MANITOBA MASTERS SKI CLUB

HANDBOOK 1

Fitness

for the ski racer

Self-Assessment for the Serious Skier

A symmetrical musculature is key for on-slope success
By Laura Keller, M.P.T
September 14, 2004

Winter is around the corner, and you've been dryland training all summer and fall. You've been working on cardio with mountain biking and in-line skating, your lunges and squats are works of art, and you're a living testimonial to plyometric training. What else could you possibly need before that first flake falls?

At the risk of sounding Zen, the answer lies within you.

While most of today's pre-season training programs are quite sophisticated, there is no benchmark to let an athlete know if he or she has done enough preparation. Simply put, it's your body's ability to work as a unit that determines how prepared you are for intense skiing. If your musculature is not symmetrical, then your ability to resist forces like gravity and momentum will be compromised. When you catch an edge or make a hard landing, your weak side is likely to fail.

A series of balance, excursion and jump tests - performed on one leg at a time - will allow you to assess your personal weaknesses. Look for discrepancies between your right and left sides, and address them by using the test themselves as strengthening/balance drills. By incorporating the tests into your training program, you'll develop skills that will directly enhance your skiing.

In the pre-season, if a drill shows an imbalance, then you should do that drill on the weaker side at least three times per week, incorporated with your normal land workouts. A re-test after 2 weeks will reveal how much improvement you've made - continue the drills until the re-test shows muscular balance.

During the race season, maintain your symmetry by doing these drills once a week.

The testing should be always conducted in a safe environment and should cause no pain. If you are rehabbing from an injury, please consult your physical therapist before undergoing any of these tests.

Self-Assessment Tests

Balance test #1: Stand on one leg with your back toward the wall, about 18 inches from the wall. With both arms, reach overhead and touch the wall. If successful, then take a small step forward and repeat until you come to failure. Mark the distance of your furthest reach. Repeat with your other leg, and then compare the two distances.

Balance test #2: Stand on one leg and reach with the same-side arm to the ground behind you by turning at a 45-degree angle. Mark the distance, them repeat on the other side.

Excursion lunge test: Stand on one leg, lunge to the side with your arms reaching out at waist height. Mark the greatest distance of three trials that you can successfully perform the lunge and still return successfully to starting position. Compare both sides.

Timed lunge test: Stand on one leg, do a reverse lunge by squatting on the stance leg and reaching back to tap the opposite foot on a mark set about 4 feet from stance heel. Count how many successful taps you can perform within one minute. Repeat for opposite side.

Jump distance test: Stand on one leg; jump forward with a 90-degree rotation to the same side. You must be able to stick the landing and hold it for a total of 5 seconds. Measure the farthest distance. Repeat for opposite side.

Jump timed test: Start on one leg, mark your starting point, and then mark a 3-foot distance at a 45-degree angle in front of you. Count how many successful jumps you can make between the marks within one minute. Repeat with opposite leg.

You will likely notice a pattern of weakness on one side versus the other as you perform these tests. Most people will find some level of asymmetry, but the goal of perfect balance is attainable.

In the first balance test, a difference between sides may mean a tight hip flexor that is inhibiting your control. With the lunge tests, a marked difference in distances or amount of lunges per time may show a weakness or lack of control in one side versus the other. In the excursion lunge test, a tight calf might limit the depth of your lunge by limiting how much your ankle will allow you to sink down. Your quality of movement may deteriorate quickly when doing a timed test, showing a lack of endurance. A poor jump test will show an inability to control the forces of momentum. You may want to do the tests with a partner who can give you feedback on the quality of your control, which can show an imbalance even if the measurement is the same.

As mentioned above, tight or inflexible muscles can affect your mechanics enough to hamper your explosive power and your agility on the slope, thereby affecting your reaction time. The typical tightnesses that skiers contend with are in a large part due to the posture of skiing. The tucked position will tend to cause tight hip flexors (Psoas muscle) and tight hamstrings, and the fixed position in the boot can cause tight calf muscles, particularly of the Soleus.

A good stretching program requires that you hold the stretches statically for 45 seconds each, twice a day. These three stretches are extremely beneficial for skiers:

Hip flexor (Psoas) stretch: Stand in a tall posture facing a wall, place one leg behind you and rotate it inward as much as you can. Then lean the same side of your pelvis toward the wall while keeping your upper body parallel to it. Tighten you butt and abdominals to feel the full stretch in the front of your hip, almost in the groin area. Repeat with the other leg.

