Gender Differences in Anterior Cruciate Ligament Injuries of the Knee

by Brad J. Bernardini, MD, FAAOS, Reconstructive Orthopedics

Knee injuries in female athletes are on the rise, and ACL injuries are one of the most common severe knee injuries in sports. They affect the lives of more than 250,000 people in the United States each year, most of them women. This is due to not only an increase in female participation in athletics, but also as a result of multiple inherent differences between males and females anatomically, biomechanically, and biologically. The highest incidence of ACL injuries is in individuals 15 to 25 years old who participate in sports which require jumping, pivoting, and rapid starting or stopping such as basketball, soccer, and field hockey. Most studies show that females are about five times more likely to sustain a rupture of the ACL than males.

Lack of Treatment Can Cause Serious Damage

The ACL is located inside the knee joint and stabilizes the joint by preventing the shinbone (tibia) from sliding forward beneath the thighbone (femur). A hard twist or an abnormal landing after a jump can put excessive pressure on the ACL and can tear it. Once it is torn, the knee gives out or buckles and can no longer support the body effectively. Unless an injured ACL is accurately diagnosed and treated, the cushioning cartilage (the meniscus) in the knee could be seriously damaged. Without this cushion, the thighbone and the shinbone would rub against each other, leading to further damage of the cartilage, eventually leading to early osteoarthritis

Prevention Program for Female Athletes

The South Jersey Center for Orthopedics & Sports Medicine has developed a screening protocol that predicts which females are likely to suffer knee injuries, and currently offers testing at their Vineland facility. If athletes are found to be high risk for ACL injuries, they are advised to begin a training program that addresses these issues.

Brad Bernardini, MD is Fellowship Trained in Sports Medicine and specializes in Shoulder & Knee Injuries. He has been particularly interested in ACL Injuries, as well as their prevention and treatment. He has recently published an article on knee joint stability in the American Journal of Sports Medicine, and was the first in the region to perform the "All-Inside" ACL reconstruction and the Double Bundle ACL reconstruction techniques, both shown to improve post-operative outcomes. He is currently developing a regional prevention program which seeks to decrease the rate of ACL injuries in high risk female athletes. The prevention program seeks to improve:

- Balance
- Body / joint awareness
- Movement technique
- Muscle strength, specifically in the hamstring

Generally, female athletes trained three days a week for 90 minutes, followed by 15 minutes of stretching exercises. The results demonstrated an improvement in speed, jumping ability and agility. More importantly, ACL injury rates were shown to decrease in the trained females. In contrast, the untrained female group demonstrated no significant improvement in the areas being measured, and their ACL injury rates remained higher than their male counterparts.

For further information about a screening evaluation and our prevention program, Brad Bernardini, MD can be reached at the Reconstructive Orthopaedics at (856) 696-0900 or on the web at www.reconstructiveortho.com

Dr. Bernardini is a former Division I Collegiate Academic All-American Football Player, and Track & Field Team captain. He is currently Co-Director of the Virtua sports medicine program and voted one of South Jersey Magazine's Best Sports Medicine Physicians as voted by its readers. He maintains his passion for athletics as a competitive Triathlete and three time Ironman finisher. He is the co-founder of the Jersey Devils Multisport Club, and has achieved distinction as a USA Triathlon Certified Level I Coach. He currently sees patients at his Vineland and Washington Township Offices, and has privileges in the Virtua, Inspira, and Kennedy Healthcare systems.