the transition - entering the transition, the athlete strongly stretches their legs. This will accelerate the skier through and onto the vert. This will push the skier out of the pipe with increased amplitude. The skier must time this appropriately - if the leg stretch is late, then it will push the skier away from the side of the pipe resulting in them dropping into the middle of the pipe and away from the transition.

Tricks in the Pipe

Crossed skis - Probably the easiest thing to do in the pipe is to cross the skis out. As the skier pops, they simply point their toes towards each other so their skis cross in front of the bindings.

Grabs - all of the basic grabs may also be carried out as per big air

Alley-oop: single rotation back toward the top of the pipe. This is effectively a 270 degree rotation. Push through the transition and once in the air look back toward the top of the pipe pushing the shoulder in that direction looking for the landing

Alley-oop 3(60): as above but the rotation is actually through approx 450 degrees

Alley-oops can progressively have more rotations incorporated into them to increase the difficulty.

Regular spins - spinning with the pipe i.e. in the direction of the bottom of the pipe for one rotation (about 450 degrees) is actually called a 5(40). Progressively more rotations can be added for difficulty.

Jumps and tricks can of course also be carried out switch and air to fakie (just to confuse).

Skiers can also grind the lip of the pipe (only when it's soft) and carry out lip tricks.

Jibbing: jump onto lip of pipe, stall and drop back in again - this can be varied with spins on and off, grabs of course and switch. Skiers also trick into the pipe off the lip.

Rails and boxes can be positioned on the lip of the pipe to catch air out of the pipe onto, trick and drop back in.

Often on pipes a tombstone (jump) is positioned at the start of the pipe so that you can catch air into the pipe to gain extra speed and height

8. Rails

"Grinding" is a fun aspect of park or open mountain skiing and covers both rails and thin lips or ridges of snow.

Rails come in a number of guises and shapes. Some you can slide straight onto, others you have to use a ramp to gain enough height to reach.

Before attempting rails the fundamentals should be trained on the flat. The athlete should practice side slipping on flat skis, adopting a wide, low 'gorilla' stance (the arms should be in front and low) and keeping the hips square to the skis whilst looking in the direction of travel. Any rotation of the upper body will cause the skier to spin. Then ski in a straight line and jump into the stance, releasing the edges to sideslip.

Starter rails should be made of plastic and either a fun box (plastic box two feet wide and ten to fifteen feet long), or if not available a Transco (gas or water pipe commonly used) pipe.

Fun Box

Ski straight onto the box, keeping skis pointed directly forward, dropping off the end.

As a progression, stand sideways on the box in the low gorilla stance, flatten the skis and see whether they will slide

Once confident, approach the fun box with sufficient speed to jump into the air and rotate the skis through 90 degrees. Slide sideways on the box until you reach the end. To dismount rotate the shoulders and hips to face downhill

Transco Pipe

Get the skier to stand sideways on the in ramp. Gently holding their hands have them step onto the Transco in the gorilla stance. Walk down supporting them as they grind the rail.

Repeat until they are able to grind by themselves with just initial support

Allow them to step on the pipe themselves using their poles as support; if possible get them to grind the pipe

Once confident, approach the pipe with sufficient speed to jump into the air and rotate the skis through 90 degrees. Slide sideways on the box until they reach the end. To dismount rotate the shoulders and hips to face downhill and the skis will slide off.

Metal Rails

Once confident on the plastic rails the skier can progress to metal rails, the technique is the same.

Use a rail that is no more than one foot high

Flat metal rails approx one foot wide are ideal

The landing onto the rail should be softer than onto the plastic rail as there is less give

Do not use race skis as they will be quickly damaged, the skier needs to understand that riding rails will dull and damage their edges

C Rails:

A C Rail is curved and angled toward the centre of the curve, they are generally a foot wide or more. When grinding this rail skiers centre of mass will want to drop to the inside of the rail, because of this significantly more speed is required than with other features. Whilst learning the C rail the athlete should be encouraged to grind with their heels to the centre of the curve. It is also helpful if the skier is comfortable spinning off fun-boxes as most C-Rails/Boxes have unusual landings.

Approach the rail slightly inside the bend. For example if the rail bends to the left, approach it slightly from the left. As you hop on you will have travelled slightly through the air and will land central on the rail.

Maintain enough speed to enter onto the rail and reach the end (this is difficult to judge)

Hop off the jump or transition, turn 90 degrees, and land slightly to the inside of the bend with your heels down towards the ground. Keep your hands up and forward.

Focus on the end of the rail, this helps to keep your weight forward and keeps you from falling off the rail to the sides.

Later, try to ride off the rail, this usually sets you into a 270 spin off the end of a c-rail.

Flat-to-Down Rails:

The Flat-to-Down rail is a lot like the fun box except for the change in angle half way through the rail. Try to pick a Flat-to-Down that is not too high off the ground for your first time, also look for it to be at least a foot wide. The approach is the same, but throughout the grind you have to keep in mind that the rail will get steeper and to compensate for it you will have to lean your weight further on your front foot.

Approach the rail with the rail centred between your legs. Be sure that your speed is good to get both your skis onto the rail and off the other end. On the Flat-to-Down rail you want to keep your speed good, but not too much or you will launch the bend in the rail.

Hop off the jump or transition, turn 90 degrees, and land on the rail square with the rail directly under the centre of your boot sole. Maintain your hands in front of you.

Focus on the bend in the rail (where it becomes steeper), anticipate the weight transition more onto your front foot and ensure as you hit the down section this pressure is maintained so that you don't fall backwards. A common mistake is to stand taller through the bend, this has an added effect of bringing the feet together so reducing the size of the platform and raising the centre of mass. Often this will result in a fall. It is essential to retain a low wide position.

Focus on the end of the rail. Try to ride off the rail, straighten your skis through 90 degrees and ride out

Miscellaneous

Entry onto rails is either switch or regular, with rotations, grabs etc. The same is done off. World class skiers are now performing inverts onto the rail.

Vertically curved rails are named Rainbow rails. Battleships are shaped like half a hexagon. Kinks are kinked, roller coasters, are vertically curved like roller coasters. Basically they are in any shape you want. Outside the park skiers grind rails (on steps).

The rail can be ground on two feet or on one foot. Some with flat skis some with edged. You can jump from one foot to the other and even 180, 360 etc and carry on grinding.

It is possible to get onto a rail from either side as well as directly. When doing this the skier will ski parallel to the rail around 6 inches to one side. In order to get onto the rail it is necessary to jump up and to the side and rotating 90 degrees landing exactly in the middle of the rail. It is very important to not change the direction of momentum from the direction of the rail, however to simply hop top the side in effect. This is an advanced technique and will require much practice for an experienced rail user. It can be taught by skiing in a straight line and stepping to the side. Build it up to a jump to the side without changing the direction of travel. There are two ways of getting on to the rail from both sides depending on the preferred foot forward whilst grinding. If grinding with the left foot it is easier to get on from the left side as the tips have to be brought over the rail. When grinding with the right foot forward and getting on from the left the tails must be brought over the rail. This is much harder as it is done blind because the skier will be landing facing away from the direction they initiated the move from.

9. Miscellaneous

Fit for Jumping

Power (force x time) is required in the legs to push the athlete into the air. Someone who is strong may be able to bench press large weights with their legs but only jump a small distance into the air. The most effective jumpers are those that can apply reasonable force rapidly - this will provide most lift. Exercises should therefore focus on rapid knee jumps, contact broad jumps, skipping etc. When landing after a jump the athlete experiences the most forces in the run. This is where again core strength is very important to maintain an upright stance whilst absorbing the landing with the minimal amount of compression. Here pure strength in the legs is also required hence basic leg weight work is required.

The complex aerial moves require excellent all round flexibility. Athletes have been known to concentrate on leg flexibility to the detriment of upper body. This is a false economy as to balance the leg shapes the upper body has to adopt poses to keep mass central and controlled. Therefore every gym session should have at least 10 minutes set aside for stretching. Of course it should be part of every programme anyway to reduce the risk of injury. A good daffy requires the athlete to perform the splits as do the best Cossacks.

Trampolining

Trampolining is an ideal method for improving balance and manoeuvrability in the air whilst practicing the "airs" required for moguls and "New Skool" competitions. It is not necessary to initially use boots and skis. Most practice can be carried out in a Trampolining club environment. The club will often be happy to help with ski specific manoeuvres, though some have Trampolining equivalents e.g. spread = straddle, zudnik = pike etc. Once confidence has been reached in carrying out the basic manoeuvres barefoot then boots and skis can be introduced.

All top competitive skiers use trampoline work extensively. Shorter skis are used (150 cm or less) than in normal competition. The edges of the skis are taped to prevent damage to the trampoline bed. Generally older trampolines are used - clubs tend not to like their best competition beds to be used for ski work. The big advantage to trampoline work is that tricks can be practiced repetitively to perfection in a short time. This can be the coach's biggest aid to teaching aials.

Always ensure a properly qualified trampolining coach is present for practice sessions.

Water Ramps

Water ramps enable the athlete to practice transition, takeoff and air in relative safety and is extremely useful for teaching more "hairy" tricks.

Shorter (165 / 160 cm) skis are generally used though longer skis can be used by the more competent athletes. It is recommended that complex new tricks are practiced on a trampoline prior to the water ramp. Additionally tricks that the athlete can perform may be improved or pushed to the limit as well as modified to include "New Skool" shapes.

A qualified water ramp coach should be used at all sessions.

Use of Video

Video can be an extremely useful tool in fault analysis. Not only does it allow immediate visual feedback for the athlete, it also allows footage to be taken away for further study by the coach (slow motion is extremely useful) and provides a record of improvement.

When shooting video use shots from various angles also vary from close up (to identify specific areas) to a broader viewpoint. If possible watch the video prior to showing the athlete to make clear in your mind the points you want to make. Try and identify one specific point to work on and don't get sidetracked by other less important issues.

Importantly do not let the video become the coach. Use sparingly in practice (once every five to six weeks) and if possible illustrate improvement by comparison to past video footage.

If possible film competition for a debrief of the event. As always accentuate the positives but use the video to identify areas for improvement by the next competition - make sure sessions are learned.

10. What Makes an Elite Coach?

Bill Endicott, US Kayak coach - has coached numerous individuals to World Championship Gold and others to Olympic medals. Was also an advisor to the Clinton administration. Covered what he believes are the key aspects to making an elite coach.

This contains 9 main sections with a 10th constituting 8 minor aspects.

