



for Physical Therapy and Performance

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NEWSLETTER

Why Do Female Athletes Tear?

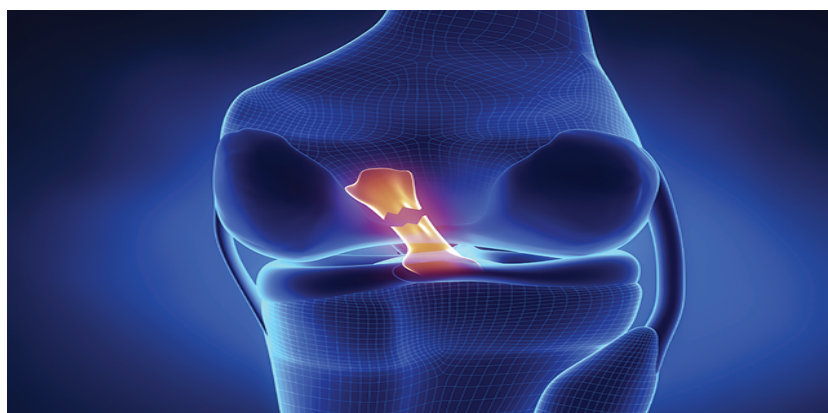
By Dr. Bill Schwarz

There are so many theories as to why the female athlete tears so easily compared to the male athlete. While female athletes take part in "ACL Prevention Programs", you will still hear the quote "It just went out from under me and I had no control of it". Why is that? The answer to that question lies in the body type of the athlete.

When I speak of the "body type" I am referring to tissue morphology along with structural angles and dynamic and static stabilizers. Is there a way to scale and predict who will tear? Its possible to see who might be more vulnerable.

Lets go back to the basics of Kinesiology and the Biomechanics of the knee.

One of the most involved dynamic stabilizers for the knee, are the quads, and their eccentric and concentric control. The patella is the main blocker to the knee when the knee wants to fold, like a dam wall holding back a body of water (with the patella being the wall and the water being the anterior force in the sagittal plane.) But what happens when the patella is not there to resist the knee trying to explode anteriorly? IT DOES explode anteriorly and now the knee must rely on the static stabilizers or the ligaments, mainly the Anterior Cruciate Ligament. Theres your "loss of control" and "pop." But what about the athletes that say, it felt like my knee slid out of place or I felt a "crack" then a pop, or "2 cracks." It's more likely that the patella subluxed or more probably dislocated (crack?) leaving the joint, free falling anteriorly and tearing the ACL (pop). Theory? doubt it. The MRI's for Torn ACL's are pretty consistent with bone



bruising of the undersurface of the lateral patella border andalso of the lateral femoral condyle, consistent with a patella subluxation/dislocation.

So lets look at what makes an athlete more prone to patello-femoral instability:

- wide hips, excessive Q-angle / genu vagus
- laterally displaced tibial tubercle
- worn down lateral wall
- hyper-mobile or stretched medial patello-femoral ligament
- excessive Anterversion of the hip in the coronal plane (>15 degrees) which already sets the patella laterally or even partially subluxed.
- Excessive Genu Valgus
- Pes Planus Feet
- Patella Transverse plane angle with possible hyper-mobile tilting

What does all this mean? Can we now predict vulnerability? Will motion Analysis lead to better predictability and better training programs to avoid tearing.

More to come from the Sports Science Institute of America with a Knee Classification System.

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