

## UNIVERSITY SPORTS MEDICINE

# Ski Conditioning

Get ready for the slopes by starting your pre-season conditioning program 8 to 12 weeks before the first snow of the season. If that first snow is only a few weeks away, **GET STARTED NOW!** A well-trained individual will be able to perform better, ski more safely, and enjoy themselves during a day of long runs and lift lines.

### Stamina and Endurance

Great choices for cardiovascular conditioning include:

- bicycling
- slide board training
- stair climbing
- rollerblading
- elliptical trainer
- running a hilly course
- step/low-impact aerobics
- rowing.

Good off-season sports that include lateral or cutting actions which will train your muscles for the side-to-side agility involved in skiing include:

- basketball
- squash
- racquetball

Cardiovascular exercise should be done 3 to 5 times per week for at least 30 minutes at a vigorous pace. If you're just getting started, begin with a moderate pace for 10 to 15 minutes and add 1 or 2 minutes each week. After you've built up to a 30-minute workout, gradually increase the intensity of your exercise. Using a target heart rate is one way of monitoring your exercise intensity. Try to stay within 70 to 85% of your maximum heart rate. (A good estimate of your maximum heart rate is to subtract your age from 220.) Don't forget to warm-up and cool down at an easy pace for about 5 to 10 minutes at the beginning and end of your workout.



### Strength

Your strength training program should include exercises that improve knee stability and strengthen the muscles used in skiing. These muscles include your:

- quads (front thigh)
- hamstrings (back thigh)
- gluteals (buttocks)
- hip abductors and adductors (outer & inner hip)
- abdominals
- back extensors (low back)
- muscles on the inside and outside of your foot and ankle

Strengthening exercises should be done 2 to 3 days per week with at least a day in between. You should do 1 to 3 sets and 8 to 12 repetitions of each exercise, or until muscle fatigue. When exercising the abs and back focus on endurance. Do those exercises for 30 seconds to 2 minutes.

Consider adding the following exercises into your training regimen:

- Squats with free weights, leg press machine, or your own body weight.
- One-legged squats with 45 to 90 degrees knee flexion.

- Standing lunges (both forward & diagonal). Proper form is critical: Keep your front knee over your foot. If lunges cause you knee pain, discontinue this exercise or have a physical therapist review your technique.
- Balance on one leg with your knee slightly bent and move the other leg out and in, and back and forth. Or stand in a skiing position with your knees flexed and shift your weight from side to side, balancing for a while on each leg.
- Side to side steps, hops, or jumps. (You can use an elastic band or waist belt to increase resistance.)
- Standing or lying leg lifts (out to the side and backwards). Increase the difficulty with elastic band or leg weights. Keep your stomach tight and move from your hips, not your waist. You can also use the hip abductor/adductor machine.
- Calf raises on a step.
- Core exercises: transversus, upper, and lower abdominals.
- Back extensions (many variations including: lying on stomach, lifting shoulders, hold for count of 3).

### Flexibility

Good flexibility will allow you to assume a better, lower ski position and may help prevent muscle injury. Important muscle groups for skiers include:

- quads and hip flexors (front thigh)
- hamstrings (back thigh)
- hip adductors (inside thigh)
- gluteals (buttocks)
- back extensors (low back)
- back rotators
- calves (particularly the soleus since the knee is usually bent)
- foot and ankle stabilizers (inside and outside shin).

A knowledgeable exercise professional can teach you how to perform stretches for each of these areas. Assume the stretch position (feel tension, not pain) and hold for about 30 seconds. Repeat 1 to 3 times. Stretch daily or as part of your workout. Stretch at the end of a day of skiing or later on in the hot tub!

### Important Safety Tips

- Pay attention to the skiers and boarders on the mountain around you. Avoid wild or “out of control” skiers just like you would avoid an erratic or speeding driver on the highway.
- Work with a knowledgeable ski professional to select your skis and set the bindings to be right for your size, weight, and skill level. Have your skis, boots and bindings checked each year at the start of the season and halfway through the season. *Check your bindings in the lift line to make sure they release using your own body weight.*
- Make sure you eat a good dinner the night before and a hearty breakfast the day you go skiing. If your muscles haven’t been fueled properly, you are more likely to get fatigued and injure yourself late in the day. Stay well hydrated by drinking plenty of non-caffeinated, non-alcoholic beverages. All that coffee and beer isn’t as helpful as juice, water, soup or herbal tea.
- Consider taking lessons to increase your skill level or to make the crossover between skiing and snowboarding. Ski lots of days to improve your control and balance. Remember to keep your hips above your knees, your feet together, and arms forward.



- Know your own limitations and ability. Start the day by skiing on trails with which you are comfortable. This allows you to warm up safely and avoid injury related to loss of control. Test your ability on new runs slowly and gradually as your skills improve. Don't feel pushed to ski on a run that is beyond your ability just because your friends are. Be aware of the ski conditions. The ability to ski a particular run is not only based on your ability, but the condition of the trail: ice, powder, slush...
- If you fall, keep your knees FLEXED. Don't try to get up until you've stopped sliding. When you're down - STAY DOWN!
- Take rest breaks and, if you're feeling tired, head for the ski lodge. "Just one more run" may be the run you regret. Injuries are more likely to occur when you are cold, tired, and your reaction time is slowed. Don't drink alcohol and ski as this also slows your reaction time.
- Skiing is a vigorous activity that typically takes place at a high altitude. This means that your body and muscles will fatigue more quickly because the air is "thinner" and drier. Drink plenty of fluids, fuel your muscles with lots of carbohydrates, and pace yourself.
- Consider the use of protective gear! We all wear helmets (or should wear helmets) when we road bike, mountain bike, or roller blade. Why should skiing or snowboarding be the exception to the rule? While knee and shoulder injuries can be painful and debilitating, head injuries can be fatal. Consider the use of wrist guards designed for snowboarding, especially if you are learning that sport at an older age!
- Due to Colorado's high altitude and bright sun, be sure to use sunscreen and wear sunglasses.