Hamstring stretch: Lie on your back and bend one knee toward your chest. Then, use a towel or belt around heel to pull you foot toward your head. Keep the extended knee slightly bent so you do not risk overstretching the sciatic nerve.

Calf (Soleus) stretch: Face a wall and stand about arm's distance away. Place one foot a good distance behind you, and position your front foot to the inside of it, so that the feet are crossed. Place your hands on the wall to keep your upper body parallel, and then sink your whole body by bending at the knees. This is different than the typical calf stretch (for the Gastrocnemius) where the back leg stays straight and you lean forward onto the front leg and you feel through the whole muscle.

Now that you have the information to detect imbalances in your body, you have the advantage to work on discrepancies before you hit the slopes. Save all of your measurements, so you can retest yourself throughout the season.

Laura Keller, M.P.T. works with Kevin R. Stone, M.D. and the entire rehabilitation team at The Stone Clinic, in San Francisco, California. She can be reached at 415-563-3110, or laura@stoneclinic.com. Visit www.stoneclinic.com for more information.

The Forgotten Muscles

No lead actor can do without a supporting cast. In the same way, any major muscle is only as strong as its stabilising muscles, especially on a shifty surface such as snow. Most strength workouts are done on a firm surface, giving the stabilising muscles a break. But move your workout onto an exercise ball and, to keep you balanced, those smaller muscles are forced to work. In skiers' terms, that means powder, crud or anything else Mother Nature throws at you won't faze you. Try doing your regular lifts (for example, chest press, biceps curls, push-ups-even squats as you improve) on a ball. Then mix in the following exercises, and soon you'll be as unmoveable as the mountain itself.

Ball squats are as easy as green runs for sixth-ranked U.S. snowboarder Matt Drinker, who skied last season for the first time in 15 years. "I loved it," he says. "These squats are a perfect ski exercise." Don't try this advanced move without previous exercise ball training. If you do try it, use a wall for support.

Hamstring Extension
place your heels on the ball. Your legs and straight. Extend your arms out from your sides Keep your abs and glutes tight throughout the heels toward you as far as you can, bending rolling the ball toward you as you do so (1B). second; then roll the ball back to the starting sets of 12 reps.
hamstrings, trunk muscles
Bring your arms closer to your sides; it forces muscles to work harder.

Lie ace up, and back should be for balance (1A). exercise. Pull your your knees and Hold for one position. Do three
What it works
As you improve the stabilising

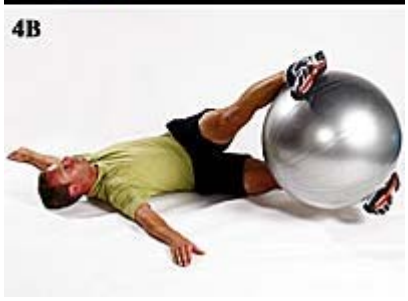
Ball Crunch
with the ball your hips and mid-back (your hips toward the front of Lift a medicine ball head with both Keep your arms in your ears and a in your elbows

Medicine
Lie face up, supporting lower- and should be the ball). above your hands (2A). line with slight bend

throughout the exercise. Slowly lift your head, neck and shoulders as far as you can, keeping your back straight (2B). Pause, then slowly lower to the starting position. Do three sets of 12 reps.
What it works upper abs
As you improve use a heavier ball

Prayer

Kneel facing the ball. Interlace your fingers and place your forearms on top of the ball, leaning forward slightly (3A). Keeping your abs tight and back straight, slowly roll the ball forward by extending your forearms (3B). Pause for three seconds; then roll back to the starting position. Do three sets of 12 reps.
What it works abs, obliques, lats
As you improve Separate your hands; this requires more strength and stability. Or, instead of kneeling, try it with two feet on the floor, shoulder-width apart, and legs straight.



Scissors Lift

Lie on your back, and squeeze the ball between your lower legs. Press your lower back into the floor throughout the exercise. Slowly raise your legs to a 45-degree angle with the floor (4A). Pause, and then lower the ball as far as you can without resting it on the floor. Do three sets of 12 reps.
What it works lower abs, adductors
As you improve Work the obliques with the Twister. Do one scissors lift, with your hands straight out from your sides. When your legs are raised, rotate your hips to the right, lowering the ball as far as you can (4B). Return to the centre, then rotate to the left. Continue for 12 reps on each side. This also works your shoulders.

