

# **Anterior Cruciate Ligament Injury Prevention for Female Athletes**

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The Anterior Cruciate Ligament (ACL) is a thick ligament about the size of your pinky finger that acts to prevent excessive translation of your tibia (shin bone) on your femur (thigh bone). It is located deep in the knee joint and is one of four main ligaments that provide stability to your knee.

ACL injuries are extremely common in sports that involve cutting, pivoting, and sudden turns and therefore as you can imagine we see them quite frequently on the pitch, court or ice. Typical signs and symptoms of ACL sprains are: a feeling of giving way in the knee, swelling, you may hear a snap or a pop and pain in the knee when walking. There are different grades of ligament sprains so make sure you get your knee assessed by a healthcare professional if you are unsure of the severity as you may make things worse if you keep playing through the pain. In addition, the long-term effects of these injuries can lead to an earlier development of knee arthritis and cartilage degeneration.

Research in the field of ACL injuries continues to expand, yet we are still not clear as to why women are up to ten times more prone to ACL injuries. Some theories include:

- Hormonal differences which affect various structures in the body including ligaments
- An increase Q-angle – with wider hips the angle of the femur to the knee joint may affect the biomechanics thus making the ACL more susceptible to injury
- Women have a slightly smaller ACL and the place where the ACL passes through the knee joint, the intercondylar notch, is slightly smaller too.

This information has led to a paradigm shift with a major focus on the prevention of ACL injuries especially in female athletes. Athletes should focus on conditioning programs that emphasize plyometric jump training, resistance exercises for the lower extremity, balance, and speed and agility in order to prevent the incidence of ACL injury. Of particular importance is training the thigh muscles in an eccentric fashion, whereby emphasis is placed on the muscles' braking system. With this type of training there can be a significant increase in measures related to sport performance such as explosive strides and improved footwork, which suggests that not only will you be less likely to be injured but you will also perform at a higher level.