ACL Reconstruction Should Focus On Uniqueness Of Female Knee

Female athletes are three times more likely to suffer from anterior cruciate ligament (ACL) ruptures when compared to male athletes. Recent research highlights the unique anatomical differences in the female knee that may contribute to higher injury rates, and should be taken into consideration during reconstructive surgery and sports training, according to a review article in the January 2013 issue of the Journal of the American Academy of Orthopaedic Surgeons [1] (JAAOS).

“As female athletes have increased their participation in sports, many studies have shown the vulnerability of female athletes to ACL ruptures,” said Karen Sutton, MD, assistant professor, Yale University Department of Orthopaedics and Rehabilitation, and lead author of the review article. “This devastating injury has a long recovery period and a slow return to sport. Thus, research has been done focusing on why women are more vulnerable to ACL injuries and how to prevent them.”

Multiple, recent research studies also have found that preseason and on-going neuromuscular training programs, as part of an overall sports training program aimed specifically at improving knee stability when jumping, landing or pivoting, can significantly decrease ACL injury risk among girls and women. Unique anatomical features of female athletes such as a larger quadriceps angle (Q angle)—the angle at which the femur meets the tibia—may cause a greater pull of the knee muscles during physical activity, and contribute to more ACL injuries among females.

Anatomical differences in the female knee should be taken into consideration during ACL reconstruction, said Dr. Sutton. Females are more likely than males to have a smaller, A-shaped intercondylar notch (the deep groove between the rounded ends of the femur bone), making ACL reconstruction more challenging, and possibly requiring altered surgical techniques.

“All female athletes, starting in adolescence, should learn appropriate training techniques,” said Dr. Sutton. “This includes the appropriate way to land from a jump, increasing the strength of muscles that could have a protective affect on the ACL—core, gluteal, quadriceps and hamstring muscles, as well as working on the body’s reaction to change of direction and change of speed.”

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