Jackknife

Assume a push-up position, with your shins and knees propped up on the exercise ball (5A). Slowly roll the ball toward you, bending your knees and bringing them toward your chest (5B). Hold for one second, and then extend legs back to starting position. Do three sets of 12 reps.
What it works abs, hip flexors, arms
As you improve Start with your feet on the ball, and keep your back straight throughout the exercise. As you roll the ball forward, your legs will stay straight until you are in a pike position (5C). Then pull your knees toward your chest.

Reverse Back Extension

Place the ball under your stomach; then place your hands on the floor in front of you and balance. Slowly lift your legs until your body is in a straight line from your head to your ankles (6). Hold for one second; then slowly lower to the starting position. Do three sets of 12 reps.
What it works core, especially lower back

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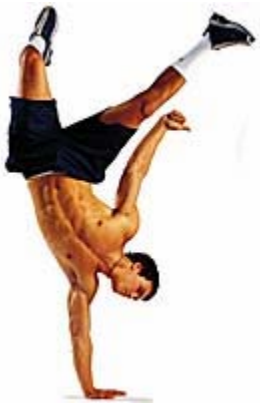
The Ultimate Skier's Body



by

Kellee Katagi (Ski Magazine)
There's a reason Calvin Klein doesn't recruit skiers for its ad campaigns: There are no waifs on the World Cup circuit.
The ultimate skier's body is powerful, from strong ankles to a focused mind-and every finely tuned muscle in between. Need proof? Enter slalom moguls champ Jeremy Bloom, 20, and ace Sarah Schleper, 23, both weight-room regulars. Bloom, one of the University of Colorado football team's top recruits, also gets buff with team training, while Schleper mountain bikes, plays squash and does yoga. You may never be Bloom's or Schleper's body double, but with a little training, you can build the muscle you need to ski strong.

To start sculpting a skier's body, try these featured exercises. For a complete strength-training program, search under keywords "fitness plan" on www.skimag.com.

Think your legs get all the skiing action? Navigate a mogul field or haul yourself across the flats, and you'll quickly change your tune.

For ultimate-skier legs, think tree trunks, not toothpicks. Quads of steel are a given, but don't neglect your hamstrings, glutes or ankles.

Upper Body: Shoulders
Open Door, Close Door
Stand upright, holding a light (one- to three-pound) dumbbell in each hand. Position your forearms parallel to the floor and the dumbbells perpendicular to the ground. Keeping your shoulders relaxed and your upper arms still, rotate your forearms outward as far as you can without arching your back. Return to the starting position. Repeat for three sets of 12-15 reps.

Triceps
Hail a Cab
Stand upright with your arms over your head. Hold a dumbbell in your right hand, and use your left hand to stabilize your upper right arm. Keeping the upper arm still, drop your hand behind your head until you feel a stretch in your triceps. Then raise your arm to the starting position. Keep your wrist straight throughout the exercise. Do three sets of 15 reps with each arm.

Abdominals

The Plank
Begin on your knees in a modified push-up position, resting on your forearms instead of your hands. Align the elbows under the shoulders. Tighten your abs, and lift your knees off the floor until your body is in a straight line from head to heels. Hold for 20 seconds; relax. Do three reps. Gradually build up to holding for one

minute.

Lower Back
Prone Scissors
Lie face down, with arms stretched out in front of you. Spread your legs 18 inches apart, and flex your ankles so your toes touch the floor. Keeping your legs straight, abs tight and ankles flexed, lift your legs so your toes are just off the floor. Then bring the legs together as if you had magnets lining your inner legs. Squeeze, and hold for five seconds. Return to start, but keep your toes off the floor. Do three sets of 15 reps.

Lower Body: Legs

Reverse Lunge
Stand upright, holding a dumbbell in each hand. Keep your abs tight and back upright throughout the exercise. Supporting your weight on your right leg, extend your left leg behind you. Lower your body until your right thigh is parallel to the ground. Keep your right knee pointed forward and aligned with the ankle. Using both legs, pull yourself back up to the starting position in a smooth motion. Do three sets of 15 reps with each leg.

Ankles
Stand on your left leg on a balance board for three one- to three-minute intervals; then repeat with the right leg. As you improve, try squatting on two legs on the board. Keep your knees aligned with your ankles as you squat. If you don't have access to a balance board, practice standing on one leg with your eyes closed for one- to three-minute intervals.

Power Ball

So, you've been doing squats since October. But if you can't translate that strength into quick, powerful movements, your efforts won't mean squat on the hill. How about revisiting an old-school exercise tool? The medicine ball will help you achieve ski fitness that emphasizes not just strength, but also explosive power, core stability and split-second responses.

