

6

STRATEGIES FOR

Avoiding Injury on the Slopes

There's no doubt about it, snow sports are fun. Whether you're hurtling down the side of a mountain at 40 mph, or exploring backcountry terrain; snow sports always involve excitement, adventure and exhilaration. But snow sports are much more fun when you're physically fit.

There is nothing worse than having to limp in early from the slopes because you're tired or sore (or even worse, injured). Snow sports are major workouts and if you're not fully prepared physically for your holiday, not only will you be exhausted for most of it, but you're also at a much higher risk of injury, let's face it, nobody wants to come home in a plaster cast.

So, the goal of this guide is to get you as fit as possible, in the shortest time possible, and give you the best chance to have an awesome, injury-free holiday.

Snow sports demand a combination of both technique as well as muscle strength and flexibility to keep stay safe on the slopes, run after run. Decent stamina (aerobic fitness) is key if you're going to have enough energy to last the day, and anaerobic fitness is needed for the downhill bursts of activity.

So, if you're spending your hard-earned cash on a trip to the mountains, it's just a waste if you don't prepare. Any preparation you can do in the weeks leading up to your holiday will improve your performance and enjoyment, as well as reduce your chance of suffering an injury.

Here are our top six strategies for reducing the risk of injury while on the slopes.



STRATEGY 1: FITNESS

Anything that gets you out of breath will be strengthening your heart, and improving your lung capacity. Walking, running, stair climber, rowing, cycling and swimming are all great ways to work your cardiovascular system.

Because snow sports involve stamina as well as short-burst aerobics, the most effective preparation is a combination of high-intensity training and longer, more sustained efforts called interval training. Interval training is the best way to build cardiovascular endurance; the key to the training is to maintain a high heart rate, concentrating on short sprints.

Aim for two to three, 20-30 minute interval training sessions a week, working harder to increase the heart rate for one or two minutes, then working less hard to

drop it right down for 2–4 minutes before repeating the same sequence, throughout the session. This routine can be incorporated into any of your favourite cardio workouts from running to swimming. Remember to build up the exercise slowly and incrementally. So, if you're starting from a relatively low fitness level, have longer rest periods in between the sprints, and shorter sprint periods, and slowly build these up.

If you're not sure where to start, a physical therapist or personal trainer will be able to help you find a training schedule that will suit you.

The other reason that good fitness is a major advantage is because ski resorts are usually found at higher altitudes than

A SESSION MIGHT LOOK SOMETHING LIKE THIS:

- ▶ 5 MINUTE WARM UP
- ▶ 1-2 MINUTES SPRINT (high heart rate)
- ▶ 2-4 MINUTES INTERVAL (lower heart rate)
- ▶ 1-2 MINUTES SPRINT (high heart rate)
- ▶ 2-4 MINUTES INTERVAL (lower heart rate)
- ▶ 1-2 MINUTES SPRINT (high heart rate)
- ▶ 2-4 MINUTES INTERVAL (lower heart rate)
- ▶ 5 MINUTE WARM DOWN

where you would normally live. This means there's less oxygen in the air, meaning you need to breathe harder to get the same oxygen levels as you would at sea level and it can take a few days to acclimatise. Being physically fit can help combat side effects of a high altitude.

STRATEGY 2: STRENGTH

Skiing and snowboarding require a strong abdomen, and powerful legs, and in the case of snowboarding, good upper body strength too. The stronger you are, the less likely you are to get tired. If fatigue creeps in, your form can start to deteriorate, making it difficult to last the day as well as increasing your risk of a fall. Stronger muscles better support your joints, and absorb the forces from impacts and vibrations, and this can also help prevent injury.

The quadriceps muscles (front of thigh) work in two ways on the slopes, helping as you both bend and straighten the knees. The controlled lengthening of the quadriceps from straight to bent is called eccentric training and is fundamental to snow sports. Squats, lunges, deadlifts and plyometric jumps are all good exercises to specifically strengthen your quadriceps and hamstrings (back of thighs) and glute (buttocks) muscles essential for snow sports.

Good core strength (your deep abdominal muscles) is required to sustain postures for prolonged periods, maintain balance and control and support your back from injury. Planking exercises, bridging, using a Swiss ball, mountain climber and Pilates are all excellent exercises to improve core strength. Your physical therapist can give you specific skiing or snowboarding exercises to strengthen your legs and core.

STRATEGY 3: BALANCE

Balance is important in all aspects of snowboarding and skiing. Good balance will ensure better technique and efficiency when on the slopes but also help prevent falls and possible injury. Yoga and Pilates are two great forms of exercise for developing balance.

