

[IMAGE]

## Gender Bias

Women active in sports that involve jumping and pivoting (e.g., volleyball or basketball) are up to eight times more likely to rupture their anterior cruciate ligament (or ACL - a primary knee ligament) than men participating in the same sports. Ligaments are the durable tissues that hold our bones together; the ACL and its counterpart, the posterior cruciate ligament (PCL), provide stability in the knee joints, and injuries to them can be painful and debilitating.

Researchers evaluated why female athletes are prone to knee ligament injuries in a recent study published in *The Journal of Bone and Joint Surgery*. Higher muscle stiffness helps brace the knee joint and reduces strain on the knee ligaments; therefore, the researchers examined muscle stiffness of the knee joint during muscle activation in 12 female and 12 male athletes competing for the National Collegiate Athletic Association (NCAA) in basketball, volleyball or soccer, and compared these athletes to 28 collegiate athletes involved in endurance sports, including bicycling and running, which are low-risk for cruciate ligament injury. Women and their male athlete counterparts were matched for size, weight and activity level.

Rotations of the leg were greater in female than in male athletes when participating in sports and when passively rotated at rest. In addition, measurements indicated that women demonstrated significantly lower knee muscle stiffness under rotational stress than their male counterparts. During jumping and pivoting maneuvers, which are the most likely time for a cruciate ligament injury, the difference in protective muscle stiffness around the knee was the most pronounced between the men and women.

Women are more prone to serious injuries of the knee ligaments than men, possibly due to less muscle protection. If you are a female athlete, talk to your doctor of chiropractic about methods for strengthening the stabilizing muscles around your knees. Also, adhere to proper techniques and form when performing your sport to minimize the risk for injury.

### Reference

Wojtys EM, Huston LJ, et al. Gender differences in muscular protection of the knee in torsion in size-matched athletes. *The Journal of Bone and Joint Surgery* 2003;85(5), pp. 782-789.

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