Get Fit to Ski at Sportsmed Biologic

Jennifer Smallridge, Accredited Exercise Physiologist

Let it snow, let it snow, let it snow…
While the temperature is dropping, cars are frosting over and the heaters are getting turned up, skiiers everywhere are rejoicing at the prospect of a good snowfall. It's estimated that 200 million people worldwide hit the slopes annually. Whether you are new to the sport or a seasoned ski bunny, skiing certainly can take its toll on the body. Read on to discover how you can increase your ski fitness and come out of the season injury-free!

Whats up with skis and knees?
Without doubt, the most common injuries for skiiers involve the anterior cruciate ligament (ACL) of the knee, closely followed by damage to the medial cruciate ligament (MCL).

There are three well-researched mechanisms which explain why skiier's knees are so frequently injured:

- Falling forward and catching the inside of the ski, forcing the knee into a position of rotation
- Landing from a jump with an extended knee, drawing the tibia (shin) forward on the femur (thigh)
- Falling backwards and having the downhill ski dig into the snow, creating internal rotation on an already bent knee.

Regardless of how it occurs, it is widely agreed that pre-ski season conditioning (involving strength, flexibility and agility) can reduce injury incidence and severity.

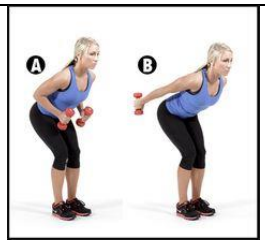
Across all ages, muscle strength is proposed to reduce the strain on the ligaments of the knee during different movements. More specifically for older adults, specifically prescribed exercises can also help to augment bone mineral density and prevent fractures.

Creating strong and long muscles
Majority of the time spent downhill skiing requires *eccentric* force to be generated by the quadriceps muscles – a specific type of contraction where the muscle is lengthening whilst controlling and creating force.

The below program is an example of what you might be prescribed to reach your ski season goals at Sportsmed Biologic. It's full of ideas to incorporate into your training program before you ski, with a focus on eccentric control, neuromuscular power, balance and flexibility. Specific and supervised exercise prescription is strongly recommended if you have a pre-existing injury or medical condition, and to get the most from your program.

Always check with your health professional before commencing a program for the first time.

Exercise	Description	Repetitions	Image	Why?
Warm up of your choice	Walking, jogging or cycling	10-15 minutes of continuous movement		Gets the blood flowing and adequately prepares your body for exercise
Plyometric training				
Tuck jumps	Jump high and bring your knees up towards your chest	3 sets of 3-5 repetitions of each exercise		Plyometric training is an essential component of injury prevention and strength – preparing the body for the variety of forces that can arise in the snow
Broad jump and hold	Jump forward and land in a semi-squat position			
180° jumps	Jump and twist mid-air to land facing the opposite way			
Single leg hop and hold	Hop forward off one leg and on to the same leg, landing in a single leg semi-squat position			
Ski-specific strength				
Gluteus medius activation on the wall	Stand next to the wall in a semi-squat position, raising the inside knee and pressing it into the wall (the glutes should activate nicely)	2 x 10 second hold each side		Assists with the 'push out' phase of skiing and turning

Swissball hamstring curls	Lie flat on back, heels on ball, use glutes to lift hips up and bring heels towards bottom	3 x 10, curl in quickly and return slowly		The balance between the quadriceps muscles and the hamstrings are closely linked with preventing ACL injuries
Barbell Romanian deadlifts	Bend your knees slightly, keeping your back straight, then lean forward with a barbell, hinging at the hips. Push your hips forward and return to a standing position	Depending on your experience, start with 3 x 5 and gradually increase weight		
Squat hold with bent over tricep rows	Assume a deep squat position, lean forwards with elbows behind you and straighten arms (can use dumbbells or Theraband for this)	3 x 10		This mimics the demand on the quadriceps with the added use of the arms in a 'pushing' fashion
Single leg eccentric leg press	Select a weight on a leg press machine that you can comfortably push out on 2 legs, and then return with control with only one leg	3 x 10		Eccentric control of the quadriceps muscles will create desirable adaptations to the muscles and tendons required for strength and endurance.
Medicine ball squat pulses	Hold a medicine ball close to your chest and squat down low (use a bench for guidance if needed) – pulse up an inch, then down an inch and feel the burn!	3 x 10		
Medicine ball chest throws	Using a wall or a partner, select a medicine ball that you can throw and catch comfortably, but explosively	3 x 10		Strengthening the front of the shoulders is required for control of the poles and assists with

				shoulder joint stability.
Medicine ball rotational throws	Again, using a wall or a partner, throw the ball rotationally while generating the force from your trunk.	2 x 10 each side		The core muscles, especially those used for rotation, can help to control and strengthen downhill ski turns. Exercise caution with this exercise if you have a back injury.
STRETCH: Hamstrings, hip flexors, calf muscles, chest, lower back and triceps – 30 second sustained holds each side – see your exercise physiologist for specific recovery methods.				

Sources:

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