1. Top athletes don't always make top coaches

- top athletes have to be selfish, top coaches need to be selfless
- what the athletes learned might not necessarily be appropriate for others
- at the higher levels work with the athletes, have an ongoing discussion of their performance and development. It should not be "my way or the highway"
- don't minimise problems, they are important to the person raising them
- always give a quick answer, don't prejudge

2. Fascination for the process

- be fascinated by little details, understand them and reach a point that no one else knows exist. Be the most knowledgeable expert on your sport. Search out information.
- is there anyone else out there that knows more than I do, if so learn from them

3. Learn how the top people train

- they're the best because they train to be the best
- interview top coaches, search them out, talk with them, looked at their training logs - examples of training logs can be found at: www.daveyhearn.com

4. Make sure you really understand how sport science relates to your sport

- need to be expert enough to understand what the medical researchers are saying and then interpret it for your own sport
- understand the biomechanics behind the discipline, in our sport: how do our bodies move? what effect does moving one part of the body have on another? What's the physicality, body structure required for landing big jumps, how do you create bigger air? Etc.
- Find the real experts
- keep your knowledge current, the science quickly moves on

5. A great coach is a psychologist

- learn what your athletes really want, they will often say one thing and actually want another
- learn what makes people 'tick'. How do you prepare athletes mentally for a competition, how do you combat fear, self doubt, etc

6. Great communication skills

- athletes are able to carry out the skill but often unable to explain it

- set overall vision towards goals
- keep people informed on what's going on
- tell, tell, tell
- keep meetings focussed and short

7. Great managerial skills

- athlete worries about self, coach thinks about everybody
- set goals for workouts and make sure they're communicated (SMARTER goals - see goal setting)
- measure key elements, KPIs (key performance indicators - see Challenge of Continuous Improvement)
- keep records, track progress
- use training logs (as above)
- constantly devise new technique drills
- keep it fun
- remove dead/wasted time
- better to have multiple short workouts

8. A great coach is a great motivator

- everyone need to be motivated
- motivate them so they motivate you
- look for raw talent
- look for ambition, make it burn red hot
- need to believe in self before you can win
- most people content to take on trappings of an elite sportsperson, i.e. uniform etc, they are pretending to be the real deal, what you want is the ones who want to be the best. Save, nurture and treasure these individuals
- seeing, believing, achieving
- need to see what it's going to take to make it to their target, may not believe they will achieve it

9. Group training

- most aren't athletes aren't used to competing
- in a group is the opportunity to show world what you can do
- working in groups get athletes used to competition
- group dynamics mean athletes bounce off each other, contribute
- set ground rules, don't allow the athletes to just take, take, take; they also need to give
- everyone needs to see that they are getting something out of it

- think of it as a commando unit - - small group of dedicated individuals - they work as an elite unit. In freestyle skiing we don't have a large pyramid of competitors from which to choose the very elite athletes so have to create a commando unit of elite individuals who will push and support each other

- watch out! white hot intensity can burn out people

- little financial award, little public recognition, need irrational actors, they need to do it for satisfaction

- even in pyramid systems there is often a commando unit, generally need more than pyramid to win

10. Other Hot Topics

a) Make allies - need to do favours for people, at some point you may need to ask them for favours

b) Be nice to argue with, leave ways for others to maintain face, don't make enemies for life

c) Pay attention to the sergeants and not just the generals, be equally polite to leaders at all levels

d) Develop unofficial channels of information - sergeants are often best sources

e) No uncalculated shows of emotion

f) Be willing to delegate, take time to train volunteers, make yourself a better teacher so that you can train athletes more quickly

g) Don't let self get deviated from detail, if distracted then you don't get to deal with the detail and it slips away

h) Keep it fun, have a good sense of humour

Work yourself out of a job, teach your athletes the skills so that they ultimately can be their own best coaches. Most human beings are not intrinsically self disciplined. You set them goals and they do it. With young children you tell them what to do, with experience, skill and age it becomes a more two way communication until it is biased towards athlete.

You need to find your own style, a democratic way is best, take lots of ideas, accept some, reject majority. Remember, it's not who's right it's what's right.

A great coach advances the sport and make sure a great number of people benefit.

11. The Challenge of Continuous Improvement

The following are a few pointers to continually improving performance. It is not a programme but a list of effective concepts and strategies. Read them, consider them use them. Most importantly build an effective programme that will produce champions.

You will need to be able to measure the performance in some way and it's improvement. An effective way to do this is using KPIs - Key Performance Indicators. In freestyle skiing this could be amplitude, range of movement, competitions entered etc

To be a winner, train/ train your athletes to be better than your/their opponents by a considerable margin. Build into your athletes an imperative about being the best. Create ambition built to last.

Set effective short, medium and long term targets

In early competition you need to take risks, be daring, be prepared to lose to gain success.

For a continually successful programme - be smart and healthy. Spend your time where the most benefit is.

Be smart: use strategy and tactics, technology and analysis, partnerships, innovation, marketing and media.

Use cross training in other sports and disciplines, pull in experts where appropriate - in freestyle use High board diving, gymnastics, tumbling, trampolining etc coaches.

Pull in athletes from associated disciplines. For freestyle often the easiest part is to teach athletes how to ski when looking at halfpipe, big air and aerials. For skier cross and moguls pull skiers out of alpine programmes. In all cases get them trampolining regularly.

For a healthy programme - minimise politics, minimise confusion, have clarity about direction, ensure high productivity, develop high morale, promote learning and listening and develop good teamwork

When training maintain process over outcome - the outcome will improve as a result of good process

Get the best people - selection into programme

Humility is the seed of improvement and learning - look for and develop in your athletes

Ensure you take notes as well as encouraging the athletes to do so

Have a purpose need to know where you're going and you need to be persuasive that you know where you are going and that it is the right way

Training - the source of good habits: training has to be physically and mentally harder than the game, build resilience - train for the competition

Teamwork - nothing is more important

The "leader-full" team - promote many leaders in your team, social, curiosity, validation, appreciation of diversity

Breed resilience - things will go wrong and the athletes need to be able to cope and work through it

Always build depth and flexibility - inclusion rather than exclusion in a team, create redundancy, make sure there is a backup ensure that the athlete/s can switch to other strategies

Keep coaching and keep learning - remember how you got there, you need to show humility as well

Refresh the team, ignore youth at your peril

Avoid recycling - it is seductive - redefine the challenges

Face your foes. Doubts - understand everyone has them

12. Goalsetting

Goal setting, breathing and focusing, and pre-competition preparation are necessary ingredients that should be introduced to the competitor, Just as the athlete must focus on clear, specific achievable or ~SMARTER' goals, the coach must be the primary example and set a limit on what is undertaken in order to guarantee success. Objectives should be placed in a logical sequence, be flexible in interpretation, and the coach and athlete must be patient for new processes to take effect.

Pre-conditions for Goal Setting

The coach and athlete must consider the following when setting goals:

- The athlete's current level - This factor refers to the skier's current performances in training and competition, health, fitness etc.
- The athlete's commitment - This factor refers to the time and effort the skier is willing to spend to achieve his/her goals. The coach can help the skier develop or sustain commitment by making sure that goals are reasonable. This can be achieved through a contract where the coach and the skier agree on specific goals.
- Current situation - Several types of opportunity, including the availability of time, facilities, competition, funding and climate can effect the goal chosen.
- The athlete's potential -Potential is difficult to define and is often subjective. However, by monitoring results in races or in training and comparing these results to standards and past performances of proven athletes, a coach can determine, to a small margin of error, a skier's potential.

Guidelines to make goals achievable

Agree on goals with the athlete. To agree on such goals, both the coach and athlete must communicate with each other. Good communication requires that the coach try to understand the athlete. Remember the importance of non-verbal communication, and be attentive to such things as the athlete's facial expressions, posture and gesture. Listen to the athlete.

Set "SMARTER" goals, that is:

- Specific - clear, specific and concise objective
- Measurable - will it be obvious when its completed and how well
- Achievable - can they be completed within the required period
- Realistic - for the individual
- Time phased - can they be divided into a series of shorter sequenced steps
- Exciting - are they enjoyable, fun
- Recorded - goals should be signed (or initialed) by the athlete Relate goals to performance, rather than outcome.

Prepare for the unexpected. That is have a dream goal which is achievable if all goes smoothly and also an acceptable goal which the athlete could live with if something goes astray.

Rank goals when there is more than one.

Daily training goals - weaknesses inhibiting performance goals should be worked on each training day. These weaknesses have to be recognised by each coach and athlete then worked on systematically by both.

Evaluation of Goals

It must be possible to evaluate each goal. However, evaluation is meaningful only if the athlete has made an effort to complete the programme. It is therefore important to continually monitor and modify goals as necessary. It is essential that the coach help the athlete with the evaluation because often the athlete is too emotionally involved to be objective.

Coaches should discuss each competition with their athletes for the positive aspects and areas in need of improvement. After each competition and training run, the coach should have the athletes reflect for a few seconds on their own on each run - positive aspects and areas for improvement.

The Goal of Goals

Always use goals, assessments or evaluations in a way that will motivate the athlete (or staff member). A coach must be forward thinking to capitalise on experience.

13. Nutrition for the Active Person

Introduction

The following is a basic outline on nutrition, at entry level athletes should be made aware of the importance of correct nutrition and timing. By eating the correct foods, nutrition will contribute towards optimal performance, build and recovery. For a more general grounding in nutrition visit

<http://www.bbc.co.uk/health/nutrition/basics.shtml>

For most people being involved in sports means combining a busy lifestyle with the demands of training and even competition. What and when you eat and drink influences your ability to train and recover from training, which in turn, can affect your performance in competition.

A healthy diet is one which supplies you with the optimum amount of energy and essential nutrients to keep you in good health and to maximise performance

It should provide the correct balance of

- Carbohydrate
- Protein
- Fats(!)
- Vitamins & Minerals
- Fluids for Hydration

Nutritionists are now beginning to throw away the simple model of high carb, low protein, low fat diets for all athletes. That is not to say the historical athletes diet is incorrect but that it is much more complex than that and may not be suitable for every individual. This is known as metabolic typing and in fact goes further than that to modelling diets based on blood type and composition. In this case we will only consider metabolic typing.

Standardized nutritional approaches fail to recognize that, for genetic reasons, people are all very different from one another on a biochemical or metabolic level. Due to widely varying hereditary influences, we all process or utilize foods and nutrients very differently. Thus, the very same nutritional protocol that enables one person to lead a long healthy life full of robust health can cause serious illness in someone else

As an example, people from cold northern regions of the world have historically relied very heavily on animal protein, simply because that's the primary food source available in wintry climates. Thus they have radically different nutritional needs than people from tropical regions, where the environment is rich in vegetative diversity year round.

ANY NUTRIENT AND ANY FOOD CAN HAVE VIRTUALLY OPPOSITE BIOCHEMICAL INFLUENCES IN DIFFERENT METABOLIC TYPES

Different metabolic types react differently to the same nutrient. For example, in one metabolic type 100 milligrams of potassium or eating, say, an orange (also high in potassium), will cause the body's pH to shift alkaline and produce a sedating effect.

But in a different metabolic type, the same amount of potassium or an orange will produce an acid shift and a stimulating response. This has been observed tens of thousands of times through both objective metabolic type testing as well as through changes in symptomatology.

This same principle applies to any adverse health complaint, from simple to complex, from cramps to cardiovascular disease (CVD), from rashes to rheumatoid arthritis. For example, researchers have seen just as many cases of high cholesterol and CVD resolve through a high carbohydrate, low fat, low protein diet as we have seen resolve through the opposite low carb, high protein, high fat diet. Match the diet to the metabolic type and any degenerative condition has a chance to reverse. But eat the wrong foods for the metabolic type, even high quality, organic foods, and degenerative processes will only worsen.

