

The ACL Epidemic: Female Athletes Beware!

By Sharon Wentworth, DPT, MSPT, ATC Elite Sports Physical Therapy

Part 2 of a 4-Part Series

If you come over to Elite Sports Physical Therapy and The Edge Sports Academy on any given afternoon, you will see a mix of female and male junior high school, high school, and college athletes drenched in sweat with a look of determination to be the best athlete they can be displayed on their faces. Some are doing sports performance training. Some are rehabilitating sports injuries. If you look at this group of young, strong, fit athletes, would you be able to pick out who is at risk of tearing their ACL? I can.



Unfortunately, the number one factor that puts an athlete in the high risk category is simply being female. Females are up to eight times more likely to tear their ACLs than males.

Although the reasons for this discrimination are not all scientifically proven, we have many theories. These theories can be broken down into intrinsic and extrinsic factors.

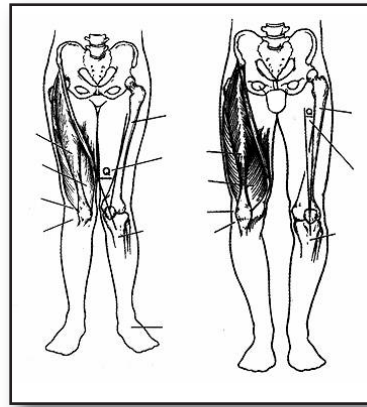
Intrinsic factors have to do with how the female body is designed - anatomic factors. If you measure the hip-knee-ankle angle, a female will have a greater inward angle than a male. This is due to the fact that females' hips are wider so the thigh bone comes downward toward the knee at a greater angle. Since most ACL tears occur when the knee goes inward, and females' knees are already going inward, we are

basically half way to tearing our ACLs just because of the way we are built.

Also, females have smaller ACLs, less muscle mass, more joint laxity, and hormonal influences.

So, girls, are you feeling like you are being picked on by the ACL monster? Well, there is more. As if it isn't bad enough that our skeletons, ligaments, and hormones are putting us in the high risk category, females also have unexplained neuromuscular movement patterns that cause us to land with very stiff knees and contract our quadriceps, which puts huge amounts of load and stress on the ACL. This pattern, along with the natural tendency of females' knees to go inward, are all it takes for the female athlete to tear her ACL. And I have not even mentioned the extrinsic factors yet.

Extrinsic factors include fatigue, over-training, shoe-surface interface, climate conditions, protective equipment, and number of hours spent playing a high-risk sport (gymnastics, soccer, basketball, lacrosse, volleyball). Researchers have statistically looked at how many ACL tears occur per 1,000 hours of play. Results of these studies have led researchers to predict that there will be one ACL tear out of every 1,000 hours of play. This means that if there are 10 girls on the basketball team and they each participate in 100 hours of play, one will tear their ACL during that



time period. So, think about the trend in sports in the last 10 years toward club participation. Nowadays, between high school and club sports, young athletes compete in one sport year round, leading to far more hours of play than ever before. The result? Epidemic levels of ACL tears.

So, by this time you are probably feeling nervous, depressed, and hopeless. Although there is nothing we can do to change the fact that we are females, we can decrease the risk of ACL tears by participating in ACL prevention programs, staying strong and well balanced by working with strength

coaches that are educated regarding ACL prevention techniques, and making sure the hours of play are appropriate.

Please, don't get discouraged. The third article in this series will lift your spirits with inspirational stories of local athletes who have persevered through ACL injuries and continued on to do great things in their athletic careers! So stay tuned.



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