Simple balancing home drills include: Stand on one leg with eyes closed for two minutes twice a day. When this gets easy, add some small movements, such as little knee bends or brushing your teeth. You can advance this by standing on something wobbly or uneven (a Bosu ball at gym or a soft pillow at home). Stand on one leg whilst swinging the other leg around with your eyes closed; or practice picking up small objects off the floor whilst balancing on one leg.



STRATEGY 4: WARM UP

Warming up increases blood flow through your muscles, preparing them to respond to the demands of snow sports, and reducing your risk of injury. Stretching as part of warm up also helps improve flexibility in your joints and muscles. Walking briskly, a jog, swinging your legs doing some walking lunges will all help. Warm up again following a lunch break or long wait at a ski lift when you're out on the slopes.

A cool down and light stretch helps remove lactic acid from your muscles and keeps them subtle, which will make getting out of bed the next day easier! Once you come off the slopes, before sitting at your favourite après ski spot, walk around for 5-15 minutes, and do some stretches.

STRATEGY 5: EQUIPMENT

Apart from physically preparing your body to cope with the demands of snow sports, some equipment can help protect it from injury. Helmets are designed to resist impact and absorb energy to minimize damage to the brain. Helmets have been shown to decrease head injury risk and severity by 22-60%. Wearing a helmet really is a no brainer (pun intended!).

Badly fitting bindings and rented

equipment have been associated with increased injury risk. Make sure you have your bindings fitted and adjusted (even if you own your own equipment) by a certified technician. Ensure you also rent skis according to your skill level. Be realistic and don't over estimate your ability as this may increase your risk of injury. The use of hip pads and wrist guards whilst snowboarding have been shown to be beneficial in lowering overall injury risk too.

STRATEGY 6: KNOW YOUR STUFF

Experience and education are key. People with low skill levels are more likely to be injured but don't assume that experience and skill level go hand in hand. If you're inexperienced, lack confidence or feel a bit rusty – it's worth taking the time to attend ski/snowboarding school or get some private instruction for the first few days of your holiday. Take time to re-familiarise yourself with the snow, easing onto the green and blue runs before heading off to anything more challenging.

A higher proportion of people are injured in the afternoon. This may be due to a wide range of factors, including fatigue, business on the slopes, heavy lunches, or alcohol intake, as well as changes in snow conditions. Take regular breaks through the day or carry snacks to keep your energy levels up. Ensure you stay hydrated. Just because its cold doesn't mean you aren't sweating from physical exertion. Dehydration can result in mental and physical fatigue. Staying hydrated can help combat the effects of high altitude.

Finally, it's your responsibility and behavior that can keep you safe on the

slopes. Most injuries can be prevented, know the snow responsibility code and follow it:

- 1 STAY IN CONTROL AT ALL TIMES**
- 2 PEOPLE BELOW YOU HAVE RIGHT OF WAY**
- 3 OBEY THE SIGNS**
- 4 LOOK BEFORE YOU LEAP**
- 5 STOP WHERE ITS SAFE (ON THE SIDE OF THE PISTE), AND WHERE YOU CAN BE SEEN**
- 6 STAY ON THE SCENE AFTER AN ACCIDENT**

Applying these six strategies will significantly increase your chances of returning from your snow sports holiday uninjured and intact. Keep an eye on our Facebook page for more snow sports fun and advice. And have a great holiday!



POWER EXERCISES FOR SKIERS

Good fitness is one of the keys to staying safe on the slopes.

YOUR REHABILITATION PROGRAMME

This training programme has specific exercises to strengthen muscles around your leg and lower back as well as your core. It is important to ensure the exercises are performed with good technique. Poor practice can place potential strain on muscles and joints and lead to injury. With any squatting or lunging exercise ensure your knee remains aligned over your middle toe as you bend and straighten. Don't let it sway inwards or

outwards, use your muscles to control this – it is essential to train the muscles correctly, to strengthen them with ideal knee alignment to prevent injury.

PROGRESSION SPEED

able to do the exercise but to do it correctly, with appropriate control. If at any time, you feel pain or discomfort stop the exercises and consult your therapist.

FULL WALL SQUAT

Open your legs slightly wider than shoulder width, stand with your back resting against a wall, and bend your knees to the full squat position (90 degrees). Make sure you keep the middle of your knee-cap in line with the middle toes of your foot. Always keep your feet flat on the ground, do not let your heels raise from the floor. This exercise will help to strengthen your quadricep muscles, knee joints and legs. You can progress this exercise by doing them on one leg - single leg squat.



WALKING LUNGE WITH MEDICINE BALL TWIST

Start by simply doing walking lunges keeping your body straight and looking forward. Once you are happy with this progress to - Holding a medicine ball, take a step forwards, and bend your front knee past the vertical. Your back knee drops towards the floor. Always keep good alignment: your knee should stay over the 2nd ray of your foot, and never let your knee drop inwards. When you get into the lunge position, rotate your torso towards your knee. Continue into the next lunge, and repeat the twist.