This also has an effect on the diets different athletes require.

For simplicities sake we will look at the two extremes of metabolic typing.

Carbo type

Carbo types tend to be what are described as Classic type A personalities - full of energy, impatience, time pressure and a high degree of propensity to anger. They tend to be:

- Pedantic how they do things
- Have smallish appetites
- Are distance runners
- Often feel sluggish after excess protein/fat
- Caffeine gives them a boost
- Need a low fat/ low protein diet

The mix in their diets would tend to be:

70% carb, 15% protein, 15% fat

This is the normal base diet recommended for most athletes however this is not necessarily appropriate both based on metabolic type and on activity the athlete is undertaking.

Protein Type

Protein types are generally somewhat the opposite to Carbo types in personality. They are more laid back and able to take pressure, but not always able to raise their game easily. They tend:

- To have strong appetites
- Have cravings for fatty, salty foods
- Caffeine makes them anxious, nervous
- Fail on low Carb diets

They should also:

- Go easy on grains, juices, caffeine

- Avoid alcohol, sugars and gluten

The mix in their diets would tend to be:

45% Carb, 35% Protein and 20% fat

You can also see that if not exercising there is greater risk of putting on weight over Carb type individuals.

Of course there is also the Mixed type

These:

- Have a Variable appetite
- Can develop sweet cravings if diet is mismanaged

Some articles on this can be found at:

http://www.dynamicsports.net/cycling/article_diet_success.htm

http://www.dynamicsports.net/cycling/articles_main.htm

Nutrition timing

When to take on food for optimum performance and recovery is of great importance

- P(rime) 10-45 min before training
- T(raining)
- R(ecovery)
- M(eal) G(rowth)

P = protein/carb(high GI), mix of BCAAs, creatine optimal

R = Protein (whey), extra glutamine, carbs, antioxidants, sip on water

MG = carbo/protein mix, structure according to your metabolic type

Pre competition meal

Research carried out over a decade ago indicated that ingesting a light carbohydrate/protein snack 30-60 minutes before exercise is beneficial. Though dominance of sympathetic NS (i.e. brain hormones that make you psyched and nervous) at this stage precludes good digestion. In these studies it was shown that 50g of carbohydrate and 5-10g of protein, taken before a training session, could increase carbohydrate availability towards the end of an intense exercise bout and also enhance the availability of amino acids to muscles, thereby decreasing exercise-induced catabolism (breakdown) of protein. Whey should be used in preference to Soy (for reasons described later).

It is worthwhile exploring precompetition meals tailored to metabolic type.

There is added significance on previous 24 hours (absolutely no alcohol).

Post Competition

0-20 min Initial hydration

20-45 min Anabolic hit - The consensus of scientific opinion now is that, following intense exercise, athletes should ingest a carbohydrate and protein mix (around 1 gram per kg of body mass of carbohydrate and 0.5g per kg of protein - e.g. if you weigh 70 kg, this would be 70g of carb and 35g of protein) within 30 min of

completing exercise. This nutritional strategy has been found to accelerate glycogen resynthesis as well as promoting a more anabolic hormonal profile that may hasten recovery (note 'R' above)

45-90 Continue hydration

90-240 min Sustained growth / remodelling. Approx two hours afterwards eat a meal containing carb/protein (possibly according to metabolic type). This has been verified in scientific studies where those fed a carbohydrate-protein mix showed a modest but significant increase in growth hormone levels, suggesting that protein combined with carbohydrate following resistance training may create a more favourable hormonal environment for muscle growth.

Do's and Dont's

In all cases quality is king - better people make better food choices. For example a good quality sausage can be included in a performers diet. These should contain greater than 98% meat of a good quality - conversely poor quality cheap sausages contain many of the substances below that can be detrimental to your health and performance.

There should be an individual approach, tailoring the athletes diet to their own specific requirements, you need to match your food intake to your metabolism. Good nutrition is none negotiable for elite athletes, the content of the diet however is. Whole foods should be emphasised. The athlete should also be encouraged to listen to their own bodies. What seems to improve performance, what makes them sluggish, how much do they need to take on water, when do the energy lows come. It is essential to create a feedback loop.

Here are some important general Dos and Don'ts.

Dos: eat more organic, eat more whole foods

Do's: drink water before meals (300-500 ml 15 mins before , don't drink during as it will dilute acids and enzymes).

Do's: the quality of fats ingested is crucial to the bodies membranes and structures. Only eat quality saturated and unsaturated oils. Oils from fish are good for you especially Omega 3 which is linked to improving intelligence and speed of thought.

Don'ts: generally minimise any white foods (sugar, flour, salt and bread). If using salt-use sea salt not processed table salt. Sea salt contains a mixture of useful elements. Processed salt only contains sodium and chlorine.

Dont's: avoid fast foods, yes they taste great and are addictive. They are designed to be that way however they contain many of the substances that are bad for you as a person let alone an athlete. Hydrogenated fats are particularly bad for you (found in these foods and many others).

Don'ts: eat processed foods. These often contain bulking agents such as Soy (contained in vegetarian processed foods, burgers, babies powdered milk etc). The way Soy is processed leads to substances being formed that are detrimental in a number of ways - substances that bind calcium making it unavailable with possible effects on bone and teeth health - substances that mimic female hormones causing reduced count in men and early onset of secondary female characteristics in girls.

Don't eat too much wheat, be selective with cereals, 15-20% of population are gluten intolerant (in wheat), grains - there is more than one. Many athletes have been

diagnosed as gluten intolerant and have seen a real improvement in their health and performance and therefore fitness.

Don'ts: be careful with caffeine, watch the timing and drink according to body type (see later)

Don'ts: drink cheap juices and soft drinks contain lots of sugars and artificial sweeteners, flavours and food colours

Carbohydrates

No matter what type of exercise you do, your body will always use some glucose for energy. The main source of glucose is the carbohydrate - sugars and starches - in your diet.

The best way to keep your stores of glucose stocked up is to eat a diet rich in carbohydrates, otherwise you won't be able to train as hard or for as long and fatigue will quickly set in. How much carbohydrate you need really depends on the amount of training you do - the more glucose you use, the more you need to eat to replenish your stores.

Good sources of carbohydrate include: Bread, cereals, pasta, rice and potatoes.

For basic information about carbohydrates visit:

http://www.bbc.co.uk/health/nutrition/basics_carbos.shtml

How Much?

A simple way to calculate your daily carbohydrate needs is to first work out how much you require depending on the number of hours of exercise you do each week, and then multiply that by your weight in kilograms. Use the following list to work out how much carbohydrate - expressed in grams per day for every kilogram you weigh (g/d/kg) - your training programme needs:

For example, if you weighed 70 kg and exercised about an hour each day, your daily carbohydrate requirement would be: $70 \times 6 = 420\text{g}$. Thanks to food labelling, the majority of packaged foods will tell you how many grams of carbohydrate per 100g - and often per portion

Physical Activity	Carbohydrates
3-5 hrs/week	4-5 g/d/kg
5-7 hrs/week	5-6 g/d/kg
1-2 hrs/day	6-7 g/d/kg
2-4 hrs/day	7-8 g/d/kg
4 + hrs/day	8-10 g/d/kg

- that food contains. You can use our list below to discover roughly the amount of carbohydrate you are getting from everyday foods and snacks:

Medium portion of food	Carbohydrate (g)
Banana, apple, pear	20
2 slices of bread, 1 bread roll	30
Bagel, flapjack, slice of fruitcake	40
Bran cereal, muesli, 2 pieces wheat cereal	30
Baked potato, pasta, rice	50
Baked beans, sweetcorn (1 can)	30

Crisps (60g), 10g chocolate	20
2 tsp honey or jam	10
500ml sports drink, milk, squash	30

For a nutrition calculator that you can use to plan your food intake visit <http://www.fitday.com/>, here you can enter portion sizes of many common foods and view a full nutritional breakdown.

The Glycaemic Index

The next question we need to consider is - which type of carbohydrate? Seeing as most carbohydrates are broken down into glucose, one type is not necessarily any healthier than the next. When we're exercising, what is important is how quickly the carbohydrate is converted to glucose - and that's where the glycaemic index (GI) comes in.

The GI of a food is a measure of that food's effect on blood glucose levels. It is worked out by comparing the rise in blood glucose after eating a food containing 50g of carbohydrate with the blood glucose rise after eating 50g of a reference food (glucose or white bread). The faster the rise in blood glucose, the higher the GI. Generally, foods are divided into three categories; High, Medium and Low GI.

Unfortunately, there is no easy way to tell what the GI of a food is. Some sugars have a high GI (glucose) and others a low GI (fructose). Some complex carbohydrates have a low GI (pasta), whereas others have a higher GI (rice) - so use the list below to guide you.

High above 70	GI Medium of 50-70	GI Low below 50	GI
Glucose	Sucrose	Fructose	
Honey	Muesli bar	Chocolate	
Jelly beans	Crisps	Sponge cake	
Sports drink	Squash	Milk	
Bagel	Bread	Fruit cake	
Wheat cereals	Muesli	Bran cereals	
White rice	Brown rice	Pasta	
Baked potato	Boiled potato	Baked beans	
Watermelon	Banana	Apple	

If you exercise continuously for more than an hour, you will need to consume carbohydrates during your workout to avoid fatigue. One of the best ways to achieve this is by drinking sports drinks - not only do you get your carbohydrate but they also help keep you hydrated - see fluids.

In between exercise sessions - that's the majority of the time for most of us! - include a mixture of low to medium GI foods for your high carbohydrate diet. Watch out though - don't go overloading your bread, potatoes and pasta with lots of butter and cream - that would be a high fat diet!

Also, go easy on more fatty carbohydrate snacks like cakes and biscuits - after all, aside from the health and fat issue, gram for gram, fat has twice as many calories as carbohydrate. This is something to consider if you need to watch your energy intake.

Keep low fat, high carbohydrate snacks, like Bananas, Bagels and Raisins readily available to eat before and after workouts.

Try sipping sports drinks during exercise to maintain energy levels.

If you exercise in the morning try to consume some carbohydrate prior to your workout, even if it's just a sports drink or fruit juice.

Proteins and amino acids

Protein is essential for life, and is a major part of the body - found primarily in muscle. We need protein for the growth and repair of tissues.

During digestion, proteins are broken down into smaller units called amino acids. There are 20 different amino acids, which can be combined to make many different proteins. Our bodies can make proteins from amino acids, but we are unable to produce nine of the acids - the essential ones - so these need to be supplied by our diet.

Only some foods - the complete protein foods - contain all the essential amino acids. These are listed below:

- Milk and dairy products,
- eggs,
- fish,
- meat and poultry,
- corn plus peas or beans,
- rice plus beans, and
- lentils plus bread.

As you can see from the list, animal sources contain all the essential amino acids, and by combining different plant proteins you can also make a complete protein food.

How Much Protein?

