

## Winter Sports – Advanced Ski Exercises - Introduction

The following exercises are for individuals who already have a significant level of fitness. If you are unsure as to whether they are appropriate for you, please consult your doctor.

### Ski Fitness

Solid physical preparation can make the difference between you having an incredible experience on the slopes, or an incredibly painful experience! This article provides some practical tips for preparing you for the ski season ahead, as well as a ski specific training program.

The increased queues for the leg machines in the gym during this season leads us to believe that most people feel if their legs are stronger there skiing will be better. This is false on two aspects, firstly machine weights are not functional, secondly and perhaps more importantly though skiing is a sport that primarily utilizes the legs for power, a skiers strength must be developed across the whole body in order to move solidly as a unit. By building general body strength first, you therefore create an opportunity to achieve much more ski-specific physical force when the time comes.

We endeavour to approach weight training holistically, generating strength, power and mobility throughout the entire frame. Assuming an injury free skier with sufficient mobility, the essential demands of skiing are:

- ⇒ Strength Training
- ⇒ Core Development
- ⇒ Agility
- ⇒ Dynamic Flexibility

### Strength Training

The strength component of a skiing training program deals with base strength preparation. This is the work you would need to complete before you can progress onto more advanced forms of training such as stability ball exercise, BOSU integrated training and resisted movement training. This phase should involve fundamental large muscle movements such as squats, lunges, deadlifts and body weight resistance exercises such as pull ups and press ups. These exercises recruit high threshold motor units and increase motor unit firing rate. The base strength preparation phase should last between four and six weeks, depending on your fitness levels.

### Core Development

Core training is arguably the most important element of any skiing fitness program. Effective core development will ensure you are strong and stable in the trunk and therefore able to support quick, powerful dynamic movements. In his article "Principles of Skiing Preparation," Chip Richards highlights the importance of moving from our centre, thereby taking the stress away from the limbs and promoting core function.

We use several methods in order to develop core stability. The first and most simple is single leg training. Skiing places great demands on the CNS due to changing surface area and contact points. Single leg training reduces available surface area and halves the body's contact with the ground. Also, skiing requires rates of force production generated by a single leg. Appropriate exercises include single leg backwards lean, opposite leg and arm reach and resistance exercises such as single leg shoulder press and single leg squats.

Unstable surfaces should be incorporated into a winter sports program, with the most effective piece of equipment being the BOSU. Skiing requires high frequency muscle contractions with a restricted range of motion. Therefore, squats and lunges on the BOSU ball are ideal. A wide range of exercise can be performed on a bosu some of which can be seen in my program.

## Agility

Due to the aerobic and interval nature of the sport, there is a requirement for skiers to undergo some aerobic training. This is best conducted in the form of explosive and agility work, which requires you to complete short bursts of aerobic activity with a rest period. Exercises involving short sprints, agility ladders and vertical cones/hurdles should be high on the agenda. This will also increase quickness and reaction time.

## Dynamic Flexibility

It is our belief that dynamic stretching is a safer and more effective way of improving flexibility. Some of our favourite exercises include leg kicks, star jumps, hip swings in the saggital plane as well as dynamic hip adduction and abduction. Ensure you have conducted some form of aerobic activity before performing such exercises. We would reserve five minutes every session for flexibility work.

### Winter Sports – Advanced Ski Exercises – Ski Specific Training Programme

In summary, it is very important that you consider all training components when preparing for your ski season. Your ultimate exercise goal should be to have fun, make it functional and of course specific to skiing. The program below is written specifically for a skier who has already been training. This should not be performed if you have not trained before.

To begin this programme we would recommend spending 10-15 minutes jogging, either on the treadmill on a slight incline or outside, or on the cross-trainer or bike.

## Full Advanced Ski Training Programme

After the warm up the first three exercises should be performed in a circuit fashion one after the other and repeated three times. The same goes for the next three exercises. A thorough warm down and stretching session should be done afterwards