SETS REPS

 **Video:**
<http://youtu.be/-X1x3DWolSw>

SETS REPS

 **Video:**
http://youtu.be/ViUO_rtbSiA

SUPINE BRIDGE BASIC

Lie flat on your back, with your knees bent, squeeze your buttock muscles and lift your body upwards. Keep your arms by your side and use them to help you balance. Make sure you maintain good posture (do not over-arch your lower back) and contract the deep abdominal muscles by squeezing your stomach towards your spine. This exercise helps to strengthen the abdominal, lower back, gluteal and hamstring muscles. You can progress this exercise, when your buttocks are up (back straight) alternatively straighten one leg at a time. Keep your hips level and don't drop your bottom.



LYOMETRIC CALF AND QUAD RAISE

Step up onto the step or bench, and drive your knee upwards towards the ceiling. Bring your knee back down and foot off the step. One foot will always stay on the step, while the other will come on and off the floor. Keep the speed of the exercise brisk. This is a strengthening exercise for the calf muscles and lower leg. Repeat one sided, then switch to your other leg.



SETS REPS

 **Video:**
http://youtu.be/fk_xUE3OKIE

SETS REPS

 **Video:**
<http://youtu.be/TLyrvatVIWU>

PLANK OPPOSITE ARM AND LEG

Rest on your forearms and your toes. Lift one forearm off the ground and your opposite leg off the ground. Hold this position. Repeat to the other side. Keep good straight posture, and do not let your back arch too much. This is a core strengthening exercise.



FULL SQUAT SINGLE LEG CUP REACH

Place 5 cups in front of you, and stand in the middle of them. Squat down (on one leg), and reach for one cup then come up, then repeat with the second cup, etc. Be careful to maintain control to the leg, and do not perform the exercise too quickly. Always keep your foot flat on the ground, do not let your heel raise from the floor. Mix this exercise up by doing the same thing but with your leg/knee straight and back straight hinging at the hips to reach the cups. This works your hamstrings and glute muscles more.



SETS REPS

 **Video:**
<http://youtu.be/FslkTrYqdcS>

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SIT-DOWN SQUAT WITH BAND

Place your feet shoulder width apart, or just outside shoulder width. Tie an exercise band around your knees keeping it quite tight. Stand in front of a chair, and slowly bend your knees. Maintain a good curve in your lower back, and control sitting down onto a chair. To stand up, do the opposite. Maintain a good spinal curve in your lower back, and push upwards through your legs to straighten your knees into a standing position. Repeat as required. If you have good control you don't have to actually sit on the chair, just lower and raise into a full squat.



SETS REPS

 **Video:**
<http://youtu.be/CkeKtaK7Peg>

PLANK ONE ARM ROTATION

Rest on your forearms and your toes. Lift one forearm off the ground. Twist your whole body and raise your arm directly in the air. Hold this position and then return your arm back down to the floor. This is a core strengthening exercise.



FLOOR SUPERMAN TWO LEGS TWO ARMS

Lie on your front, and lift your legs up behind you, and your arms in front of you. Hold this position, and then relax. This exercise helps to arch your lower back (to create what is known as a lumbar Hyperlordosis) while strengthening the lower back, abdominal and buttock muscles. If this is too hard to initially, start by just lifting the legs or arms, or opposite arm and leg at a time.. then progress to raising arms and legs together.



SETS REPS

 **Video:**
<http://youtu.be/Zq8vh3tI3-M>

BULGARIAN SPLIT SQUAT WITH SINGLE LEG RDL

Place one foot on a chair or bench behind you, and the other flat on the floor. Go into a squat position by bending your knee as far as comfortable. Make sure you keep your knee in line with the middle of your foot, do not let your knee drift outwards or inwards. Then straighten your leg to the start position. Now bend forwards at the waist, keeping your back as straight as possible or slightly arched. Go down to the horizontal, hold, then come back up and repeat the squat. This is a strengthening exercise for your quadricep muscle group located at the front of your thigh, but also strengthens a number of other muscles in the leg.



SETS REPS

 **Video:**
<http://youtu.be/kIRx9zYVwWk>

MOUNTAIN JUMPER/SQUAT THRUST

Start in a press-up position, and jump both legs in towards your chest, and then jump both legs out so they are straight. This exercise is great for strength-endurance and works the whole body and your core.



SETS REPS

 **Video:**
<http://youtu.be/1JnUjTtXtJk>

LATERAL WALK WITH EXERCISE BAND

Place an exercise band around your knees, and go into a squat position (as far down as feels comfortable). Walk one leg to the side, and then follow with the other leg. Repeat to one side for five steps, then return to the start position.



SETS REPS

 **Video:**
<http://youtu.be/iOw7KczRvkk>

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