Our daily protein requirement is 0.75g per kg of body weight. So a person weighing 70kg would need 52.5g (70 x 0.75) of protein per day.

If you are exercising more than an hour per day, then your daily requirement is slightly increased to 1.0 - 1.2 g of protein per kg of body weight - that's 70 - 84g if you weigh 70kg.

Experts recommend a further increase for athletes: 1.2 - 1.4 g/kg/d for endurance athletes and 1.6 - 1.7 g/kg/d for strength athletes. However, they also state that there is no advantage - both in terms of performance or muscle size - to taking more than

2g of protein per kg/d, providing carbohydrate needs are met. Extra protein is not converted into muscle!

In practice, providing you are eating enough food to meet your energy and carbohydrate requirements, then achieving these levels of protein intake is easy. If you're not convinced, then look at the list below to see the protein content of some common foods.

Food	Protein (in grams)
150g lean meat or poultry	40
150g fish	33
150g soya beans	33
150g tofu, lentils, kidney beans	12
half a tin of baked beans	10
half a pint of milk	10
30g cheddar cheese	8
100g milk chocolate	8
1 egg	7
2 slices of bread	9

Protein and amino acid supplements

It is easy to meet your protein needs from food. Despite the power of advertising, all a protein supplement will do is contribute to your protein intake and the cost will burn a large whole in your pocket! Plus there is no advantage to taking expensive amino acid supplements.

Fluids and hydration

Heating up and cooling down

During exercise our muscles use ATP energy. However, the muscles only use 25% of the energy, the other 75% is released as heat - that's why exercise makes you hot! We need to get rid of this excess heat otherwise we would overheat.

The main way we keep our bodies cool is by sweating. Heat from the working muscles is transferred to the blood. The blood flow to the skin is increased, and the heat is lost via evaporation - sweating. Sweat comes from the water in your blood - so you need to replace this vital fluid. Otherwise, you will become dehydrated and suffer the consequences.

How much?

The more you sweat, the more fluid you lose, and the more you need to drink to replace the fluid lost. Some people naturally sweat more than others. Plus the fitter you are, the more effectively you keep your body cool - so the more you sweat! Training harder

Did you know?

On average, you have 2.5 million sweat glands.

and longer, and/or in hotter and more humid surroundings, will also make you sweat more.

On average, we lose 1 litre of fluid for each hour we exercise. The easiest way to work out how much fluid you lose is to weigh yourself before and after exercise. Each kg of body weight loss is equivalent to a litre of fluid loss. However, you will lose further fluid as urine, so to compensate for this try to drink 1.5 litres of fluid for every kg of weight lost. Another way to check is by the colour of your urine - if it's pale and plentiful you're well-hydrated, but if it's dark and in short supply you'd better start drinking!

A loss of just 2% in your body weight - that's 1.4kg or 1.4 litres if you weigh 70kg - will affect your ability to exercise. Plus, if you're competing, for every 1% drop in body weight there's a 5% drop in performance - that could mean the difference between coming first or last! This effect is exacerbated at altitude, where because of the low humidity water is lost rapidly through the act of breathing.

If you keep exercising without replacing the fluid lost, you will become more and more dehydrated. You will no longer be able to keep your body cool, your body temperature will start to rise, you will begin to feel nauseous and lightheaded, and ultimately you will end up with fatigue or heat stroke. The only way to prevent this is to start off well-hydrated, and stay that way!

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Before, during and after exercise

The more you sweat, the more fluid you lose, the more you need to drink to replace the fluid lost. As always, prevention is better than cure - start your exercise session well-hydrated. Try to drink 300-500ml of fluid in the 15 minutes prior to your work-out. During exercise, aim to drink 150-250ml every 15 minutes to offset fluid losses - remember the more you sweat, the more you need to drink. The sooner you get into the habit of drinking during exercise the better.

After exercise, how much fluid you need depends on how much you lost, but you'll probably need at least 500ml - use the guidelines above and either weigh yourself or check out your urine! Whatever you do - drink! Do not wait till you feel thirsty - this probably means you are already dehydrated.

What's more, it is unlikely that you will drink too much water - not drinking enough is usually the problem! The only time it may cause a problem is if you're sweating very heavily for a prolonged period of time. In this situation, a sports drink containing sodium would be better than plain water, to prevent the occurrence of low blood sodium levels (hyponatraemia).

Which fluid?

Which fluid you opt for depends on how hard and how long you exercise. You should find a flavour you like though - let's face it, if you don't like the taste you won't drink enough! If you're exercising at a low to moderate intensity for less than an hour then water is great.

Top tip

Try to drink 1.5 litres of fluid for every kg of weight lost during exercise, or keep drinking until you pass clear urine.

Did you know...

You can survive without food for 60-120 days depending on body fuel stores, but can only survive without water for a maximum of 2-7 days depending on temperature & exercise.

If you work-out continuously for more than an hour, then a sports drink would be a good idea. Not only will it help maintain better fluid levels, but the added carbohydrates will provide the vital glucose to help avoid fatigue.

Most sports drinks are 5 - 8% carbohydrate - that's 5 - 8g of carbohydrate in every 100ml. This makes them 'isotonic' - a similar concentration to blood - and therefore quickly absorbed. In addition, sports drinks contain sodium to speed up fluid absorption and replace sweat losses.

Alcohol before, during and after exercise not only has a detrimental effect on co-ordination skills and exercise performance, but also increases the risk of injury. Furthermore, alcohol causes dehydration, this may have an effect for a period of up to 48 hours. Alcohol should not be a part of any professional or professionally oriented athletes diet.

Vitamins and minerals

Vitamins and minerals are of great interest to the sports world, due to the belief that they will enhance health and improve physical performance. Sure, an adequate supply of vitamins and minerals is necessary for good health - but does exercise increase our requirement? The simple answer - not really!

Do I need extra?

Providing you are eating a healthy balanced diet that is not only adequate in energy, but also includes a wide variety of foods that do not remove essential vitamins or minerals from your diet (e.g. see Soy), you should have no problem getting all the vitamins and minerals you need.

Furthermore, if you are exercising and not dieting, then you will need to eat more food to meet the increased energy demand. More food - providing it's a varied mixture - means you will also be getting more vitamins and minerals. Even athletes, providing their diet is adequate in terms of both quantity and quality, do not need extra vitamins and minerals.

Supplementation

Only if your diet does not provide enough vitamins and minerals and your body stores are low should you consider taking a low-dose multi-vitamin and mineral supplement. But it is not necessary to exceed requirements - more does not mean better and, in some instances, can be toxic.

However, people who have restricted diets may be at risk. Supplements may be necessary where a diet is:

- Low in energy for weight loss.
- Omitting foods or food groups - likes/dislikes, vegetarians and vegans.
- Lacking in a particular type of food - allergy or intolerance.
- Erratic and unbalanced - disordered eating.

Nevertheless, it would still be better to adapt the diet to include more dietary sources of vitamins and minerals, rather than resort to taking a supplement.

Probiotics

There is mounting evidence that probiotics(Live microorganisms which, when administered in adequate amounts, confer a health benefit on the host are known as)

should be considered an essential part of any diet both to help protect the body but also to get the best out of foodstuffs. Evidence is mounting that they protect against certain forms of cancer, increase protection against HIV, protect against the development of allergies in the very young and reduce the risk of infection, all make for healthier athletes who are better able to train and compete.

An excellent article can be found at:

<http://www.thenakedscientists.com/HTML/Columnists/jemimastocktoncolumn1.htm>

In addition papaya and pineapple are excellent dietary aids, helping to rapidly break foods down and release their nutrients.

Find out more about vitamins, why they're important, and how our bodies use them from [BBC Nutrition's The Basics](http://www.bbc.co.uk/health/nutrition/basics.shtml). <http://www.bbc.co.uk/health/nutrition/basics.shtml>

14. Core Training

What is core strength & stability?

Whether you are an athlete, arm-chair athlete or just an active person, having a strong and stable core can boost your performance and prevent injuries. The core of your body is where you derive your power; it provides the foundation for all arm and leg movements. Your core must be strong, flexible and unimpeded in its movements to achieve maximum performance.

Core strength is the ability of the trunk to support the effort and forces of the arms and legs so the muscles and joints can work in their strongest, safest, most effective position.

In simple mechanical terms a strong stable base is needed for any lever system to work. In this case the muscles of the torso stabilise the spine to provide a solid foundation for movements in the arms and legs.

Benefits of core training

Your body is constantly challenged to react to its environment, whether you are working out or simply living your life. A strong, stable core has far reaching results:

- greater capacity for speed generation - whether running, throwing, skiing or sprinting.
- more efficient use of muscle power.
- decreased injury risk.

increased ability to change direction, as body momentum is controlled improved balance and muscular co-ordination.

- improved posture.

improved performance.

- allows one to do more with less effort.

- Aesthetic benefit of toning the body's natural torso.

'In a nutshell, your body can function more effectively with less risk.

What makes up the core?

The foundation of your core is much more than just your abdominal muscles. It includes muscles that lie deep within your torso, right up to your neck and shoulders. The core includes the following structures:

- A. Transverse abdominals, Internal/External Obliques — These structures transmit a compressive force and act to increase intra-abdominal pressure that stabilizes the lumbar spine.
- B. Diaphragm
- C. Deep Multifidus — approximately two thirds of the static support in your back is produced through contraction of the Multifidus muscle
- D. Pelvic floor musculature

More core musculature

Interspinalis, Intertransversarii, Rotators — Deep structures that attach directly to the spinal column- These are very important for rotatory motion and lateral stability,

Erector Spinae These muscles help to balance all the forces involved in spinal flexion.

Quadratus Lumborum — This muscle stabilizes during respiration and laterally flexes the trunk

Thoracolumbar Fascia — This area supplies tensile support to the lumbar spine and is used for load transfer throughout the lumbar region.

These muscles connect to the spine, pelvis, and shoulders to create a solid foundation of support. When these core muscles are strong, flexible and move freely in a coordinated fashion, then you will be able to generate controlled, powerful movements of your arms and legs.

Core training

As stated, your core muscles are a vital training or strength; we see is the result

is the power zone of your body, even though abdominal part of the zone, core training is not about abdominals it's about stability and co-ordination- The visible motion of the coordinated actions and interplay between all of

the above musculature & structures. The movement relies on complex patterns stemming from the CNS (central nervous system).

80-90% of the adult population *suffer* from low back pain (lumbar-sacral dysfunction). Treatment varies, however core stabilization exercises are now often used in rehabilitation and prevention of low back pain. Dysfunction in these core muscles can result in them not firing correctly. The idea of training these muscles is to create support for the spine before movement or a load is placed on it. When the spine is supported before movement loading it helps to reduce sheer force and compression during movement.

The main concepts of core training involve using many muscles in a coordinated movement, rather than isolating a specific muscle as in most weight lifting. Stability exercises focus on working the deep muscles of the entire torso- Becoming aware of movement and bringing the protection of the spine back under conscious control is an important part of core training. Abdominal bracing is the main technique used — to correctly brace you should attempt to pull your navel back in towards your spine. Be careful not to hold your breath, you should be able to breathe evenly while bracing.

