

## Joint Effort

*Building action-ready knees is all about listening to what they're trying to tell you. From Outside magazine. Some quick exercises to keep your lower body injury free.*

By **Marc Peruzzi**

It's the dreaded, season-ending pop! Tear your anterior cruciate ligament, or ACL, and surgery is in your immediate future—followed by months of rehab. But new research into the way muscles, cartilage, skin, and ligaments work together in the knee is leading to better preventive exercises to keep you on the slopes. Scientists now believe the knee's parts function together like a sensory organ, telling your body where it is in space so your muscles can react to prevent a fall. The more you practice recognizing those signals—a body-awareness skill called proprioception—and speed up your reaction time, the greater your chance of avoiding the operating table. "Balance and proprioception are probably the two biggest issues in knee-injury prevention," says Dr. Robert LaPrade, a knee surgeon and director of biomechanics research at Vail, Colorado's Steadman Philippon Research Institute who recommends adding these four proprioception- and strength-boosting moves to the end of your conditioning workout three to five times a week.

### SINGLE-LEG KNEE BENDS

With toes straight ahead, bend your non-weight-bearing knee. Squat on your weight-bearing knee to 30 degrees of flex (zero degrees equals straight), keeping your knee behind your toes. Take one second to go down, one to come up—for as many reps as you can while maintaining good form. Add a resistance cord for more intensity.



### SINGLE-LEG DEAD LIFTS

Stand on one leg and, keeping your back and opposite leg straight, hinge forward at the hip. Contracting your glutes and hamstrings, "pull" yourself back to the starting position. To progress, hold a five-pound ball or weight. Three sets of five to eight.



### LATERAL AGILITY

Hop laterally from leg to leg. Emphasize absorption—quiet feet—by bending at the knee and hip upon landing. Step it up by attaching a resistance cord to your waist to further challenge balance and proprioception. Work until you feel the burn, while keeping good form.



### **FORWARD BOSU HOP**

Hop forward onto a Bosu ball (\$80; [bosu.com](http://bosu.com)) with both legs, absorbing the landing through the knees and hips. Continue the exercise by hopping off with the same absorption technique. Start slowly with five or eight on day one, then increase reps at will. Need more challenge? Flip the Bosu, so the inflated side is down.

