External oblique

Rectus abdominis

Quadriceps

Gastrocnemius

Soleus

Level 3: box jump.



Rectus abdominis External oblique Gluteus maximus Quadriceps Gastrocnemius Soleus

Level 1: vertical jump.

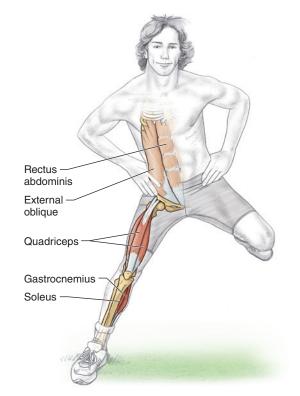
#### Level 2: Lateral Jump

Landing on one leg is more difficult, and the level 2 exercise also adds lateral movement. Landing on one leg from a lateral jump is more like a change of direction (cutting) performed in soccer. Although the exercise is markedly slower than cutting during a match, correct form, not speed, is what is important. Stand on one leg with your upper body bent slightly forward from the waist, knee and hip slightly bent. Jump approximately 1 yard (1 m) sideways from the supporting leg to the free leg. Land gently on the ball of your foot. Bend your hip and knee slightly as you land, and do not let your knee buckle in. Also control the trunk so that it remains stable. Recent research

# Jumping

#### Level 1: Vertical Jump

Stand with your feet hip-width apart. Place your hands on your hips if you like. Imagine you are about to sit down on a chair. Bend your legs slowly until your knees are flexed to approximately 90 degrees, and hold for 2 seconds. Do not let your knees buckle in. From this squat position, jump up as high as you can. Land softly on the balls of your feet, with your hips and knees slightly bent. Repeat the exercise for 30 seconds. Rest and then perform a second set.



Level 2: lateral jump.

has shown that poor trunk control precedes a wobbly knee on ground contact, yet those with good trunk control also have good control of the knee.

Maintain your balance with each jump. Watch out for errors such as slight trunk rotation, lateral flexion, or both. Also watch for counterreactions from the arms in an attempt to maintain balance. If you are having trouble controlling your trunk, reduce the distance of the lateral jump until you develop adequate control. Only then should you increase the lateral distance of the jump. Repeat the exercise for 30 seconds, rest, and then perform a second set.

#### Level 3: Box Jump

Level 3 combines lateral, forward, and backward movement with two-foot landings. Stand with your feet hip-width apart. Imagine that a cross is marked on the ground and you are standing in the middle of it. Alternate jumping forward and backward, left and right, and diagonally across the cross. Jump as quickly and explosively as possible. Your knees and hips should be slightly bent. Land softly on the balls of your feet. Do not let your knees buckle in. Jump from point to point on the cross you have envisioned on the ground, executing the proper landing technique. Land quietly, absorbing the shock with the ankles, knees, and hips. Repeat the exercise for 30 seconds, rest, and then perform a second set.

## **Muscles Involved**

- **Primary:** Gluteus maximus, quadriceps, gastrocnemius, soleus
- Secondary: Abdominal core, spinal extensors

### **Soccer Focus**

Knee control when landing is a key factor in injury prevention. These three simple plyometric exercises address landing. (Plyometric exercises stretch a muscle right before it contracts.) Land softly and quietly, absorbing the force of the landing with the ankles, knees, and hips. Keep the knees over the feet, and do not let the knees collapse in.

Do not land stiff-legged when you come down from a jump. This seems to be an especially common problem in middle and high school female players. The shock of landing combined with weak hamstrings causes some players to land stiffly and erect. Landing on stiff, straight legs can cause the tibia to shift forward, putting stress on the ACL. When the knees are nearly straight, the hamstrings are at an anatomical disadvantage for resisting this forward shift of the tibia, setting up the ACL for injury. This tibial shift does not happen if you flex the knees during impact; the greater the knee flexion, the less strain on the ACL.