Those new to exercise or who have not been physically active for a long time may have poor movement patterns. Challenging the body to exercise in an unstable environment (using a Swiss ball or closing the eyes) increases the recruitment of motor units involved in the movement and results in more effective movement patterns.

For the regular exerciser the inclusion of:

Core lifts such as squats, military presses and lunges where the force of the movement is directed through the spine.

Swiss ball activities such as Back extensions, prone bridge, four point balance.

Bracing activities such as supine bridges and the plank.

- Should be adequate to develop strong — stable core.

It is important that you check with an instructor for the right core training exercises dependant upon:

Exercise experience

Lower back functionality.

Specificity requirements for sports or activities.

15. Stretching

Flexibility is probably the most overlooked part of any exercise programme. When we are young, we are naturally flexible, but as we age our muscles, tendons and Ligaments yield and stretch less easily. Be sure to add stretching to your exercise programme

Warn up First:

Walk or jog lightly for at least 5 mins to get the blood flowing into your muscles before you stretch. Be sure to include stretching following your warm up and again following your cool down once your workout is complete. This practice will increase your flexibility and reduce your risk of injury.

Hit every muscle:

Stretch all major muscle groups, including your back, chest, lags and shoulders. The exercises on the following pages will show you how. Go slow:

Never bounce while stretching. Instead, old each stretch for up to 30 seconds to let the muscles release fully.

Get support:

When holding a stretch, support your limbs at the joint. For example! when stretching your hamstring by lying on your back with one leg extended upward, hold your leg with your hands directly behind the knee for support.

Stretch 501110 more:

During your strength training workout, stretch after each exorcise to allow more muscle fibres to pitch in for the exercise following the stretch.

BASIC STRETCHING ROUTINE:

Lower Back: Lie on your back, with your legs bent up towards you. Keeping your upper back firmly on the floor, gently Lower your knees to one side, hold for 30 seconds and then repeat on the other side. Allow your Lower back to rotate naturally to the side.

Chest: Stand upright end place your hands on the small of your back. Slowly bring in your elbows, until you feel the stretch on your chest muscles. Aim to keep your elbows high during the stretch, and slowly push your chest out. Hold for 30 seconds.

Shoulder: Standing or sitting, take your right arm in your left hand and bring it across your chest. supporting the joint by holding it behind the elbow. Pull lightly on your elbow. You should feel the stretch in your right shoulder. Hold for 30 seconds, switch sides and repeat.

Calf: Standing one foot in front of the other, feet apart, both feet facing forward, front leg bent (knee over ankle joint), back leg straight, back straight. Press the heel of the back leg into the floor until a stretch is felt in the calf muscles in the back of the lower leg.

Quadriceps: This stretch can be performed either standing or laying on your side. Grab one leg at the ankle, and slowly pull your heel up towards your bottom, whilst slowly applying a stretch on the quadriceps muscles. (the large muscles at the front of the thigh).

Hamstrings: Lie flat on your back, and raise your left leg straight above you at 90 degrees., keeping your right left flat on the floor. Hold your leg gently and pull slightly with your hands toward your head to feel the stretch along the back of the thigh. Hold for 30 seconds and switch sides.

CHAPTER II

COACHING

**Athlete Development
Skill Analysis
Mental Management
Feedback
Coach Intervention**

The Effective Coach

To develop the skiing skills of the athletes a coach must be able to understand the complexity of the sport to make learning simple for children. This requires an understanding of all the underlying technical considerations, but also the ability to convey simple and clear instructions that will bring about the sought after improvement. An entry-level athlete will learn more by what you "do" and "show" than by what you say. Entry level athletes learn by guided active play in an alpine environment. First you must learn what to train and why to train it with young athletes. Knowledge and practical coaching experience will help you to develop as a coach.

The more difficult task is how and when to apply particular coaching methods, and these issues are addressed by the APC2 qualification. Developing entry level skiers to perform technically is one of the most rewarding tasks that you as a coach will encounter. At this level, the athletes will make significant gains in skill development. Younger athletes must be able to ski well in all snow conditions prior to gate training.

The most effective coach is the one who is capable of setting up a "learning" environment and allowing the young athlete to learn through guided-discovery. Basic skiing skill development is accomplished primarily through free skiing activities. There is a simple and effective method of ensuring skill acquisition at the entry level and that is through free skiing as many vertical feet as possible ensuring the following:

- free skiing in a variety of snow conditions;
- employing a variety of turning radii;
- utilising a variety of terrain;
- utilising timely and effective coaching intervention methods.

Free skiing activities that incorporate the preceding components will provide the entry level athlete with all the external stimuli necessary for him/her to make internal adjustments in relation to balance, stance, timing and co-ordination. An effective coach merely acts as an outside observer who is ready to provide appropriate and simple feedback to the athlete.

Basic skiing skills are not always simple to learn but the coach can assist the athlete's learning process by progressing from the simplest to the more complicated skills. This is accomplished by sequencing the training whether it involves free skiing activities, free ski drills or gate training drills and courses. In order to be effective as a coach, your sessions should be designed so that your athletes can accomplish some sort of measurable gains in their skill level whether it be motor skills or technical skill development.

Effective Coaching is the Key to Developing Champions

The basic goal of an entry level program should be to guide children to fall in love with the sport of alpine skiing.

This, in simple terms, means giving the children a learning environment where they can also play and have fun. It is critical for the entry level coach to understand that the main reason this age group gets involved in sport is:

1. Social affiliation and fun; at a later point: Achievement and challenge

Whether the entry level athletes you coach will top the podium in any race is not the main issue of effective coaching. However, how you coach these young kids will have a direct effect on the possibilities for excellence in their future. Use their time wisely, create learning situations out of difficult situations and above all else develop their love for skiing.

Effective Coaching at the Entry Level

Skiers between the ages of 7 to 10 years old represent the largest number of skiers within the alpine system. As a coach, our task is to take into consideration the different stages within this age group to ensure that the needs are being met, not only to develop each athlete to their potential, but to maintain the athlete's desire to remain involved in the sport.

A good coach must know:

- What the athlete can do (their basic skills and abilities).
- What the athlete can't do (physical, psychological, technical and tactical limitations).
- What the athlete will do (their motivation: intrinsic or extrinsic).

A good coach must understand:

- How to analyse performance.
- How to detect the cause of error.
- How to provide the athlete with clear direction to fix the problem (skill/drill).

A good coach will:

Minimise explanations and waiting time by thorough organisation.

Increase quality training time to allow for sufficient time on task.

Provide exercises/drills that will match the skier's needs. Provide feedback that is properly directed at the performance, not the individual.

Ensure that the athlete is provided a clear explanation and understands what he/she is asked to do.

A sample of the communication process:

- What are you working on?
- What are you going to do?
- How are you going to do that (demo by athlete)?
- What is it going to feel like?

The Coaching Environment

The Skill Development learning opportunities are maximized when the coaching environment is effectively designed and managed.

Designing the Coaching Environment

Designing the coaching environment refers to designing the instructional time. For a coach there are five steps to teaching new skills.

- Choose a skill.
- Plan the explanation and demonstration.
- Plan the practice.
- Provide feedback.
- Use voice and body for good feedback.

Take time to review these steps. Although you may already have your own style and routine for designing a teaching plan, through becoming more systematic and attending to details, your teaching effectiveness will improve.

Managing the Coaching Environment

Managing the coaching environment means creating a supportive, effective learning environment that will maximize and optimise time spent on learning and skill development. Coach responsibilities in this area vary and involve both “on” and “off” hill responsibilities.

Coaching Behaviours

Typically coaching behaviours fall into three categories.

1. Non-contributing Behaviours

These are coaching duties that do not contribute to instructional goals.

In fact, they usually remove the coach from the instructional process

e.g. organising tomorrow’s lift tickets while the students are freeskiing or freeriding to warm down.

2. Indirect Contributing Behaviours

These coaching actions involve interaction with athletes but do not directly contribute to the skill development goals e.g. attending to an injury, relocating a gate or running the training course yourself.

3. Direct Contributing Behaviours

These coaching actions consist of direct involvement with the athlete on an instructional basis.

Instructional Time

A well managed coaching environment maximizes instructional time and ensures that this time is used effectively and efficiently.

Listening Time

Instructional time is usually spent in four distinct ways:

- Listening to instructions.
- Listening to feedback.
- Listening to organisational directions.
- Listening to conduct related comments.

Pride yourself on being brief, to the point and able to “get on with it”. Effective coaches spend little time delivering organisational directions and deal with conduct issues quickly, firmly and fairly.

Active Time

This activity time refers to “on task” activity and is defined in two ways

- Active – getting ready for training.
- Actively engaged – training in drills, exercises, courses.

Effective coaches have a high percentage of “actively engaged” time during a practice session. By carefully planning the drill sequence they have a minimum amount of transition time from one drill to the next.

Waiting Time

This refers to the time spent by the athletes while “waiting their turn”. Effective coaches minimise this factor by providing for more than one person to be active at one time. When “down time” is unavoidable e.g. on the lift, the rider or skier is encouraged to engage in self-analysis and mental management activities.

Off-Task Time

Off-task behaviour occurs when an athlete is involved in any activity that is not related to the direction or instructions of the coach. Effective coaches quickly detect “off-task” behaviour and subtly refocus the skier or riders behaviour. They remind the athlete that the self-regulating learner is always engaged in some kind of “on-task” activity.

1.4 Management Factors and the Learning Environment

After assessing how you manage your instructional time, it is helpful to review seven factors that enhance the learning environment.

1. Time on Task

The time actually spent on the snow training (actively engaged), as compared to the time allotted to the training session is referred to as “time on task”. Coaches that design practice sessions to maximize progression work (skill/drill match), experience the most success in achieving student skill gains. Their athletes spend more time “doing” what they need to be doing.

2. Direct Instruction

“What is not taught and attended to, is not learned”. Coaches that are in control of the practice environment are tightly structured in their management and sharply focused in their instructions. They provide immediate, task-related feedback.

3. Management Skills

It can be said that behind every effective coach is an efficient manager. Management refers to the ability of the coach to efficiently organise learning environments to provide for maximum practice time.

4. Expectation of Results

Coaches expectations are apparent to the participants. Coaches must be aware of the expectations they convey to their athletes. It is important not to exhibit preferential feelings to some, over others.

5. Emotional Climate

The most effective climate for learning occurs in situations that are “neutral” to “slightly warm”. Aggressive, authoritarian environments too often focus on criticism of an individual’s performance or efforts. Criticism that is negative is to be avoided. The coach should provide constructive correction phrased in a manner that lets the athlete feel good about themselves. Avoid “nags” and “nasties”, catch them doing something right.

6. Enthusiasm

Enthusiasm is contagious. Athletes tend not to get involved if the coach is not involved. If a task is presented in a disinterested manner, it will be perceived in a like manner. The older the group, the more coach enthusiasm affects the motivational needs.

7. Communicating Feedback

Giving good feedback and giving it well is a learned skill. Coaches need to be working on all the time.

