

## Information about ACL injuries

- The most common mechanisms of non-contact ACL injuries appear to be pivoting or landing a jump.
- When cutting or landing, women tend to be more upright (less hip, knee flexion) than men.
- The key components of injury-prevention programs include single-leg balance, strengthening and proper body alignment with an emphasis on avoiding the knock-kneed position.
- Frequency can vary from daily to three or four times per week. Anything is better than nothing. Improvement can be seen in six to eight weeks.

### Questions

Researcher/biomechanist Tim Hewett, who has studied ACL knee injuries for years as foundation director at Cincinnati Children's Hospital, addresses frequently asked questions.

#### **Q: How early should female athletes begin using ACL prevention exercises?**

**A:** "We're working with kids as young as eight, but we don't know exactly the answer yet. It certainly isn't going to do them any harm.

"My hypothesis is the best time is to get them about a year prior to puberty, which is about 11 for girls. They've had a growth spurt and an "uncoordinated period." You've got a bigger, heavier body with a lot more torque (on the knee). Boys have a neuromuscular spurt that follows their growth spurt. Girls don't. The question is can we induce the neuromuscular spurt in girls and when. I'd say we can get the answers in three to five years.

#### **Q: How much can an athlete improve overall performance by following an ACL prevention program?**

**A:** Depending on what performance parameter you are measuring, anywhere from 10% to 100% plus. Vertical leap can increase 10%-15% on average after a six-to-eight-week program. Young girls are starting with relatively low strength measures. Technique and balance are difficult to measure, but increases can be as great or greater than increases in strength. That is the most rewarding thing about working with these young girls. The increases they can achieve are tremendous.

#### **Q: Can ACL prevention programs help men?**

**A:** Many male teams incorporate this into training. They get good solid improvement. An Italian study on balance board training for soccer players brought down the injury rate seven-fold. So we know this works in guys, too.

#### **Q: Is special equipment or materials required prior to starting this type training?**

**A:** The best equipment for the athlete is a good pair of athletic shoes that provide adequate support and cushioning. Other equipment, for example, weight-training equipment, is optional; the main idea is to train the whole body to be better balanced, stronger and in control during sports.