Activity	Type	Sets	Reps	Duration	Tempo	Intensity	Rest
Functional Straight Leg w/Rotation	Flexibility	N/A	10-20	1 min	Medium	Moderate	N/A
Hamstring - Straight Leg Swings	Flexibility	N/A	10-20	1 min	Medium	Moderate	N/A
Speed Ladder – 2 In	Warm up	1	1	1-2 mins	Fast	High	30 seconds
Hurdles -2 in	Warm up	1	1	1-2 minss	Fast	High	30 seconds
Speed Ladder - Ali Shuffle	Warm up	1	1	1-2 mins	Fast	High	30 seconds
Hurdles - Bunny Hops	Warm up	1	1	1-2 mins	Fast	High	1 min
Bozu - Standing Bicep (Alt Arm)	Exercise	3	15-20	N/A	Fast	10KG	NA
Dumbbell Squat 1 Leg (Touch Down to Overhead Press)	Exercise	3	15-20	N/A	Fast	8KG	NA
Bozu – Lateral Ski Jumps	Exercise	3	NA	1 min	Fast	High	1 min
Bozu – V Seated Biceps	Exercise	3	15-20	N/A	Fast	10KG	NA
Dumbbell – Squat With Shoulder Press (1 Arm With Rotation)	Exercise	3	15-20	N/A	Fast	7KG	NA
Speed Ladder - Ski Jumps	Exercise	3	NA	1 min	Fast	High	1 min

### Functional Straight Leg With Rotation

- Draw your belly button into your spine.
- Stand on one leg keeping it straight.
- Rotate hips through a full ROM extending the opposite leg to hip height.
- Allow your arms and body to move freely



### Hamstring Straight Leg Swings

- Draw belly button in
- Stand on one leg
- Opposite leg swings in a pendulum style so a stretch is felt through the hamstring
- Allow your arms and body to move freely



### Speed Ladder – 2 in

- Starting slowly jog through the ladder stepping into each section
- Gently increase the speed picking your knees up
- Focus on speed (quick feet)



### Hurdles – 2 in

- Similar to the speed ladder slowly jog through till you get your bearings
- Focus on picking your knees up high so your foot come over cleanly
- Increase speed as you do



### Speed Ladder – Ali Shuffle

- Face the side of the speed ladder
- Moving sideways bring your leading leg into the first section of the ladder
- Jump sideways, bring your lead leg outside the simultaneously bring the tail leg into the first section of the ladder
- Continue the sequence through till the end



### Hurdles - Bunny Hops

- Simple but tough and should only be done after a thorough warm up
- Keeping two feet together sit back through the heels
- Extend through your quads (thighs) jump over the hurdle
- Make sure you absorb the landing through your quads
- Remain loose yet controlled



### Bosu – Standing Bicep Alt Arm

- Stand on a bosu flat side up.
- Draw belly button in for stabilization.
- Alternating each arm flex the elbow to perform a bicep curl with a rotation of the torso.
- Focus on keeping your hips stable.



### Dumbbell - Squat 1 Leg Touch Down to Overhead Press

- Standing on one leg hold the dumbbell in the opposite hand.
- Sitting back through your heels squat down keeping a straight back.
- Push up through your quads and gluts maintaining pelvic stability.
- Move dumbbell into overhead press.



### Bosu – Lateral Ski Jumps

- Stand sideways on to the bosu
- Initiate a lateral jump onto the bosu
- Absorb the pressure of the jump through your quads
- Push off the bosu immediately back to a starting position
- The set should be dynamic, fast yet controlled



### Bosu – V Seated Biceps

- Sit in the middle of the bosu picking your feet up off the floor into a V position
- Draw your belly button in to activate core stability
- Maintain neutral spine throughout
- Raise the dumbbells in front of the shoulders, elbows pointing down towards the floor and palms facing the body



#### Dumbbell - Squat With Shoulder Press 1 Arm Rotation

- Hold dumbbell in one hand squat down paying careful attention not to let dumbbell pull you to one side
- Stand still moving into an overhead press moving the dumbbell across your body
- Ensure stability is kept through your hip



#### Speed Ladder – Ski Jumps

- Similar to bosu ski jumps stand sideways onto the ladder
- Sitting back into your heels push explosively through your quads jumping diagonally across the ladder
- Absorb the landing through your quads and repeat the jump



#### Warmdown

After the routine has been completed, it is recommended you spend 10-20 minutes on the stationary bike to cool down. Once the bike has been completed start stretching as recommended in the ski stretching programme found on the winter sports page of [www.putneychiropractic.co.uk/ski](http://www.putneychiropractic.co.uk/ski)

This programme has been compiled by **Craig McLean** owner of the **Putney Chiropractic Centre**

Working on the simple principle that good spinal alignment leads to better health and less pain. Chiropractic is a way of keeping healthy and being at your best; for better sports performance, improved flexibility, better posture, a more comfortable pregnancy or more energy. Dr Craig McLean helps internationally renowned skiers at his practice such as Graham Bell, Warren Smith and Konrad Bartelski to ensure their bodies are up to the demands high performance skiing places on it.

<http://www.putneychiropractic.co.uk/>