Take time to review these factors. Although you may already have your own style and routine for designing a teaching plan, by becoming more systematic and attending to the details, your teaching effectiveness will improve.

Summary

A “good” training session depends on effective management of people, equipment and the environment.

A coach with good management skills minimizes time spent on non-coaching aspects of a practice while maximizing instructional time and learning opportunities.

Effective coaches provide:

- Minimal “talk”.
- Minimal waiting time.
- Minimal organizational time.
- More opportunities to train and improve.
- Drills of appropriate difficulty (skill/drill matching).

Learning time is enriched by:

- Maximum time on task
- Direct instruction
- Efficient management skills
- Expectations that are challenging, yet achievable
- Emotional climate that is “neutral” to “warm”
- Enthusiasm
- Effective communication – feedback skills

DEVELOPMENT OF FUNDAMENTAL MOVEMENT SKILLS

Introduction

Those involved in the physical preparation of entry level athletes should be aware that the period between seven and ten years of age is one of the most important periods of motor development in children. It is during this time that children are developmentally ready to acquire the general, fundamental movements that are the basis for all sports and games. These general skills must be practiced and mastered before sport specific skills can be learnt successfully.

Unfortunately, in Britain, neither the physical education system nor coaching practices at the entry level of most sports have ensured that these fundamental movements are introduced. The lack of emphasis in this area puts British performers and coaches at a certain disadvantage when compared to European winter sports athletes.

Emphasising motor development is imperative for entry level coaches and will yield athletes who have a better trainability for long-term sport specific development. If fundamental motor skill training is not optimised between the ages of seven and ten, the loss in motor development cannot be recaptured later. Development of these basic movements can be achieved by having children participate in games which emphasise the development of co-ordination, agility and balance. Skills including throwing, running, stopping, starting, change of direction, hopping, bounding and jumping should make up a large component of the games played with children in this age group.

Growth and Development

When planning for the physiological preparation of entry-level athletes, it is very important that the coach reviews the growth and development principles that relate to this age group. These principles have a profound influence on the type of activity to be taught, as well as on the method of teaching and training.

Individual Differences

An athlete's chronological age (age in calendar years) may be very different to his/her developmental age (as measured by ability to perform specific skills). A child's developmental age may vary by as much as two years on either side of his/her chronological age. For example, an eight year old could have a developmental age of anywhere between six and ten years. Also, children grow at various rates and even within the same gender there are wide differences in growth rates as far as strength, weight and height are concerned. In all instances, the coach should take into account the physical development and individual differences of the children he /she is coaching when choosing the components for training sessions.

Summary

- Develop the general basic motor skills (hopping, bounding, throwing, running) and also coordination, agility and balance which must be acquired before complex, sport-specific skills can be mastered.
- Develop the Five "S's" (stamina, strength, speed, suppleness, and skill) which promote on-snow skill acquisition and development.
- Develop a positive self concept, and social skills, while experiencing enjoyable, challenging situations.

The Development of Young Skiers

While children in the seven to ten age group differ greatly, they also share several common characteristics. These characteristics, along with the implications for the coach, are in the following table:

Physical Characteristics	Implications for the Coach
<p>Hand-eye co-ordination and other perceptual motor skills are improving</p> <p>Large muscles are better developed than small ones</p> <p>Strength and Cardio-vascular endurance are increased</p> <p>Children are excitable, energetic and responsive to rhythmic sound</p> <p>Children are accident prone because their bones are not yet mature and because of their high level of activity</p> <p>Sex differences are not yet significant within this age group</p>	<p>Simple, general movement skills, such as hopping, throwing, which are the basic fundamentals for all sport and games, should be the focus for coaching at this level. Activities which develop co-ordination and agility should be encouraged.</p> <p>On Snow emphasise mastery of basic skiing skills</p> <p>Strength, flexibility and endurance should be emphasised, prior to learning sport specific skills</p> <p>Keep children active and incorporate rhythm and soft music into activities whenever possible</p> <p>Avoid situations which are unsafe or put stress on the joints (loading the shoulders, using weights, contact games)</p> <p>Girls and boys may train together</p>
Cognitive Characteristics	Implications for the Coach
<p>Interested in and beginning to understand the idea, function and arbitrary nature of rules in games</p> <p>Attention span and reasoning ability are increasing</p> <p>Children at this age imitate what they see</p>	<p>Games used to emphasise fundamental skills should have simple rules. Emphasise skill acquisition rather than complicated strategies or tactics</p> <p>Vary the games and activities used. Simple concentration exercises may be introduced</p> <p>Demonstrate skills correctly and often, This is VERY IMPORTANT. Demonstrate sportsmanship and fair play</p>

Children at this age take things literally	Give simple precise instructions, avoid complicated jargon
Psychological Characteristics	Implications for the Coach
Children are forming a sense of right and wrong	Children need fair, mature coaches
Children are easily hurt by negative criticism	Use humour and warmth with children and be positive and constructive
Children want to be liked and accepted by their peers	Competition and winning should be down played. Emphasise participation and doing your best.

Growth and Maturation Guidelines

Stage 1 10 and under

Physical

Basic Characteristics	General Consequences Performance Capabilities and Limitations	Implication to the Coach
In the early stages larger muscle groups are more developed than smaller ones.	The child is more skilful at gross movements involving large muscle masses rather than precise co-ordinated movements involving the interaction of many smaller muscles.	A child's success should be dependent on acquisition of the Basic Skills only. Development of a 'ski sense', through maximising free-ski mileage, is the goal.
The heart size is increasing in relation to the rest of the body. The cardiovascular system is still developing.	Endurance capacity of the young participant is nonetheless more than adequate for most activities.	Emphasise aerobic and general development activities. No anaerobic activities should be planned. There should be lots of opportunity for all to participate (i.e. gymnastics, swimming, and cross-country skiing).
Ligamentous structures are becoming stronger, but the ends of the bones are still cartilaginous and continue to calcify.	The body is very susceptible to injury through excessive stress or heavy pressure.	'Off-snow' activities should emphasise the movement of body parts using body weight only. No weight lifting at this stage.
Basic motor patterns become more refined and the balance mechanism in the inner ear is gradually maturing.	There is great improvement in agility, accuracy, balance and flexibility toward the end of this developmental phase.	Specific activities and games should emphasise development of co-ordination and kinaesthetic sense (knowledge of where your body parts are in space). Jumping bumps and cross-country skiing are particularly useful.
During this phase, girls develop co-ordination skills faster than boys and are physiologically as much as 1 to 2 years further advanced.	However, sex differences are not of any great consequence at this stage in development.	Girls and boys should participate together at this stage.

Stage 1 10 and under

Cognitive

Basic Characteristics	General Consequences Performance Capabilities and Limitations	Implication to the Coach
Attention span is short and children are very much <i>action</i> oriented. Memory is slowly developing.	Young participants cannot sit and listen for long periods of time.	Use short, clear and simple instructions, then get going! Children want to ski/participate – not listen!
Participants at this stage have very limited reasoning ability. As development proceeds there is a growing capacity for more abstract thought.	Children are generally <i>leader</i> oriented.	Coaches/instructors should adopt a 'follow-me' approach and ensure that skiing activities are well planned and <i>fun</i> oriented.
Participants improve their abilities through experience. <i>Repetition</i> of activities is enjoyed.	Children do not learn skills correctly just by trial and error.	Coaches must be capable of providing a technically correct demonstration – a role model. The leader's technical competence is extremely important at this stage, as children will copy the coach's particular ski technique.
Imagination is blossoming.	Experimentation and creativity should be encouraged.	While free-skiing, encourage input (opinions) from the children. They love to try new things and should be encouraged to do so.

Stage 1 10 and under

Psychological

Basic Characteristics	General Consequences Performance Capabilities and Limitations	Implication to the Coach
The child's self-concept is developing by experiences and comments from others.	Experiences are perceived as a form of self- evaluation: "I'm a <i>good person</i> if I do well – I'm a <i>bad person</i> if I do poorly."	The youngster needs frequent <i>positive reinforcement</i> from the coach. This will provide strong motivation to continue in the program/activity.
Children like to be the centre of focus and attention.	However, when the situation becomes threatening, they quickly lose confidence.	Coaches are encouraged to use participants as demonstration models. Success, however, must be virtually guaranteed.
The influence of peers becomes a very strong driving force.	Acceptance into the peer group often depends upon one's abilities in physical skills and activities.	Grouping by ability is suggested. At this age, coaches must be capable of properly assessing the basic skiing skills and providing a varied repertoire of practical opportunities for skill development and improvement.
The child begins to understand the need for rules and structure.	They can understand and play simple games with simple rules. They will tend to question rules and expect thoughtful answers.	An introduction to competitive skiing at this stage is healthy as children love to compete. Although the competition <i>itself</i> (individual trophies, medals, etc..) must not be emphasised, competition as a skill acquisition tool is very useful. An introduction to shortened giant slalom courses should occur at this stage. Children's interaction with referees, organisers and officials is encouraged.

Stage 2 Age 11 to 14

Physical

Basic Characteristics	General Consequences Performance Capabilities and Limitations	Implication to the Coach
<p>Marked proportional changes occur in bone, muscle and fat tissues. As may be expected, growth in bone and muscle tissue parallels growth in height and weight. Note however, that muscles grow first in size, <i>then</i> in strength.</p>	<p>A year, or so, may pass before an individual just completing physical growth, will exhibit similar strength as a young adult of the same size and build.</p>	<p>Weight lifting with relatively <i>light</i> weights and high repetition (15 plus) is recommended. Lifting <i>heavy</i> weights may result in muscle and connective tissue injury. Maximum skiing performance should be expected of the young adolescent. Instead, encourage 100% effort. <i>Acquisition</i> of the <i>basic skills</i> is still the priority at this stage. Performance will naturally follow.</p>
<p>Girls begin their growth spurt between the ages of 10.5 – 14 years, and boys between 12.5 – 15 years. Girls attain a maximum rate of growth at an average age of 11 and boys at an average age of 14 years.</p>	<p>Towards the end of this phase, boys are becoming faster and stronger physically than girls.</p>	<p>Chronological age may not be the most appropriate way to group young adolescents given size, strength, ability and sex. Towards the end of this stage, competition must be separated by sex.</p>
<p>Primary and secondary sex characteristics manifest themselves during this period. For girls, menarche (the first menstrual period) occurs at 12.5 –13 years, about one year after the maximum rate of growth is attained. The normal range for onset of menarche can be anywhere from 10-16 years. A comparable event in boys is the enlargement of the testes.</p>		<p>Situations, in which fear, guilt or anxiety, are brought about by the development of the sex organs, should be avoided.</p>
<p>Smaller muscle groups are now becoming developed and integrating quickly into more complex and co-ordinated motor functions.</p>	<p>Speed, agility and co-ordination are still improving rapidly during this stage.</p>	<p>The technical aspects of all basic skiing skills are introduced through appropriate drills and exercises. Towards the end of this stage, young athletes should be introduced to the more event specific skills of slalom and giant slalom. Specific downhill skills should now be developed in a relatively ‘fear free’ environment.</p>
<p>During this developmental stage the various parts of the body do not all grow at the same rate. For example, the growth rate of the legs and arms will reach a peak prior to that of the trunk.</p>	<p>The increased limb length now allows for greater leverage and application of strength.</p>	<p>While concentrated work on all basic skiing skills is a priority, an emphasis can now be placed on the ‘pressure and edging’ component of skill development, appropriate.</p>
<p>During this phase there is an increase in the number of red blood cells in boys and girls, and associated with that, an increase in haemoglobin, the oxygen carrier of the blood. This increase is more significant in boys, primarily as a result of the male hormone testosterone.</p>	<p>The oxygen transport system is still developing and aerobic capacity is continuing to increase.</p>	<p>In the early phase of this stage, coaches should emphasise only aerobic activities. Towards the end of this stage, anaerobic activities can be introduced. The overall cardiovascular system can now be stressed to a considerable degree.</p>