"Skiers use heavier weights to build strength, but the medicine ball is a much lighter option that helps you move more dynamically," says Andy Higgins, co-author of Medicine Ball Training and director of the National Coaching Institute in Ontario, Canada. The result is faster, more fluid skiing and reduced risk of injury, which is why the U.S. Ski Team incorporates medicine balls into all phases of training, says Per Lundstam of the U.S. Ski Team's Sport Science Department. "It teaches you to adapt very quickly."
To learn to adjust to whatever the mountain throws your way, try the following workout. Work on the basics for several weeks to cultivate core and leg strength, then progress to the advanced moves, which will help you translate that strength into smooth, powerful turns.

Lift *Basic*
Lie facedown on the floor and hold a medicine ball out in front of your head with both hands. Keeping your arms steady and your face downward, lift your chest several inches off the ground. Lower to just above the starting position. Do three sets of 12 reps.
Advanced
Lie facedown on an exercise ball so that it supports your hips and lower torso. Brace your feet against a wall or have a partner hold them on the floor. Hold a medicine ball in front of you so it's touching the floor. Raise your chest until your body is in a straight line, tossing the ball in the air as you lift. Catch the ball and lower to starting position, but don't touch it to the floor. Do three sets of five reps.

Target Muscles
upper back, lower back, glutes, and triceps

Crunch

Basic
Lie on your back with your knees bent and your feet flat on the floor. Hold a ball in both hands with your arms outstretched behind your head. Tighten your abs and crunch up, keeping your arms steady above your head and your lower back on the floor. Do three sets of 12 reps.
Advanced
Use the same form as the basic move, but pull up farther so your lower back is off the floor. As you come up, keep your hands overhead and toss the ball to a partner or bounce it off a rebounder (see page 194). Stay up until you receive the ball back, then lower to the starting position with a slow, controlled movement. Do three sets of five reps

Target Muscles
abs, lats, and triceps

Twist

Basic
Lie on the floor with your knees bent. Hold a medicine ball above your chest with both hands and crunch up. Keep your tailbone on the floor and use your abs to hold yourself up. With your arms extended, rotate to the left and touch the ball to the floor. Return to the center, pause, then rotate to the right. Do three sets of 20.
Advanced
As you return to the center after rotating to the left, throw the ball to a partner, who should be seated ahead of you and to your right. Receive the ball back and twist again to your left, touching the ball to the floor. Do five reps, then have your partner move ahead of you and to your left, and do five to the right. Repeat for a total of three sets.

Target Muscles
abs, obliques, chest, and triceps

Squat

Basic
Stand with your feet a little wider than shoulder-width apart, and hold a medicine ball in front of you with both hands. Slowly drop your glutes back as if you were sitting in a chair. Keeping your weight on your heels, your knees behind your toes and your chest lifted lower as far as you can without losing your form. As you squat, lower the ball between your legs until it's almost touching the floor. Then stand up and press the ball up above your head. Lower the ball to the starting position. Do three sets of 12 reps.
Advanced
When you're almost touching the floor with the ball, explode upward, tossing the ball above you as hard as you can (don't try this one with a low ceiling). Do three sets of five tosses. Also, try doing the squat on one leg instead of two to improve your balance.

Target Muscles
quads, hamstrings, glutes, calves, shoulders, and triceps

Lunge

Basic
Stand between two lines about 10 feet apart. Hold the medicine ball in front of you with both hands. Step explosively to your left, landing your left foot across the line. Lower the ball to the outside of your left ankle as you drop into a side lunge position. Then reverse the motion, rotating your body to a forward position as you straighten and hop back to the center. Repeat, moving to the right instead of to the left. Do two sets of 20 lunges (10 on each side).

Advanced
Have a partner stand in front of you and throw the ball to you so that you receive it as you start to drop into the side lunge. Lower the ball to the outside of your ankle as you lunge. As you explode up, toss the ball back to your partner, rotating your trunk back toward the center.

Target Muscles
quads, hamstrings, glutes, hip abductors, calves, trunk rotators, chest, triceps, and shoulders

Power Tips

Start with a lightweight ball (one to three pounds) and progress to a heavier one. Don't attempt the advanced exercises until you've mastered the basics. For exercises that involve throwing and jumping, Lundstam suggests limiting your reps to five. "With fewer reps," he explains, "the emphasis is on stimulating your neurological system rather than just building muscle. That'll help you coordinate your muscle contractions. Ultimately, you'll be faster, stronger, more explosive."

Article from Ski Magazine by Kellee Katagi December 2005