Stage 2 Age 11 to 14

Cognitive

Basic Characteristics	General Consequences Performance Capabilities and Limitations	Implication to the Coach
Abstract thought becomes more firmly established.	Simple strategies and tactics can be introduced once the basic skills have been learned.	Basic strategies and tactics concerning specific gate combinations and general line interpretation are introduced during the early phase of this stage. Towards the end of this phase, advanced racing strategies should be introduced particularly concerning slalom and giant slalom.
The adolescent develops a new form of egocentric thought. Much emphasis is placed on self-identity.	This may result in a strong fear of failure (i.e. “the whole world is aware of my performance”).	The coach’s ability to help the young adolescent put things into perspective is important. Coaches should introduce the young skiers to simple coping strategies, concentration skills and mental imagery.
The young adolescent is eager to perfect his/her skills.	Specific direction and structure in the learning environment is required. A variety of methods to measure success is important to maintain interest.	Positive reinforcement is a necessity. Winning on an individual basis becomes one of the objectives during the later phase of this development stage (age 13-14). However, because the physical and mental development of young athletes during this stage can vary so much, coaches must be very careful not to deselect youngsters who are not yet showing ‘wins’ in the result column. Ability (skill level) and ‘potential’, at this point are very important characteristics in talent identification. The coach’s ability to demonstrate specifics is still important. Introduce simple relaxation techniques early in this phase. The earlier a young skier is introduced to relaxation procedures, the better the chances of skill development. Audio-visual materials aid the learning process and help maintain interest. Audio-visual materials help to create a correct mental image.

Stage 2 Age 11 to 14

Psychological

Basic Characteristics	General Consequences Performance Capabilities and Limitations	Implication to the Coach
Behaviour is affected by the peer group.	Values and attitudes are being created and reinforced by the group.	Strong direction and supervision must be exercised by the coach. A strong role model is important. A lack of maturity and control on the coach's part is most often reflected in the young athlete's attitude towards the sport. Skill development will suffer.
During this phase, teenagers are capable of co-operating and accepting some responsibility.	However, some may be less responsible due to a fear of failure.	The coach must communicate with the young athlete.
Tension generally exists between adults and the young adolescent.	Communication channels should be kept open by the adult, as all teenagers need help even though they do not recognise the need, or seem grateful for the help.	The young skiers should have some opportunity for input into the decision process. The coach should always attempt to foster two-way communication.
It is important that young adolescents be able to display tenderness, admiration and appreciation.	Deprivation of these qualities often leads to exaggerated and/or unacceptable behaviour.	During this stage, early maturers often rise to leadership positions and excel in physical performance. Coaches must not 'play favourites' as this can have a devastating effect on other participant's development.
Physical maturity, mental maturity and social/emotional maturity do not necessarily develop at the same rate.	Feelings of confusion or anxiety may exist as a result.	The coach's communication skills are important in this respect.
There is a desire to have friends of the opposite sex.	Social activities (i.e. dancing) are important events.	Coeducational activities are recommended.

Mental Skills Training for Entry Level Children

Integration of mental skills training at the entry level must be recognized to be as important as the physical, technical and tactical aspects of skill development.

The benefit to the learning process rather than just the athletic performance is often overlooked. Teaching basic mental skills at the entry level will allow more effective work to be done both on and off the training hill.

Coaches at this level should familiarize themselves with as many mental training techniques as possible in order to introduce entry level children to the processes of self awareness, self regulation and self learning.

The programs for psychological training must be as simple as possible yet convey the message that mental skills training is an integral part of the learning process and crucial to skill development.

Simplicity is the Key

Most kids already possess the basic skills the role of the coach here should be to devise sessions that allow the young athlete to recognize the different aspects of mental preparation and how they can affect their ability to learn as well as their athletic performance.

The 4 key areas we should consider at the entry level are:

Goal setting/Motivation

The coach should encourage the process of identifying daily, short and longer term goals. The goals discussed should always be athlete centered and the coach should act as a facilitator in this process giving direction to ensure that the athletes recognize whether or not their goals are realistic and/or attainable.

- SMARTER

Relaxation/Concentration

The coach should help the athlete to develop an understanding of the importance of the 'appropriate state of arousal' *for the learning process* as well as for *athletic performance*. Practical exercises could include;

- Breathing, triggering particular response 3in/2out to 'pump them up' or 2in/3out to 'bring them down'.
- PMR (Progressive Muscular Relaxation), as a useful technique to understand the difference between relaxed and tense states.

Imagery/ Visualisation

Imagination, when directed and guided in positive/constructive ways is the cornerstone to increasing awareness, relieving stress, maintaining emotional control

and reaching goals. Children have the incredible capacity to imagine the most amazing scenarios through creative thinking and play. Therefore, it is incumbent on the entry level coach to guide children and provide them with as many opportunities as possible to utilise their imagination. The coach must help them develop the *ability to listen intently* and *follow directions* as closely as possible. As well, he/she must help them learn to follow basic verbal and visual instructions/directions and *recognize kinetic feelings* when they are performing a skill.

Self Concept

The single most important area of mental skills training at this level is to build confidence in children so they will develop a positive self concept.

Children who exhibit a sense of confidence will participate more willingly within the group setting, will be more receptive to constructive feedback, become a more willing participant in the self learning process and will develop better life long social skills.

The entry level coach must incorporate these aspects of mental skills training in order to help children learn how to train all the domains involved in alpine ski/ski racing.

Attention or Focus and Refocus

The human brain cannot retain information if it is continuous. As a result people pay attention selectively. They select the information they think is important or useful This is dependant on previous experiences. The more experienced the athlete the more they know what information to ignore. Less experienced athletes try to take all the information on board. This can lead to athletes being confused or not focusing on anything specific.

Short Term Memory

Short Term Memory refers to the capacity of the brain to store information immediately. The Short Term Memory (S.T.M.) can process about seven, plus or minus two items of new information at any given time. If feedback or information contains more than a couple of important points then they will begin to forget . This information is retained in the S.T.M. for only between 20-30 seconds. It is important to rehearse the information or use it right away otherwise it will be forgotten.

The Information Process

There are two different situations that exist when a skier does not pick up or perceive “cues”.

Cues are present in the instructions or practice drill. The athlete is not responding to the cues then the coach must revise his/her instructions. Instructions should be clear, explicit and contain the words how to and why, in order to be effective

Decision making

It's a “sorting process” and interpretation of information process and then they decide on the appropriate response. Interpretation of information is influenced by the present situation and past experiences.

Decision making limitations

Doubt and uncertainty are the major factors when making decisions people never have all the information about a situation. So they are never absolutely sure “what to do”, “when to do it”, “where to be” or which response to select. This uncertainty delays the decision-making process, as a result this slows learners reaction time. Develop your training where by they make more decisions on their own. Clarify with them decisions they have made or which response they have decided on. Ask the questions “how” and “why” to a situation and confirm with them. They should be certain!!

Telling athletes why they are doing something will make them more effective and improve decision making times, either technically or tactically.

Self Talk

Self Talk is one's internal dialogue. It is probably one of the best ways to improve learning and performance. This is an effective way to organise thoughts, ie. focusing and confidence. These thoughts must be positive and constructive, and coaches should monitor them. The athlete must tell the coach what they are thinking so the coach can establish the nature of their thoughts. If the thoughts are negative then they must work to change their thoughts into positive ones if they want to get a positive training effect. They must beginning to look for some elements of the performance which are good and build on them. ie. I got my line right on the first section of the course, next run I'll get it right all the way down!!

Coaches should always use positive vocabulary when dealing with entry level athletes.

Mental skills are best taught along side physical and technical skills. When teaching Mental Management it is also important to realise that different age groups are comfortable focusing on different mental skills.

Skill Acquisition for the Entry Level Athlete

Introduction

Directed and undirected freeskiing and freeriding are the cornerstones of skill development. This section will present some important aspects of how skill development occurs and will provide some practical guidelines that a coach can utilize in his/her efforts to introduce fundamental skills and be effective in skill acquisition.

Programming that incorporates the following components will help maximize skill development.

- Supervised freeskiing and freeriding
- Drills and games
- Obstacle courses and terrain gardens
- Giant slalom gate training
- Slalom drills
- Half-pipe
- Snowpark Elements

The entry level coach can maximize skill development by ensuring that he/she utilises the following in his/her program:

- Knowledge of eight motor skills
- Knowledge of the planes of balance and movement
- Knowledge of the tactical approach to skill development
- Planning your training program with specific goals and objectives
- Awareness of children's abilities at this level
- Terrain selection for skill acquisition
- Drill selection (drill/skill matching)
- Terrain selection to challenge diversity and versatility

Fundamental Skill Development

Skill acquisition in skiing and boarding at the entry level is accomplished through freeskiing and freeriding activities.

There is a simple and effective method of ensuring skill development and that is through freeskiing or riding as many vertical metres as possible ensuring the following:

- Utilizing flat terrain for skill acquisition
- Challenging the children by using a variety of snow conditions
- Employing a variety of turning radii
- Utilizing a variety of terrain to challenge
- Employing a variety of coaching intervention methods
- Utilizing mental skills and training techniques (breathing, focus, goal setting)

Effective coaches are those who can set up a *safe learning environment* and allow children to learn through task teaching and/or guided discovery.

Remember

**SAY IT
SHOW IT
DO IT**

**“A picture is worth a thousand words”
“A feeling is worth a thousand pictures”**

An effective coach must employ a variety of coaching methods in order to accommodate the various learning styles by which children acquire skill (learn). The coach should act as a facilitator in order to make complex movements easy to acquire and then act as an observer who is ready to provide timely and relevant feedback. The coaches method of instruction must match the children's style of learning in order for skill acquisition to take place.

! DO NOT RUSH INTO GATES or SET MOVES !

Sequential training from open hill skill training to games, exercises and drills with bamboo, foamies or stubbies and eventually gates, requires planning and patience. It is imperative that the children have a good perception and are patterning line and turn shape in free skiing and riding before being introduced to other, more focused, skill specific, training environments. Also, time must be allowed for the youngsters to adapt to the specialized requirements in these types of training.

The sequence of events should follow a pattern such as the following:

- Technical/tactical freeriding and freeskiing
- Games and exercises in the park and/or gates (obstacle courses, over/under)
- Drill courses - rhythm, rhythm change
- Competition (team environment)

An effective coach should plan his/her sessions in gates or for set moves with specific tactical objectives in mind:

- Line
- Turn shape
- Rhythm
- Looking ahead

Summary

It is important for the coach to monitor anxiety and activation levels of the children so that learning takes place.

Planning and conducting a creative session, which employs elements of mental skills training, variety and **FUN** while learning will always be successful and motivating.

Above all, keep your learning environment **SAFE** by being aware of the inherent risks.

Skill Analysis

This section will address the pedagogy (the art of teaching) of *whole-part-whole* and aspects of behaviour modification in a complex sport.

By the time you have completed this part of the course you should be able to:

1. Increase the athlete's level of confidence through constructive feedback.
2. Maintain the athlete's enthusiasm by providing him/her with drills that simulate race conditions.
3. Choose from a variety of different drills that will benefit the athlete.
4. Gain enjoyment from being innovative while helping the athlete attain his/her goals.

Whole-Part-Whole

The basic structure of the coaching "system" is simple.

- **Whole:** refers to the current technical ability of the athlete to perform event specific manoeuvre (ie. SL, GS or dynamic turns) and infers that the coach has an understanding of what the ideal execution of these turns should be. This view is the "big picture" of how the skill should be performed, how it is being performed and includes the identification of a single significant weakness in the athletes current performance.
- **Part:** refers to the breaking down of the final form (ie. SL turn) into manageable components that can be taught in an ordered progression, for example: pole plant, separation, edging. A specific weakness may be identified and that part of the final form becomes the focus for modification. The training environment actually becomes a laboratory for testing and improving simple skills.
- **Whole:** refers to the integration of the modified part/parts back into a final form that is now further refined, developed and made stronger as a whole.

The coach and athlete will continuously work through this process of evaluation, skill development and integration of the new skill into the final form. At any level of technical ability the basic structure of the system remains the same.

Coach Intervention (or Behaviour Modification)

The role of the coach is to modify the athletes behaviour and actions through a combination of verbal, visual and sensory experiences or situations called training. **“Coaching”** is the mutual sharing of technical knowledge and kinaesthetic feelings towards the goal of improved ski performance. “Coaching” must take place within a framework defined by a mutual understanding of optimal technique and the athletes current level of skill. This will seem a daunting task to the inexperienced coach who has no organisational system to guide him/her. The material in this chapter will introduce the ‘how to’ of coaching to assist coaches to be more effective and efficient. In addition, the concept of drill/skill matching will be developed.

Giving Direction

To be effective the coach must do much more than simply identify weaknesses in technique. Telling an athlete that he/she is always “back and inside” (detection) and that he/she must centre the hips (correction) will be of limited use. The coach should ensure that he/she gives positive, specific directions are given pertaining to how the hips should be centred using:

- clear instructions
- precise drills
- good demonstrations
- feedback/reinforcement relating to the athlete’s kinaesthetic feelings (feel)

These directions are often implicit within drill/skill matching sessions however they must be expressed by the coach after each training module or technical session. For example... “That was a good run Jenny but a few times you fell back and to the inside. If you can maintain your hips in a high centred position between turns that weakness will be eliminated. From here to the lift make long, round GS turns with a big jump between each turn to emphasise the movement of the hips up and forward. Feel your legs fully extend and when you land after the jump your weight should be centred on the ball of the foot. Go and give it a try!”

Get right to the point and tell the athlete what he/she needs to do and feel to improve. “Tell it like it is!” Make sure the athlete understands completely and then select the correct and precise progression of compelling situations to help the athlete succeed.

Feedback

Feedback is one of the most important factors associated with learning and performance. Feedback information comes from a number of extrinsic sources and is always available from kinaesthetic feelings. Most commonly, feedback is given externally from coaches comments. In all cases, feedback is used to compare what was just done with what was intended.

Limitations on feedback:

Athletes attempting a new skill for the first time are dependant on external feedback. They can't use intrinsic feedback as they have no idea how the skill is meant to feel. At this stage the skier's progress is greatly enhanced or limited by the coaches ability to give feedback and the athletes ability to receive it.

Principles

A drill can be designed to assist the athlete to:

- feel a new sensation
- pattern a new movement or
- reinforce correct movements.

The drill should be focused specifically toward the primary weakness since that will offer the most reward since it will provide for the greatest improvement.

Once a drill has been correctly performed and repeated it is often too soon to go back to the "whole" to integrate the movement into final technique. Drills can and should be progressed to lead smoothly to the eventual technique desired. While ensuring that the correct movement or feeling is being experienced a drill can be progressed in 3 ways:

- increase the speed
- select steeper terrain
- introduce more refined movement.

In this way the use of drills will be appropriate for all skiers no matter where they enter the spectrum of technical development. For example both novice and elite skiers will know that a carved turn requires commitment to the outside ski. The novice skier will perhaps be working on stance and balance drills on flat, slow terrain while the elite skier may be working on edging and pressure control on hard icy pitches. In both instances drills can be designed to develop the skill of outside ski performance however the selection of drills and their complexity would vary between each skier. The coach should watch the athlete for difficulty in adapting to the terrain progression and make the necessary modifications to the drills.

Drill/Skill Matching

Drill/Skill matching is part of the "art" of coaching. This is the design of specific drills that will teach the athlete the skills he/she lacks. There are an infinite number of drills that can be designed – the coach is limited only by his/her imagination!

Once a weakness has been identified it may be helpful to select one of the 3 Basic Skills to provide a framework for the coaching intervention. Much temptation exists

to “over coach” and attempt to prescribe too many aspects of a skill instead of focussing on a single component. Keep coaching simple and on-task. The drills the coach designs and all the coach’s comments to the athlete should constantly relate to the skill that has been selected.

The first step for the coach is to identify a single weakness that needs to be modified. The athlete should be told what skill will be trained and how the coach plans to modify it. Most coaches begin their analysis of ski technique by watching how the ski performs on the snow and from there progressively look at the 3 major joints of the leg. Finally, the coach will look at the upper body and arm positions. Always begin performance analysis at the skis.

Implications for the Coach Using Drill/Skill Matching

1. The coach must understand the duality and specific functioning of the left and right hemispheres of the brain. Intervention should utilise both verbal and non-verbal methods so that the dominance and preference of each athlete is respected. In effect, work with the athletes in the “language” they relate to best.
2. Drills should always relate back to the final form. The athlete must become skillfull at performing the “parts” of technique without sacrificing the ability to pull these skills together into a final form that will enable him/her to perform the whole at a race speed. Drills are always the means to an end and good drill performance should never be an end in itself. This is where freeskiing mileage plays a critical role in “growing” the drill into the whole.
3. Drills should be a clearly defined learning experience. A minimum of detection and correction will allow the athlete to focus on the feel of the drill that the coach has designed. If the athlete is not able to perform the drill, the drill must be altered so that the result is the desired performance.
4. Positive self-image achieved through successful drill performance will often carry over into final form of ski performance. Drills should reinforce and become a positive learning experience.
5. Always remember, practice does not make perfect, but rather perfect practice makes perfect.
6. Drills can become boring if they are repeated too long or too often. The coach should make drills interesting and challenging. This does not mean that skiing must always be broken down to its component parts. Hours of final form free skiing are needed to evaluate performance, integrate new skills and ingrain new sensations. No more than 25%-30% of total ski time should be spent on formal drills, ie. the parts.
7. Video is not necessary when doing drills. The athlete should concentrate on movements, balance and feelings. Reserve the video for a review of the

integration of skills learned through the drills, back into the final form to, ideally, reinforce progress and self-image.

8. Every on-snow session should have a planned theme. The drills that the coach designs must be simple and focused on the single technical component or skill that has been selected for modification. It will be confusing and counterproductive to switch drills part way through a session. Once a certain drill can be performed correctly and consistently it should then be progressed.

Compelling Situations

As soon as specific corrective exercises have been identified and have created the desired effect, the coach must present compelling situations that repeat the modifications and therefore repeat the training effect. The coach should place the athlete in a situation where he/she must perform the desired movement perfectly and in a variety of situations. (Care must be taken not to place unrealistic demands on the athlete when using this coaching strategy.)

<p>The key is to create a constructive progression, inspired by a given weakness but turned it into an actual strength through detection, correction, progression through compelling situations, and finally</p>
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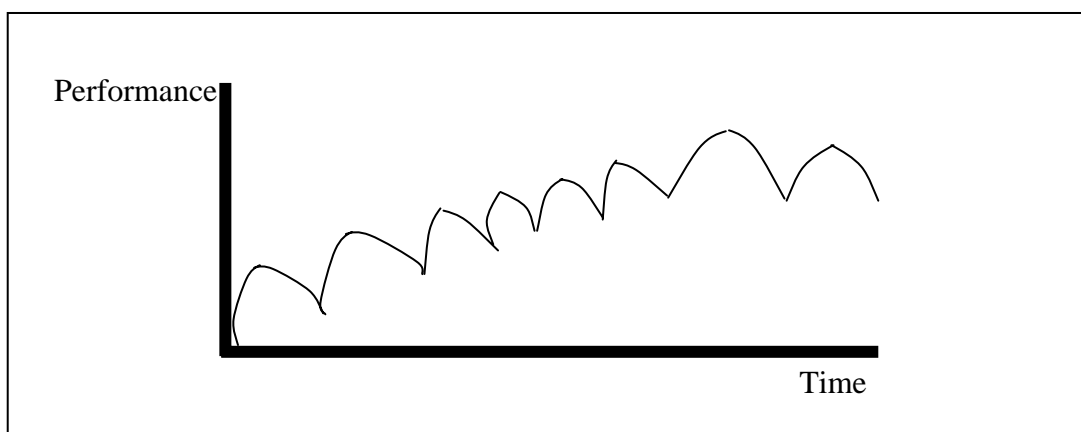
For example:

- skiing on one ski will develop balance and commitment to one ski
- skiing bumps will encourage suppleness and leg independence
- skiing very steep terrain will cause commitment to outside ski
- skiing obstacle courses, off-piste or glade skiing will develop general mobility and movement skills with timing.

Requiring an athlete to enter an unfamiliar environment will challenge skill development. Far too often coaches have athletes perform only on smooth flat terrain at the cost of mobility, and the ability to react and adapt to new situations. Course setting can also be used to force the skier to modify technique by comprising the “comfort zone”. When using this approach, the coach must keep in mind the “Dinosaur Principle”.

Dinosaur Principle

The table below shows that skill development often looks like the back of a dinosaur; many peaks and valleys.



In order to keep the trend rising it is necessary to return to old drills in new ways that recreate their effectiveness. This can be done through the use of terrain, speed progressions or by disguise. For example, free skiing in trees helps the flow of giant slalom, skiing or training on the steepest, roughest terrain will increase confidence and aggression on courses which are normally set on easier terrain. The coach must use his/her imagination and decide on what will best suit the needs of the athlete.